Catalogue of artificial teeth, precious metals, stoppings, dental rubbers, furniture, instruments, nitrous oxide gas and ether apparatus, laboratory apparatus, tools and sundries manufactured, imported, and sold by Claudius Ash & Sons, Limited, 6, 7, 8, & 9, Broad Street, Golden Square, London, W.

Contributors

Claudius Ash & Sons.
University of Glasgow. Library

Publication/Creation

London : Claudius Ash & Sons, 1893.

Persistent URL

https://wellcomecollection.org/works/dvgb3jzx

Provider

University of Glasgow

License and attribution

This material has been provided by This material has been provided by The University of Glasgow Library. The original may be consulted at The University of Glasgow Library. where the originals may be consulted.
This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.

wellcome collection

Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
https://wellcomecollection.org

CLAUDIUS ASH AND SONS'

DENTAL CATALOGUE.

1893.

UNIVERSITY
of
GLASGOW

James Ireland
Memorial Library

Store

Dent BL
Archives

3011401224606 5

Glasgow University Library

ALL ITEMS ARE ISSUED SUBJECT TO RECALL

GUL 96.18

Digitized by the Internet Archive
in 2014

https://archive.org/details/b21449752

THE MANUFACTORY.

CATALOGUE

OF

Artificial Teeth, Precious Metals, Stoppings, Dental Rubbers, Furniture, Instruments, Nitrous Oxide Gas and Ether Apparatus, Laboratory Apparatus, Tools and Sundries.

MANUFACTURED, IMPORTED, AND SOLD BY

CLAUDIUS ASH & SONS, LIMITED,

6, 7, 8 & 9, BROAD STREET, GOLDEN SQUARE,

LONDON, W.

1893.

[*Entered at Stationers' Hall.*]

PRIZE MEDAL

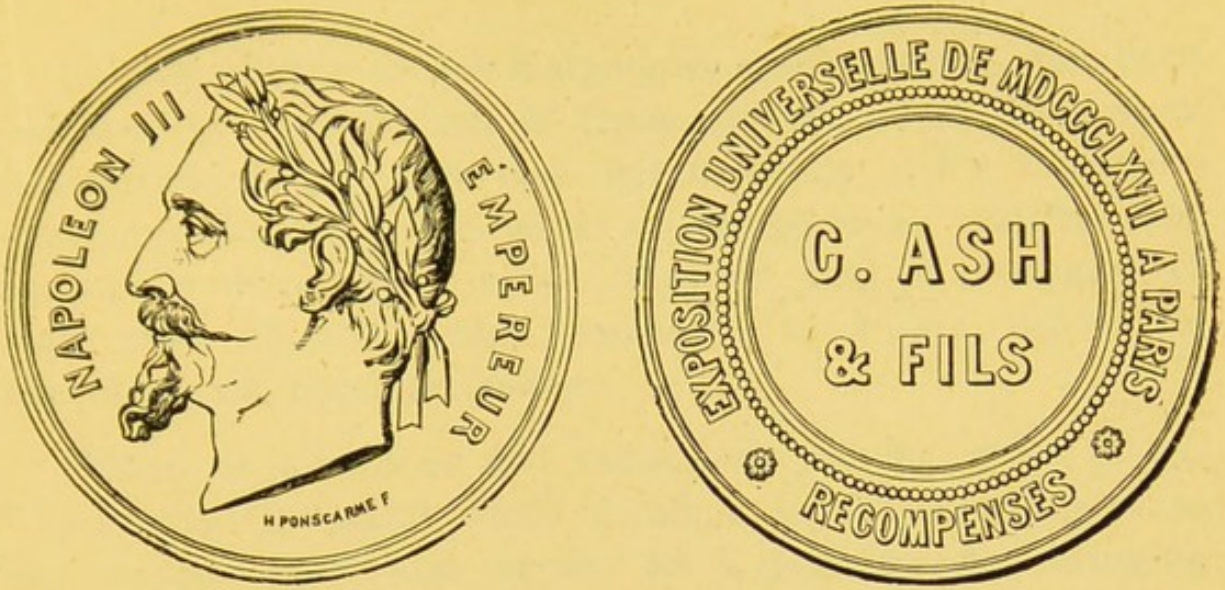
AWARDED TO C. ASH AND SONS,

AT THE INTERNATIONAL EXHIBITION, LONDON,

1862.

THE GOLD MEDAL

AWARDED TO C. ASH AND SONS,



AT THE PARIS EXHIBITION, 1867.

OTHER AWARDS.

MEDAL FOR PROGRESS.

VIENNA, INTERNATIONAL EXHIBITION, 1873.

SILVER MEDAL AND CERTIFICATE OF MERIT

FOR EXCELLENCE OF WORKMANSHIP.

LONDON, CUTLERS' EXHIBITION, 1879.

FIRST-CLASS CERTIFICATE

FOR GENERAL EXCELLENCE.

LONDON, INTERNATIONAL MEDICAL AND SANITARY EXHIBITION, 1881.

LONDON:
PRINTED BY WILLIAM CLOWES AND SONS, LIMITED,
STAMFORD STREET AND CHARING CROSS.

PREFACE.

In this edition of our Catalogue, every section has been enlarged by the addition of those articles which have been introduced during the last seven years. We have endeavoured to make the work as complete as possible, but so rapidly do changes occur, that we find it necessary to state that all the prices contained in it are subject to alteration, as occasion arises.

Notice of advances and reductions will be given in our "Quarterly Circular," which forms a useful Supplement to our various lists, and serves as a medium for bringing the latest Novelties to the notice of the Profession.

The Mineral Teeth that are illustrated represent some of the new forms that have been made since the publication of our **TEETH CATALOGUE**, a separate work of 85 double pages, which can be had, free of charge, on application, by any Dentist who has not already received it.

We desire to call special attention to the **IMPORTANT NOTICE** on page 27, and to express a hope that every member of the Profession, whom it may concern, will make a point of observing the instructions embodied in it.

For more than seventy-five years past it has been our constant aim to merit the confidence of the Profession, and so fully has this been extended to us, that we have every reason to believe this Catalogue will be received with favour, and be the means of still further developing the pleasant business relations that have ever existed between us.

CLAUDIUS ASH & SONS, Limited.

LONDON,
July, 1893.

REMARKS ON ORDERING GOODS, &c.

It will facilitate the correct execution of orders if the Catalogue is used as far as possible. When ordering Instruments, &c., the number of the page and the name or figure of the article, if illustrated, should be quoted.

A fresh line should be commenced for each article.

The address to which the goods are to be sent should be distinctly written, and if any particular conveyance or route be preferred, the same should be named. When no forwarding instructions are given, discretion will be exercised as to the best manner of sending.

Dentists residing at a distance will find the post a convenient and safe means for the conveyance of small packages of Gold, Teeth, &c. Precious metals of the value of five shillings and upwards are registered at the expense of the purchaser unless otherwise ordered.

The Parcel Post is also a convenient and cheap medium for small parcels up to 11 lbs. in weight, the rates to any part of the United Kingdom being:

For 1 lb. or under .. .. 3*d.*

For every additional lb., or fraction of a lb. .. extra 1½*d.*

The extreme measurement allowed for a parcel is: Length, 3 ft. 6 ins.; Length and Girth combined, 6 ft.

The Postmaster-General allows compensation, under certain conditions, on Inland Parcels that are lost or damaged in transit.

Printed Order Books are supplied, free of charge, on application. There is a counterfoil to every form in each book, on which a record of the goods ordered can be kept. Printed Envelopes, bearing our name and address, may also be had, free of charge, on application.

Goods of other manufacturers, English or American, obtained to order.

Orders received up to 3 o'clock p.m. are usually despatched by post or rail the same evening.

Goods to the Colonies and foreign parts are insured at the expense of the purchaser, unless ordered otherwise.

The Parcel Post now in operation between England, the Colonies, and most Foreign Countries affords an inexpensive and quick means for the transmission of small parcels, which can be insured at reasonable rates.

Accounts are only opened on receipt of approved references.

All goods are despatched at the risk of the purchaser.

Bankers' Drafts, Cheques, &c., should be crossed "Union Bank of London."

Post-Office Orders and Postal Orders should be made payable at the Chief Office, St. Martin's le Grand, London, to CLAUDIUS ASH & SONS, LTD.

A discount of 5 per cent. is allowed off all accounts for Teeth, Dental Rubbers, Furniture, Instruments, Gas Apparatus, Tools, and Sundries, of not less than £5 in amount, for cash **on delivery of the goods.** Precious Metals are invoiced at **net cash** prices.

OLD METALS, &c.

We purchase old Gold, Platinum, Dental Alloy, Silver, Board and Floor Sweep, in either large or small quantities.

It may be remarked that several sendings of small quantities are not so profitable to the vendor as the same metals, &c., are if sent in one parcel, for this reason: each lot that is sent has to be separately tested to ascertain its intrinsic value, and the expense of several testing trials is necessarily greater than one.

C. ASH AND SONS' FREE REGISTERS

contain a list of "Partnerships and Practices for Disposal," of "Dentists requiring Assistants," and of "Dentists' Assistants seeking engagements."* No charge is made for Registering, and Copies of the Registers are supplied, free of cost, on application. Dentists' Assistants must produce a Certificate from their last or present Employer, as to Ability and Character, before their names can be entered on the last of the above Registers.

HOURS OF BUSINESS:

Monday to Friday, inclusive, from 9 a.m. to 6 p.m.
Saturday, 9 a.m. to 2 p.m.

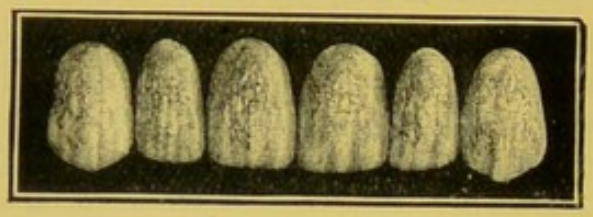
* In order that the Registers may always be kept in as correct a condition as possible, we shall be obliged if each Dentist who engages an Assistant will inform us at once of the fact, and give us the Assistant's name, so that it may be removed from our list; also, if each Assistant will let us know immediately when he has secured an engagement, and with whom, for the same purpose.

JUST INTRODUCED.

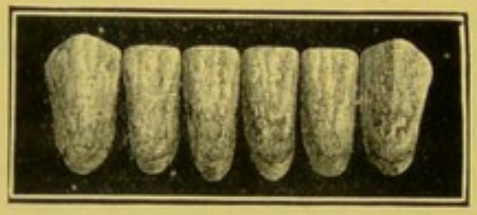
TEETH WITH GRANULATED SURFACES.

(C. ASH AND SONS'.)

FLAT UPPERS.



VULCANITE LOWERS.

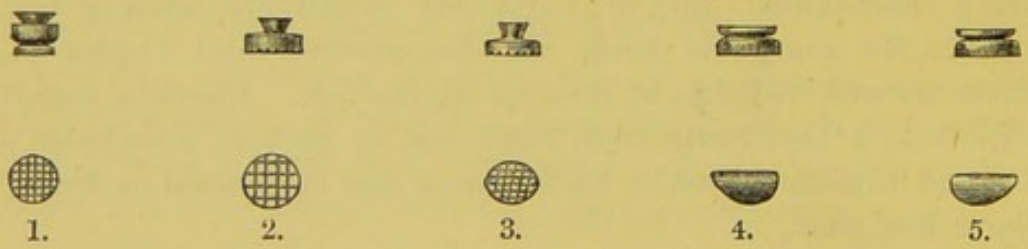


The sizes in which these Upper and Lower Teeth are made are shown on pages 98 and 99 of the June, 1893, number of our *Quarterly Circular*.

		s.	d.			s.	d.
Price	per 100	42	0	..	each	0	6

MINERAL INLAYS.

(Introduced by Mr. DALL, of Glasgow.)



1. 2. 3. 4. 5.

Made in five different forms as here shown. A side view of each is given in the upper row of illustrations; the lower row shows the inner surface and the shape of each form.

Fig. 1 is for deep cavities in Molars and Bicuspids.
„ 2 is for shallow cavities on labial and buccal surfaces.
„ 3 is for oval cavities on labial and buccal surfaces.
„ 4 and 5, right and left, are for labial-distal and labial-mesial cavities.

The inverted-cone Knobs are put on Figs. 1, 2, 3 to admit of their being firmly held while they are trimmed down to size, or either tried or fixed in the cavity. The Knob is ground off after the inlay is cemented in position. *Directions for use are given on pages* 100 *and* 101 *of the June*, 1893, *number of our Quarterly Circular.*

	s.	d.
Price .. .. .. each 4*d.*; per pkt. of 25 assorted	7	6
„ .. .. per 100	30	0

C. ASH AND SONS'

MINERAL TEETH.

The greatest care and attention are bestowed on this, the staple branch of our manufactures, and new forms, sizes, and colours are being continually introduced, in order to meet, as far as possible, the requirements of an art which has for its object the close imitation of the Natural Teeth in their infinite varieties of form, colour, and general appearance.

Our stock comprises a most extensive assortment of flat, vulcanite, diatoric (pinless), and tube teeth, which possess the following desirable qualities :

NATURAL FORM.—The shapes, which are made in a great variety of sizes and lengths, have been copied from human teeth.

COLOUR.—They are made in so many different colours, in shades ranging from very light to very dark, that any tooth can be closely matched.

ADAPTABILITY.—As they are non-porous in texture, and of the same substance throughout, they can be ground and polished to any extent. This feature renders their adaptability unlimited, makes them particularly suitable for inlay and crown work, and enables the skilful operator to so modify them as to do anything he may desire to suit special cases. The best method of grinding and polishing them is as follows :

1. **Shape** the tooth, or teeth, to any required form by grinding on a fine corundum wheel.
2. **Smooth** the ground surface with one of our polishing stone wheels.
3. **Polish** with superfine pumice on a buff, felt, or brush wheel.

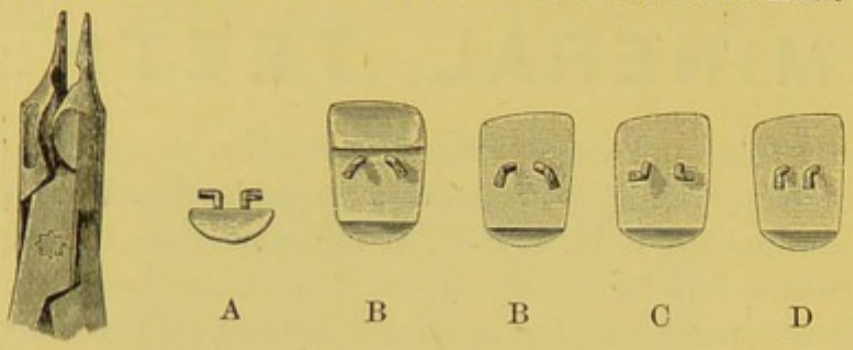
Water to be used throughout the process.

TEXTURE AND STRENGTH.—Their fine, close texture and freedom from porosity or air-bubbles give them that unusual strength for which they are everywhere renowned.

SOLDERING.—Under the blow-pipe they bear in an extraordinary manner the sudden transitions of temperature to which they are subjected without cracking. This quality is universally recognised by dentists in all parts of the world.

C. ASH AND SONS' MINERAL TEETH—*continued.*

LONG PINS.—All the flat and vulcanite teeth are made with long



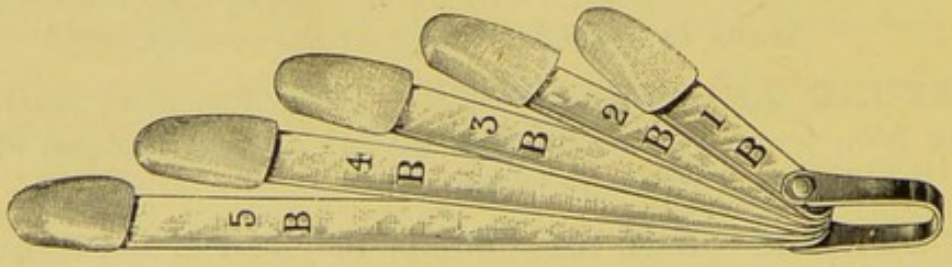
tough platinum pins (the flat being suitable for either plate or vulcanite work), which can be bent and roughened, with the pliers shown above, to keep them firmly fixed in the vulcanite. To obtain the best results the pins should be bent as nearly as possible at right angles—see Fig. A—and in such a direction that they will grasp the vulcanite in the thickest part. In the several illustrations here given, Fig. B shows the most usual bend.

These teeth are preferred to those that have pins with projecting heads which are not intended to be bent, because the bent pins hold the teeth in the vulcanite much more securely than the headed pins, and will bear a greater outward strain.

SETS OF SHADES.

To aid dentists in ordering, we supply sets of shades, consisting of thirty-six teeth, which represent the colours and shades chiefly in demand.

Each tooth in a set is mounted on a separate slip of brass, nickel-plated, bearing the colour and shade—a letter indicating the colour, and a number the shade, as here illustrated.



	s.	*d.*
Price per set of thirty-six shades	30	0
Smaller set, showing twenty-four of the most useful shades ..	20	0

SETS OF SHADES—*continued.*

This arrangement enables the operator to place any tooth against those in the mouth of the patient, and, when he has found the shade which matches, it is only necessary for him to write for B/3, D/4, &c., in order to obtain approximately the colour and shade he requires.

The shades in each set are not intended to show all that are kept in stock, but they are useful as proximate shades, and will be very convenient as a means of reference when patterns cannot be sent.

SUGGESTIONS FOR ORDERING TEETH.

Orders for teeth should contain the fullest possible information to ensure their prompt and accurate execution. A written order is always preferred. It is necessary to state clearly:—

Kind . . .	whether	flat, vulcanite, diatoric, tube, or gum.
*Size	,,	large, medium, or small.
*Length . .	,,	long, medium, or short.
*Enamel . .	,,	long or short.
Number . .	,,	in sets of 2, 4, 6, 14 or 28.
*Surface . .	,,	smooth, corrugated, or natural pattern.
Colour—When patterns cannot be sent, the colours and shades required should be quoted from the set of shades.		

TEETH CATALOGUE.

Illustrated Catalogue of the various kinds, patterns, sizes, and lengths of the mineral teeth which we manufacture will be sent, post free, on receipt of professional card.

---

* It will not be necessary to mention the *size*, *length*, *enamel*, and *surface* when ordering from our Teeth Catalogue; all that then need be done is to quote the number of the illustration and the page on which it is shown.

C. ASH AND SONS' MINERAL TEETH—*continued.*

FLAT TEETH.

Incisors and Canines	In sets of 6, Upper or Lower.
Full Dentures	„ 14, „ „
Complete Dentures	„ 28, Upper and Lower.
Incisors	„ 4, Upper or Lower.
Incisors and Canines	In pairs „ „
Bicuspids and Molars	In sets of 4, „ „
„ „	„ 8, „ „

Note.—All our Flat Teeth are made with long Platinum Pins, and can be used either for Plate or Vulcanite work.

Price 6*d.* each, or 42*s.* per 100.

FLAT TEETH WITH GUMS.

In Pairs and Sets as above .. .. price 9*d.* each, or 65*s.* per 100.

TEETH FOR VULCANITE.

In Pairs and Sets like the Flat Teeth .. price 6*d.* each, or 42*s.* per 100.

TEETH WITH GUMS FOR VULCANITE.

In Pairs and Sets like the Flat Teeth; also in sectional pieces of 2, 3, and 4 Teeth .. .. price 9*d.* per Tooth, or 65*s.* per 100.

TEETH FOR WOOD PIVOTS.

In Sets of 4 and 6, Incisors and Canines, Uppers only.

Price 6*d.* each, or 30*s.* per 100.

DIATORIC TEETH.

In Sets like the Flat Teeth, but not in Pairs.

Price 3*d.* each, or 20*s.* per 100.

C. ASH AND SONS' MINERAL TEETH—*continued.*

TUBE TEETH.

Incisors and Canines	In sets of 6,	Upper or Lower.
Full Dentures	„ 14,	„ „
Complete Dentures	„ 28,	Upper and Lower.
Incisors and Canines	In pairs,	Upper or Lower.
Bicuspids and Molars	In sets of 4,	„ „
„ „	„ 8,	„ „

Price 9*d.* each, or 65*s.* per 100.

Tube Tooth Crowns with Platinum Tubes made in Upper Centrals, Upper Laterals, Upper Canines, Upper and Lower Bicuspids, and Upper and Lower Molars.

Price 1*s.* each.

TUBE TEETH WITH GUMS.

In Pairs and Sets as above. Price 1*s.* each, or 90*s.* per 100.

MINERAL SPECIMENS.

		s.	*d.*
Full Dentures, Upper or Lower	each	20	0
Complete Dentures, Upper and Lower to match ..	„	40	0

		s.	*d.*
Wax in sheets for holding Teeth	per lb.	5	0

A very extensive assortment of **Odd Teeth** of all kinds is kept in stock, and every facility is afforded for selecting them to suit special cases.

Broken sets of Teeth are made up for Dentists at the ordinary selling prices.

AMERICAN TEETH.

We have always on hand a large and varied stock of S. S. White's, and Justi and Son's Teeth. The Pin Teeth made by these firms are the same prices as those of our own manufacture.

Gum Teeth .. .. 72*s.* per 100, or 9*d.* each.

A Cash discount of 5 per cent. is allowed when **500 Pin Teeth** and upwards are purchased.

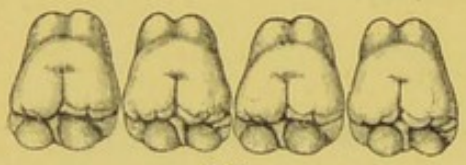
C. ASH AND SONS' MINERAL TEETH.

NATURAL PATTERN DIATORIC BICUSPIDS AND MOLARS WITH GROOVED BACKS.

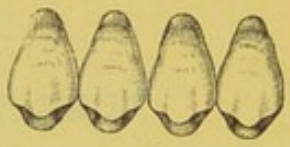
New forms introduced since the publication of our illustrated Catalogue of Mineral Teeth. Made in the following and four smaller sizes:

Side view.

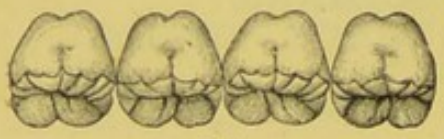
Back view.



26



42



27

43

88

135

89

136

The sizes of the teeth are known by the numbers underneath the illustrations.

NATURAL PATTERN
DIATORIC BICUSPIDS AND MOLARS—
continued.

WITH GROOVED BACKS.

The side view illustration on the opposite page shows the thickness of the teeth, and the position of the side holes in connection with the central cavity, for securing the tooth to the vulcanite base.

The teeth are grooved at the back as shown in the side and back view illustrations, for the purpose of obtaining a good firm hold in the vulcanite. This groove is much liked, and permits of a neat fine finish being given to the vulcanite without danger of making it too thin and weak near the crowns of the teeth.

Other sizes with grooved backs are in process of manufacture.

These teeth are supplied in—

Sets of 4 Bicuspids.
„ 4 Molars, and
„ 8 Bicuspids and Molars.

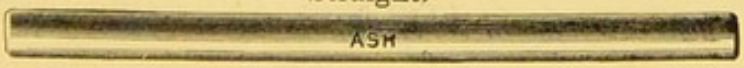
		s.	*d.*
Price	per tooth	0	3
„	„ 100	20	0

MINERAL INLAY RODS.

(Suggested by Mr. MARKHAM, of Newcastle.)

MADE IN VARIOUS SHADES.

Straight.



Tapering.

In ordering these, the colours of the teeth, **at the cutting edge,** on our String of Shades may be quoted to indicate the shade required. They can be ground and polished like our Mineral Teeth.

		s.	*d.*
Price, either form, any shade	each	0	6

C. ASH AND SONS' MINERAL TEETH—

Useful sizes and shapes introduced since the publication of our illustrated Catalogue of Mineral Teeth.

FLAT CANINES.

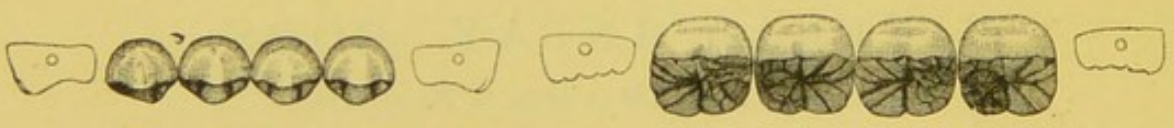
Sizes 195 196 197

For restoring badly decayed faces of Canines and Bicuspids, for Bridge-work, and for cases where a very thin tooth is required.

	s.	d.		s.	d.
Price	per 100, 42	0 ;	each,	0	6

DIATORIC BICUSPIDS AND MOLARS.

UPPERS.



Size 57. Size 40.

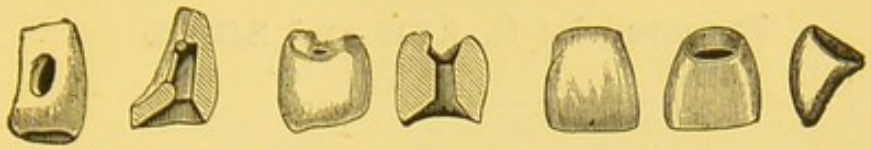
LOWERS.

Size 141. Size 93.

For very close bites. Supplied in sets of four and of eight.

	s.	d.		s.	d.
Price	per 100, 20	0 ;	each,	0	3

PORCELAIN CROWNS FOR PIVOTING.



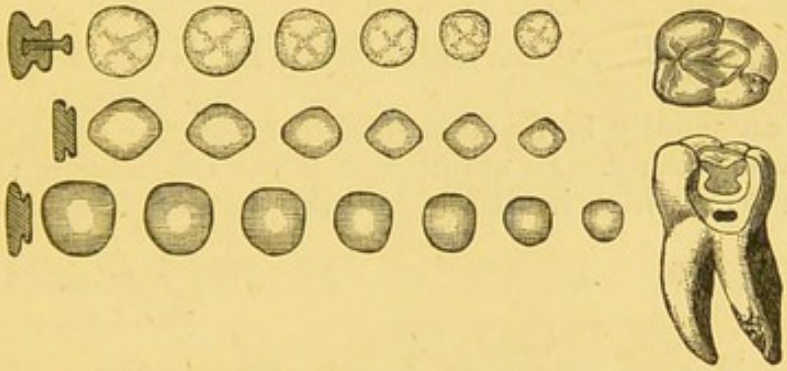
		s.	d.
Crowns (Dr. Bonwill's), various shades and sizes, forms as illustrated ..	each	1	0
Pins in Dental Alloy for ditto	„	0	6
Logan's Crowns, each with one pin—Centrals, Laterals, Canines, and Bicuspids	„	2	6
Logan's Crowns with two pins—Molars	„	2	9
Extra Pins for Logan's Crowns made of Platinum	„	1	8

Comer's, Weston's, How's, Foster's and Richmond's Crowns, &c., obtained to order.

For Pivoting Instruments, see reference in Index.

PORCELAIN CAVITY STOPPERS,

FOR FILLING LARGE CAVITIES.



These are used in conjunction with Plastic Fillings, and will be found very useful in restoring teeth which are much decayed. They are made with smooth and serrated surfaces, and can be had with or without Platinum Pins. In three varieties, different sizes as illustrated.

Price 4*d*. each, or 30*s*. per 100.

RICHTER'S GLASS INLAY MATERIALS.

In boxes containing seven bottles of different shades of powdered Glass, and the needful appliances for making inlays, with directions for use.

		s.	d.
Price complete	per box	16	0

For Cases to hold selections of Teeth, see reference in Index.

GOLD FOILS, PELLETS, AND CYLINDERS

Prepared by C. ASH and SONS.

Special attention is called to these Foils, Pellets, and Cylinders, in the firm belief that they are all that can be desired for Gold Filling. They are unsurpassed for purity and softness, and, by our present method of preparing them, we can guarantee uniformity of thickness and quality. We feel so sure that a trial will not only give satisfaction, but will also prove them worthy of continued use, that we have the fullest confidence in recommending them.

ASH'S COHESIVE GOLD FOIL.

		s.	d.
Nos. 3, 4, 5, 6, 8	per oz.	125	0
,, ,, ...	per $\frac{1}{8}$ oz.	16	3

Higher numbers supplied to order.

ASH'S SOFT NON-COHESIVE GOLD FOIL.

This Foil can readily be made **cohesive** by gently annealing over a spirit flame before using. In employing it the Operator is therefore in possession of a Foil which is either non-cohesive or cohesive at pleasure.

		s.	d.
Nos. 3, 4, 5, 6, 8	per oz.	125	0
,, ,, ...	per $\frac{1}{8}$ oz.	16	3

Higher numbers supplied to order.

ASH'S IMPERIAL GOLD FOIL.

(EXTRA SOFT.)

This Foil is manufactured from a specially prepared **Precipitate of Pure Gold**, and is perfectly Non-cohesive.

It can be rendered **cohesive** by annealing in the usual manner.

		s.	d.
Nos. 4, 5, 6	per oz.	128	0
,, ,, ...	per $\frac{1}{8}$ oz.	16	6

Higher numbers can be supplied upon short notice.

For quantity rates see page 22.

IMPERIAL GOLD FOIL

EXTRA SOFT

1/8 oz. No.

Manufactured from a
Specially Prepared PRECIPITATE
OF PURE GOLD.

CLAUDIUS ASH & SONS
LIMITED

6,7,8 & 9, BROAD STREET, GOLDEN SQUARE,
LONDON, W.

BRANCH ESTABLISHMENTS

LIVERPOOL, 83, Mount Pleasant. MANCHESTER, 118a Oxford Street.
PARIS, 22, Rue du 4, Septembre. BERLIN, 68, Jägerstrasse.
HAMBURG, 62, 63, Gänsemarkt VIENNA, 1, Judenplatz 5.
COPENHAGEN, 3, Boldhusgade ST. PETERSBURG, 19, Kleine Morskoi.
NEW YORK, 30, East Fourteenth Street.

FARQUES & Co LONDON, W.

ASH'S GOLD CYLINDERS.

(NON-COHESIVE.)

Style A.

			s.	d.
Loosely rolled	per oz.	128	0
In sizes .. 1. 2. 3. 4.	per $\frac{1}{8}$ oz.	16	6
Sample boxes containing all sizes	„	16	6

All our Gold Cylinders can be made **cohesive** by annealing immediately before using.

Style B.

Closely rolled

In sizes 1. 2. 3. 4.

Supplied only to order in quantities of not less than half an ounce.

Style C.

			s.	d.
Extra dense	per oz.	128	0
In sizes .. 1. 2. 3. 4. ..	per $\frac{1}{8}$ oz.	16	6
Sample boxes containing all sizes	„	16	6

Introduced in response to a demand for Cylinders of greater density than style B.

Ash's Pointed Gold Cylinders for Root Filling,

		s.	d.
Made in sizes 1, 2, 3	per oz.	128	0
„ „ „	per $\frac{1}{8}$ oz.	16	6

Supplied only to order in quantities of not less than half an ounce.

ASH'S IMPERIAL GOLD CYLINDERS.

(EXTRA SOFT.)

Made from the same Gold as the Foil on the previous page.

			s.	d.
In sizes $\frac{1}{2}$. 1. 2. 3. 4.	per oz.	128	0
„ „ „	per $\frac{1}{8}$ oz.	16	6

ASH'S GOLD PELLETS.

(COHESIVE AND NON-COHESIVE.)

						s.	d.
Square ..					per oz.	128	0
In sizes	1.	2.	3.	4.	per ⅛ oz.	16	6
Sample boxes containing all sizes					„	16	6

WOLRAB'S GOLD FOIL AND CYLINDERS.

			s.	d.
Foil, sizes 4, 5, 6, 7½, 8, 10	per oz.	125	0
„ „ „	per ⅛ oz.	16	3
Cylinders ..	per oz.	128	0
In sizes* .. 0. 1. 2. 3. 4. ..	per ⅛ oz.	16	6
Sample boxes containing all sizes of cylinders	„	16	6

* Also in size 5, not illustrated.

Nedden's Sponge Gold	per packet	17	0
Nickold's Improved Soft Gold Foil	per ⅛ oz.	16	3
„ „ „	per oz.	125	0
Supplied in Nos. 4, 5, 6.			
Nickold's Soft Gold Pellets, triangular and square	per ⅛ oz.	16	6
„ „ „ „ ..	per oz.	128	0
Supplied in sizes 1, 2, 3, 4.			

QUANTITY RATES.

GOLD FOILS, PELLETS, AND CYLINDERS.

(All kinds mentioned on pages 20–23.)

A reduction in price is made on purchases of **three ounces of one or more kinds of Gold Foils, Pellets, and Cylinders.**

	per oz. s.	d.		per oz. s.	d.	
From ..	125	0	to	120	0	for 3 ounces.
„ ..	128	0	„	125	0	„
„ ..	132	0	„	128	0	„
„ ..	136	0	„	132	0	„

AMERICAN GOLD FOILS.

	per ⅛ oz. s.	d.	per oz. s.	d.
Abbey's cohesive and non-cohesive	17	6	136	0
S.S. White's Quarter century, cohesive and non-cohesive	16	6	128	0
„ Globe, extra- and semi-cohesive and „	16	6	128	0
Kearsing's, cohesive and non-cohesive	16	6	128	0
Williams', cohesive and non-cohesive	17	6	132	0

The above Foils are supplied in Nos. 4, 5, 6.

Other Foils obtained to order.

	s.	d.	s.	d.
Crystal Mat Gold	**16**	**6**	**132**	**0**
Watts' Crystal Sponge Gold, Nos. 1, 2, 3, 4 ..	**17**	**6**	**135**	**0**

AMERICAN GOLD PELLETS.

	per ⅛ oz. s.	d.	per oz. s.	d.
Pack's, semi-cohesive and soft	16	6	128	0
Kearsing's, plastic surface blocks	16	6	128	0

The above Pellets are supplied in sizes 1, 2, 3, 4.

Other Pellets obtained to order.

AMERICAN GOLD CYLINDERS.

	per ⅛ oz. s.	d.	per oz. s.	d.
Pack's, semi-cohesive and soft, sizes ½, 1, 2, 3, 4 ..	16	6	128	0
Williams', A style, sizes ½, 1, 1½, 2, 3, 3·6	17	6	132	0
„ B „ „ 1, 2, 3, 4, 5, 10, 15, 20 ..	17	6	132	0

Other Cylinders obtained to order.

For Quantity Rates, see page 22.

TIN FOILS.

	s.	d.
C. Ash and Sons', Nos. 4, 6, 8 .. .. per book	1	9
S. S. White's No. 6 .. .. „	1	9
„ Extra tough, Nos. 4, 6, 8, 10, 14, 18, 20 „	1	9
„ Globe „ 4, 6, 8, 10, 14, 18, 20 „	2	0

ASH'S TIN CYLINDERS.

	s.	d.
In sizes 1, 2, 3, 4 .. .. per ¼ oz. pkt.	5	0
Sample boxes containing all sizes .. .. .. „	5	0

ASH'S GOLD AND OTHER SPRINGS.

GOLD SPRINGS.

16-Carat, sizes 7 (weakest), 8, 9, 10, 11, 12, 13, 14 (strongest).

		s.	d.
Price	per oz.	80	0

(A discount of 5 per cent. is allowed off three ounces.)

13-Carat, sizes 6½ (weakest), 7½, 8½, 9½, and 10½ (strongest).

Price	per oz.	65	0
„ Under an Ounce	„	70	0

Great care is bestowed upon the Manufacture of the above Springs, in order to obtain perfect elasticity and uniformity of strength. They have been extensively used by the Profession for the last sixty years.

SPRINGS FOR TRYING IN, &c.

		s.	d.
Silver	per pair	1	8
Silver Gilt	„	2	8

(A discount of 10 per cent. is allowed off 12 pairs of the above.)

Steel Gilt	per 6 pairs	2	6

ASH'S GOLD AND OTHER SWIVELS AND WASHERS.

SWIVELS AND WASHERS.

		s.	d.
Gold Swivels, 16-Carat	per set	9	0
„ 13-Carat	„	7	0
„ with Dental-Alloy Stems	„	5	0
„ with Silver Stems	„	4	0
Dental-Alloy Swivels—Long Stems	„	3	6
„ „ Short „	„	3	0
Silver Swivels	„	2	0

(A discount of 5 per cent. is allowed off 12 sets of swivels.)

Gold Washers, 16-Carat	per set	1	0
Dental-Alloy Washers	„	0	4
Silver Washers	„	0	3

GOLD PLATE AND WIRE.

			s.	d.
20	carat	Plate, in large pieces .. .. per oz.	78	0
20	,,	,, cut to pattern .. .. ,,	80	0
20	,,	Wire .. .. ,,	80	0
18	,,	Plate, in large pieces .. .. ,,	70	0
18	,,	,, cut to pattern .. .. ,,	72	0
18	,,	Wire .. .. ,,	72	0
17	,,	Plate, alloyed with Platinum, for bands .. ,,	72	0
17	,,	Wire ,, ,, for hooks .. ,,	72	0
16	,,	Plate, in large pieces .. .. ,,	64	0
16	,,	,, cut to pattern .. .. ,,	66	0
16	,,	for bands or clasps .. .. ,,	66	0
16	,,	Wire, hard .. .. ,,	66	0
16	,,	,, in straight 6 in. lengths, for Tube Teeth, Blocks, Pins, &c. .. .. .. ,,	66	0
16	,,	,, half round, for clasps .. .. .. ,,	66	0
16	,,	,, soft, for riveting .. .. .. ,,	66	0
16	,,	,, ,, for tying .. .. ,,	66	0
16	,,	Perforated for strengthening Vulcanite pieces ,,	70	0

GOLD PLATE,

FOR CROWN, BAR, AND BRIDGE WORK.

This is supplied in three qualities of fineness, viz. :—

Pure Gold, 22-carat, and **20-carat.**

Our stock consists of four gauges of metal as under : —

Size 3 corresponding to size 32 American Gauge.
,, 4 ,, ,, 30 ,, ,,
,, 5 ,, ,, 28 ,, ,,
,, 6 ,, ,, 26 ,, ,,

Prices :

		s.	d.
Pure Gold	per oz.	92	0
22-Carat Gold	,,	88	0
20 ,, ...	,,	80	0

NOTE.—We are prepared to flat Gold Plate to any size for Crown, Bar and Bridge Work.

OLD METALS, &c.

Full intrinsic value allowed for **Old Gold, Silver, Platinum,** &c., either in large or small quantities.

PLATINUM.

(HARD AND SOFT.)

Platinum	Plate, in sheet, and wire in coil	*Prices fluctuate. See note against Dental Alloy.*
„	Plate, cut to pattern	
„	Wire in 6-inch lengths, for Tube Teeth, &c.	
„	Gauze	
„	Perforated, for strengthening Vulcanite pieces	
„	Foil for Crown Work, &c.	

DENTAL ALLOY.

	1st Quality.	2nd Quality.	
Plate cut to pattern			*Prices fluctuate, but our charges for both Platinum and Dental Alloy are always kept as low as possible consistent with quality.*
„ in sheet			
Wire in coil, over 1 oz.			
„ in lengths			
Plate, or Wire in coil, over 5 ozs.			
„ „ „ 10 „			
„ „ „ 20 „			
„ Perforated, for strengthening Vulcanite pieces			

SILVER.

		s.	d.
Sterling Silver Plate	per oz.	6	6
„ „ Wire	„	6	6
Fine Silver	„	5	0

GOLD AND SILVER SOLDERS.

			s.	d.
Gold Solder.	No. 1. Best quality	per oz.	63	0
„	No. 2. Medium	„	57	0
„	No. 3. Most fusible	„	50	0
Fine Gold, flatted thin, for soldering Platinum ..		„	87	6
Silver Solder		„	6	0

The Gold Solders Nos. 1, 2 and 3 are much esteemed for their liquidity when in a state of fusion, and the perfect combination they effect between the parts united by them.

No. 00 GOLD SOLDER,

FOR CROWN, BAR, AND BRIDGE WORK.

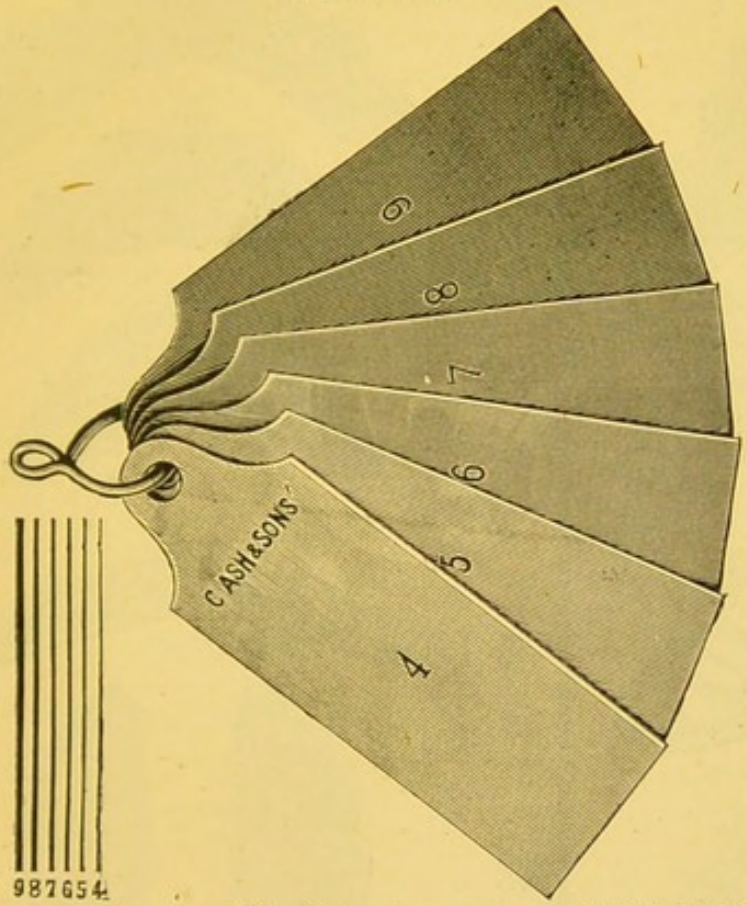
		s.	d.
Price	per oz.	68	0

This Solder is prepared from a highly approved formula, and gives universal satisfaction.

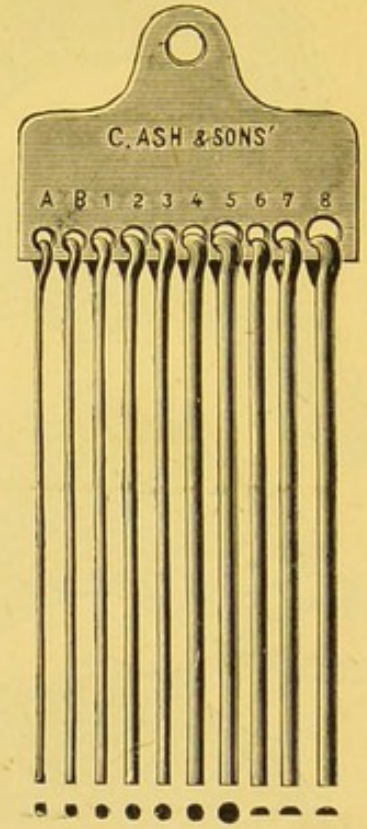
ASH'S PLATE AND WIRE SIZES.

These illustrations show the sizes in which we make Gold, Platinum, Dental-Alloy, and Silver Plate and Wire.

Plate Sizes.



Wire Sizes.



The Plate sizes are marked 4, 5, 6, 7, 8, 9.
„ Wire „ „ A, B, 1, 2, 3, 4, 5, 6, 7, 8.

Brass Patterns of all the sizes, mounted as shown in the engravings, may be had on application.

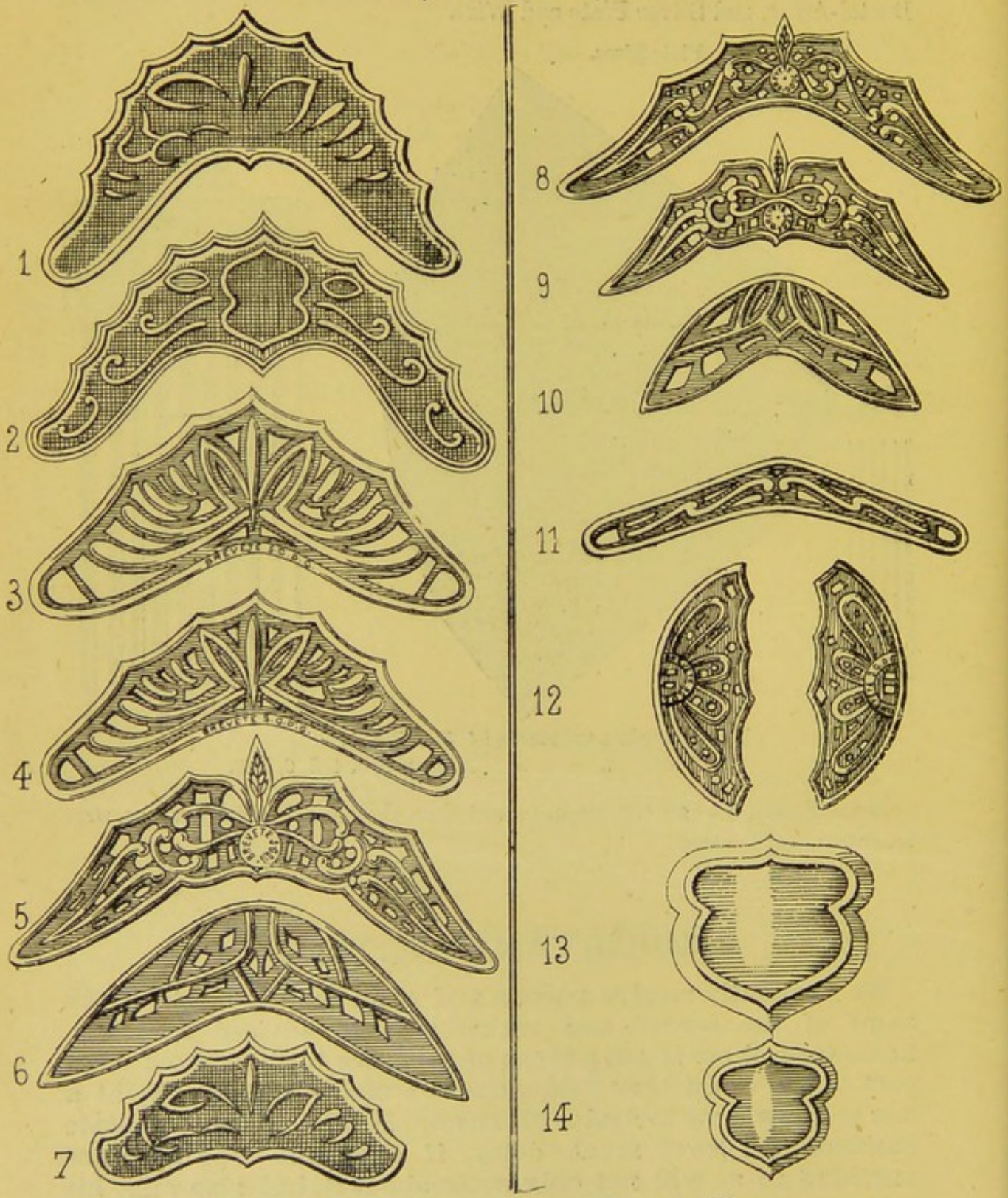
IMPORTANT NOTICE.

We frequently receive parcels and cases that do not bear the name of the sender, and which are not advised by letter. Sometimes there is not a scrap of evidence to show from what part of the world they come, and we are, consequently, at a loss to know how to deal with them. It will greatly facilitate business and save much delay, if each one who consigns anything to us will not only write about it, but also affix his name to the parcel or case.

STEPHANE'S PLATES,

FOR STRENGTHENING VULCANITE PIECES.

(NEW PATTERNS.)



Made in 18-Carat Gold and Dental Alloy.

STEPHANE'S PLATES,

FOR STRENGTHENING VULCANITE PIECES.

Prices:

		In Gold.		In Dental Alloy.	
Plates:		*s.*	*d.*	*s.*	*d.*
No. 1.	Solid .. .. each	14	5	5	8
„ 1.	Perforated .. .. .. „	12	10	5	8
„ 2.	Solid .. .. „	12	10	5	8
„ 2.	Perforated .. .. .. „	11	3	5	8
„ 3.	„ .. .. .. „	10	5	4	0
„ 4.	„ .. .. .. „	9	3	4	0
„ 5.	„ .. .. .. „	8	10	4	0
„ 6.	„ .. .. .. „	8	0	4	0
„ 7.	Solid .. .. .. „	7	3	3	8
„ 7.	Perforated .. .. .. „	6	5	3	8
„ 8.	„ .. .. .. „	6	5	2	10
„ 9.	„ .. .. .. „	5	8	2	10
„ 10.	„ .. .. .. „	5	3	2	10
„ 11.	„ .. .. .. „	5	3	2	10
„ 12.	„ .. .. .. „	4	5	2	0
Suctions or Air Chambers:					
No. 13.	Solid .. .. .. each	7	3	2	10
„ 14.	„ .. .. .. „	4	10	2	0

16-Carat Gold Plate:

Perforated, for strengthening Vulcanite pieces .. per oz. 70 0

Platinum Plate:

Perforated, for strengthening Vulcanite pieces .. *price fluctuates.*

Dental Alloy Plate:

Perforated, for strengthening Vulcanite pieces .. *price fluctuates.*

C. ASH AND SONS' AMALGAM.

(BEST QUALITY.)

This Amalgam has been very extensively used for over forty years by dentists in all parts of the world, during which time numerous testimonials have been received concerning its excellence and durability. **It contains more gold than any other Amalgam in use,** and possesses all the properties of a first-class filling material.

In a letter dated July, 1889, Mr. G. Robinson, of Oamaru, Otago, N.Z., *says*:—"It may perhaps interest you to know that Mr. Coxon, of Birkenhead, England, filled one of *my own central incisors* with your best Amalgam twenty-nine years ago, and that the said incisor remains intact to this day, which fact is a practical test and proof of its excellence."

Directions for Use.

Take a sufficient quantity of the **filings** for the cavity to be filled, then add a very small portion of Mercury, combine them **without heat,** by means of a Wedgwood **Pestle and Mortar,** when the whole will speedily become plastic, and when washed with Alcohol is ready for use. Any excess of Mercury can be removed by twisting the Paste in a piece of Chamois skin.

N.B.—Any fragments of the Paste should be saved, as they are intrinsically valuable.

	s.	d.
Supplied in ¼ oz., ½ oz., and 1 oz. Envelopes .. per oz.	22	0
„ ¼ oz., ½ oz., and 1 oz. Bottles .. „	22	0

A discount of 10 per cent. is allowed off 5 ozs.

C. ASH AND SONS' AMALGAM.

EXTRA FINE CUT.

(BEST QUALITY.)

For use in combination with cement, prepared to meet the wishes of those operators who desire a specially fine-grained Amalgam for combination fillings.

The following directions for making a metallic-cement are given by Dr. Ottolengui on page 62 of his **Methods of Filling Teeth** :—"The fine phosphate powder is mixed with the fine filings of an alloy, and afterwards used in connection with the liquid, exactly as plain oxyphosphate fillings are made. The presence of the metal interferes with the mixing only a little, and the usual putty-like consistency may be attained. A filling of this kind is to be placed and allowed to set two or three days. It may then be polished by using a smooth stone in the engine."

Extra Fine-Cut Best Quality Amalgam is

	s.	d.
Supplied in ½ oz. and 1 oz. Envelopes .. per oz.	22	0
„ ½ oz. and 1 oz. Bottles .. .. „	22	0

C. ASH AND SONS' AMALGAM.

(SECOND QUALITY.)

This Metallic Stopping has been in use for over forty years, and the sale increases every year, so that it has become an established stopping. It is composed of unobjectionable metals, and requires but a small quantity of Mercury to make it into a paste; it soon sets in the tooth, and will take a high polish, and does not change colour or decompose in the mouth. **It is unequalled by any Amalgam which is sold at a similar price.**

		s.	d.
In ½-oz. and 1-oz. Envelopes	per oz.	9	6
„ „ Bottles	„	9	6

Directions for use accompany each packet.

A discount of 10 per cent. is allowed off 5 ounces.

MERCURY.

		s.	d.
Ash's distilled and chemically purified	per lb.	10	0
„ „ „	3 ozs. in glass bottle	2	3
„ „ „	1 „ „	0	10
„ „	1 oz. in wooden drop bottle	1	3
Ash's electrically purified	per oz.	2	0
„ „ „	2 oz.	3	10
„ „ „	3 oz.	5	6
„ „ „	per lb.	25	0
Davis's „ „	1 oz.	2	0
„ „ „	2 oz.	3	10
Fletcher's chemically „	per bot.	1	0
„ **electrically** „	„	2	0

N.B.—It is absolutely necessary that pure Mercury be used for Amalgam Stoppings. The Mercury commonly sold as pure is known to contain Lead, Antimony, &c., which impurities cannot be separated by mere distillation, and if used with the Filings alters the compound and causes it to become discoloured in the mouth.

AMALGAM STOPPINGS.

(VARIOUS.)

	In packets of	¼-oz.	½-oz.	1-oz.
		s. *d.*	*s.* *d.*	*s.* *d.*
Arrington's New Amalgam		..	5 0	10 0
Bonwill's Amalgam with Mercury		7 0	..	..
Caulk's Par-excellence Alloy		..	6 0	12 0
„ White Alloy		..	8 0	16 0
„ Superior Amalgam		..	4 0	8 0
Davis's Gold Amalgam		..	12 6	25 0
„ „ Chips	per ⅛ oz. 8*s.*	..	63 0	126 0
„ „ No. 2 Amalgam		..	6 6	13 0
Dougan's Ne plus ultra Amalgam		..	12 6	25 0
Eckfeldt and Dubois' Standard Dental Alloy		..	12 0	24 0
Flagg's Contour		..	..	15 0
„ Submarine		..	..	10 6
Fletcher's Perfected Standard Amalgam		..	10 6	21 0
„ Platinum and Gold Alloy		..	10 0	20 0
Flint-edge Gold Alloy		..	12 6	25 0
Gregory's White Metallic Filling		..	12 6	25 0
Lawrence's Amalgam		..	6 0	12 0
Nickold's Amalgam		..	6 3	12 6
Palladium, Præcipitated—*to order only*		35 0	70 0	140 0
Robertson's Standard Amalgam		..	12 6	25 0
„ X.L. „		..	6 3	12 6
S. S. White's Globe „		..	6 0	12 0
Townsend's „		..	4 0	8 0
„ Improved „		..	5 0	10 0

Other Amalgams obtained to Order.

NOTE.—A reduction of 10 per cent. is made when 5 ounces of one or more kinds of Amalgam are purchased.

This Note does **not apply** to Palladium.

COPPER AMALGAMS.

			s. *d.*
Ames'.	In 1-oz. packets	per oz.	4 2
„	„ „ „	per 6 ozs.	21 0
Rogers'.	Introduced by Mr. Claude Rogers:		
	In 1-oz. bottles, with directions for use	per oz.	4 6
„	„ „ „	per 5 ozs.	20 0
Sullivan's.	In ½-oz. packets, with directions for use	per packet	2 6
„	„ „ „	per oz.	4 6
„	„ „ „	per 5 ozs.	20 0
Weagent's.	In 1-oz. packets	per oz.	7 6
„	„ „ „	per 6 ozs.	37 6

Other Copper Amalgams obtained to order.

For Amalgam Spoons see reference in Index.

GUTTA-PERCHA STOPPINGS.

JACOB'S PERMANENT GUTTA-PERCHA.

The durability and general excellence of this Permanent Stopping has long been recognised by the Dental Profession, and, owing to its low specific gravity, one ounce of it is equal in bulk to several ounces of any other preparation of Gutta-percha in the market.

It is supplied in the form of **Tablets** and cylindrical **Pellets**, each packet sufficing for more than a hundred fillings, in the following shades:—

No. 1—White.
„ 2—Brownish, for teeth that are somewhat discoloured.

		s.	d.
Tablets weighing 2 dwts., in boxes, either shade	per box	4	0
Pellets in bottles containing 2 dwts. „	per bott.	4	0

OTHER KINDS.

		s.	d.
Caulk's. In Tablets, Pellets and Cylinders; also in Points for root-filling. In ½-oz. boxes	per oz.	8	0
Excelsior Gutta-Percha in Sticks. In ½-oz. boxes	„	8	0
„ „ in Cakes. „	„	8	0
Flagg's Hand-made Gutta-Percha, High-grade	per pkt.	4	6
„ „ „ Regular or Medium-grade ..	„	4	6
„ „ „ Low-grade	„	4	6
Gilbert's Temporary „	per box	2	0
Hill's Gutta-percha in Tablets. In ½-oz. boxes	per oz.	16	0
Premium „ in Sticks. In ½-oz. boxes	„	8	0
„ „ in Cakes „	„	8	0
Richards' „ in Cakes. In boxes of 20 grammes	per box	4	0
„ „ in Pellets „ „	„	4	0
Waite's Temporary Gutta-percha	„	2	6
S. S. White's Gutta-percha Pellets, in ½-oz. boxes	per oz.	8	0

GUTTA-PERCHA NERVE CANAL POINTS.

These Points are made of "Premium" Gutta-Percha. They are symmetrically tapered and uniform.

Put up in boxes containing 150 Points.

		s.	d.
Price	per box	2	0

Other Gutta-percha Stoppings supplied to order.

ASH'S PHOSPHATE CEMENT.

(OXYPHOSPHATE OF ZINC.)

This cement is unsurpassed by any filling of its class, and has grown largely and steadily in favour since its introduction. We can recommend it with the fullest confidence as a preparation that can be relied on in all cases in which the employment of an Oxyphosphate is suitable. It is devoid of irritating chemical action, is not affected by contact with saliva, and can be contoured and modelled when quite submerged. Prepared in the following five shades:—

A—Pale Yellow. B—Pale Grey. C—Light Yellowish Grey.
D—Dark Yellowish Grey. E—Greenish Grey.

Prices:

			s.	d.
Powder and liquid in box, large size ..	per packet		6	0
Separately { Powder only	per bottle		3	0
Separately { Liquid „	„		3	0
Packet containing 4 Powders, small size, and one Liquid, large size	per packet		8	0
Separately { Powder only	per bottle		1	0
Separately { Liquid „	„		4	0

Directions for use accompany each packet.

ASH'S CONCRETE CEMENT.

(OXYPHOSPHATE OF ZINC.)

Recommended for density, hardness, and insolubility; it is non-irritant, and does not set too quickly to admit of thorough manipulation. The liquid is fluid and does not crystallize.

Prepared in the following five shades:—

A—White. B—Bluish. C—Light Yellow.
D—Light Grey. E—Dark Grey.

Directions for Use.

Put as much fluid on the slab as is required for the filling, add sufficient powder to make a stiff paste, thoroughly mix with a strong spatula, and well knead the resulting mass between the thumb and finger before inserting it in the cavity.

To obtain the best results the rubber-dam should be used to protect the cavity from moisture, and when the filling is inserted, it should be coated with varnish or paraffin.

When not in use the bottles should be kept tightly closed.

Prices:

			s.	d.
Powder and Liquid, any shade, in screw-capped bottles	per pkt.		8	0
Separately { Powder only, any shade	per bottle		5	0
Separately { Liquid „	„		3	0

ASH'S ROCK CEMENT.

(OXYCHLORIDE OF ZINC.)

This well-known Stopping is very easily worked, and when mixed to the consistence of putty becomes hard in two minutes, and in six or eight can be polished with an agate burnisher. If not required to set so quickly it should be mixed a little thinner. The powder being very fine will take a high polish.

Prepared in five shades as under :—

A—White. B—Pale Yellow. C—Dark Yellow.
D—Pale Blue. E—Dark Grey.

			s.	d.
Powder and Liquid in box, large size ..	per packet	6	0
Separately { Powder only	per bottle	3	0
Separately { Liquid „	„	3	0
Packet containing 3 Powders, small size, and one Liquid, large size	per packet	8	0

ASH'S EXCELSIOR CEMENT.

(OXYPHOSPHATE OF ZINC.)

This Oxyphosphate Cement possesses qualities which are wanting in most preparations of the same class, and for this reason it has been very extensively used for some years past, with great satisfaction. The best proof that can be adduced of its worth is the large and steadily growing demand that there is for it, notwithstanding the numerous Cements that have been introduced since EXCELSIOR was first brought out. As a Cement filling, it is unsurpassed, and there are few equal to it.

It is non-irritating, and adheres so firmly to the walls of the cavity that it makes a perfectly water-tight plug.

The powder is fine and soft, and the Liquid does not crystallize. The colour of the Powder is a whitish yellow.

Directions for Use.

Mix the Powder gradually with the Liquid on a glass or porcelain slab, using a strong spatula, to the consistency of putty, so that the mixture can be kneaded between the thumb and fingers without sticking to them.

After thoroughly mixing, knead the Cement between the thumb and fingers before inserting into the cavity.

It does not set too quickly to admit of being carefully packed, but it becomes extremely hard and dense in a few minutes.

When not in use, both Powder and Liquid should be kept well corked.

		s.	d.
Packet, containing 35—40 grammes of Powder, one bottle of Liquid, and two tubes of Colouring Matter	per packet	6	0
Separately { Powder	per bottle	4	0
Separately { Liquid	„	2	0
Colouring Matter, of any shade, supplied to order ..	per tube	0	6

CEMENT STOPPINGS (Various).

MARFIL CEMENT.

A PYRO-PHOSPHATE FILLING.

Prepared in Ten Shades as under:—

1, Milk White; No. 2, Light Yellow; No. 2*a*, Bluish Yellow; No. 3, Dark Yellow; No 4, Brownish Yellow; No. 5, Pearl Grey; No. 5*a*, Greenish Grey; No. 6, Grey; No. 7, Bluish White; No. 8, Gold Yellow.

Prices:			*s.*	*d.*
Large packets, any shade	per packet		10	0
Separately { Powder only	per bottle		7	0
Liquid „	„		3	0
Small packets, any shade	per packet		8	0
Separately { Powder only	per bottle		5	6
Liquid „	„		2	6

POULSON'S PHOSPHAT-PLOMBE.

(OXYPHOSPHATE OF ZINC.)

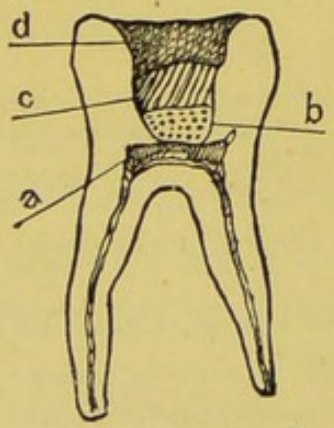
The Liquid of this Cement does not crystallize. Prepared in the following shades:

No. 1, Light Yellow; No. 2, Light Grey; No. 3, Dirty Yellow; No. 4, Greyish Yellow; No. 5, Greenish Grey.

Prices:		*s.*	*d.*
One-Shade packets, any colour	per packet	5	0
Separately { Powder only	per bottle	2	6
Liquid „	„	2	6
Four-Shade packets, colours 1, 3, 4, 5	per packet	7	6
Separately { Powder only	per bottle	1	0
Liquid „	„	3	6

ROSENTHAL'S PULPINE.

For capping exposed pulps. Mr. Rosenthal claims that it allays inflammation and favours the formation of secondary dentine. It sets rapidly enough to admit of the cavity being filled at one sitting.



a. Exposed pulp.
b. Pulpine.
c. Cement.
d. Amalgam or gold.

Supplied in packets, with directions for use in English, French, and German.

	s.	*d.*
Price .. .. per packet	8	0

CEMENT STOPPINGS.

(VARIOUS.)

		s.	d.
Caulk's Diamond Cement, as under:			
Four Colours and Liquid—Grey, Yellow, Medium, and Light	per packet	8	0
Two Colours and Liquid—Grey and Yellow	„	6	0
One Colour and Liquid—Grey, Yellow, Medium, or Light	„	4	0
Gum Colour and Liquid	„	4	0
Powder only, any colour, if supplied separately	per bottle	2	0
Liquid only, if supplied separately	„	2	0
Flagg's Oxychloride Cement	per packet	4	6
„ Plastic Enamel	„	4	6
Fletcher's Dentine for nerve capping	„	4	0
„ „ Separately { Powder only	per bottle	3	6
„ „ Separately { Liquid „	„	0	6
Fletcher's Porcelain	per packet	6	0
„ „ Separately { Powder only	per bottle	4	0
„ „ Separately { „	2-oz. packet	10	0
„ „ Separately { Paste only	per bottle	2	0
Fletcher's White Enamel	per packet	6	0
„ „ „ Separately { Powder only	per bottle	3	6
„ „ „ Separately { Liquid in corked bottle	„	1	0
Fletcher's Colouring matter, Pink, Drab, or Blue	„	0	6
„ Copal Ether Varnish	„	1	0
Fossiline	per packet	6	6
„ Separately { Powder only	per bottle	3	0
„ Separately { Liquid „	„	3	6
Poulson's Neue Mineral Plombe, in 12 shades:			
In packets containing 30 grammes Powder and necessary Fluid	per packet	7	6
Separately { Powder only, any shade	per bottle	3	9
Separately { Liquid „ „	„	3	9
In packets containing four shades Powder and one Fluid	per packet	10	0
Six Shades in Mahogany Box, with Glass Slab and Spatula	per box	45	0
Poulson's Phosphat-Plombe—*see previous page.*			
Poulson's Granit-Plombe in six shades:			
In packets containing Powder and Liquid	per packet	8	0
Separately { Powder only	per bottle	5	0
Separately { Liquid „	„	3	0
Robertson's Ossilite	per packet	6	6
„ „ Separately { Powder only	per bottle	3	3
„ „ Separately { Liquid „	„	3	3
Weston's Insoluble Cement, in ½ oz. packets	per packet	6	0
„ „ „ 4 shades in box	„	9	0
„ „ „ Liquid separately	per bottle	3	0
„ Non-irritant Cement for nerve-capping	per packet	3	0

Other Cement Stoppings supplied to order.

C. ASH AND SONS'

DENTAL RUBBERS.

The Dental Rubbers mentioned on page 41 are confidently recommended to the profession for solidity, strength, texture, colour, and purity.

They are all manufactured under our own personal supervision, from the best materials that can be obtained, and every care is exercised in their production, our aim being not only to maintain a high standard of excellence, but also to improve and perfect them in every way we can. From the experience which we have gained during the last thirty years, we know that they are quite suitable for the purpose for which they are intended, and the exhaustive scientific tests to which they have been subjected may be cited in proof of the fact that they do not contain anything that will injure the mouth or cause salivation.

To obtain the best results with our dental rubbers, the directions for vulcanizing should be strictly followed. *For particulars see page* 41. The most important point to be observed is this:—**The heat should not be got up too quickly for the first half-hour.** We lay great stress upon this, because we have seen it stated that the heat should be run up rapidly to about 315° Fahrenheit—one of the greatest mistakes, in our opinion, that can be made, and we speak from a knowledge based upon thousands of experiments, conducted upon careful lines, in which different times and temperatures, and quick and slow-heating have been tried.

We guarantee the full weight of rubber in every packet we supply—exclusive of linen and box or envelope—and entire freedom from all deleterious ingredients.

Sometimes during the hot weather—also in hot climates—dental rubber sticks very tenaciously to the linen in which it is packed. If placed in cold water for a few moments, the linen can easily be removed.

COATING RUBBERS.

No. 1 x (colour deep pink).—This rubber is much esteemed for its delicate colour and gum-like appearance. It has been before the Profession for more than thirty years, and still maintains its high character as a pink rubber. Even as long ago as 1862 it was considered by the Jurors of the International Exhibition held that year to be of "extreme excellence."

New Pink (colour deep pink).—This rubber is soft in the raw state; it can be packed cold if desired; it comes out of the vulcanizer a good pink colour, and need not be solarized, should the case be urgently wanted, but, if time will allow, a very beautiful pink can be obtained by exposing the piece to the sun for a few hours.

No. 2 x (colour deep pink).—Introduced to meet a want for a cheaper rubber than No. 1 x and New Pink. It is very hard when vulcanized, and takes a high polish.

It is superior to any rubber sold at the same price.

SPECIAL RUBBERS.

The **Special Rubbers**, Soft Pink, Soft Dark Red, and Vela, are useful for the purposes mentioned on page 25.

RUBBERS FOR BASE.

(BEST QUALITY.)

The **S.P.**, though inferior in colour to the other Pink Rubbers, is strong enough to be used for entire dentures. It contains much less foreign matter than any other Pink Rubber which has yet been made. If the colour is not considered sufficiently gum-like, it can be coated with any of our Pink Rubbers.

The **White Rubber** is much liked by some Dentists on account of its approximation to the colour of bone. Its strength is about the same as that of the Pink Rubbers.

Child's G Rubber is very strong and tough, easily worked, and takes a high polish. We are the only possessors of the original recipe.

A. E. Elastic, W. Elastic, and **Whalebone Nos. 1** and **2,** are extremely strong and elastic, and if carefully worked very thin pieces can be made from them. They are all very plastic, and can be packed without difficulty.

The **Solid Base** is recommended for its solidity, strength, texture, and colour. Very thick pieces can be made from it; it is equal to the strongest rubber base that is made; it is close in texture, very hard, and takes a high polish, and the colour harmonizes exceedingly well with our Pink Rubbers.

CHEAP DENTAL RUBBERS FOR BASE.

For many years past we have endeavoured to meet the demand for cheap dental rubbers by offering colours, similar to our best kinds, in sufficient variety to suit the needs of those Practitioners who use cheap rubbers.

The comparative tests which we frequently make enable us to assert, without fear of contradiction, that the following nine rubbers, of our own manufacture, are superior to any of the cheap dental rubbers now before the Profession. They are all quite free from black specks, and contain nothing that will hurt the mouth or cause salivation.

DARK RED.

A deep rich colour. This rubber is tough and hard and takes a high polish.

RED.

Lighter than the dark red, but very similar in texture.

ORANGE.

Of a bright red colour. It is easily worked, takes a high polish, and has long been much esteemed as a good, reliable cheap rubber.

FLEXIBLE BASE.

Colour light brown. Packs readily, looks nice, and is very elastic. It is a rubber from which very thin pieces can be made.

DARK BROWN.

Much esteemed by many Dentists for its strength and rich appearance. It is one of the best cheap rubbers made.

BROWN.

Colour medium brown. Owing to its lightness more pieces can be made from one box of it than from a box of any other kind of cheap red or cheap brown rubber with which we are acquainted.

DARK ELASTIC.

Horn colour. This is the strongest black rubber in the market. It is exceedingly dense, very hard and tough, and takes a beautiful polish.

BLACK.

Dark horn colour. Extremely strong and pliable. It is our oldest black rubber, and has had an extensive sale in all parts of the world.

IMPROVED BLACK.

Colour jet black. On account of its colour this rubber is preferred to the black by many dentists, although it is not quite so strong. It looks very handsome when polished.

C. ASH AND SONS' DENTAL RUBBERS,

FOR COATING.

	Colour.		s.	d.
Improved Pink, Shade No. 1 ..	Deep Pink	per lb.	25	0
„ „ „ No. 2 ..	Pale „	„	25	0
New Pink	Deep „	„	21	0
No. 1x „	„ „	„	21	0
No. 1 „	Pale „	„	21	0
No. 2x „	Deep „	„	18	0
N.V., without Vermilion	„ „	„	21	0

See below for vulcanizing directions.

FOR BASE.

	Colour.		s.	d.
S. P.	Brownish Pink	per lb.	16	0
White, for Side Blocks, &c.	Bone Colour	„	16	0
Child's G...	Bright Red	„	16	0
A. E. Elastic	Dark Brown	„	16	0
W. Elastic	„ „	„	16	0
Whalebone, No. 1	„ „	„	16	0
„ No. 2	Light „	„	14	0
Solid Base	Brownish Pink	„	14	0
Dark Red	—	„	12	0
Flexible Base	Light Brown	„	12	0
Dark Elastic	Horn Colour	„	12	0
Red	—	„	10	0
Orange	—	„	10	0
Black	Horn Colour	„	10	0
Dark Brown	—	„	10	0
Brown	—	„	10	0
Improved Black	Jet Black	„	10	0

The time recommended for vulcanizing each kind is 75 minutes at a temperature of 315° *Fahrenheit,* **after the heat has been very gradually raised to that point. From 30 to 45 minutes should be occupied in doing this.**

SPECIAL.—FOR TENDER GUMS, &c.

	Degrees Fahrenheit.	Time. H.	M.		s.	d.
Soft Pink, for lining Palates	310	1	15	per lb.	21	0
Soft Dark Red „ „	310	1	15	„	12	0
Vela, for making artificial Palates	270	6	0	„	21	0

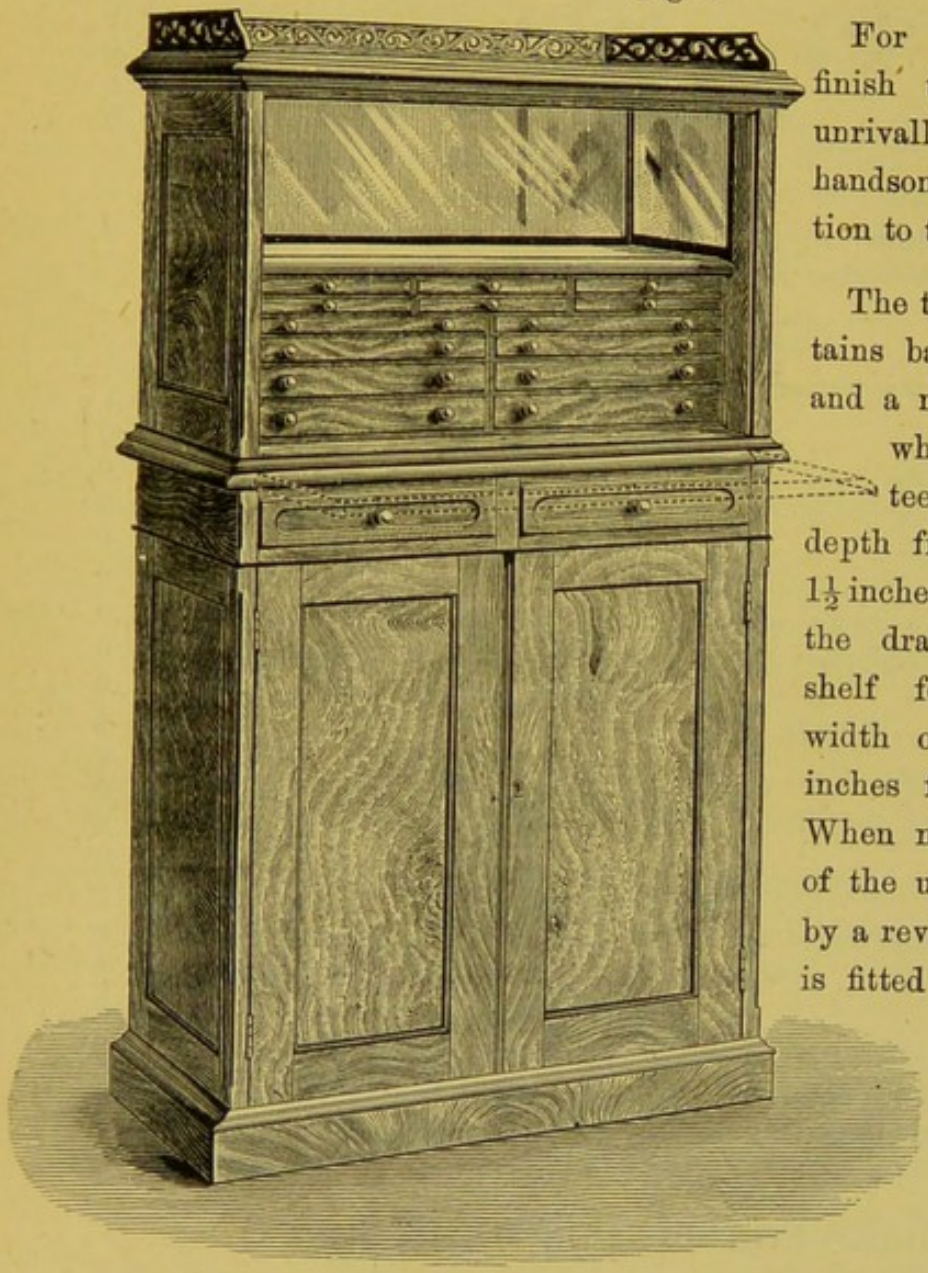
The Coating, Special, and White Rubbers are supplied in ½-lb. Boxes and 4-oz. and 2-oz. Envelopes; all the other kinds in ½-lb. Boxes only. **Ten per cent. discount allowed when 5 lbs. are purchased at one time. This quantity may consist of several kinds.**

Any of the above Rubbers can be had rolled **extra thin** at an additional charge of 2*s.* per lb.

American and other Rubbers kept in Stock.

ASH'S IMPROVED CABINET.

Fig. 1.



Outside dimensions, 58 inches high; 28 inches wide; 15 inches deep.

For workmanship and finish this Cabinet stands unrivalled, and forms a very handsome and valuable addition to the Operating Room.

The top compartment contains back and side mirrors and a marble shelf, beneath which are placed fourteen drawers, varying in depth from half an inch to 1½ inches. Immediately under the drawers is a pull-out shelf for instruments, the width of the Cabinet, 9½ inches from back to front. When not in use the whole of the upper part is covered by a revolving shutter, which is fitted with lock and key. All the drawers are nicely lined with maroon cloth.

The lower portion of the Cabinet is occupied by two drawers 2½ inches deep; and a cupboard, with two adjustable shelves, which measures inside 26 inches high, 24 wide, 13 deep. Each of the drawers and the cupboard are provided with lock and key.

	£	s.	d.
In well-seasoned Walnut and Ebony, highly polished	16	16	0
Ditto, *to order*, with Looking-Glass Panels in cupboard doors	17	17	0
Either kind, with Universal Castors .. .. .. extra	0	4	0

DENTAL CABINET.

This Cabinet possesses several novel features, and is recommended as good, cheap and serviceable.

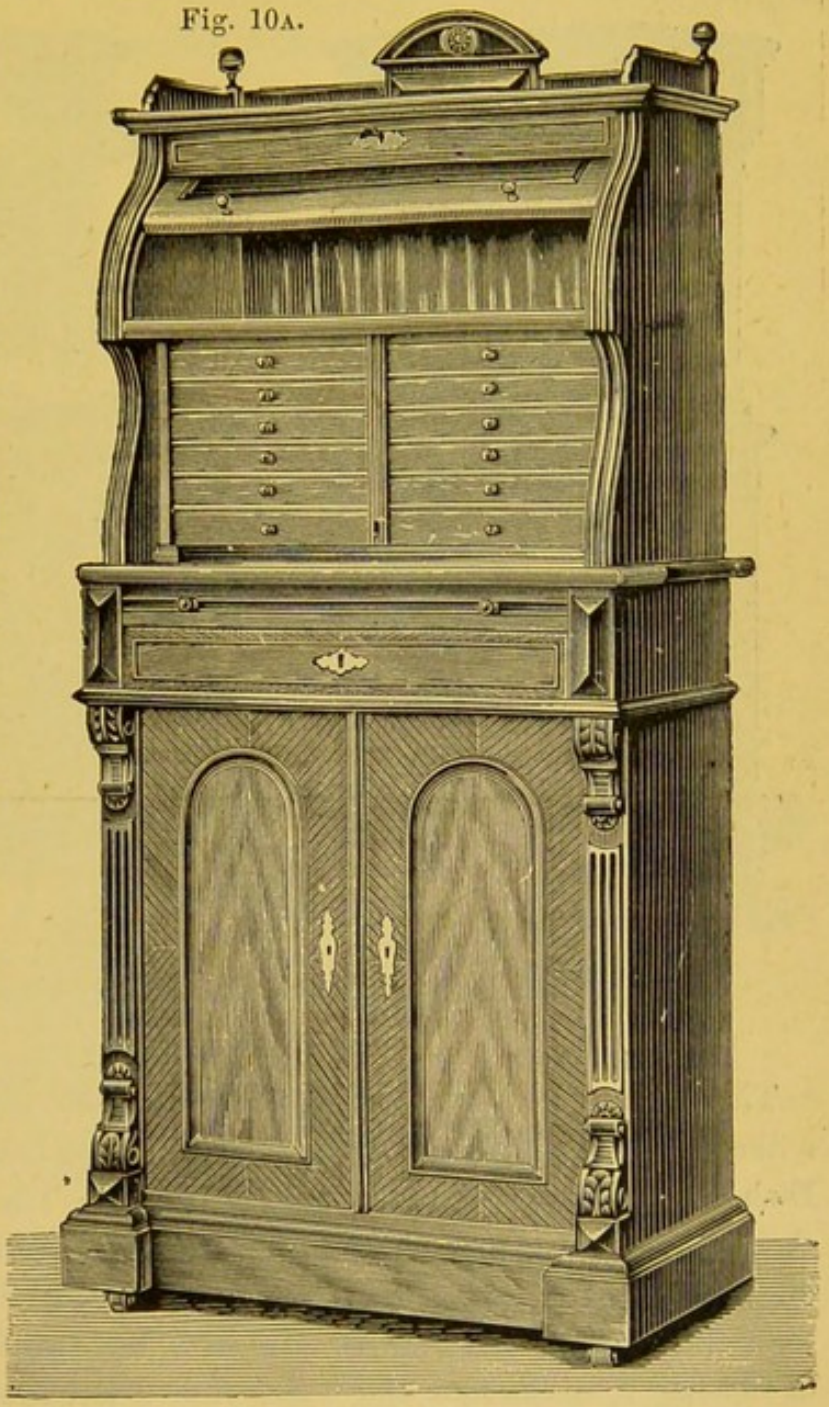
The recess in the upper portion, which is provided with a revolving shutter, has a mirror across the back, and a marble slab on the floor, 26 inches long by 12½ inches wide. Beneath this slab there are ten small drawers and one large, varying in depth from 1⅜ inches to 1¾ inches.

All the drawers are furnished with spring stops, so that they can be readily taken out of the Cabinet when they require cleaning.

In the lower part of the Cabinet there is a marble slab, a pull-out shelf for instruments, and a drawer, 24¼ inches long, 12½ inches wide, and 2¾ inches deep, fitted with lock and key.

The cupboard under this drawer has one shelf, and is also fitted with lock and key.

Fig. 10A.

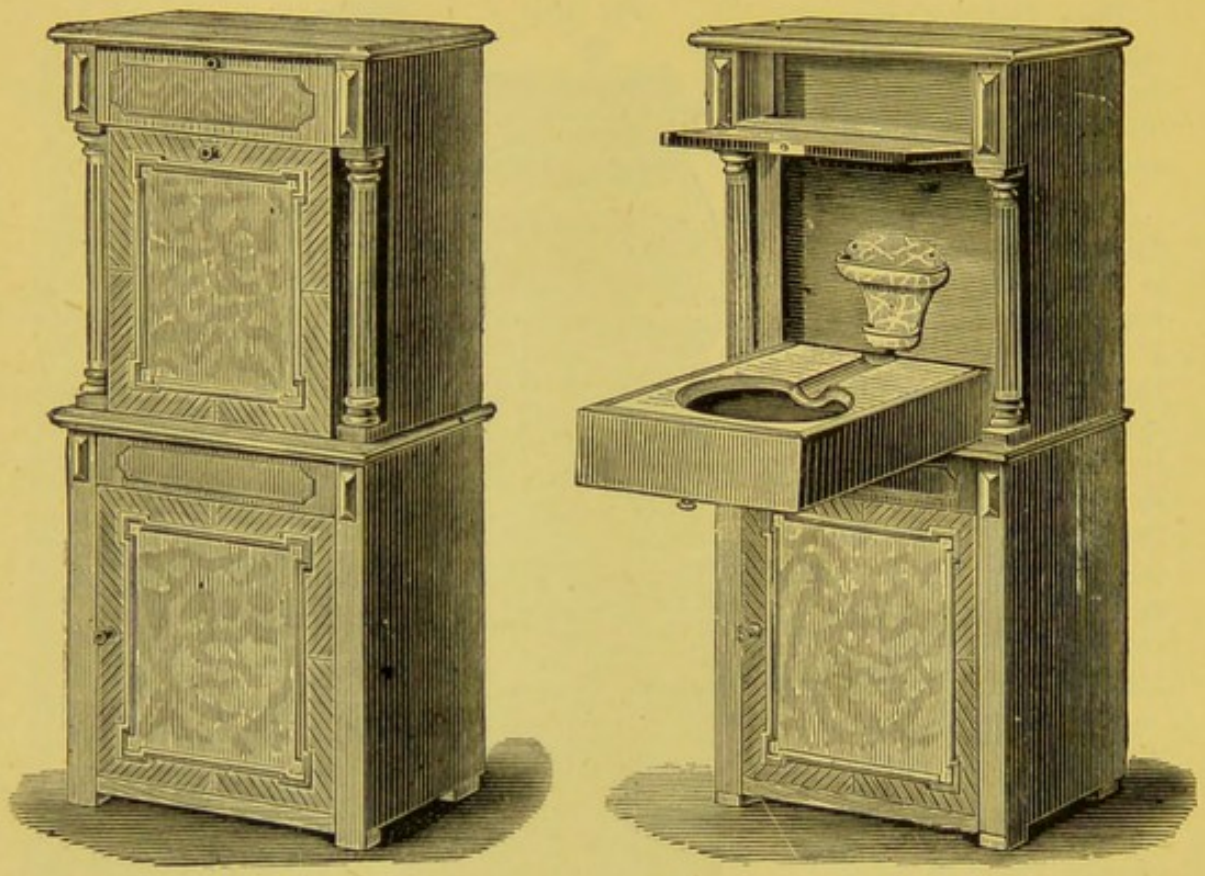


Outside dimensions, 70 inches high; 32 inches wide; 17 inches deep.

The Cabinet can be had either with Dark or Red Marble Slabs; when ordering please state which is required.

	£	s.	d.
Cabinet in well-seasoned wood, veneered with Walnut, with Dark Marble Slabs and heavy Brass Mounts	11	5	0
The same with Red Marble Slabs	11	10	0

TOILET CABINET.



Closed. Open.

Height, 55 inches; Width, 22; Depth, 14½.

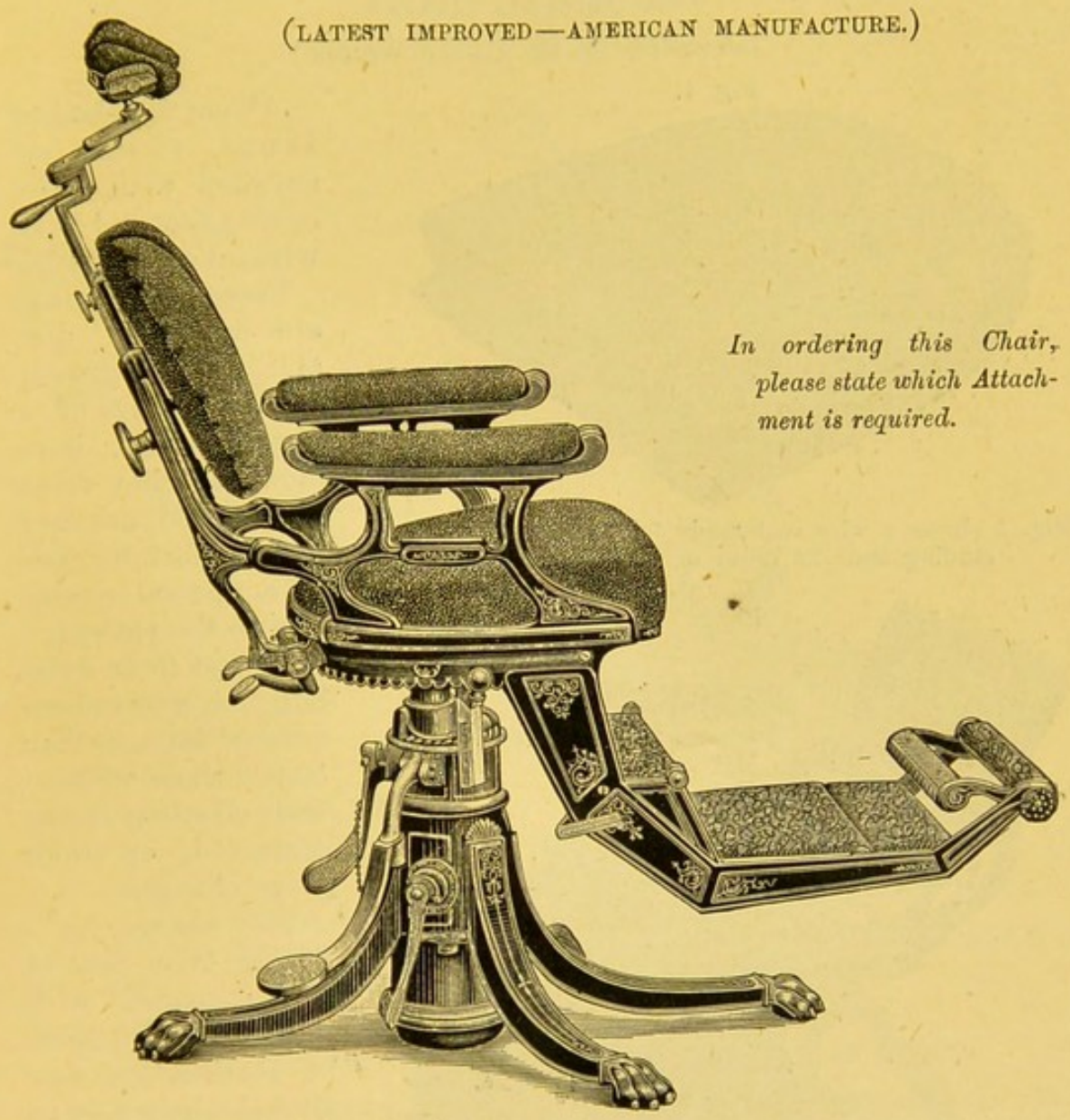
The upper portion contains a Reservoir, holding four gallons of water, a Shelf, with closing door, for toilet requisites, and Porcelain Basin, Soap Dish, &c., as shown in the open illustration. The Reservoir is placed in the back of the Cabinet, and when the door containing the basin is pulled down, the inside end presses on a valve and releases sufficient water for ordinary use. After it is done with the door is lifted up, and the act of closing it discharges the water into a Receiver, placed in the lower portion, which will hold four and a half gallons.

The Cabinet is substantially made, and will prove a convenient and ornamental addition to the Operating Room.

	£	s.	d.
Price complete	9	0	0
Brass Towel Rail for fixing on back of Cabinet extra	0	3	0

THE WILKERSON DENTAL CHAIR.

(LATEST IMPROVED—AMERICAN MANUFACTURE.)



In ordering this Chair, please state which Attachment is required.

Made in three different heights known as:

	Lowest position.	Highest position.
Low-base	20 inches. ..	28 inches.
Medium-base	23 „ ..	34 „
High-base	26 „ ..	40 „

Width of Seat 19 inches.

Full description sent on application.

	£	s.	d.
In best quality Green or Maroon Plush, and Boxing	36	0	0
In Crimson Plain Turkey Morocco or Leather, and Boxing	36	0	0

For Attachments and Spittoons see pages 65-71.

WIRE SPRING SEATS AND BACKS,

FOR DENTAL CHAIRS.

(Introduced by Dr. Henry Weston.)

Fig. 1.

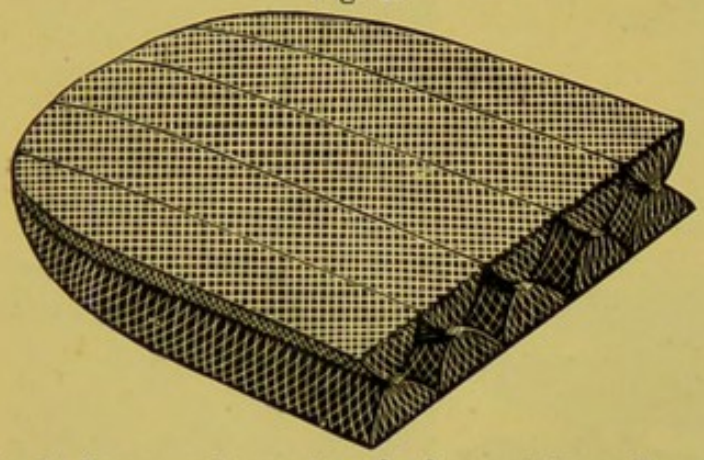


Fig. 1 shows a wire seat ready for receiving a layer of stuffing and the cover of plush or leather.

Fig 2.

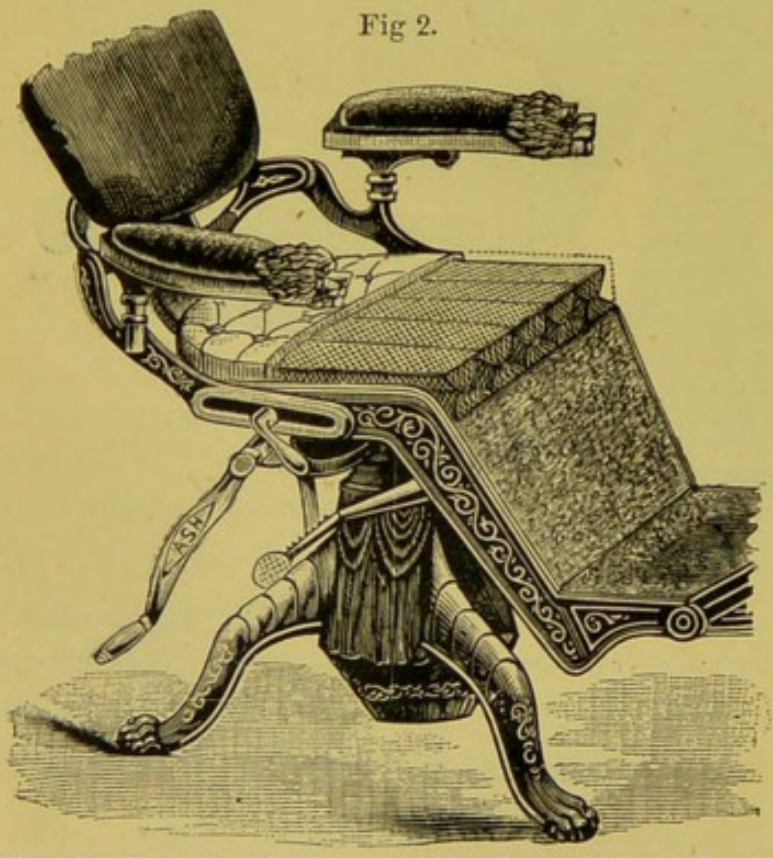


Fig. 2.—Portion of Dental Chair showing part of wire seat uncovered for the purpose of exhibiting its form in position.

All our upholstered Dental Chairs are supplied with Wire Spring Seat and Back without extra charge.

These Wire Springs are extremely durable, and add greatly to the value of a Dental Chair, inasmuch as they make the seat and back easy and comfortable, and give agreeable support to the patient.

To test their durability, they have been crushed flat more than 50,000 times without their elasticity being destroyed, or their shape changed.

The charge for a Spring Wire Seat or Back, covered with green or maroon plush or leather, for any Dental Chair now in use, averages from 20/- to 25/- each. **In ordering, a paper pattern of the size and shape of the underneath side of the Back or Seat should be sent to us.**

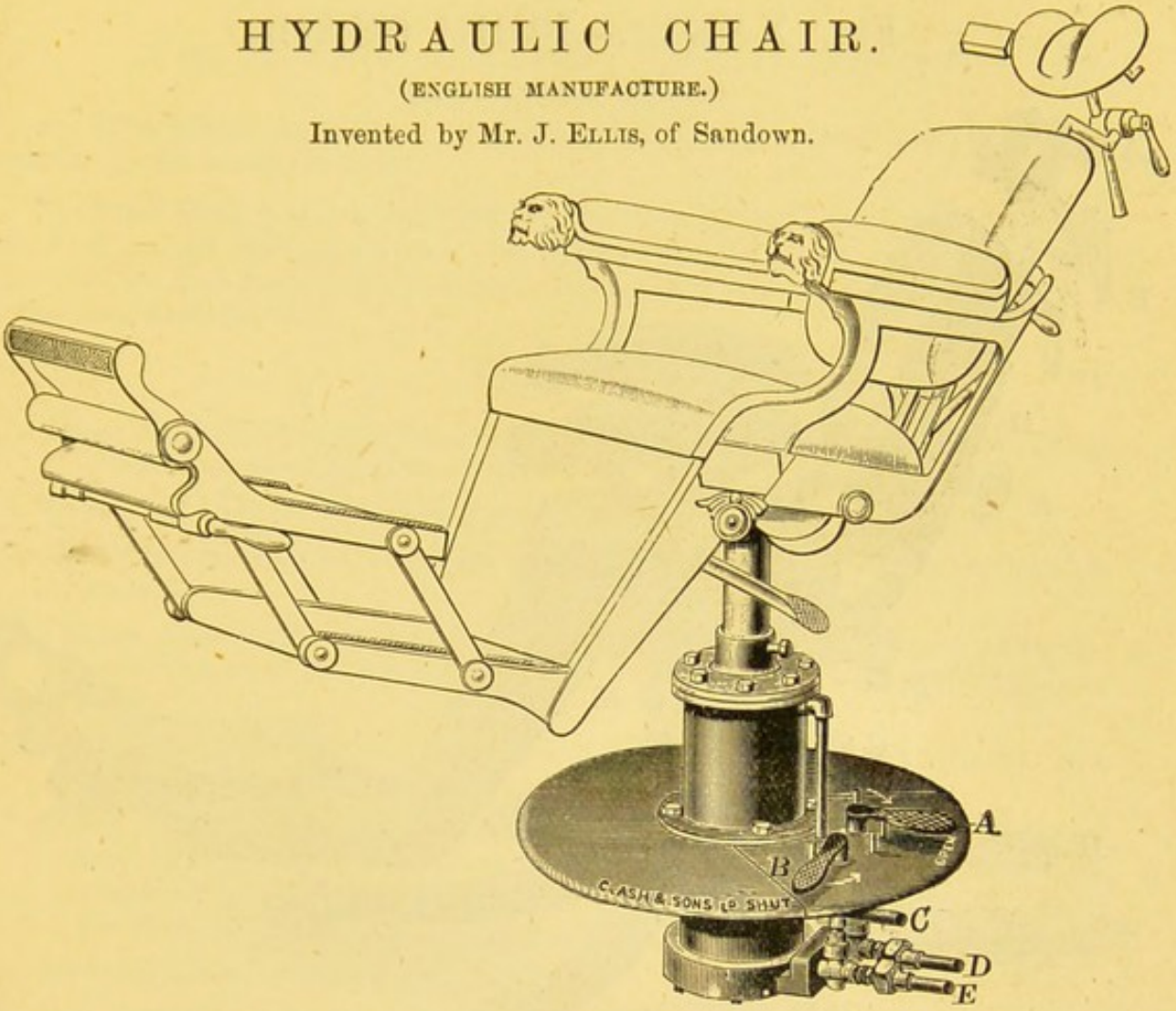
Sole Agents for Dental Chair Wire Spring Seats, &c., for all parts of the World, except the United States of America :

CLAUDIUS ASH AND SONS, Limited.

HYDRAULIC CHAIR.

(ENGLISH MANUFACTURE.)

Invented by Mr. J. ELLIS, of Sandown.



A. Raising Lever. B. Lowering Lever.

C. Overflow Pipe. This must not be connected with the outlet pipe E, but kept quite independent of it.

D. Inlet Pipe. E. Outlet Pipe.

Highest position, 32 inches; lowest position, 16 inches.

A water pressure of 25 lbs. to the square inch will work this Chair satisfactorily. Five pints of water are used each time it is fully raised and lowered, but of course a smaller quantity when it is only partially raised and lowered.

To ensure it working efficiently the services of a good plumber should be secured, who not only understands his business, but also the importance of leaving a full clear way inside the joints of the inlet and outlet pipes. The fewer bends there are the better.

To fix it up, a hole should be cut in the floor of the operating room (a platform on the floor 9 inches high with a hole in it will serve the same purpose) large enough to admit the lower part of the cylinder and the pipes C, D, and E, and when the connections are made, the circular plate should be securely screwed to the floor.

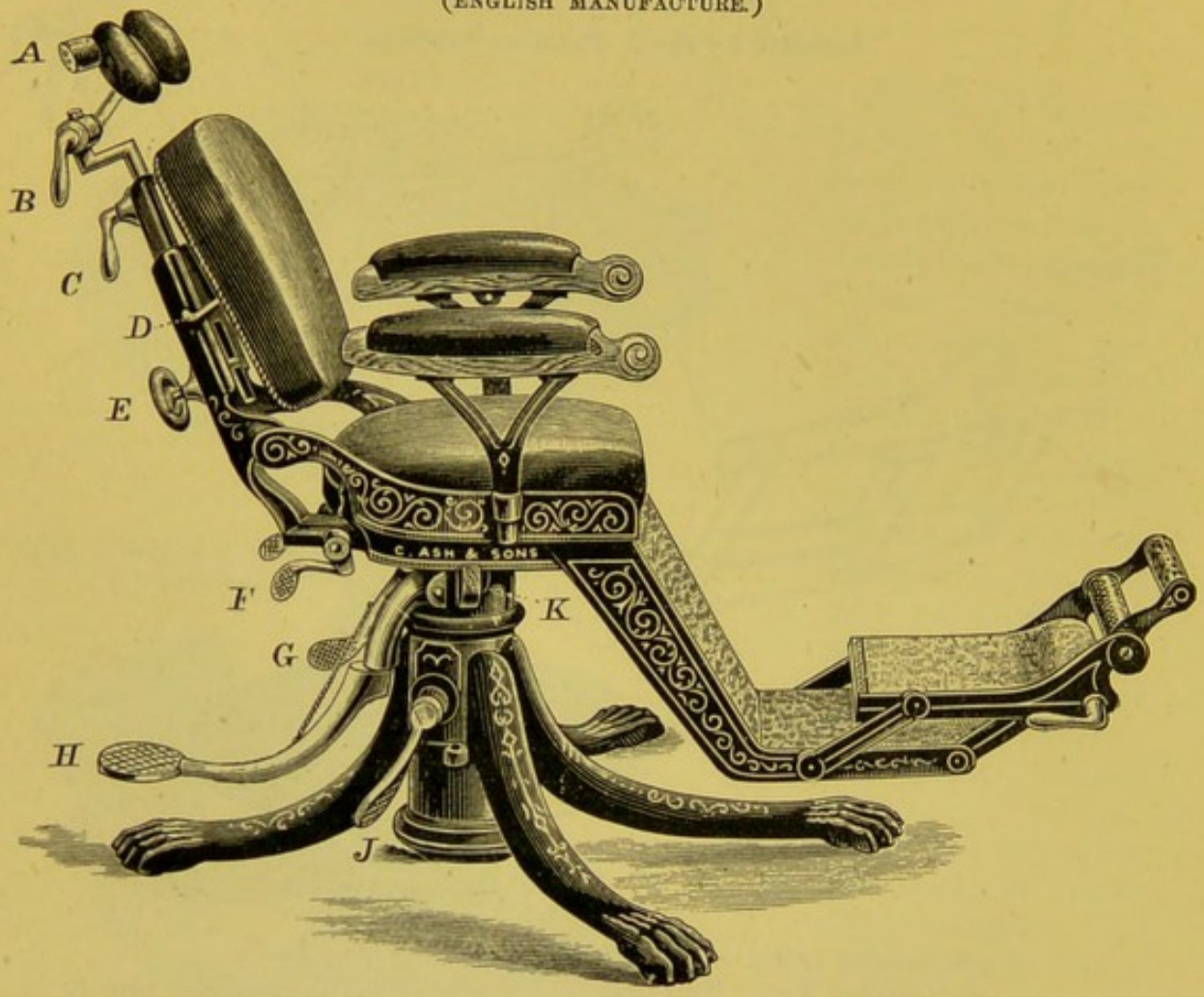
The Chair is supplied with the Body of Fig. 23A, shown on page 50.

	£	s.	d.
In best quality Green or Maroon Plush, with Deep and Shallow Seats ..	30	0	0
Packing case	1	0	0

Full amount allowed for Packing Case if returned, carriage paid, and in good condition.

Fig. XXXVI.—PUMP CHAIR.

(ENGLISH MANUFACTURE.)



Highest position of seat, 34 inches; lowest position, 23 inches. Width of seat between the arms, 19 inches. The arms are removable.

This chair possesses all the movements that are required by the dental surgeon, and is of first-class workmanship throughout, the bright parts being nickel-plated, the iron framework japanned black, relieved with ornamentation, and the upholstered parts covered with best quality plush and carpet.

The **Base** is very firm and solid, the legs being so placed that it is impossible for the chair to be upset under any conditions.

The **Body** revolves on its own axis, carrying with it the raising and lowering levers G and H, so that they are always within easy reach of the operator's foot; it can be raised or lowered, tilted backwards from the upright position, and fixed where desired.

The **Back** can be raised or lowered, and moved backwards or forwards independently of the seat, its various movements being controlled by D, E, and F, as stated in the following description.

FIG. XXXVI.—PUMP CHAIR—*continued.*

The **Head-Rest** can be raised or lowered, depressed or reclined, and fixed in any position by the handles B and C.

The **Foot-Rest** is controlled by the Handle shown on it in the engraving, and can be fixed in four different positions. It is only necessary to use this Handle when lowering the Foot-Rest; it can be raised by taking hold of the top bar, and drawing it upwards towards the Seat.

Description.

A. Head-Rest with Arm-Support. The Arm-Support can be fixed in three different positions on either side of the Head-Rest.

B. Handle for fixing the Head-Rest in any position.

C. Handle for clamping the sliding bar by means of which the Head-Rest is raised or lowered.

D. Ratchet Arrangement for pushing forward, and fixing at three different points, the lower portion of the upholstered part of the Chair Back to fit the back of the patient.

E. Circular Clamp for fixing the Back of the Chair at any point within its range when it is raised or lowered.

F. Double Lever which controls the backward and forward movement of the Chair Back only, and securely locks it where desired. It is made double to permit of the position of the Back being altered from either the right or the left-hand side of the chair.

G. Lowering Lever, worked by the foot.

H. Foot Lever for raising the Body of the Chair.

J. Locking Lever, worked by the foot.

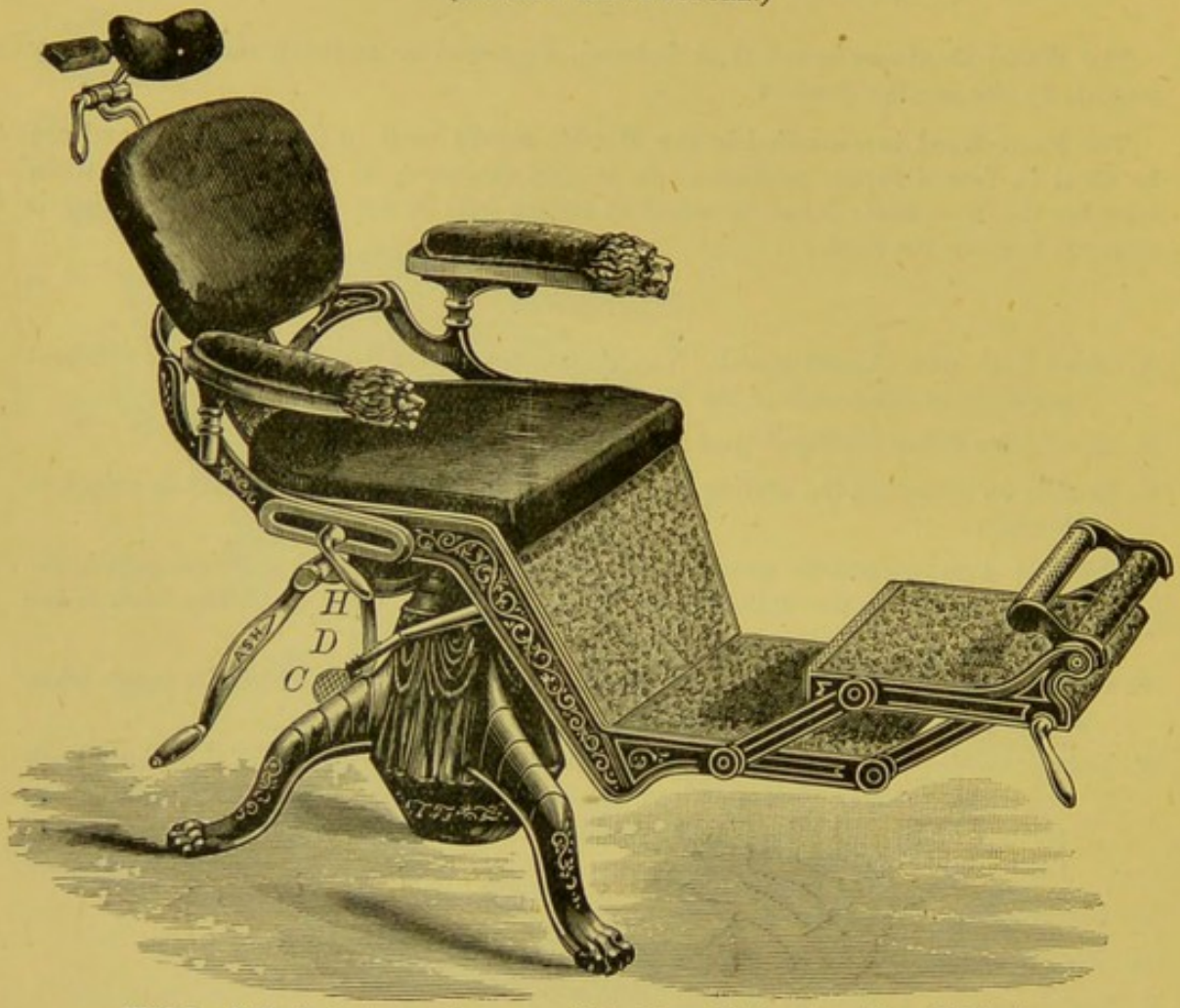
K. Tilting Lever, worked by the foot. The whole of the body of the Chair is tilted by this Lever.

Prices:	£	*s.*	*d.*
Chair as engraved, covered with Green or Maroon Plush	27	0	0
„ with Lions' Heads on Arms „ „ „	27	0	0
„ covered with Morocco Leather, or figured Maroon Plush	27	15	0
„ any style with Wilkerson form of Head Rest .. .. extra	1	0	0
Spittoon Holder for Arm of Chair, Nickel-plated Spittoon and Blue Glass Funnel, if ordered with Chair .. .. extra	1	0	0
Chair Attachment, consisting of Swinging Crane and Upright carrying Spittoon Holder, Table Arm and Tumbler Holder; with Nickel-plated Spittoon and Blue Glass Funnel, Allan's Table and Spirit Lamp, and Glass Tumbler, complete .. .. extra	6	5	0
Packing Cases .. .. „	1	0	0

Full amount allowed for Packing Cases if returned carriage paid and in good condition.

Fig. XXIIIa.—DENTAL CHAIR.

(ENGLISH MANUFACTURE.)



Width of Chair between the arms, 21 inches; highest position, 30 inches; lowest position, 21 inches.

Prices:

	£	s.	d.
Chair in Green or Maroon Plush, as illustrated	23	10	0
„ „ with Spittoon Holder to fit on the arm, Nickelled Spittoon and Blue Glass Funnel	24	10	0
„ with Adjustable Attachment, as shown on page 66, including Allan's Table and Lamp, Glass Tumbler, Nickelled Spittoon and Blue Glass Funnel	29	15	0
Cane Seat for Children to fit this Chair .. .. extra	1	0	0
Case and Packing .. .. „	1	0	0

Full amount allowed for the case if returned, carriage paid, and in good condition.

Parts separately:

Adjustable Chair Attachment, as shown on page 66, complete	6	5	0
Spittoon Holder to fit Arm of Chair, Nickel-plated	0	15	0
Spittoon (Ash's), Nickel-plated, to hold 3 pints	0	13	0
Blue Glass Funnel for Spittoon	0	2	0
Ruby „ „ „	0	3	0

Fig. XXIIIa.—DENTAL CHAIR—*continued.*

Description.

This **Chair,** which is offered to the Profession as a first-class Operating Chair, is upholstered in the best style, the iron frame-work is japanned black, tastefully relieved with ornamentation, and all the bright parts are nickel-plated. It is elegant in appearance, and very convenient in use.

The **Body** is raised and lowered with the handle shown near the back leg in the illustration; it turns on its own axis, and can be firmly locked in any position by means of the pedal C on the upper part of the base. There is a foot lever D under the seat on each side of the chair, either of which controls the tilting movement.

The **Arms** can be removed, and a **Seat for Children** can be put in their place.—*For price see previous page.*

The **Back** can be raised or lowered and firmly secured at any point. It can also be moved backwards and forwards, and locked where desired by means of the nickel-plated handle H shown in the illustration. **The lower portion of the upholstered part can be adjusted to the back of the patient by means of a ratchet arrangement, which can be fixed in five different positions.**

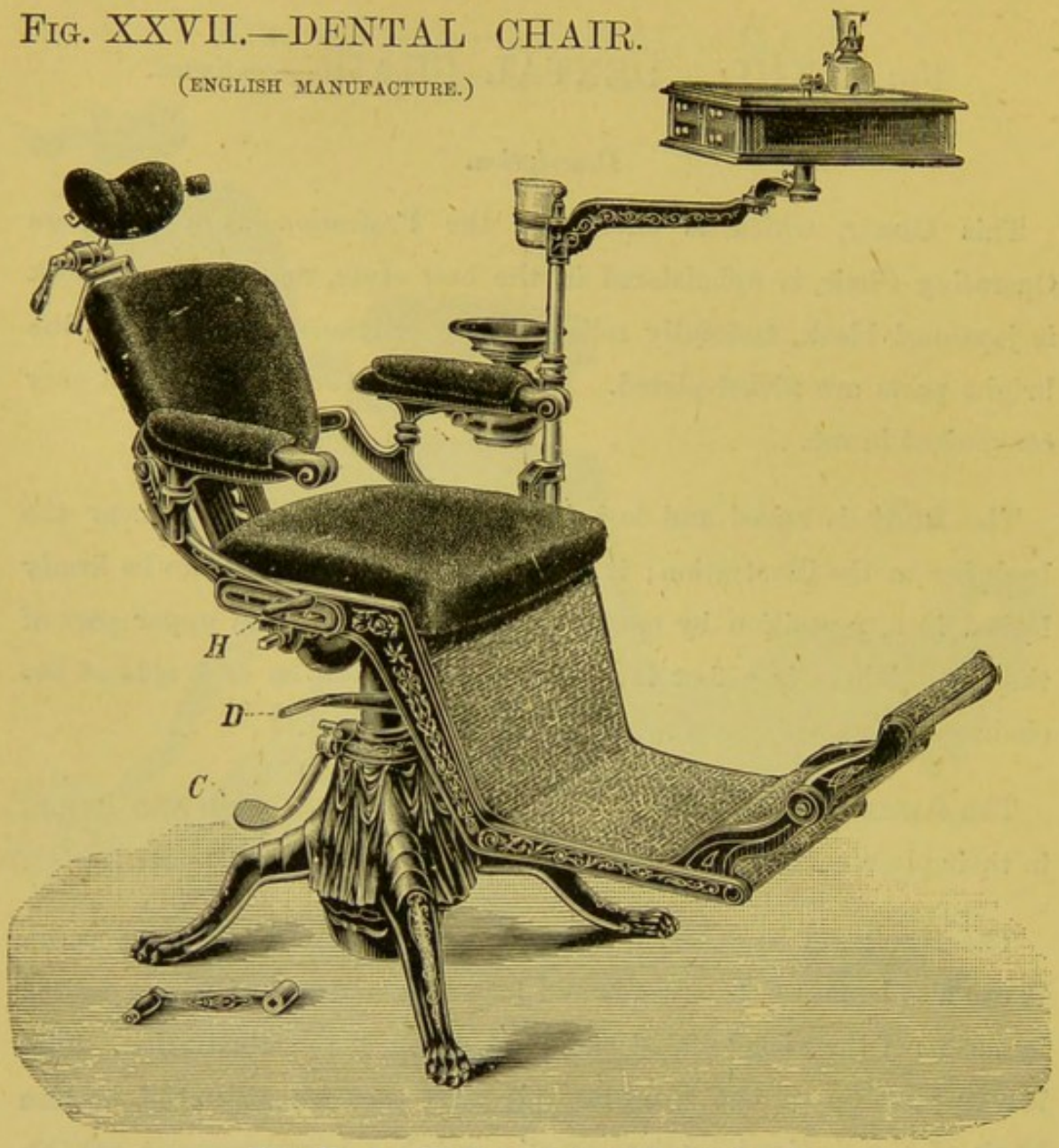
The **Head-Rest** can be raised or lowered, depressed or turned backwards, moved to the right or left, and fixed at any point, all these movements being governed by a single handle.

The **Arm-Support** can be fixed on either side of the Head-Rest, and will be found very convenient during long operations.

The **Foot-Rest** can be fixed in four different positions.

Fig. XXVII.—DENTAL CHAIR.

(ENGLISH MANUFACTURE.)



View No. 1.—Chair complete, with Attachment.

Width of Chair between the arms, 21 inches; highest position of seat, 33 inches; lowest position, 22 inches; highest position of head-rest, 61 inches; lowest position, 26 inches; lowest position of head-rest when the chair is tilted as in view No. 5, 26 inches.

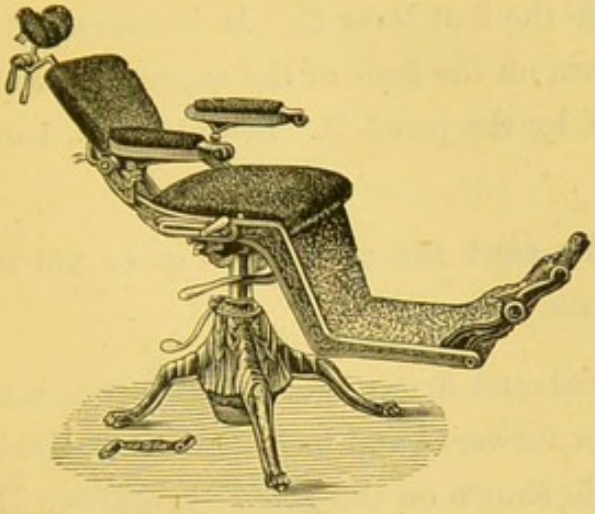
For usefulness, style, and durability, this Chair is one of the best and cheapest that has been introduced, and we can strongly recommend it. The different positions in which it is illustrated represent a few of the numerous movements which it possesses.

Like Chair Fig. XXIIIa, shown on page 50, it is upholstered and finished in the best manner, the iron framework being nicely japanned, tastefully relieved with ornamentation, and all the bright parts nickel-plated.

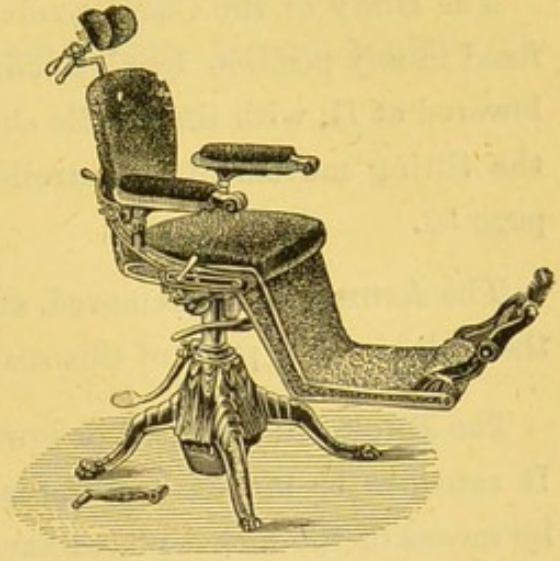
For description and prices, see page 54.

FIG. XXVII.—DENTAL CHAIR—*continued.*

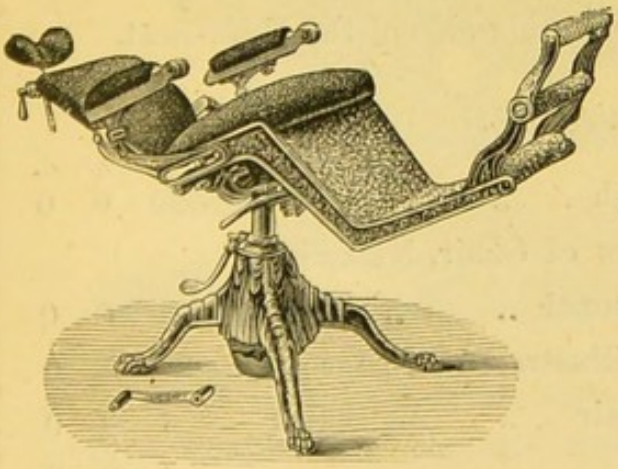
(ENGLISH MANUFACTURE.)



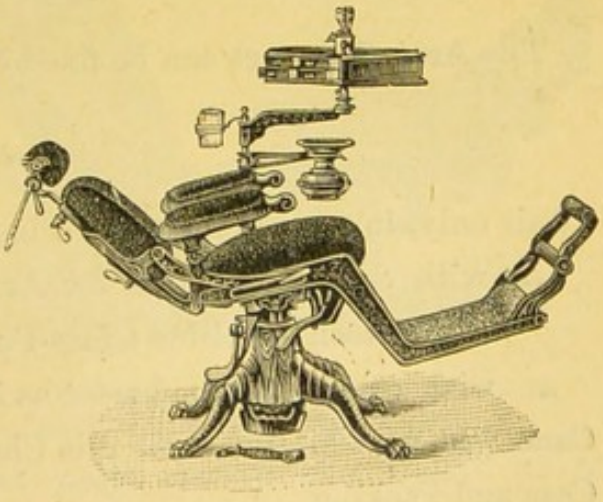
View No. 2, showing the Chair at its highest position, with the Back and Head-Rest reclined.



View No. 3, showing the Chair at its highest position, with the Back and Head-Rest upright.



View No. 4, showing the Chair at its highest position, with the Body tilted to the fullest extent.



View No. 5, showing the Chair with complete Attachment. In this illustration the lowest position is given, and the Body is tilted to the fullest extent.

FIG. XXVII.—DENTAL CHAIR—*continued.*

Description.

The **Body** of the Chair revolves on its own axis, and can be rigidly fixed in any position by tightening the foot lever C. It is raised and lowered at H, with the handle shown on the floor of the engraving, and the tilting movement is controlled by the pedal D. See view No. 1 on page 52.

The **Arms** can be removed, and a **seat for children** can be put in their place. For price of this seat see below.

The **Back** can be raised or lowered and firmly secured at any point. It can also be moved backwards or forwards and locked where desired by means of the nickel-plated handle shown on the groove just above H in view No. 1. **The lower portion of the upholstered part can be adjusted to the back of the patient by means of a ratchet arrangement which can be fixed in five different positions.**

The **Head-Rest** can be raised or lowered, depressed or reclined, moved to the right or to the left, and fixed in any position, all these movements being controlled by a single handle.

The **Arm-Support** can be fixed on either side of the Head-Rest.

Prices:

	£	*s.*	*d.*
Chair only, in Green or Maroon Plush	20	0	0
„ with Spittoon Holder for Arm of Chair, Nickelled Spittoon and Blue Glass Funnel	21	0	0
„ with complete Attachment as illustrated on page 66	26	5	0
Cane Seat for Children to fit this Chair .. .. extra	1	0	0
Case and Packing .. .. „	1	0	0

Full amount allowed for the Packing Case if returned, carriage paid, and in good condition.

MORRISON'S DENTAL CHAIR

(ENGLISH MANUFACTURE),

WITH

TILTING LEVER, Suggested by MR. CLAUDE ROGERS,

AND WITH

IMPROVED FOOT-REST.

Highest position—shown above in outline—40 inches; lowest position—shown in shaded drawing—15 inches; width of seat between the arms, 19 inches.

The Illustration on the next page shows the Chair at a Medium height.

The Chair is thoroughly well made and highly finished throughout—the body being upholstered with best quality plush, the foot-board nicely carpeted, all the bright metal parts nickel-plated, and the iron framework japanned black, relieved with ornamentation.

MORRISON'S DENTAL CHAIR—*continued*

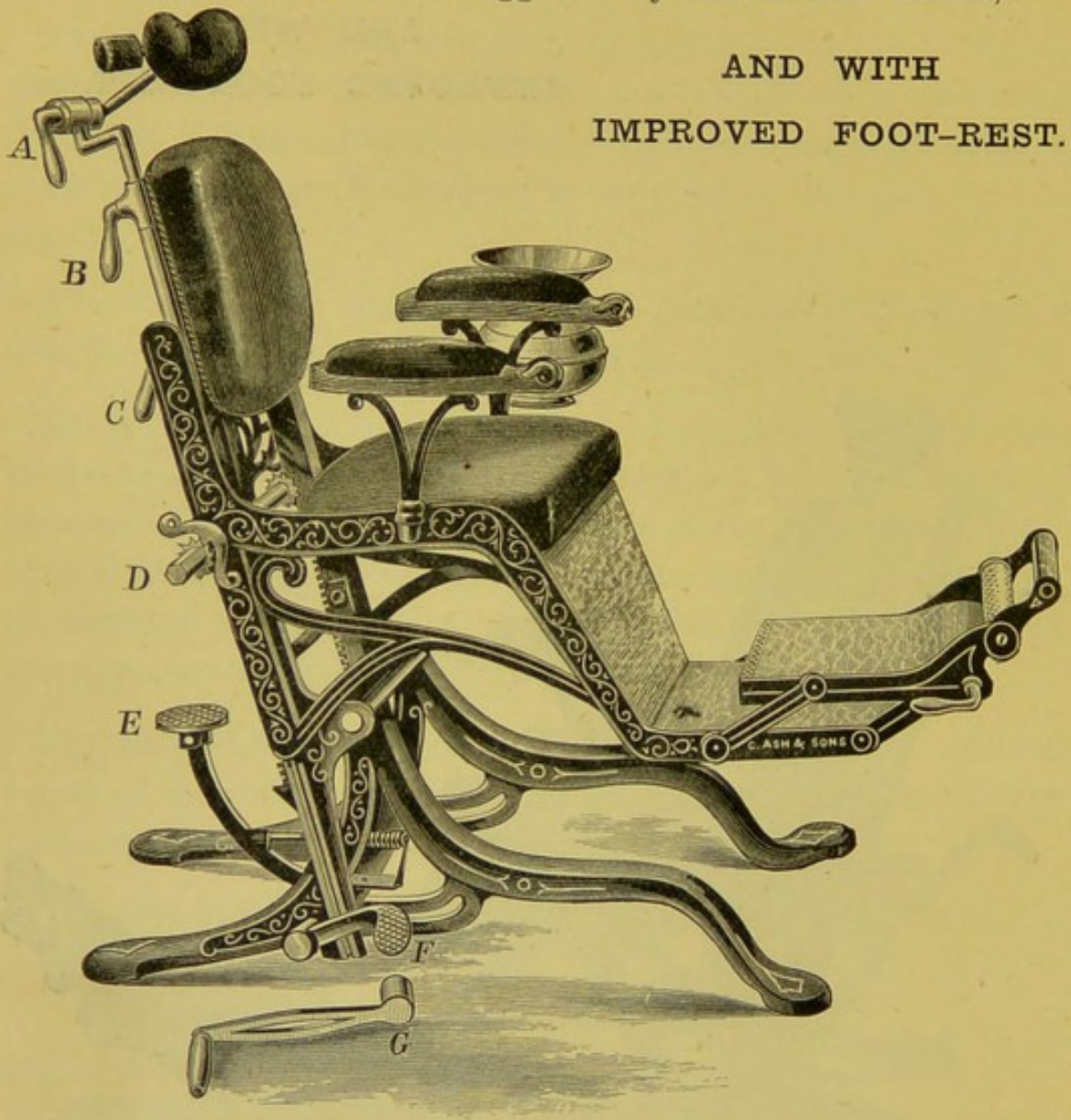
(ENGLISH MANUFACTURE),

WITH

TILTING LEVER E, Suggested by Mr. CLAUDE ROGERS,

AND WITH

IMPROVED FOOT-REST.



This illustration shows the Chair at a medium height. For a view of the highest and lowest positions see previous page.

As will be seen from the engraving, an important improvement has been made in the front legs of the Chair.

Considering its strength, quality, and workmanship, we claim that this is the cheapest and best Morrison Chair in existence.

MORRISON'S DENTAL CHAIR—*continued.*

Description.

A. Handle for securing Head-Rest in any position. The Arm-Support shown in the illustration can be fixed in three positions on either side of the Head-Rest.

B. Handle for fixing the raising and lowering bar of the Head-Rest at any desired point.

C. Handle which controls the upward and downward sliding movement of the Back. In addition to this movement there is a ratchet arrangement behind the lower part of the Back—not visible in the engraving—by means of which it can be pushed forward and secured in five different positions, to give support to the back of the patient.

D. Winding Bar. The cog-wheel and pawl shown near D securely hold the body of the Chair at any desired point between the highest and lowest positions.

E. Tilting foot Lever, with which the heaviest patient can easily be moved backwards or forwards in the Chair.

F. Locking Lever. The tilting lever E releases this when the Operator wishes to change the backward or forward position.

G. Winding Handle for raising and lowering the Chair.

The Foot-rest can be fixed in four different positions.

The Arms of the Chair are removable, and the Foot-Rest can be fixed in two different positions.

All that need be said beyond the foregoing description is that the Morrison possesses a greater range than any Dental Chair now in use, and that, with the improved tilting lever, suggested by Mr. Claude Rogers, it can be worked with the greatest ease.

We are so confident of its worth that we invite inspection and examination.

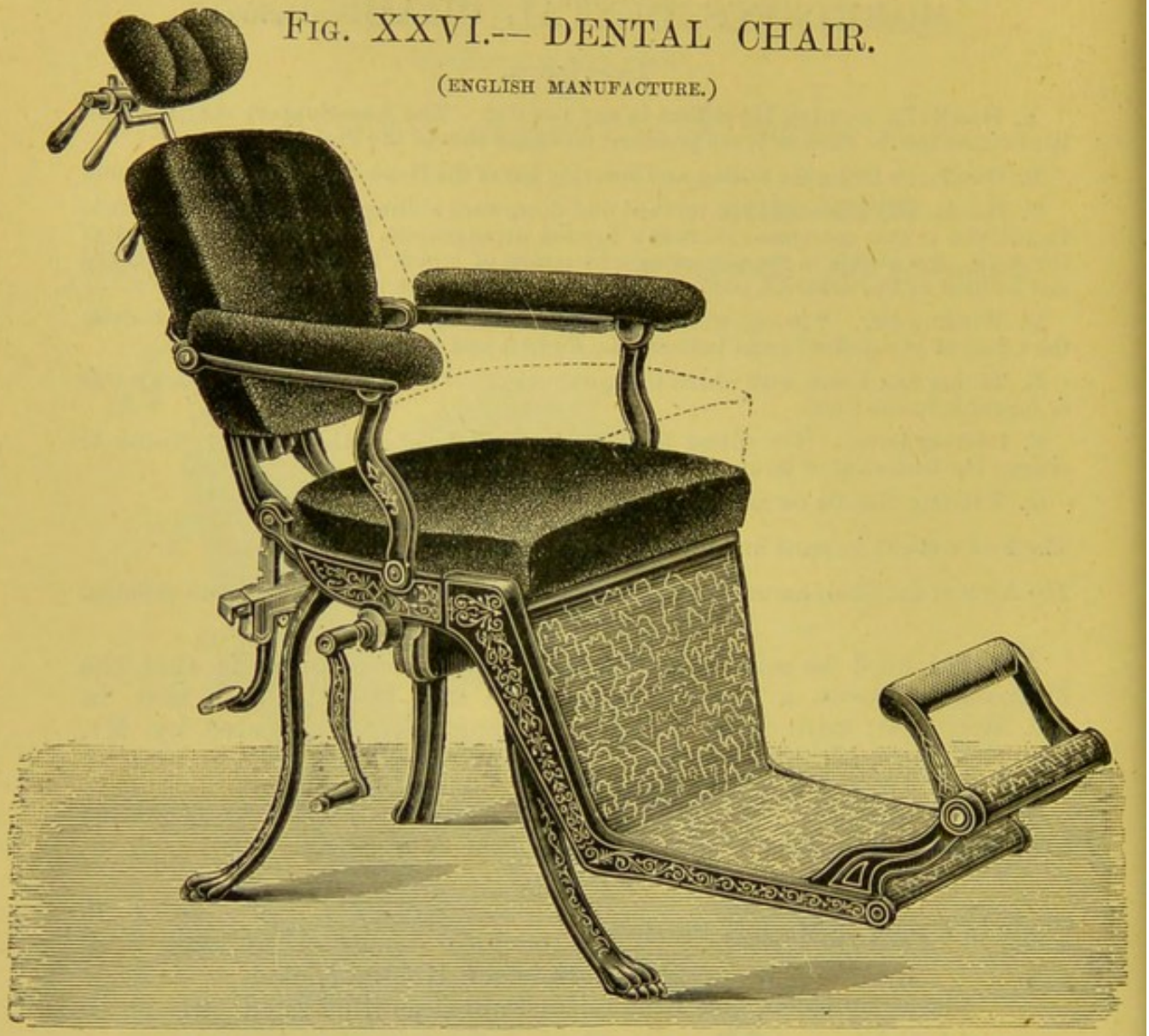
Prices :

	£	*s.*	*d.*
Chair in Green or Maroon Plush	20	0	0
„ „ „ „ with Spittoon Holder, Nickel-plated Spittoon, and Blue Glass Funnel as illustrated	21	0	0
„ with Spittoon and Tumbler Holder complete, as shown on page 65	22	7	0
„ with Chair Attachment, as shown with Allan's Table on page 67, minus Telschow's Reflector	26	15	0
„ with Lions' Heads carved on Arms .. .. extra	0	15	0
„ covered with Morocco Leather .. .. .. „	0	15	0
„ „ figured Maroon Plush .. .. „	0	15	0
Chair with Cane Seat, Cane Back and Wooden Arms ..	18	0	0
„ for Hospital Use, plainly finished, with Simple Attachment and Plain Table, complete	15	0	0
Packing Case	1	0	0

Full amount allowed for Packing Case if returned, carriage paid, and in good condition.

FIG. XXVI.— DENTAL CHAIR.

(ENGLISH MANUFACTURE.)



Width of Chair between the arms, 19½ inches; highest position, 25½ inches; lowest position, 20½ inches.

It is also made with Short Legs, which give it these measurements:— Highest position, 21½ inches; lowest position, 16½ inches.

Some idea of the usefulness of this Chair may be gathered from the following description:—

The **Head-Rest** can be raised or lowered, depressed or turned backwards, moved to the right or left, and fixed in any position. In shape it is one of the most convenient in use. It can be had with an Arm-Support, which is not shown in the illustration, at an extra cost of 10*s*.

The **Back** can be fixed upright or reclined by means of the ratchet movement shown below the back of the seat. The lower portion of the

FIG. XXVI.—DENTAL CHAIR—*continued.*

upholstered part can be pushed forward as far as the dotted lines, so as to fit the back of the patient. It can be fixed in five different positions between these two points.

The **Seat** has a range of 5 inches, and is raised or lowered by the handle shown between the legs.

The Chair is substantially upholstered in green or maroon plush, and is elegant in appearance, the Foot-Rest being nicely carpeted, the iron frame japanned black, relieved with ornamentation, and all the bright parts nickel-plated.

	£	*s.*	*d.*
Chair, as illustrated, in Green or Maroon Plush ..	11	0	0
„ with Spittoon Holder for arm of chair, Nickelled Spittoon and Blue Glass Funnel	12	0	0
„ *with Short Legs*, in Green or Maroon Plush ..	11	0	0
„ „ Spittoon Holder for arm of chair, Nickelled Spittoon and Blue Glass Funnel	12	0	0
Any of the above with Arm-Support on Head-Rest .. .. extra	0	10	0
Packing Case .. .. „	1	0	0

Full amount allowed for Packing Case if returned carriage paid and in good condition.

HOSPITAL CHAIR.

(FIG. XXVIA.)

We are now supplying the Chair shown on the previous page with Wooden Seat, Arms and Back, and Head-Rest covered with American Cloth. In this form it makes a very serviceable Hospital Chair, both for use in stopping and in extracting teeth.

	£	*s.*	*d.*
Price to Hospitals and Dispensaries	8	10	0

CANE SEATS AND BACKS,

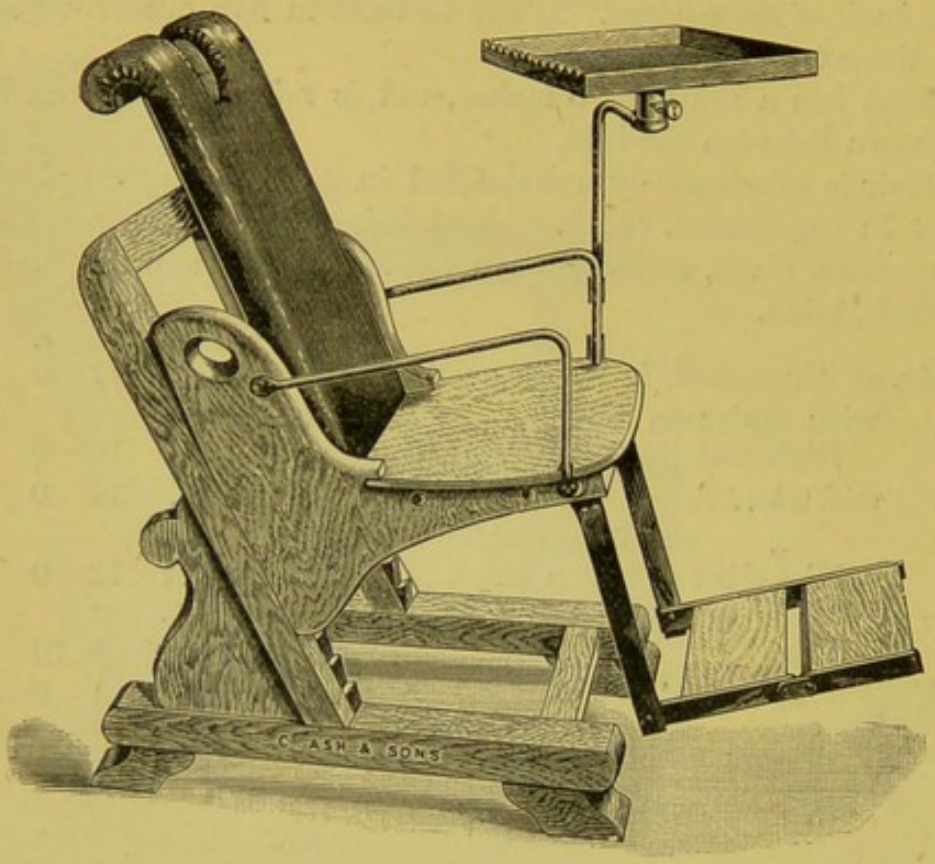
FOR DENTAL CHAIRS.

Suitable for summer use and for hot climates.

These can be had to order for any of the upholstered Chairs of our manufacture.

Prices:		£	*s.*	*d.*
Cane Seats	from	0	15	0
„ **Backs**	„	0	15	0

HOSPITAL CHAIR.



Highest position, 27 inches; Lowest position, 16 inches. Width of Chair between the arms, 18 inches. Length of Base, 35 inches; width of Base, 16 inches.

This Chair is in general use at the Dental Hospital of London. It is substantially made of polished wood, the combined back and head-rest being plainly covered with American cloth, and will stand the hard wear and tear to which it may be subjected in a public institution.

It is fitted with folding Foot-Rest, movable iron Bracket, and plain oak Instrument Table, as shown in the engraving.

The **Body** slides up or down the frame of the Chair, and rests in one or other of the iron slots designed to receive it. These slots are placed at a distance of three inches from each other. There is a locking lever at the back which firmly secures the body in any of the slots in which it is placed.

The **Back** and **Head-Rest,** which are made in one piece, can be raised or lowered as under:

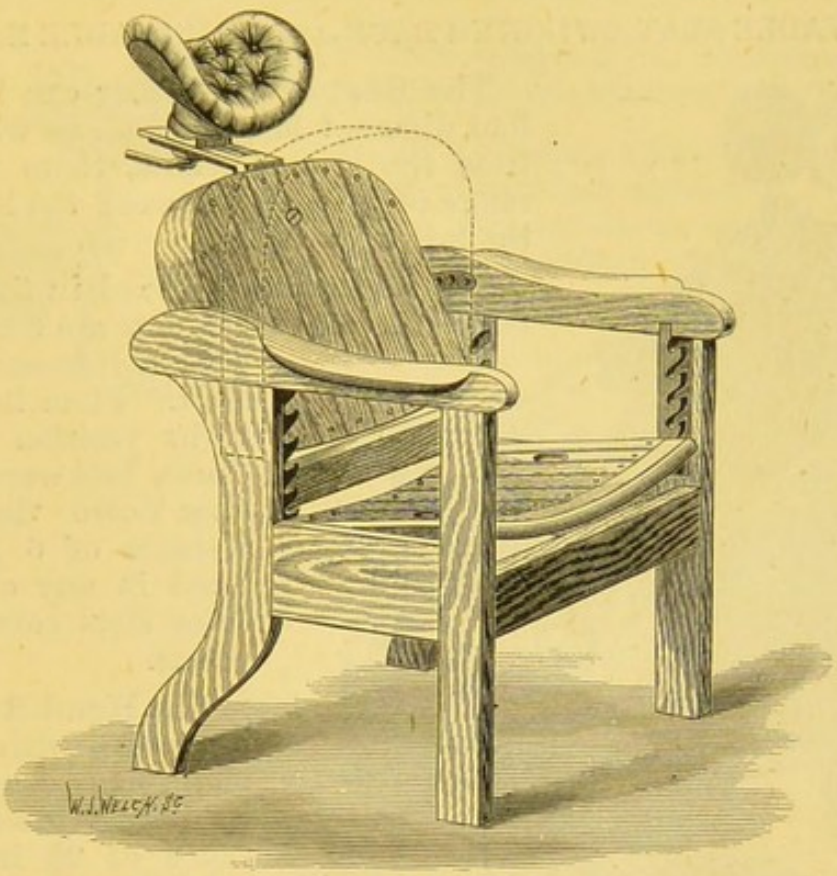
When the Body is raised to its highest position and the Back is fixed at its lowest, the distance from the seat to the top of the Head-Rest is only 18 inches.

When the Body is fixed in its lowest position and the Back is drawn up to its full height, the distance from the Seat to the top of the Head-Rest is 31 inches.

It will be seen from these measurements that the Chair has a working range of 13 inches, and that it is suitable for patients of almost any stature.

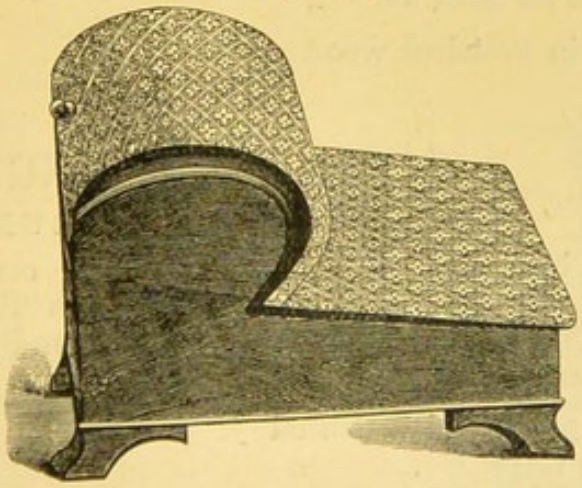
	£	s.	d.
Price complete, as illustrated	8	10	0

HOSPITAL CHAIR.



	s.	d.
Chair as illustrated, supplied to the London Dental Hospital	190	0
Chair (Mr. Owen's), Improved—see page 44 of our 1886 Catalogue—in Birchwood, with Footstool attached, and Head-Rest covered in Leather, as supplied to the Liverpool Dental Hospital	325	0

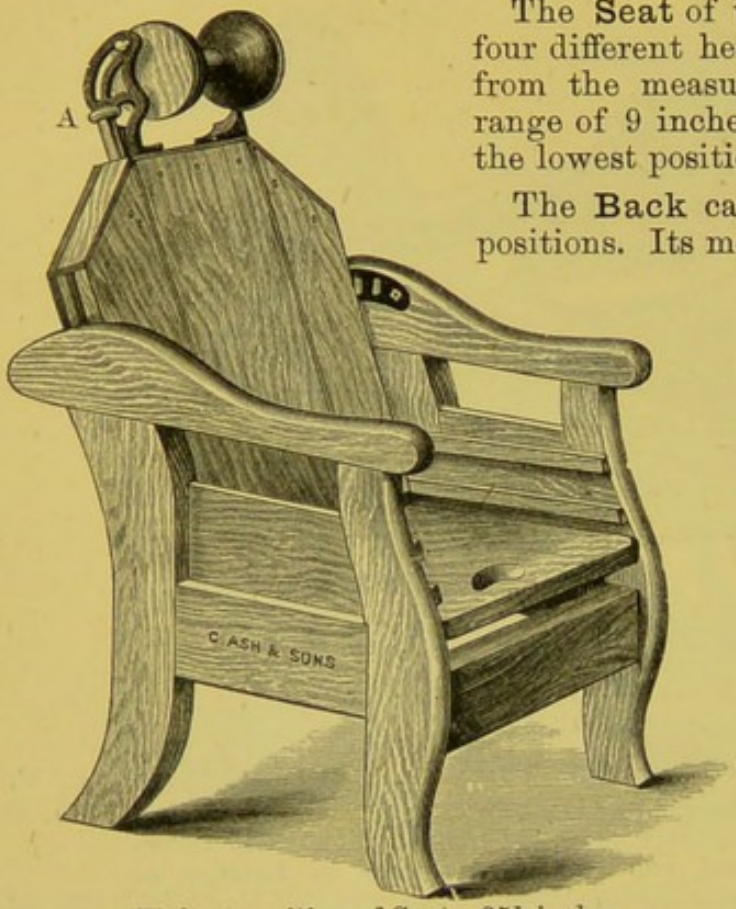
Fig. 2.



	s.	d.
Footstool in Walnut, 20 inches long by 16½ inches wide, with two steps covered with carpet, which can be raised or lowered, and fixed at different elevations by means of a spring ratchet. Highest step 12 inches, which can be raised to 15 inches; lowest step 5 inches, which can be raised to 7 inches .. .. (Fig. 2.)	42	0
" " not covered	34	0
" " without ratchet action	30	0

CHEAP HOSPITAL CHAIR,

WITH MOVABLE SEAT, SWINGING BACK, AND ADJUSTABLE HEAD-REST



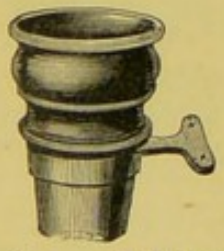
The **Seat** of this Chair can be fixed at four different heights, and, as will be seen from the measurements, there is a clear range of 9 inches between the highest and the lowest positions.

The **Back** can be fixed in five different positions. Its movements are controlled by the Knob A near the Head-Rest. From its most upright position it can be drawn backwards by pressing down the knob a distance of 6 inches, or fixed in any one of the three slots between these points.

The **Head-Rest**, which is covered with American cloth, can be raised from its lowest position a distance of 2½ inches, and securely fixed where desired in the sliding groove, in which it works, by means of a brass thumb-screw.

Highest position of Seat	25½ inches
Lowest „ „	16¼ „
Width between the Arms	19 „

	£	s.	d.
Price of Chair in polished wood	5	5	0



CUPS AND RINGS,

FOR HOLDING INSTRUMENTS.

These can be attached to any convenient part of Wooden Chairs, or Operating-Room Tables, &c.

The Cup is of polished Walnut and the Ring of Iron japanned.

		s.	d.
Cup and Ring, complete, as illustrated		3	0
Separately { Cups	each	1	6
Rings	„	1	6
Japanese Cup and English Ring, complete		3	0
Separately { Cups	each	1	3
Rings	„	1	9
Set of two Japanese Cups to stand on Table for holding Instruments, &c.	per set	1	9

HEAD-REST WITH ARM-SUPPORT.

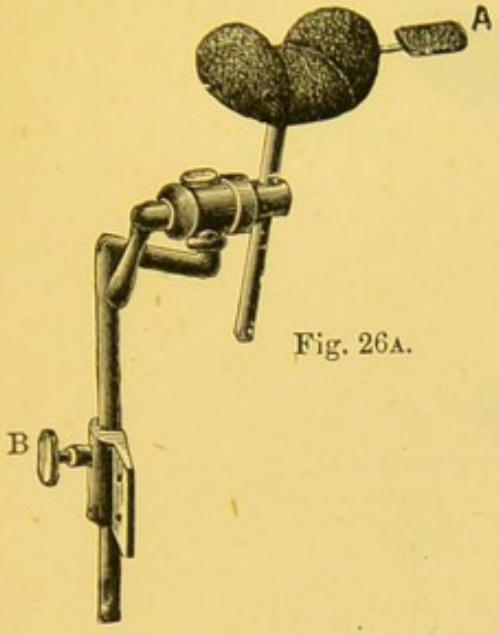


Fig. 26A.

This Head-Rest can be screwed on to the back of any **Wooden Dental Chair.**

Its movements, which are controlled by a single handle and the screw on the socket B, are so numerous that we can recommend it as a first-class Head-Rest. The Arm-Support A can be fixed on either side of it as may be desired.

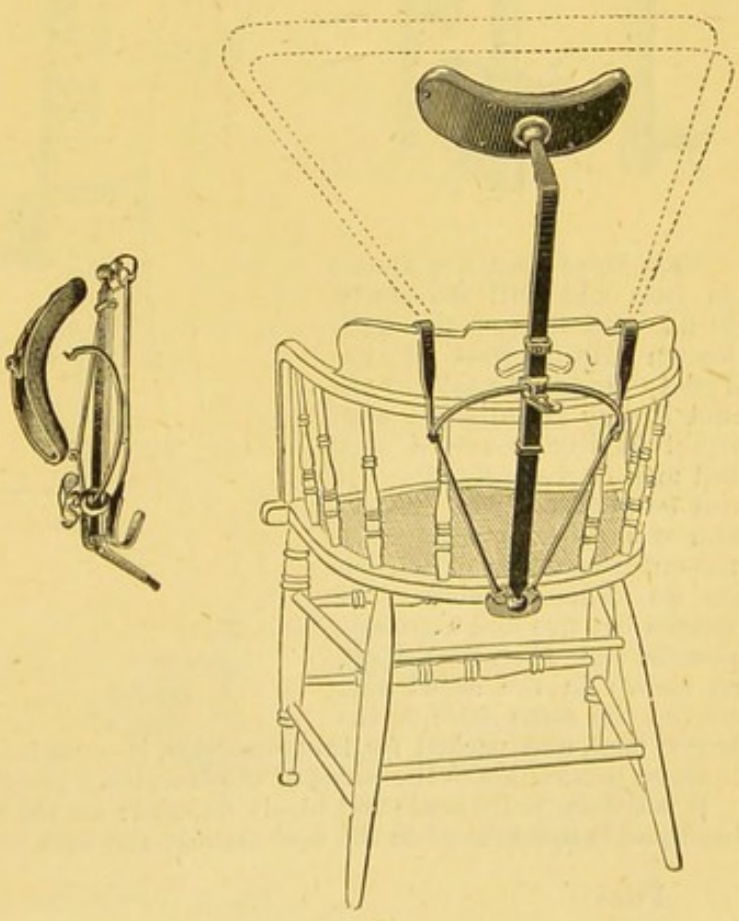
The upholstered part is nicely padded and covered with the finest Plush, and all the metal parts, except the socket B, are substantially nickel-plated.

	£	s.	d.
Head-Rest, in Green or Maroon Plush, with Arm-Support, as illustrated ..	2	15	0
„ „ without Arm-Support ..	2	5	0

PORTABLE HEAD-REST.

(Dr. O. C. White's.)

Constructed to fit an ordinary Chair. The dotted lines in the engraving show its full range. It is very light and portable, the total weight being only $4\frac{3}{4}$ lbs.

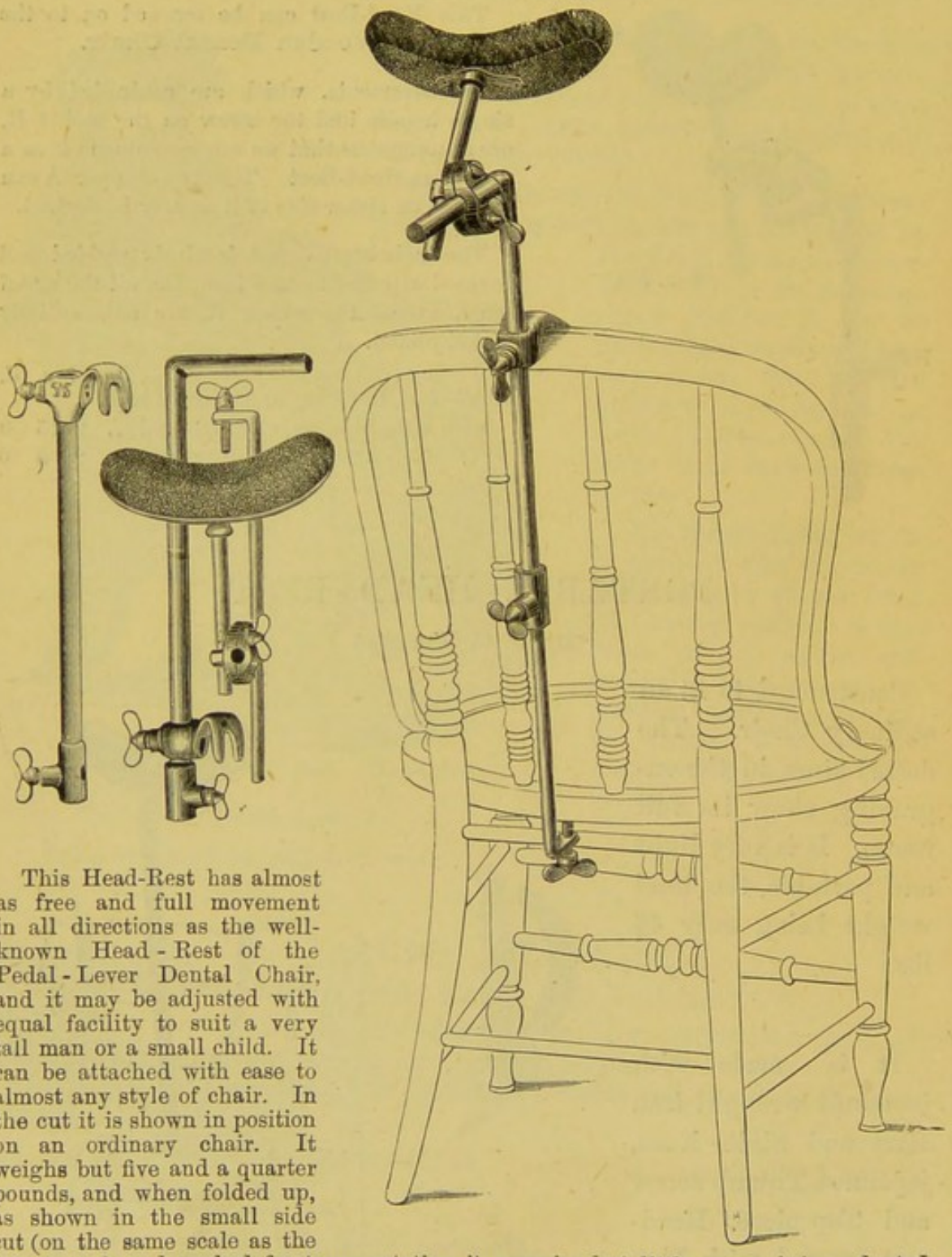


It is made with japanned wrought-iron Bars and Slide-Rods, japanned Thumb-screw and Top-piece, Head-rest covered with Rep.

	£	s.	d.
Price ..	1	10	0

PORTABLE HEAD-REST.

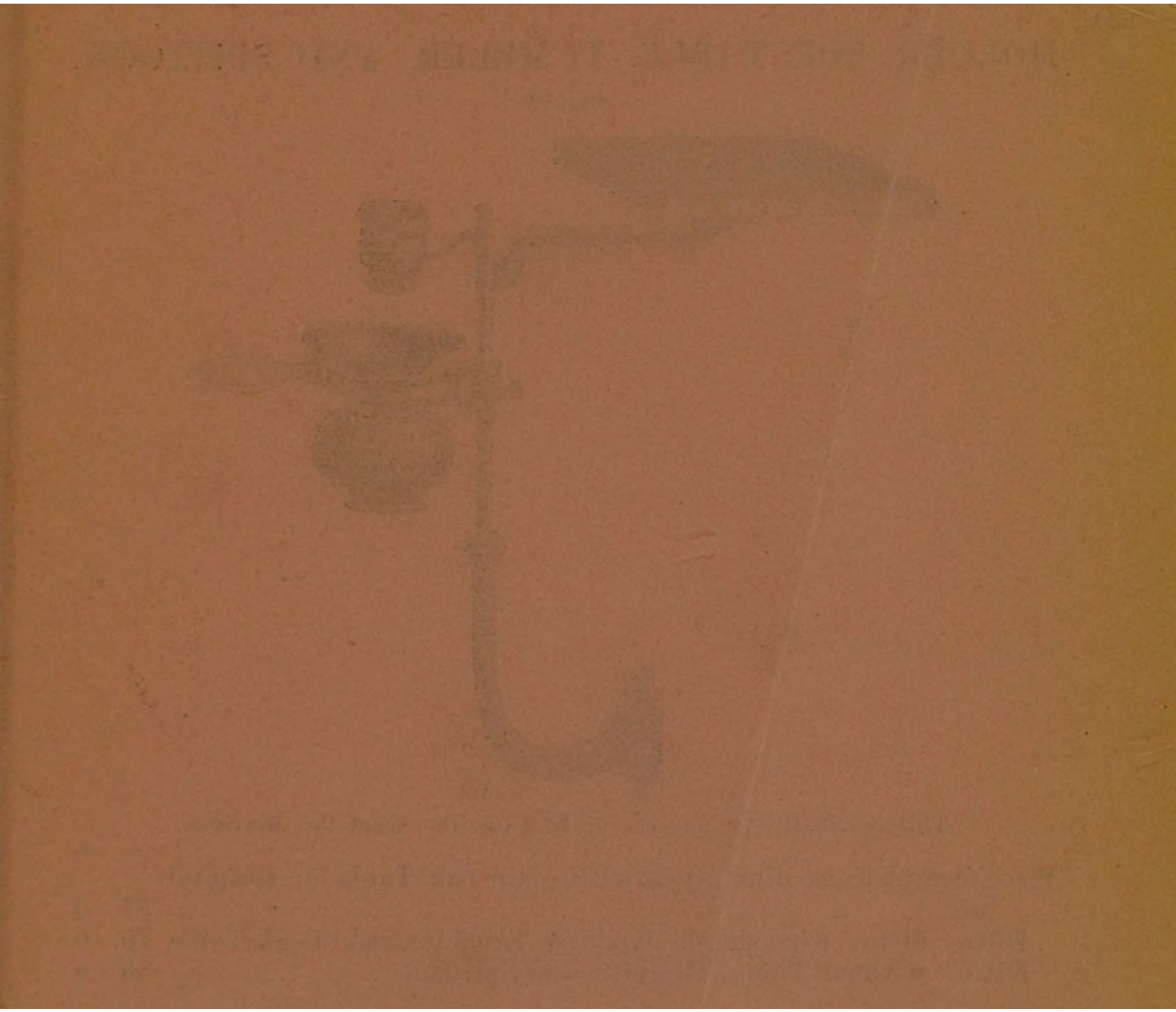
(AMERICAN PATTERN.)



This Head-Rest has almost as free and full movement in all directions as the well-known Head-Rest of the Pedal-Lever Dental Chair, and it may be adjusted with equal facility to suit a very tall man or a small child. It can be attached with ease to almost any style of chair. In the cut it is shown in position on an ordinary chair. It weighs but five and a quarter pounds, and when folded up, as shown in the small side cut (on the same scale as the larger one), and packed for transportation, it occupies but little space, being adapted in these particulars to the needs of the travelling practitioner.

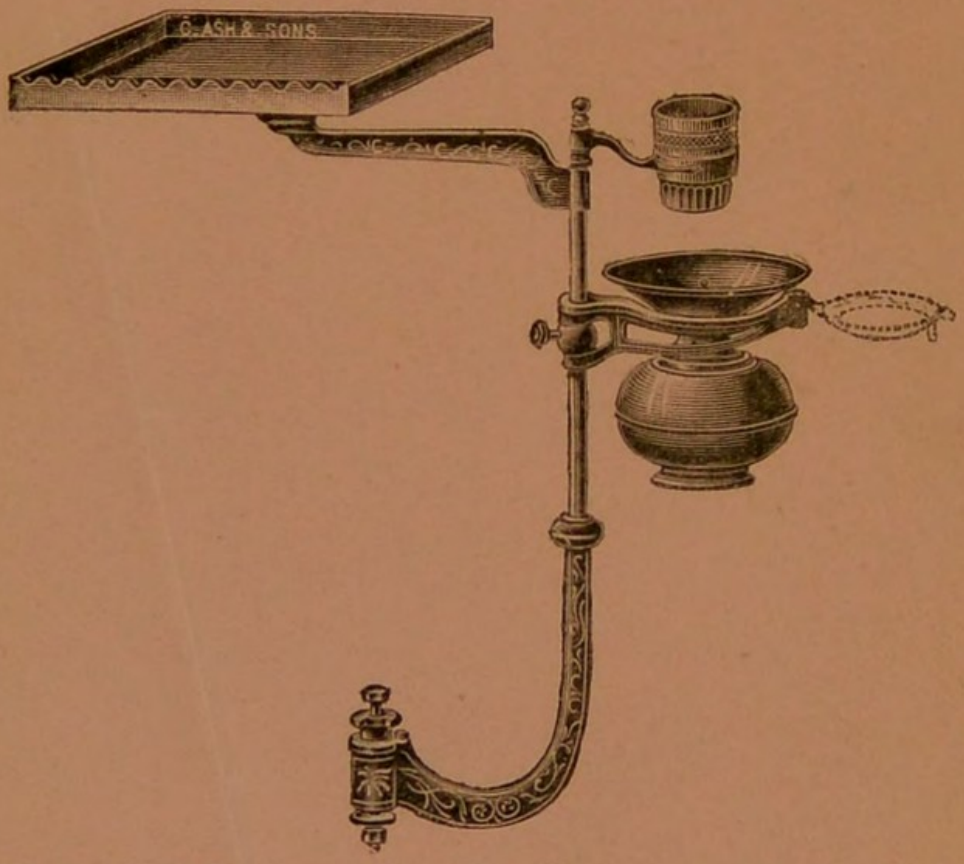
It is substantially made and nicely finished; all the metal parts Nickel-plated. The head-pad is upholstered in the best manner and with best materials.

	s.	*d.*
Price	48	0



HOLDER FOR TABLE, TUMBLER, AND SPITTOON.

Fig. 6A.



This is adapted for any of our Iron Chairs, except the Morrison.

	s.	*d.*
Price, complete as illustrated, with plain oak Table for Hospital use	57	0
Ditto ditto with simple Japanese Table instead of oak Table	70	0
Ditto without Table, Tumbler, and Spittoon	36	0

SPITTOON AND TUMBLER HOLDER.

(Fig. 6.)

For all the Iron Chairs we now manufacture, except Morrison's.

	s.	d.
Price, without Spittoon, Funnel and Tumbler	30	0
Price, with Spittoon, Funnel and Tumbler	45	0

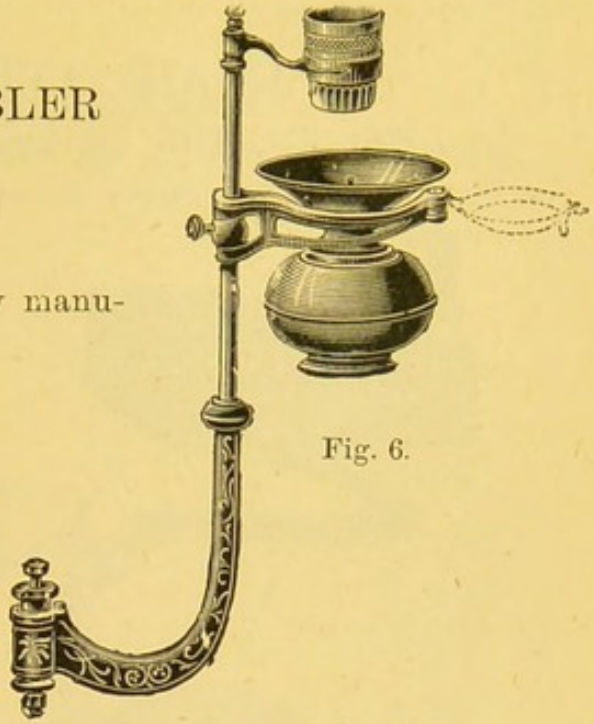
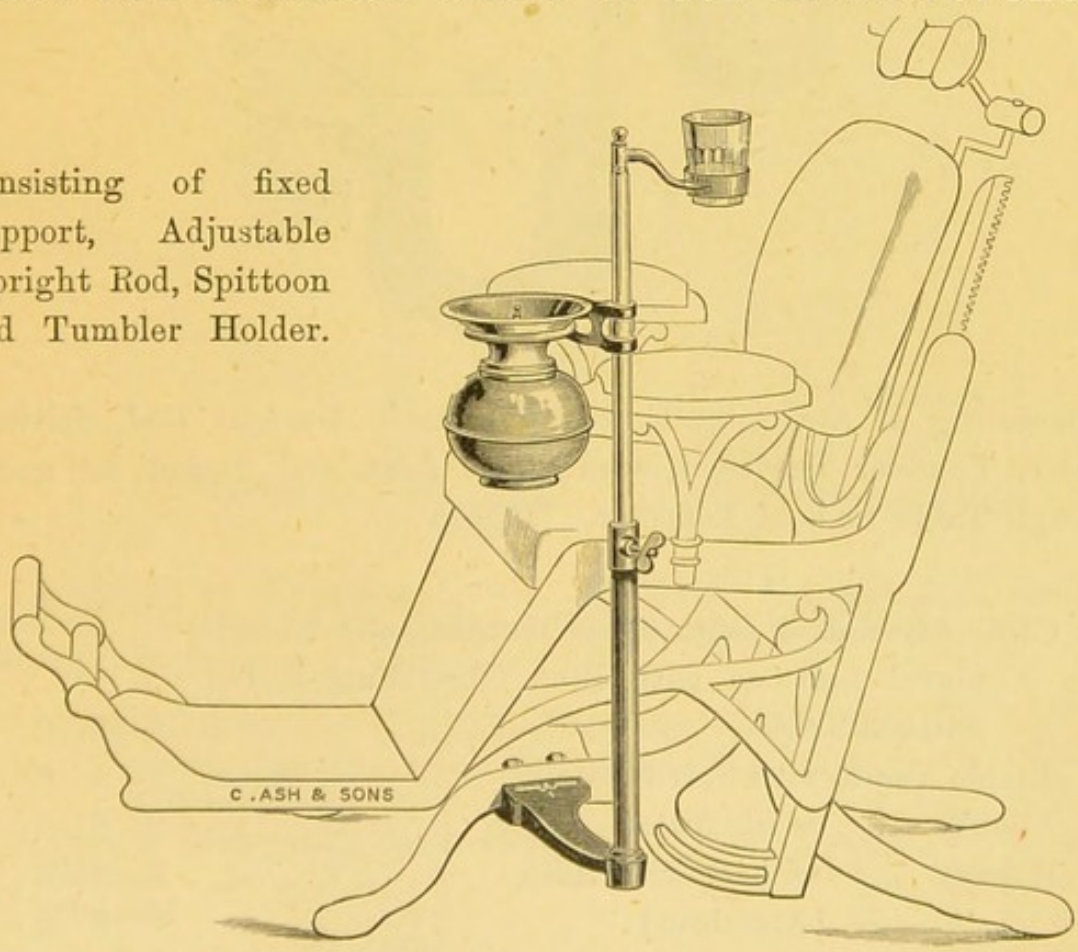


Fig. 6.

SPITTOON AND TUMBLER HOLDER,

FOR THE MORRISON CHAIR OF OUR MANUFACTURE.

Consisting of fixed Support, Adjustable Upright Rod, Spittoon and Tumbler Holder.

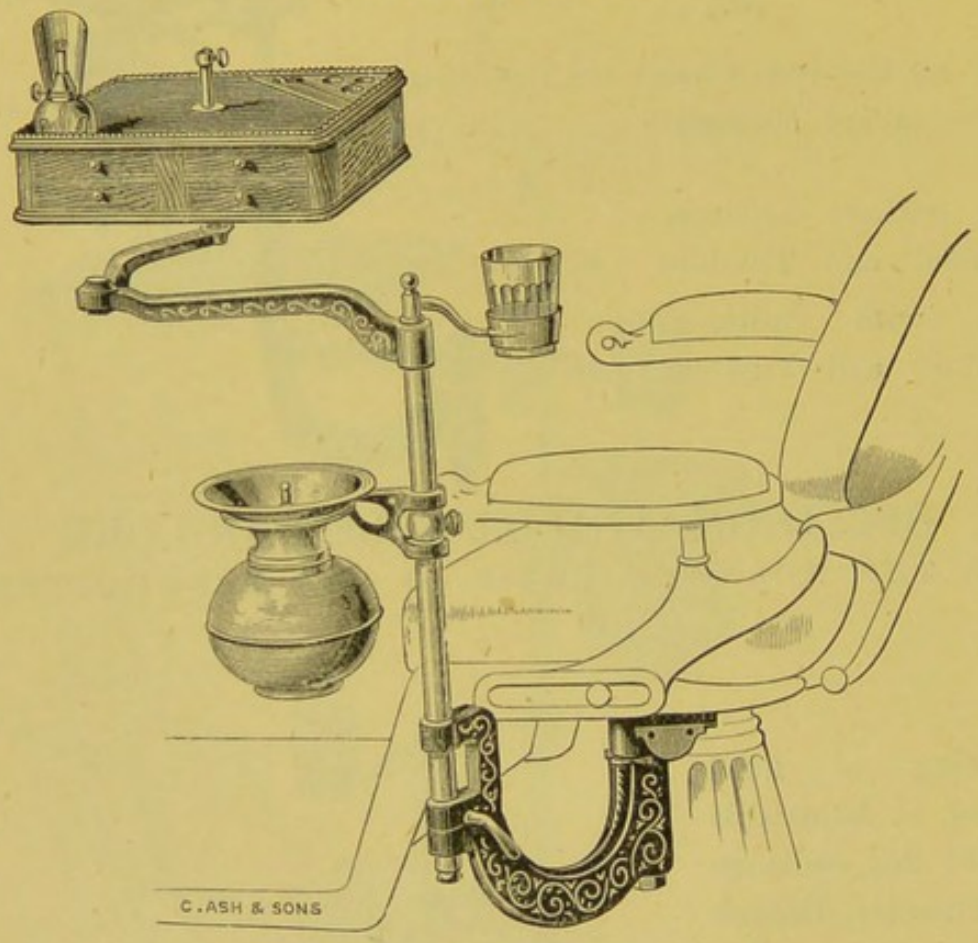


	s.	d.
Price, without Spittoon, Funnel, and Tumbler	32	0
„ with „ „ „	47	0

CHAIR ATTACHMENT,

FOR ALL THE CHAIRS, EXCEPT MORRISON'S,

Shown on pages 45 to 58.



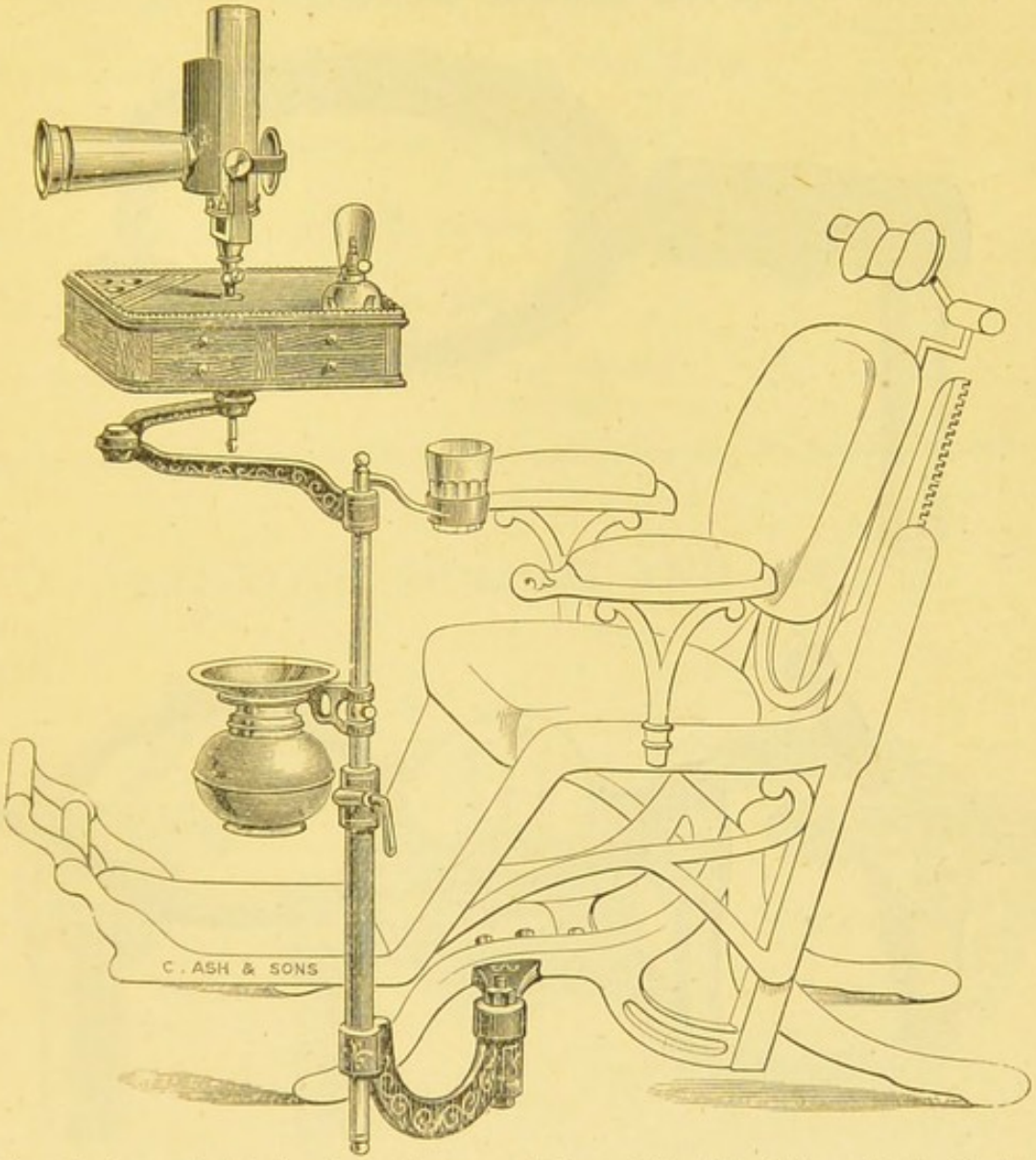
Consisting of Swinging Crane, Adjustable Upright Rod, Spittoon Holder, Tumbler Holder, jointed Table Arm, and Socket for going through Table to hold Reflector.

	£	s.	d.
Chair Attachment, with Glass Tumbler, and Nickel-plated Spittoon with Blue Glass Funnel, but without Table	3	17	0
Simple Table, with Spirit Lamp .. .. extra	1	4	0
Allan's „ *as illustrated* .. .. .. „	2	8	0
Holmes' „ with Spirit Lamp .. .. „	5	5	0
„ „ (American) „ .. .. „	6	0	0

For illustrations of Tables see pages 84 and 85.

CHAIR ATTACHMENT,

FOR THE MORRISON CHAIR OF OUR MANUFACTURE.



Consisting of Swinging Crane, Adjustable Upright Rod, Spittoon Holder, Tumbler Holder, jointed Table Arm and Socket for going through Table to hold Reflector.

	£	s.	d.
Chair Attachment, with Glass Tumbler, and Nickel-plated Spittoon with Blue Glass Funnel, but without Table	4	7	0
Simple Table, with Spirit Lamp .. .. extra	1	4	0
Allan's „ „ „ .. .. „	2	8	0
Holmes' „ „ „ .. .. „	5	5	0
„ „ (American) „ . .. „	6	0	0
Telschow's Reflector for Gas .. .. .. „	1	15	0
.. „ „ Oil, minus Stand .. „	1	12	0

SPITTOON HOLDERS AND SOCKETS,

FOR ARMS OF CHAIRS.

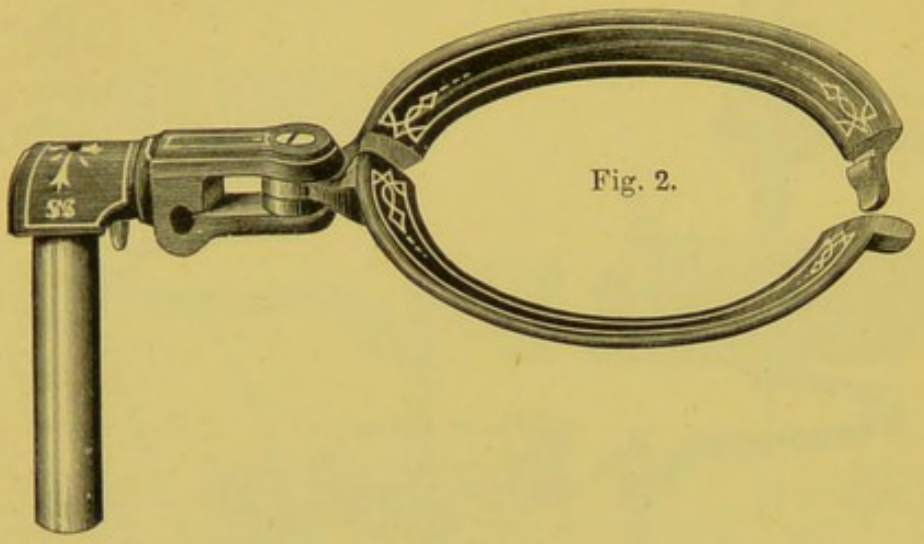


Fig. 2.

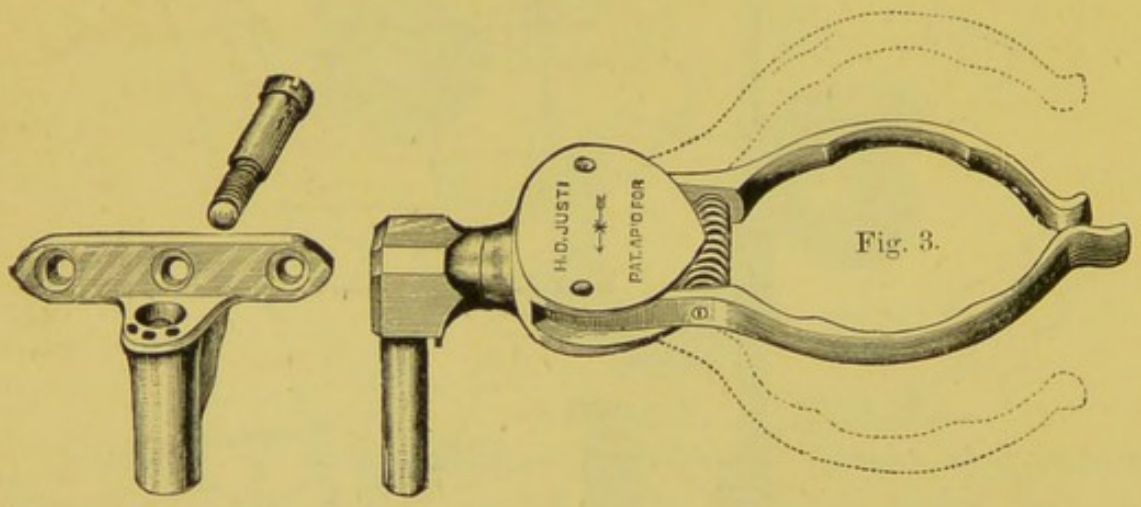


Fig. 3.

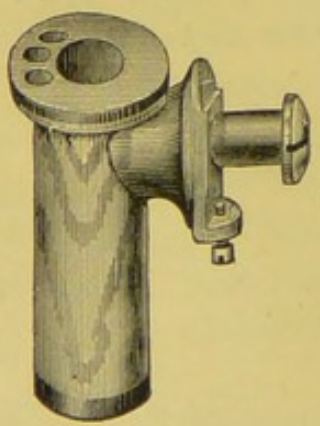


Fig. 1

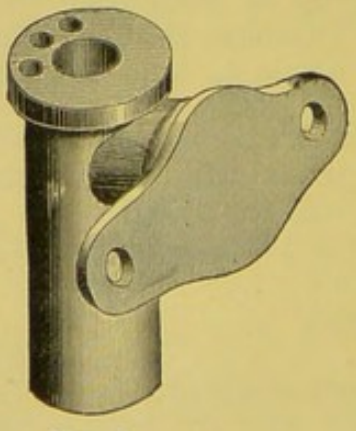


Fig. 2.

SPITTOON HOLDERS AND SOCKETS—*continued.*

Prices:

		s.	d.
Fig. 2.—Spittoon Holder with swivel joint, made of iron, japanned and ornamented, with Socket (Fig. 1) for iron chairs	complete	12	0
The same, with Socket (Fig. 2) for wooden chairs ..	„	12	0
Separately { Spittoon Holder only	(Fig. 2)	10	0
Separately { Socket only for iron chairs	(„ 1)	2	0
Separately { „ „ wooden „	(„ 2)	2	0
Fig. 3.—Spittoon Holder, in bronze Nickel-plated, with Socket for iron chairs	complete	12	0
The same, with Socket for wooden chairs	„	12	0
Separately { Spittoon Holder only	..	10	0
Separately { Socket only for iron chairs	..	2	0
Separately { „ „ wooden „	..	2	0

The Socket for iron chairs that is supplied with Holder Fig. 3 is shown to the left of it.

SPITTOON HOLDER AND SOCKET.

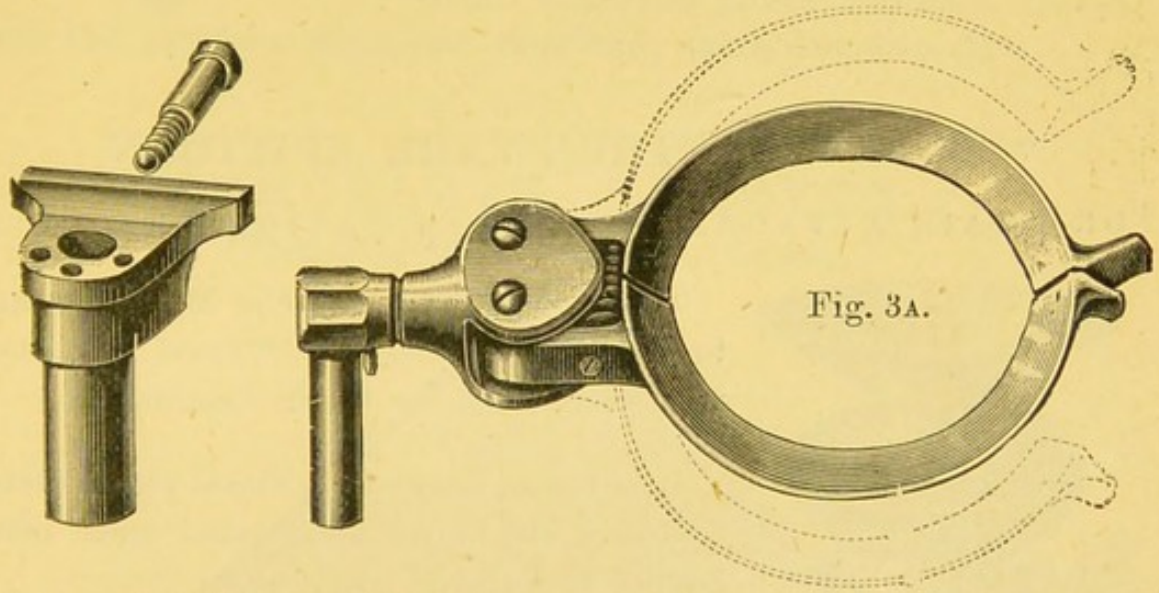


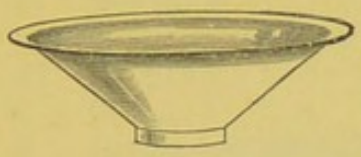
Fig. 3A.

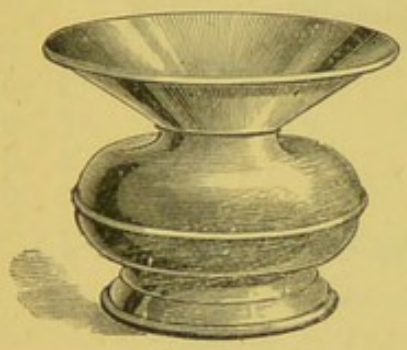
		s.	d.
Universal Spittoon Holder, Improved Form, with Socket, Nickel-plated	(Fig. 3A)	15	0
The same, with Socket (Fig. 2) for wooden chairs ..		15	0
Separately { Spittoon Holder only	(„ 3A)	13	0
Separately { Socket only for iron chairs as shown above		2	0
Separately { „ „ wooden „ ..	(Fig. 2)	2	0
Fig. 3A.—Universal Spittoon Holder, with ring four inches in diameter for holding the Jet and Gold Spittoon mentioned on page 70, and Socket for iron chairs	*Same Prices as above.*		
The same, with Socket for wooden „			

SPITTOONS AND FUNNELS,

FOR SPITTOON HOLDERS, CHAIR ATTACHMENTS, &c.

FUNNEL AND CAP.





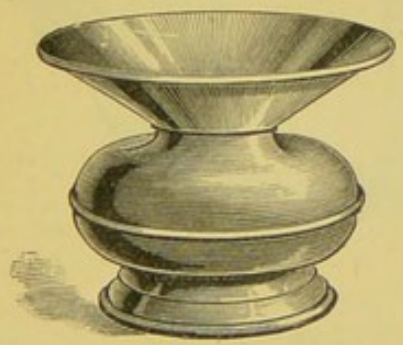
SPITTOON.

Each of the Metal Spittoons mentioned on this page is furnished with Nickel-plated Metal Cap which fits the Funnel, and thus hides from view the contents in the lower part.

	s.	d.
Ash's extra large Spittoon, Nickel-plated, capacity 3 pints	13	0
The same with Blue Glass Funnel ..	15	0
„ with Ruby „ ..	16	0
"Squat" Spittoon, Nickel-plated, with Blue Glass Funnel	9	6
The same with Ruby Glass Funnel ..	10	6
Improved Nickel-plated Caps for Spittoons now in use .. .. each	1	0

"SQUAT" EARTHENWARE SPITTOON,

FOR CHAIR ATTACHMENTS, IN IMITATION MAJOLICA.



SPITTOON.

Those Operators who prefer **Earthenware** to **Metal** will find this "Squat" Spittoon very serviceable for Chair Attachments.

It is not so showy as a Nickel-plated Metal Spittoon, but it can be cleansed much more readily and always looks nice.

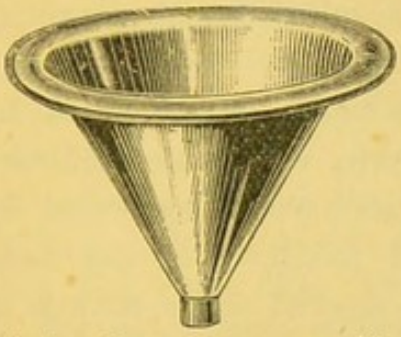
	s.	d.
Price	3	3
Jet and Gold Spittoon—capacity, two quarts—for Spittoon Holders, the rings of which are not less than 4 inches in diameter, clear inside measurement— *see bottom of page* 69	10	0
Metal Caps, Nickel-plated for the above two Earthenware Spittoons .. .. each	1	0

FUNNELS FOR NICKEL-PLATED SPITTOONS.

		s.	d.
Blue Glass	each	2	0
Ruby „	„	3	0
Claret-coloured Glass for American Spittoons	„	3	0

In ordering these please state for which Spittoon they are intended.

FUNNELS FOR PEDESTAL SPITTOONS.



Prices:

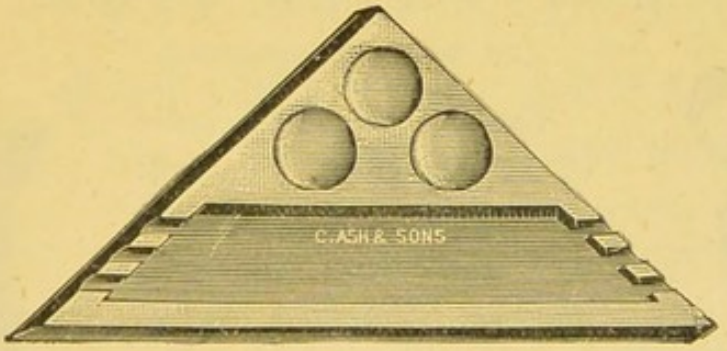
(ACCORDING TO THE SIZE REQUIRED.)

		From s.	From d.	To s.	To d.
In Blue Glass	each	5	0	7	6
In Metal, *to Order* ..	„	9	6	12	6
„ Nickel-plated	„	18	0	21	0

When ordering these Funnels, please state the extreme diameter required, including the rim.

PORCELAIN PALETTE.

(Designed by Mr. H. C. CARTER, of London.)

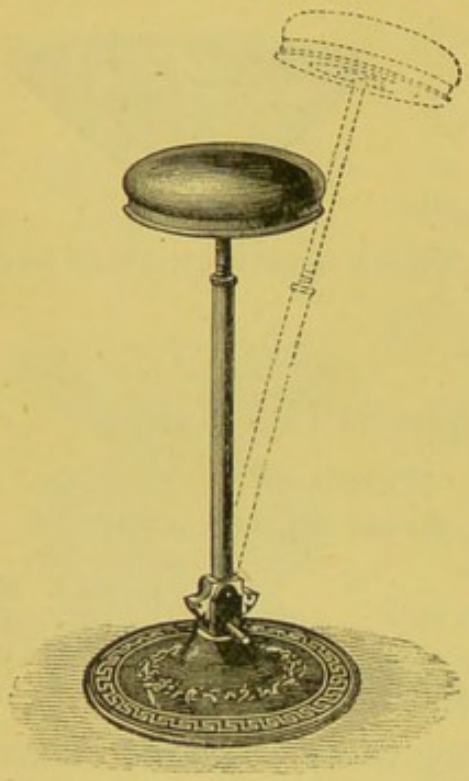


This Palette is triangular in form, shaped to fit any corner of the five bracket tables illustrated on pages 84 and 85, and made with three shallow wells for holding medicaments that stain, and a tray for the instruments that are employed in their application.

By its use the cloth on the top of the table is saved from injury, and each time after the Palette has been used it can be removed and thoroughly cleansed by washing.

	s.	d.
Price	1	0

ASH'S ADJUSTABLE STOOL.



This Stool has a range of 8½ inches, the lowest position being 23, and the highest position 34 inches. As the total weight is only 17 lbs., it can easily be lifted with one hand and placed in any desired position. It is elegant in appearance, the Seat being upholstered in green or maroon plush or leather, the Pillar nickel-plated, and the Base japanned black, relieved with ornamentation.

The Seat is raised and lowered by means of a screw, while the backward and forward movement is controlled by a nickel-plated foot-lever at the Base, which can be worked while sitting on the Stool either with the right or the left foot.

	£	s.	d.
Price, in Green or Maroon Plush, or Leather ..	2	10	0

HOT-WATER JUGS.

(TO HOLD TWO QUARTS.)

Fig. 1.

These Jugs being made of strong block tin, will not break, and are therefore well fitted for their purpose. Supplied in two forms as under:—

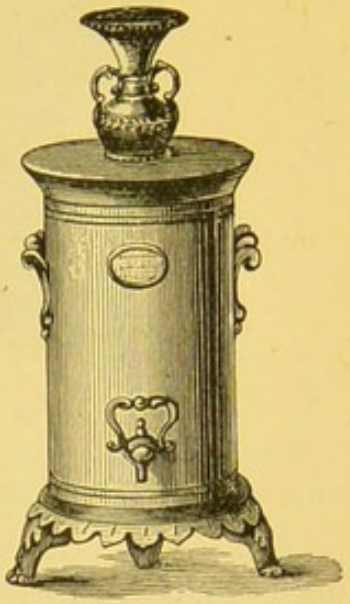
Fig. 2.

		s.	d.
For the Operating Room—Japanned black, to imitate jet, and relieved with gold lines	(Fig. 1)	4	9
" " " "	(" 2)	5	6
For Hospital and Dispensary Use—Painted to represent oak	(Fig. 1)	2	9
" " " "	(" 2)	3	9

Larger or smaller sizes supplied to order.

HOT-WATER APPARATUS.

Fig. 30.



Height, 21 inches;
Outside diameter of Base, 14 inches.

This apparatus is very favourably spoken of by the dental surgeons who use it. It will hold six quarts of water, and assuming that it is put into it at boiling point, will keep it hot for many hours. We find that after five hours the water indicates a temperature of

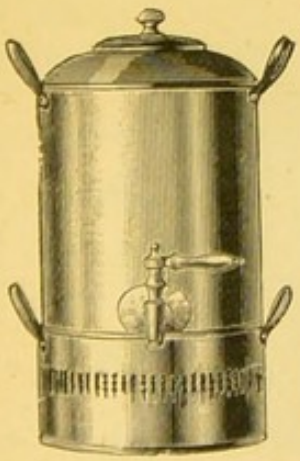
130 degrees Fahrenheit,

and at the end of twenty-three hours it is still warm.

Some slight variation will no doubt be found in different climates and in cold weather, but we think the above statements prove that the apparatus is well adapted for general use in the Operating Room.

It is made of block tin, tastefully japanned in imitation of black marble, with ebonized wooden plinth and cover and electro-plated ornamental tap, the water being protected from external cold by means of a thick lining of felt placed between the water-holder and the outer case and cover of the apparatus. The base is not made with feet as shown in the illustration, but is quite solid, and there are no handles or label on the apparatus.

	s.	*d.*
Price, without the Spittoon	55	0



HOT-WATER APPARATUS,

FOR THE OPERATING ROOM.

Adapted for use with gas or spirit. When ordering please state whether it is required with gas burner or spirit lamp.

It will hold six quarts of water, and can be had in any of the following colours:

Chocolate and Gold.
Oxford Blue and Gold.
Black and Gold.

	s.	*d.*
Price complete with Gas Burner	19	6
„ „ Spirit Lamp	19	6
The same in Copper, Nickel-plated, either style	52	6

HAND SPITTOONS.

Fig. 5.

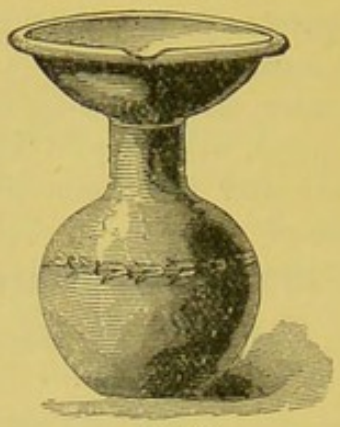


Fig. 6.

These Spittoons are coloured to imitate Jet, Malachite, and Majolica, and are made in two sizes—10½ and 9½ inches high.

		Size 2.		Size 3.	
		s.	*d.*	*s.*	*d.*
Jet or Malachite, with handle	(Fig. 5) each	9	0	8	0
,, ,, without ,, ...	(,, 5) ,,	8	6	7	6
Majolica with ,, ...	(,, 5) ,,	7	6	6	6
,, without ,, ...	(,, 5) ,,	6	6	5	6
Jet or Malachite, without ,, ...	(,, 6) ,,	8	6	7	6

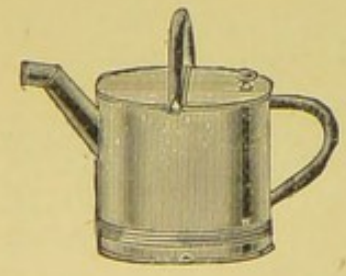
HAND SPITTOONS, without handles, similar in form to Fig. 5, shown above, elegantly coloured and ornamented. They are kept in stock in sizes 2 and 3, and known as **Pink Moorish** and **New Moorish.**

Prices:

		s.	*d.*
Pink Moorish	Size 2 .. each	10	0
,, ,, ...	,, 3 .. ,,	9	0
New Moorish	,, 2 .. ,,	10	0
,, ,, ...	,, 3 .. ,,	9	0

Water Bottles, 12 inches high, with Plates, to match Spittoons:—

		s.	*d.*
Jet or Malachite	each	7	6
Majolica	,,	4	6



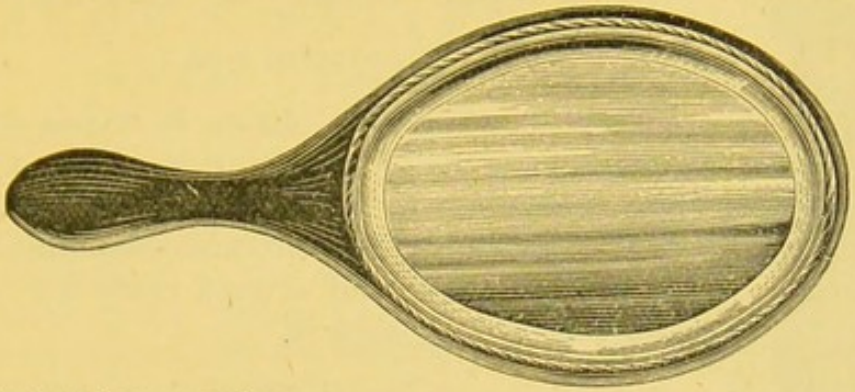
HOT-WATER CAN,

FOR THE DENTAL SURGERY.

Made of pure nickel, with ebonized knob on lid. Capacity, 3 quarts.

	s.	*d.*
Price	12	0

MAHOGANY HAND MIRRORS.



Supplied in two sizes as under :—			s.	d.
No. 10, with bevelled glass, $5\frac{5}{8}$ by $3\frac{3}{8}$ inches	each		2	6
„ 11, „ „ $6\frac{1}{8}$ „ 4 „	„		3	0

SATINWOOD HAND MIRRORS.

Supplied in two sizes as under :—			s.	d.
No. 10, with bevelled glass, $5\frac{5}{8}$ by $3\frac{3}{8}$ inches	each		4	9
„ 11, „ „ $6\frac{1}{8}$ „ 4 „	„		5	9

ROSEWOOD HAND MIRRORS.

Supplied in two sizes as under :—			s.	d.
No. 10, with bevelled glass, $5\frac{5}{8}$ by $3\frac{3}{8}$ inches	each		4	9
„ 11, „ „ $6\frac{1}{8}$ „ 4 „	„		5	9

EBONY HAND MIRRORS.

With bevelled glasses, supplied in the following sizes :—			s.	d.
No. 10, glass $5\frac{5}{8}$ by $3\frac{3}{8}$ inches	each		5	6
„ 11, „ $6\frac{1}{4}$ „ 4 „	„		6	6

CABINET MIRRORS.

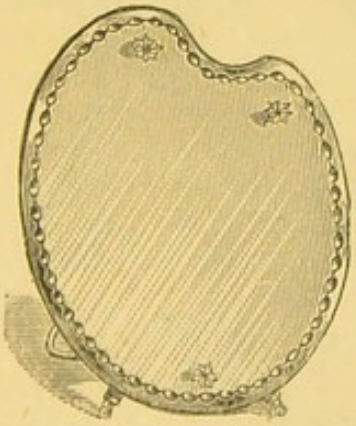


Fig. 1.

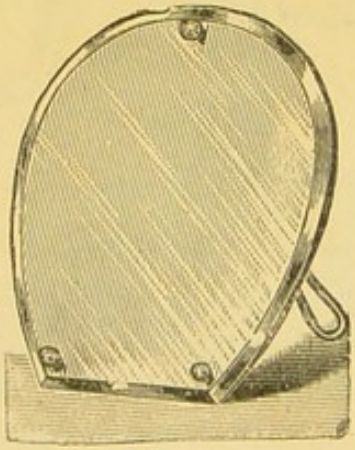
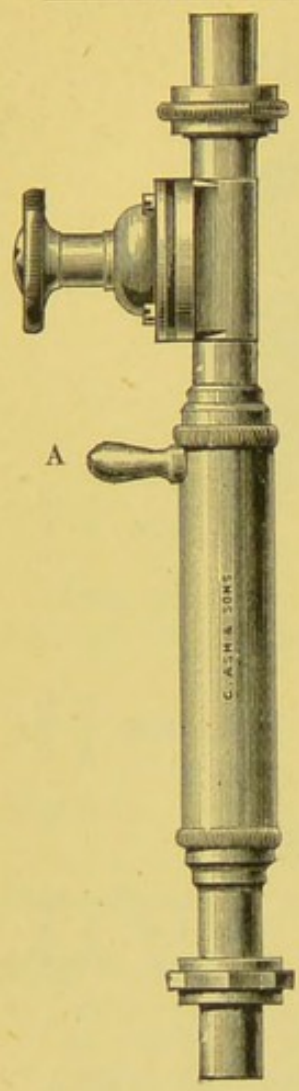


Fig. 2.

			s.	d.
Palette form, size of glass $11\frac{1}{2}$ by $9\frac{1}{4}$ inches	(Fig. 1) each		7	6
Horse-shoe pattern, „ „ $11\frac{1}{4}$ „ $9\frac{1}{2}$ „	(„ 2) „		6	6



WALL SALIVA EJECTOR.

(IMPROVED FORM.)

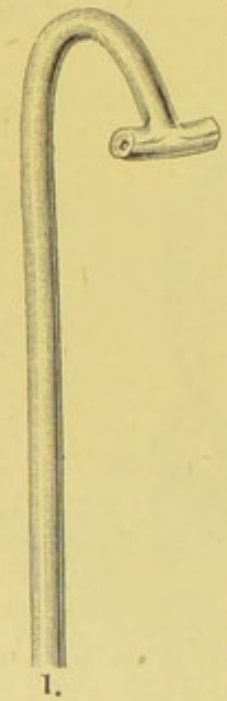
Consisting of a metal tube, 8 inches long, with adjustable unions for attaching to piping against the wall. There are no intricate parts in it to get out of order; it is simple, efficient and economical in working, easily cleaned and always ready for use. Any water supply will work it.

To make it suitable for high as well as low water pressures, we have substituted the screw-down tap, shown in the present illustration, for the simple T tap, which we formerly fitted to it.

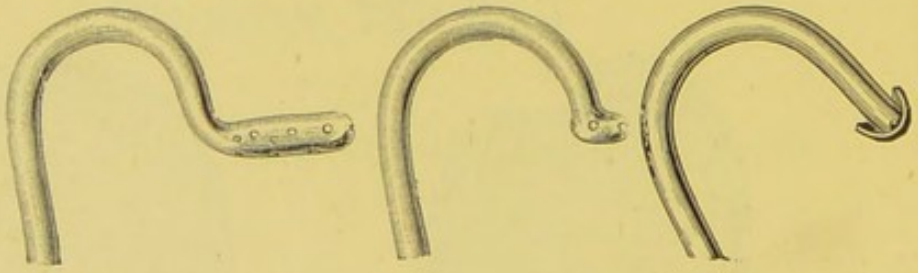
Note.—The Wall Saliva Ejector should be fitted about 2 feet from the ground, the top end being connected to the water supply, and the lower end to the waste pipe. The joints can either be made permanently by a plumber, or temporarily with short lengths of stout India-rubber Tubing, as may be desired.

		s.	*d.*
In Brass, Nickel-plated, complete		27	6
India-rubber Tubing for connecting the mouth tube to the pipe A ..	per foot	0	4

MOUTH TUBES FOR SALIVA EJECTORS.



1.



2. 3. 5.

		s.	*d.*
Clear Glass	(Figs. 1—3) each	0	6
Blue „	(„ 1—3) „	0	6
Clear or Blue Glass	(„ 1—3) per doz.	5	0
German Silver, Nickel-plated ..	(„ 1, 3, 5) each	3	0

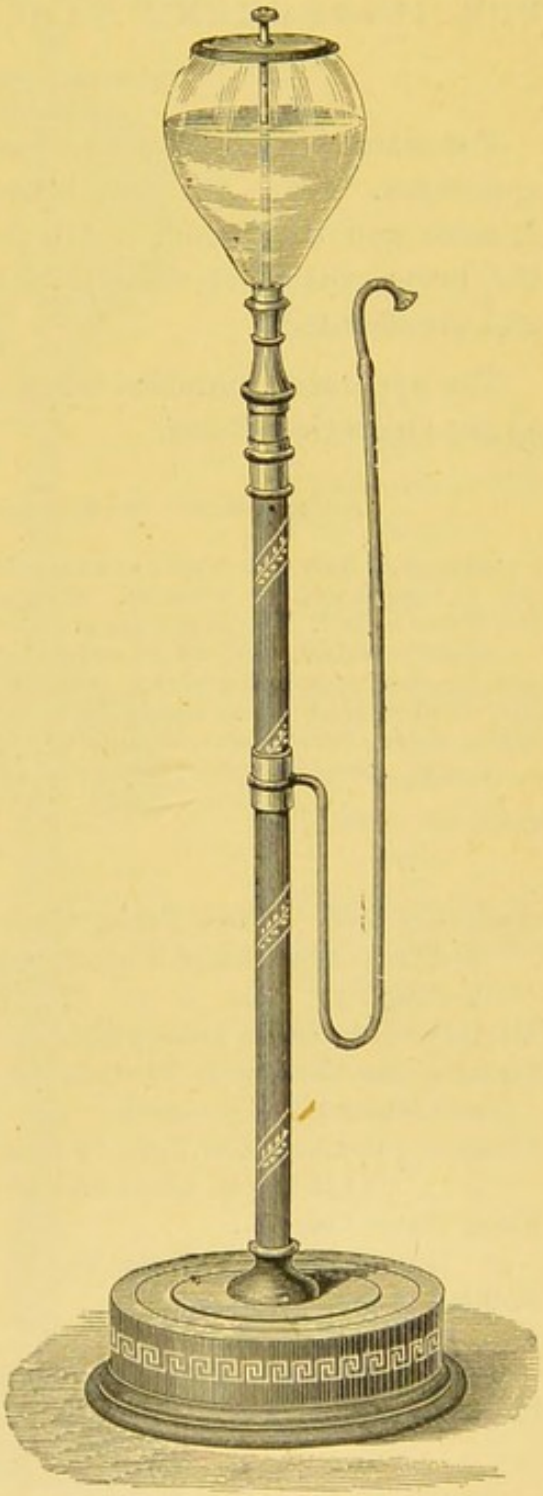
Fig. 5 is made with a shield which rests on the floor of the mouth and prevents the suction of the Saliva Ejector drawing the mucous membrane into the holes through which the saliva passes.

SNOW'S SALIVA EJECTOR

(WITH MR. C. ROGERS' IMPROVEMENTS).

The value and importance of an apparatus that will remove the saliva from the mouth cannot be over-estimated as regards the comfort of either the patient or the operator, the important point being that it shall work automatically for several hours, and yet be independent of a large supply of water.

The Saliva Ejector is an apparatus which is found to meet these requirements. It is elegant in appearance, simple in construction, and easily regulated. The glass vessel at the top of the Ejector holds six pints of water, which passes inside the tube and discharges itself into the receiver under the stand of the Ejector. It can be placed behind or at the side of the chair, as may be desired, and put aside when not in use.



Directions.

To prepare the Ejector for use, remove the nickel-plated lid of the glass vessel, fill the vessel with clean water, replace the lid, unscrew the milled button on the top two or three turns, and allow the water to pass freely through the tube for a few seconds; then screw up the button just far enough to allow the water to pass through in drops, when a slight turn one way or the other will be found sufficient to regulate the action.

The mouth tube can be cleansed by running a little fresh water through it.

		s.	d.
Saliva Ejector complete, all bright parts Nickel-plated, with Glass Mouth-Tube, length of India-rubber Tubing, and Hook on upright for holding the mouth-tube		60	0
Extra Parts	India-rubber Tubing .. .. per foot	0	4
	Glass Vessel or Water Holder	5	0

COMBINED SALIVA EJECTOR AND STAND,

FOR INSTRUMENT TABLE, SPITTOON, AND TUMBLER.

(IMPROVED FORM WITH FOUR FEET.)

For many years past there has been an increasing demand for this apparatus. Since its first introduction we have improved the Saliva Ejector and the Stand. All the bright parts are nickel-plated, and the lower portion of the Upright and the Stand are tastefully japanned and ornamented.

The apparatus complete forms a most useful and convenient addition to the Operating Room.

Extract from the "British Journal of Dental Science," for March 15th, 1884.

"Messrs. C. ASH AND SONS have manufactured a most elegant and comprehensive apparatus, as represented by woodcut. With nickel-plating, glass, and ornamentation it is very handsome indeed. The engraving gives so accurate an idea of its usefulness that little else is necessary. It may, however, be mentioned that it is provided with the ordinary Allan's table and bracket lamp, nickel-plated spittoon with blue glass funnel, two tumbler holders, and that an important improvement has been made in the Saliva Ejector by placing the India-rubber tubing lower down the stem to give the water a greater fall from the reservoir, and so creating a greater degree of suction."

Prices:

		£	s.	d.
Apparatus with Allan's Table, Bracket Lamp, two Tumblers, Nickelled Spittoon, Blue Glass Funnel, Glass Mouth Tube, and India-rubber Tubing		8	3	0
The same with Simple instead of Allan's Table		6	19	0
Either of the above with Water Bottle Holder attached to Tumbler Holder, and Water Bottle complete	extra	0	14	6
Telschow's Improved Gas Reflector for either Table	„	1	15	0
„ Oil Reflector, minus Stand „	„	1	12	0
Extra Water Vessels	each	0	5	0
„ Rods, for inside of Water Vessel	„	0	2	0
Mouth Tubes, Clear Glass	„	0	0	6
„ „ Blue „	„	0	0	6
„ „ German Silver, with Bulbous or T-shaped ends ..	„	0	3	0
India-rubber Tubing	per foot	0	0	4

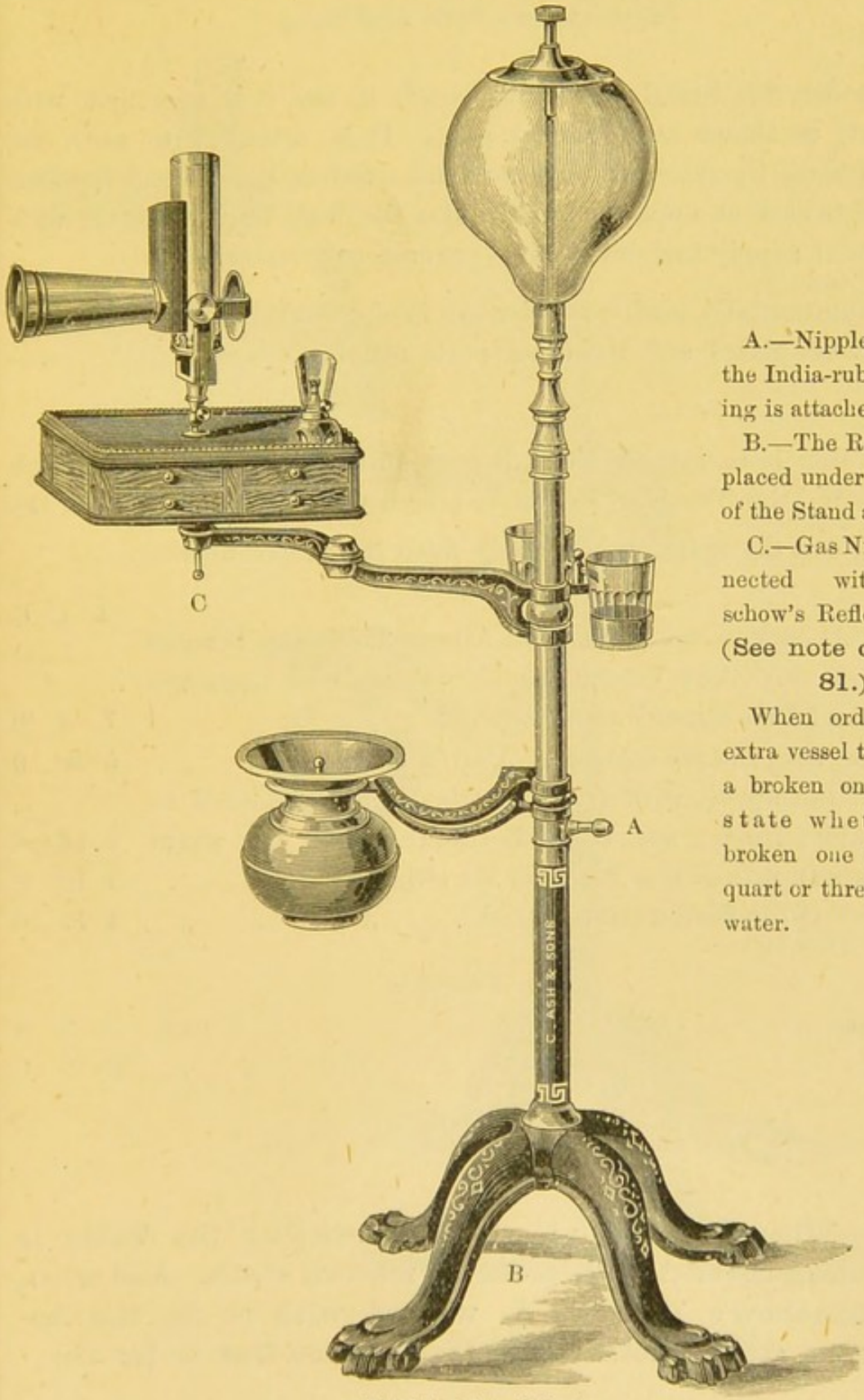
The Mouth Tubes are illustrated on page 76.

Note.—When ordering, please state whether the Table is required covered with green or maroon cloth. And when a Telschow's Reflector is wanted for or with the Apparatus, state whether it is required for Gas or for Oil.

COMBINED SALIVA EJECTOR AND STAND,

FOR INSTRUMENT TABLE, SPITTOON, AND TUMBLER — *continued.*

(IMPROVED FORM, WITH FOUR FEET.)



A.—Nipple to which the India-rubber Tubing is attached.

B.—The Receiver is placed under the legs of the Stand at B.

C.—Gas Nipple connected with Telschow's Reflector.

(See note on page 81.)

When ordering an extra vessel to replace a broken one, please state whether the broken one held one quart or three pints of water.

Total height, 57 inches.

STAND FOR INSTRUMENT TABLE, SPITTOON, &c.

(IMPROVED FORM, WITH FOUR FEET.)

To render this Stand thoroughly steady in use, it is now made with four feet, as shown on the next page. It is intended to meet the needs of those Operators who do not want a Saliva Ejector and Receiver attached to such an apparatus, but prefer the Wall Saliva Ejector with its constant supply and outlet pipes permanently connected to it.

It is substantially made and elegant in appearance, the bright parts being nickel-plated and the other parts tastefully japanned and ornamented.

The Table is so arranged that it rests quite firmly on the arm which supports it; the Tumbler Holder is placed well out of the way of the Spittoon, and the Spittoon is securely fixed in the closing ring.

		£	s.	d.
Price of Apparatus complete, with Allan's Table and Bracket Lamp, two Glass Tumblers, and Spittoon with improved cap and Blue Glass Funnel		7	3	0
The same, with Simple instead of Allan's Table		5	19	0
Either of the above, with Water Bottle Holder atttached to Tumbler Holder, and Water Bottle, complete ..	extra	0	14	6
Telschow's Improved Gas Reflector for either Table ..	,,	1	15	0
,, Oil Reflector, minus Stand ,, ..	,,	1	12	0

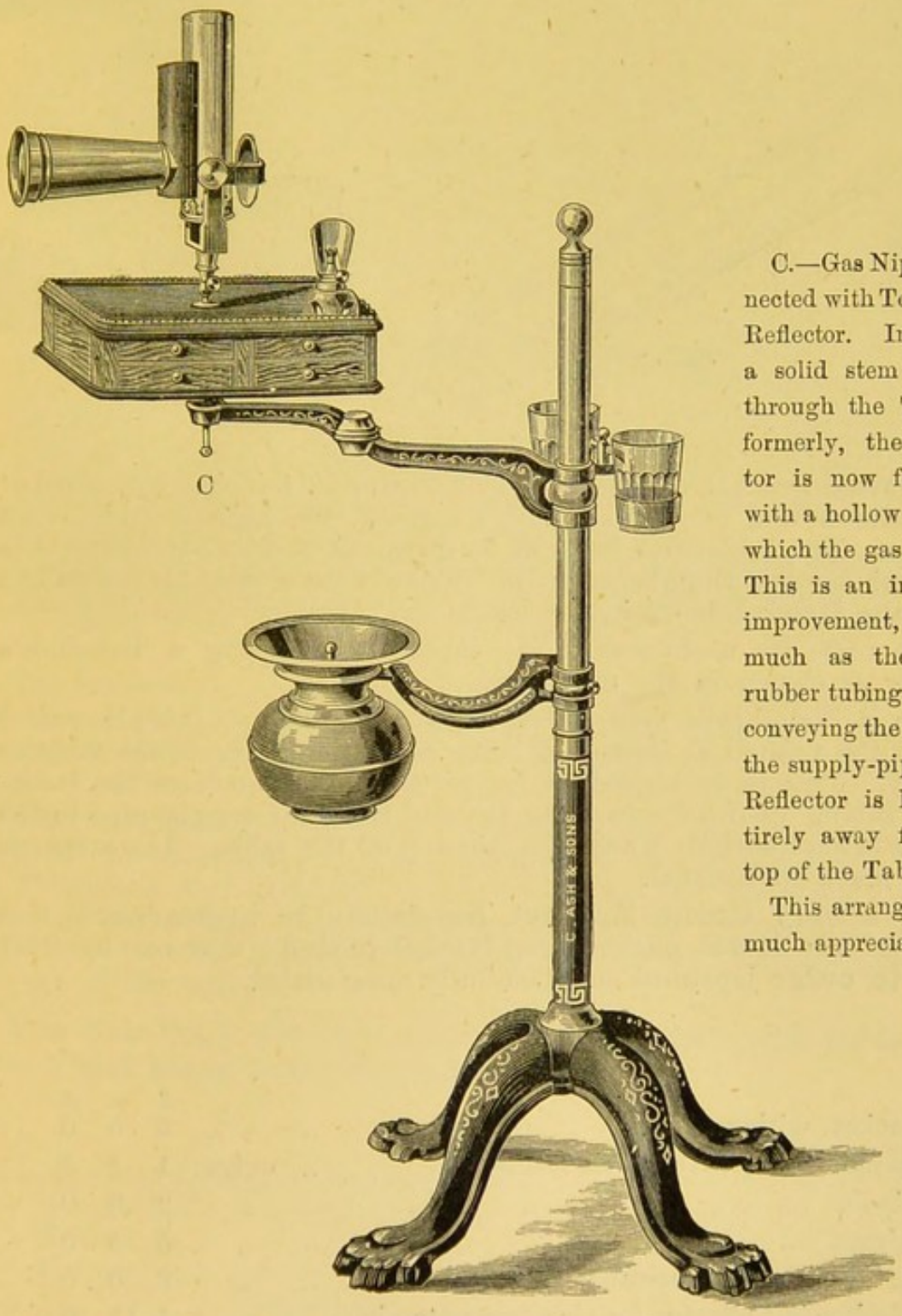
Extra Funnels:

Blue Glass	each	0	2	0
Ruby ,, ...	,,	0	3	0

NOTE.—When ordering, please state whether the Table is required covered with green or maroon cloth. And when a Telschow's Reflector is wanted with or for the Apparatus, state whether it is required for Gas or for Oil.

STAND FOR INSTRUMENT TABLE, SPITTOON, &c.

(IMPROVED FORM WITH FOUR FEET.)



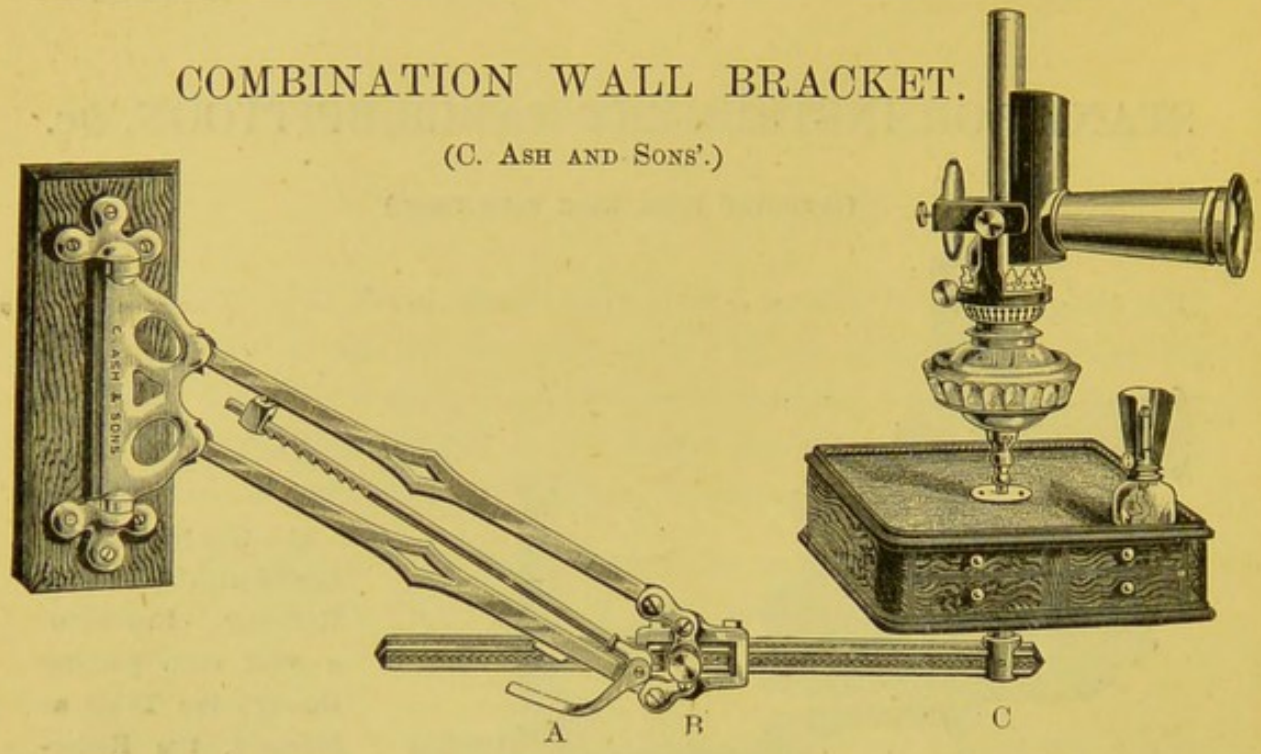
C.—Gas Nipple connected with Telschow's Reflector. Instead of a solid stem passing through the Table as formerly, the Reflector is now furnished with a hollow tube, up which the gas ascends. This is an important improvement, inasmuch as the india-rubber tubing used for conveying the gas from the supply-pipe to the Reflector is kept entirely away from the top of the Table.

This arrangement is much appreciated.

Total height of stand 49 inches.

COMBINATION WALL BRACKET.

(C. Ash and Sons'.)



This Wall Bracket can be raised or lowered 24 inches by means of the handle A, and fixed at any point between the highest and lowest positions. The horizontal bar can be drawn forward 27 inches, and is controlled by the thumb-screw B. When drawn out to its fullest extent the Bracket is 49 inches long.

To increase its usefulness it is adapted for holding a Telschow's Reflector as shown in the engraving.

When a Telschow's Gas Reflector is used the gas nipple passes through the tube at C, instead of being put over the top of the table as formerly. This is an important improvement, inasmuch as the india-rubber tubing used for conveying the gas from the supply-pipe to the reflector is kept entirely away from the top of the table. The arrangement is much appreciated.

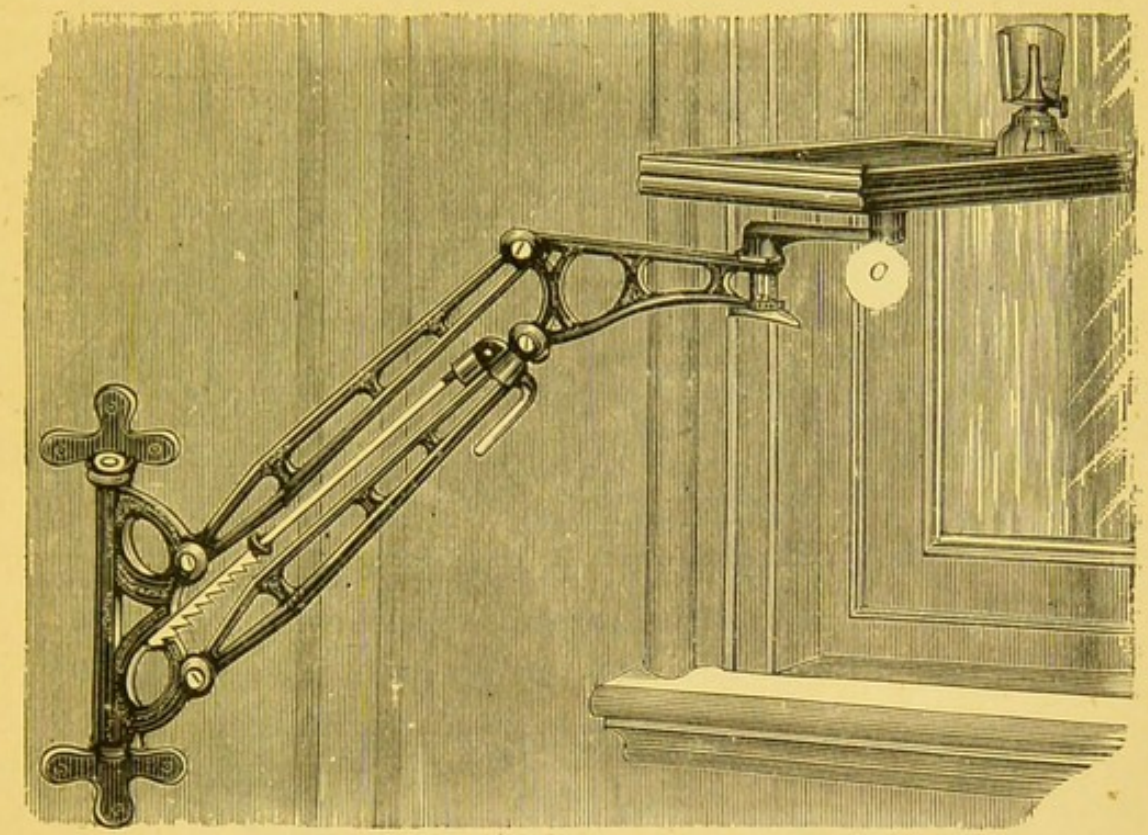
It is a very strong Bracket, handsome in appearance, the whole of the metal parts being Nickel-plated; they can however be had **to order** japanned and tastefully ornamented.

Prices:

	£	*s.*	*d.*
Bracket, without Table	3	0	0
Simple Table, with Spirit Lamp .. .. extra	1	4	0
Allan's „ „ „ .. .. „	2	8	0
Holmes' „ „ „ .. .. „	5	5	0
„ „ (American) „ .. .. „	6	0	0
Telschow's Reflector for Gas (see note above) „	1	15	0
„ „ for Oil, minus Stand .. „	1	12	0

WALL BRACKET.

(AMERICAN PATTERN.)



The latest form of this admirable Bracket has a horizontal adjustment of 15 inches, which, with the reach of the pivoted arms, permits it to be swung 45 inches from the wall. The illustration shows the table at its highest position. From this point it can be lowered 19 inches.

Like the Combination Wall Bracket on the opposite page, it is adapted for holding a Telschow's Reflector as there illustrated. When a Telschow's Gas Reflector is used with it, the gas nipple passes through the tube at C shown above, so that the india-rubber tubing which conveys the gas from the supply-pipe to the reflector is kept off the top of the table.

The Bracket is strongly made and thoroughly well japanned, the bright parts being Nickel-plated.

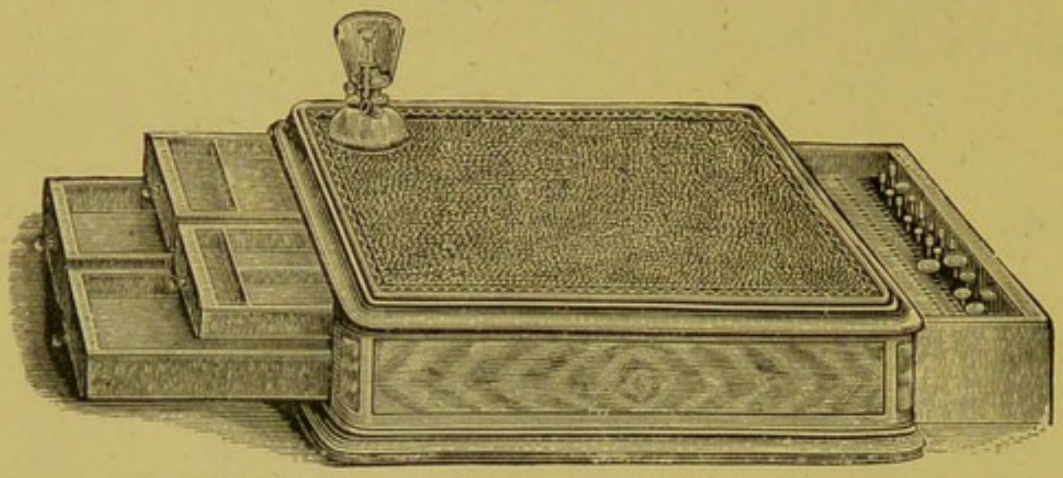
Prices:

	£	s.	d.
Bracket (Japanned), without Table	2	12	0
Simple Table, with Spirit Lamp .. .. extra	1	4	0
Allan's „ „ „ .. .. „	2	8	0
Holmes' „ „ „ .. .. „	5	5	0
„ „ (American) „ .. .. „	6	0	0
Telschow's Reflector for Gas (see note on page 82) „	1	15	0
„ „ for Oil, minus Stand .. „	1	12	0

BRACKET TABLES.

(BEST ENGLISH MAKE.)

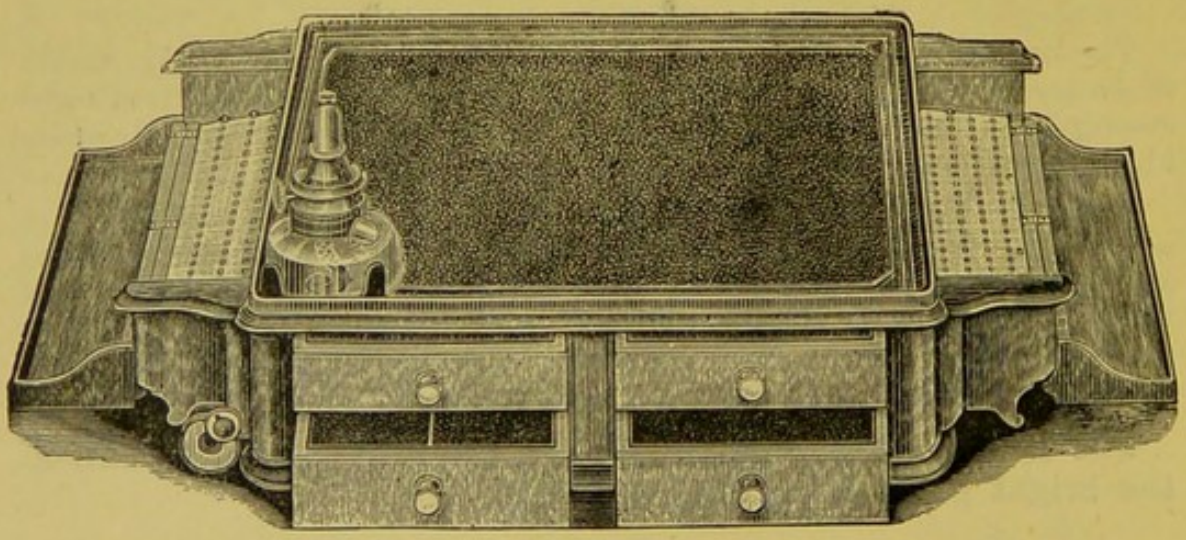
ALLAN'S.



In Walnut, covered with Green or Maroon Cloth.

	£	s.	d.
Price complete, with Spirit Lamp and Shield ..	2	8	0
,, ,, with Tiled Top, any design ..	2	18	0

HOLMES'.



In Walnut, covered with Green or Maroon Cloth.

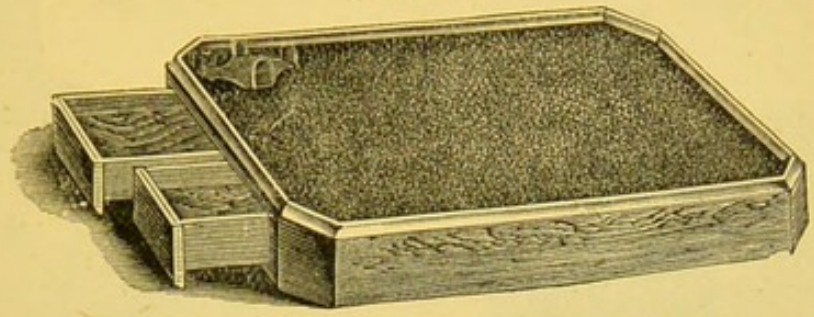
	£	s.	d.
Price complete, with Spirit Lamp and Shield ..	5	5	0
The same (American make)	6	0	0

When ordering a Bracket Table, please state whether it is to be covered with Green or Maroon Cloth, and for which Bracket, or Attachment, or Stand it is required.

BRACKET TABLE.

(BEST ENGLISH MAKE.)

SIMPLE.



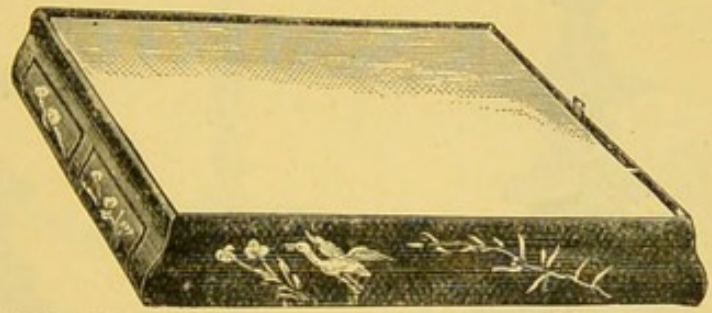
In Walnut, covered with Green or Maroon Cloth.

	£	s.	d.
Price complete, with Spirit Lamp and Shield	1	4	0

BRACKET TABLES.

(JAPANESE MAKE.)

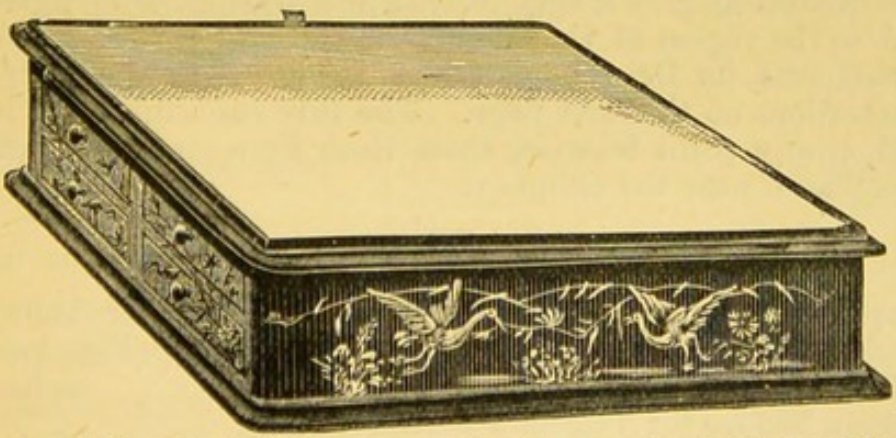
SIMPLE.



Lacquered Wood, tastefully ornamented and covered with Maroon Plush.

	s.	d.
Price complete, with Spirit Lamp and Shield	18	6

ALLAN'S.

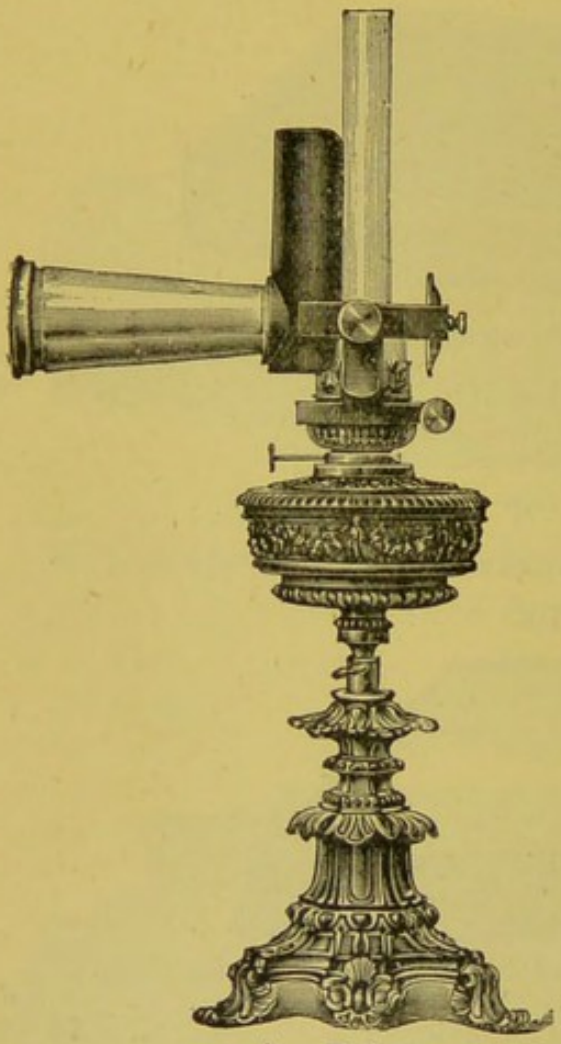


Lacquered Wood, tastefully ornamented and covered with Maroon Plush.

	£	s.	d.
Price complete, with Spirit Lamp and Shield	1	10	0

TELSCHOW'S REFLECTORS.

Fig. 3 for Oil or Petroleum, arranged for two purposes:—



As a Reflector.

As a Reading Lamp.

These Reflectors give a very intense and concentrated light, which is confined to the region of the mouth. Their full range, which has been found sufficient for Dental operations, is shown by the dotted lines in the illustrations on the next page. The tube containing the lens can be adjusted at any point between these lines by means of a thumb-screw, which is placed near the chimney.

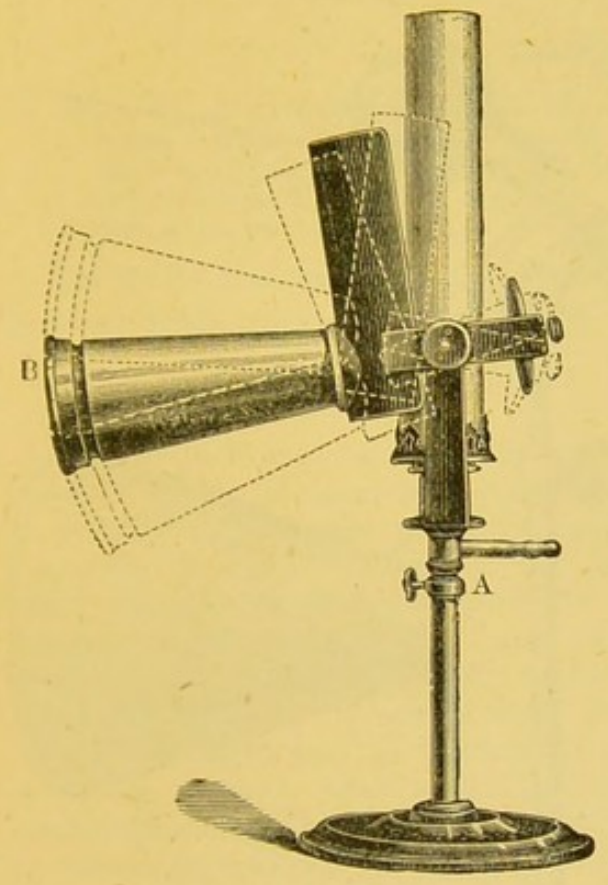
Prices:

		s.	d.
Lamp with handsome Bronze Pedestal, Reflector and Globe	(Fig. 3)	47	0
Extra Globes	each	2	0
Green Shades for Telschow's Reflectors	„	3	0

These serve to keep the light from the eyes of the operator. The top of each shade is lined with asbestos to prevent it being charred by the heat.

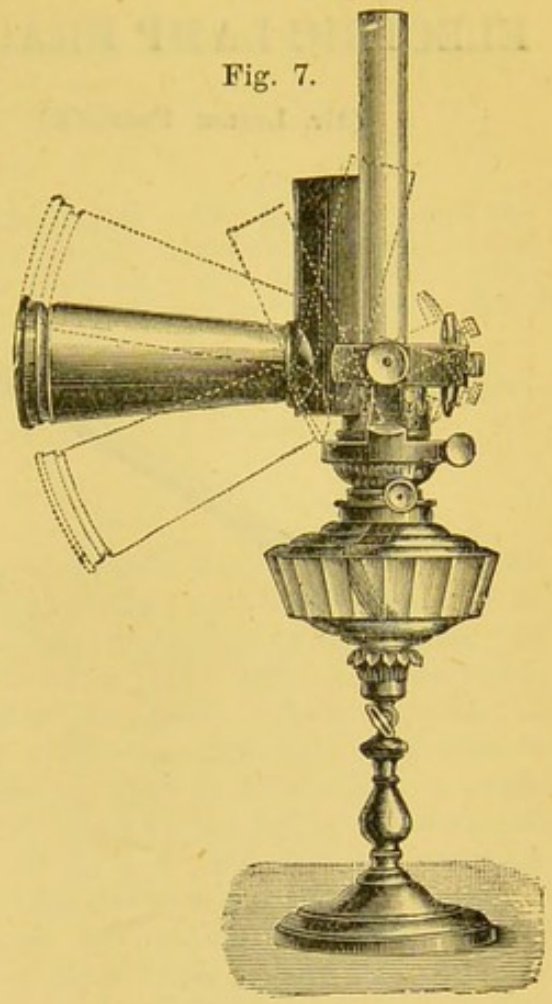
TELSCHOW'S REFLECTORS.

Fig. 6.



For Gas.

Fig. 7.



For Oil or Petroleum.

Fig. 7 can be used as a Reading Lamp if fitted with Globe like Fig. 3.

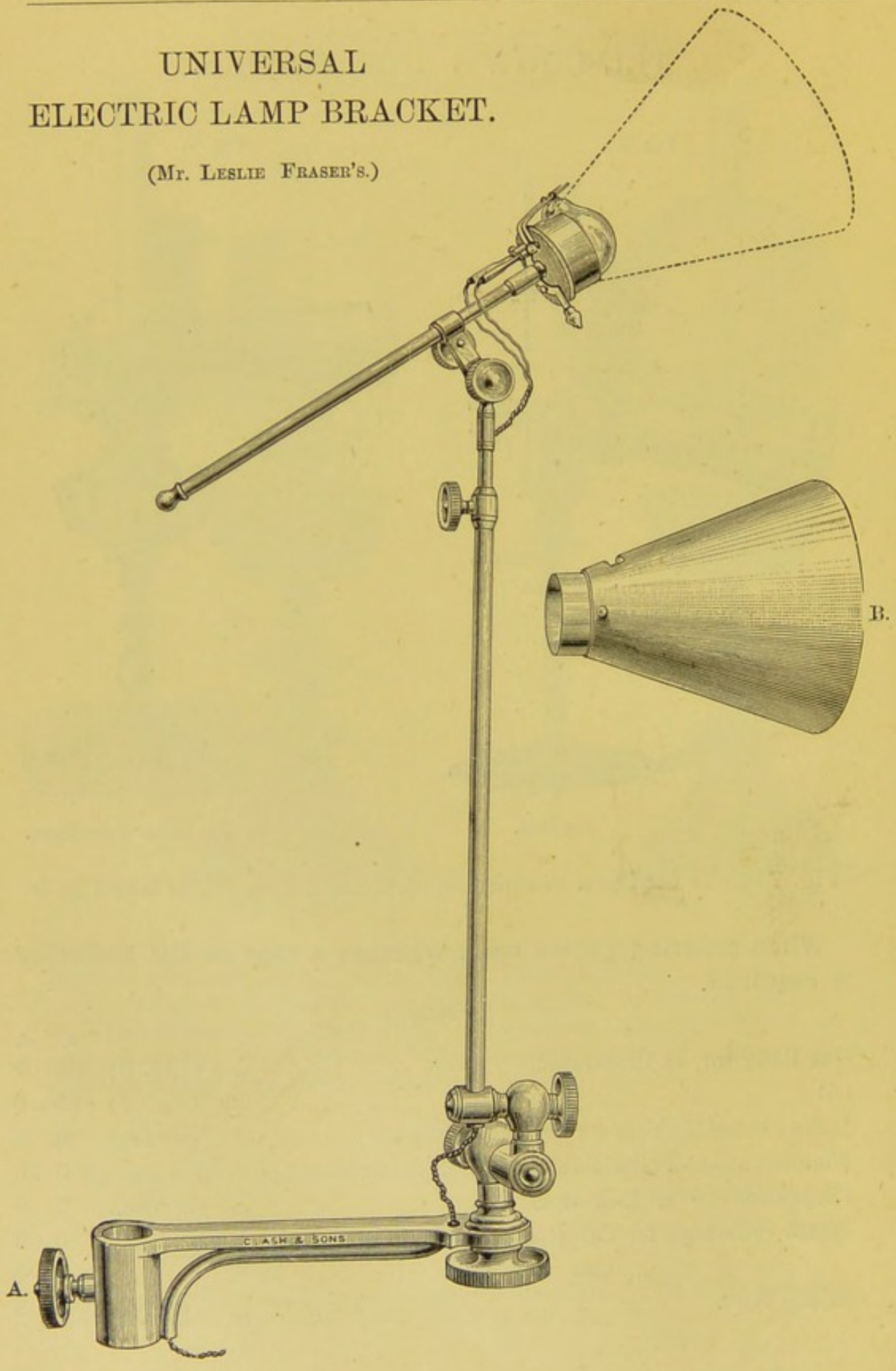
When ordering, please state whether a Gas or Oil Reflector is required.

Prices:

			s.	d.
Gas Reflector, as illustrated	(Fig. 6)		35	0
Oil „ „	(„ 7)		35	0
India-rubber Tubing for the Gas Reflector	per foot		0	6
Fletcher's Gas-Tight Tubing, ⅜-inch diameter ..	„		0	10
Globes for the Oil Reflectors	each		2	0
Extra Chimneys for Oil Reflectors	„		0	3
„ „ „ Gas „	„		0	6
Lamp Wick	per yard		0	3

UNIVERSAL ELECTRIC LAMP BRACKET.

(Mr. Leslie Fraser's.)



UNIVERSAL ELECTRIC LAMP BRACKET.

(Designed by Mr. Leslie Fraser, of Inverness.)

Description.

A. Screw for securing the Bracket to Chair Attachment. (The Socket to which this screw is fixed fits the Upright Rod of our Chair Attachments, but it may be had to fit the Upright Rod of any Attachment or Stand to order, at the prices mentioned below, if a cast in plaster or impression composition is sent to us of the size of the rod.—C. A. & S.)

The Switch is shown underneath the mount which holds the Lamp—see small Knob.

B. Green Shade, suggested by Mr. Claude Rogers, for use with the Lamp.

Mr. Leslie Fraser says of this Bracket:—It will be found universal in its movements, at least so far as its surgical uses are concerned. It is impossible to place the patient's head in any workable position and yet be unable to throw the light into the mouth. The lamp is absolutely rigid in all its positions, and its parts are easily taken asunder if necessary. Should the old lamp need to be replaced by a new one, it can be done in one minute, no screws being used to secure the connections. There is a "quick action" switch close to the lamp, by means of which the light can be turned on or off at pleasure without moving from the patient. For a dentist who uses accumulators this means a considerable saving, as the current can be turned off without any inconvenience every time he leaves the patient's side. The light can be thrown straight down on the lower teeth by simply extending the telescopic tubes and turning down the arm which carries the lamp to the required angle. When directed into the mouth, the light never falls on the eyes of patient or operator. The conducting wires are placed inside the tubes, so that there is no chance of their getting entangled with the patient's dress, with the arm of the chair, or any of the appliances usually at hand.

Prices:

		s.	d.
Universal Electric Lamp Bracket, with Green Shade and five-candle-power Lamp		63	0
The same, with Bull's Eye instead of Green Shade		70	0
Extra Lamps for renewing (Plain Glass)	each	6	0
Extra Green Shades with Mount	,,	1	9
,, ,, and Fasteners, without Mount ..	,,	0	6

Four of the Accumulators shown on page 191 are required for working the five-candle-power Lamps.

Larger Lamps for main currents supplied with Bracket, to order.

Fig. 1.

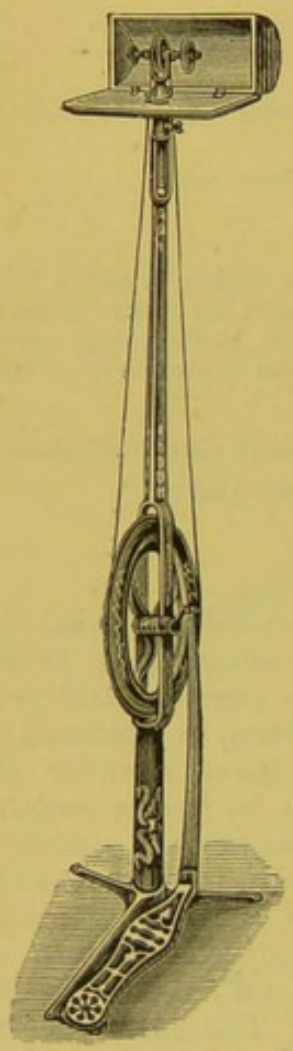


Fig. 1.—OPERATING-ROOM LATHE, for grinding and polishing. Suitable for light work in the Operating-Room or when visiting. It is 44 inches high to the centre of the pulley-head.

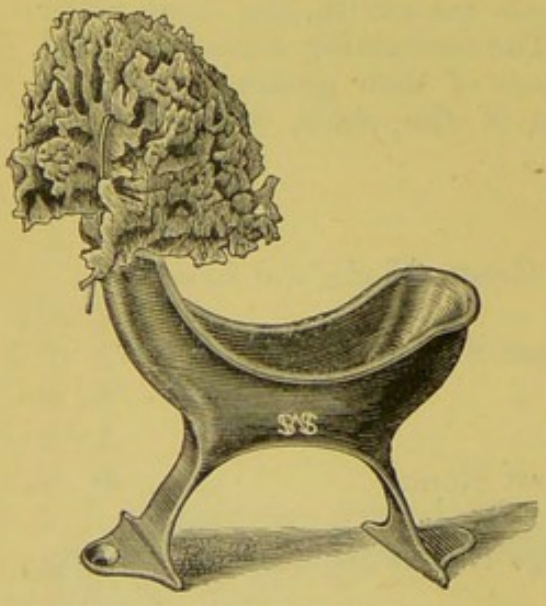
	s.	*d.*
Price, with set of 3 Corundum Wheels, Brush and Spanner	65	0
Extra Chuck to carry Engine Burs ..	3	0
Small Water Apparatus	2	6

DRIP CUP WITH SPONGE, suitable for the above Lathe. It is designed to keep the Corundum Wheel wet while in motion, and to catch the drip. Made of cast-iron, and lacquered to prevent rusting.

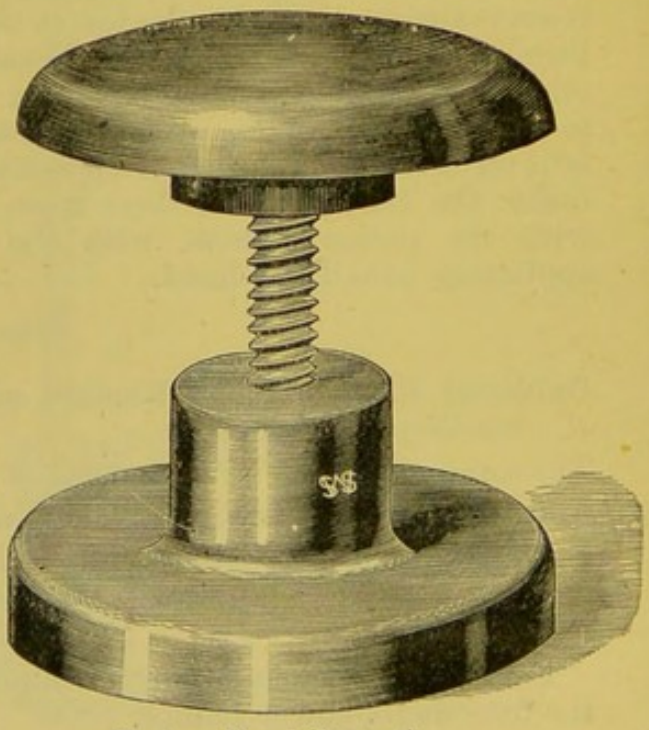
	s.	*d.*
Price complete	1	0

REST OR HAND SUPPORT. A useful auxiliary to Lathes. It affords an easy, comfortable support for the hand, as for instance in grinding teeth, and enables the operator to hold the work steadily against the Corundum Wheel of the Lathe. It can be adjusted to the proper height by means of the screw. Made of metal, japanned.

	s.	*d.*
Price complete	1	6



Drip Cup with Sponge.



Rest or Hand Support.

DENTAL INSTRUMENTS.

We have for a great many years devoted special attention to this branch of our business, knowing, as we do, how much depends upon the shape of an instrument, the quality of the steel used in its manufacture, and the care which is exercised in its hardening and tempering, to make it suitable for its purpose; and so confident are we of the general excellence of our instruments that we will willingly exchange any we supply that are found to be defective, either in material, construction, or degree of hardness, provided they are returned to us within a reasonable time of their purchase. For quality and price we believe them to be unequalled.

The names and prices of nearly all the newest instruments are included in this edition of our catalogue. From the immense variety which we now keep in stock we are able to meet the requirements of the Profession for instruments in general use; but we are also prepared to make new forms of any design to order on condition that working sketches are sent to us. We invite Dentists to call and inspect our stock at their convenience.

The following engravings represent most of the various instruments made under our direction. They have been drawn with great care; the form or shape of each instrument is therefore accurately represented, and in the case of Stoppers, Scalers, Excavators, Drills, Burnishers, &c., the *actual* size is also given, so that the exact form and size of the instrument can be seen as well from the engraving as from the instrument itself.

Dentists, when ordering, have only to quote the page in the Catalogue and the number of the illustration, in order to receive the instrument they desire.

Cases of instruments made and fitted up to special directions.

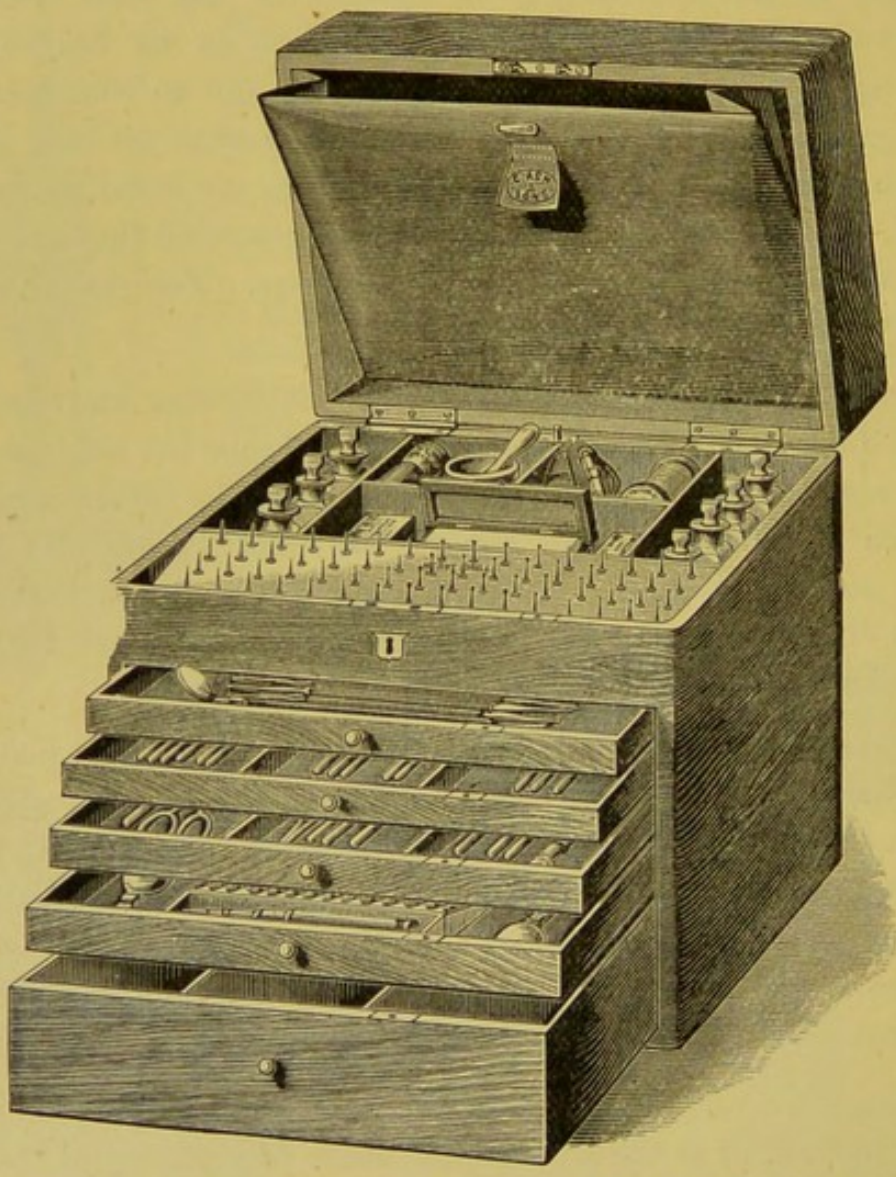
Dental instruments repaired or re-polished with the least possible delay.

IMPROVED INSTRUMENT CABINET.

We have improved this Cabinet since the engraving was made by adding nine studs for rubber-dam clamps on the left hand end of the bur box, and making the box removable, so that it can be lifted out of the Cabinet and placed on the instrument table, or in any other convenient place within reach.

These improvements are not illustrated.

It is furnished with a good four-lever lock.



11¾ inches long; 8¾ wide; 10 deep (outside measurement).

Made in mahogany, lined throughout with blue cloth, fitted with convenient handle on the top, sunk hooks on the ends for relieving the strain on the lock when the Cabinet is lifted or carried about, and four-lever lock and key.

INSTRUMENT CABINET—*continued.*

It has five drawers, varying in depth from $\frac{3}{8}$ to $2\frac{1}{4}$ inches, designed to hold all kinds of instruments with ebony and steel handles; also coffer-dam appliances, gum and foil scissors, syringe, stoppings of all kinds, amadou, canes, and other sundries. Drawer No. 4 is furnished with rack for Snow and Lewis's or Abbott's Automatic Mallet and Points. There is a pocket in the lid suitable for foils, rubber-dam, bibulous paper, &c. The upper part of the case is provided with removable box for engine instruments and nine rubber-dam clamps, racks for eight glass bottles, and divisions for small boxes, Arkansas stone, pestle and mortar, mixing slab, &c.

If required with Instruments, the selection is left to the purchaser.

	s.	*d.*
Cabinet, without Instruments	**50**	**0**
Cover for this Cabinet in stout leather, brown or black, with Straps and Handle	**27**	**6**

SURGICAL CASE.

CONSISTING OF

1 Sequestrum Forceps. 1 Silver Probe. 1 Ivory Scalpel. 1 Paget's Knife.
1 Curved Gum Scissors. 1 College Tweezers, with long points.
1 Silver Caustic Holder and Caustic, and 2 Surgical Drills.

	s.	*d.*
Complete in Leather Case	32	0

STUDENT'S DISSECTING CASE.

CONSISTING OF

3 Scalpels. 1 Tweezers. 1 Blowpipe.
1 Straight Scissors. 1 Set of 3 Chain Hooks.

Mahogany Case to hold above.

	s.	*d.*
Price complete	10	6

LEATHER POUCH WITH STRAP AND BUCKLE.

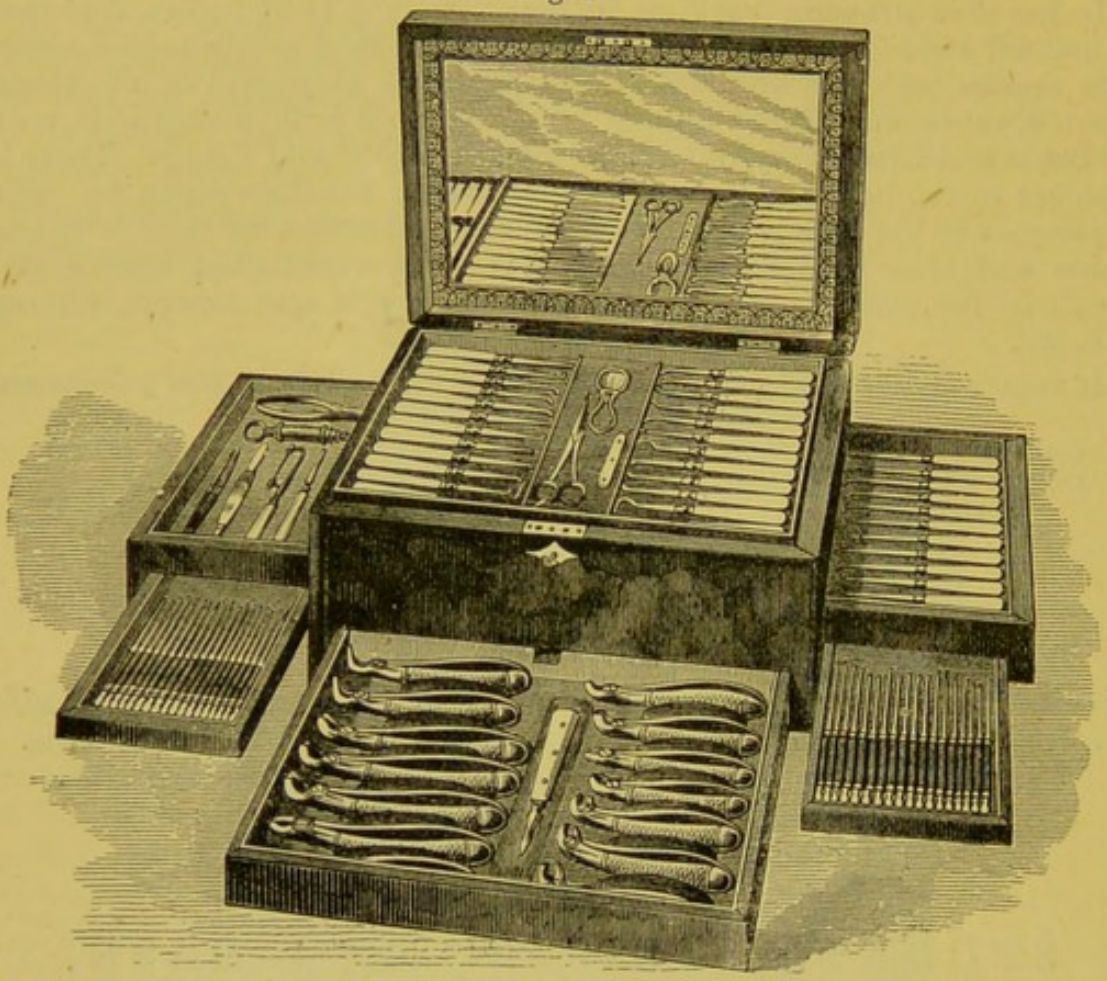
With 19 loops to hold Forceps, Elevators, Stoppers, Excavators, &c.; and compartment, $6\frac{3}{4}$ by 5 by $\frac{3}{4}$ inches, with lid and catch, to hold small instruments, gutta-percha stopping and sundries. We can strongly recommend it as a most convenient Pouch for those dental surgeons who are attached to general hospitals and charitable institutions to which they have to take their own instruments, and also to those who are in the habit of visiting patients at their own homes for simple operations.

	s.	*d.*
Price of Pouch without Instruments	15	0

All forms of Pouches and Cases supplied to order.

INSTRUMENT CASE.

Fig. 1.



INSTRUMENT CASE in **COROMANDEL** or **ROSE-WOOD**, 15½ in. by 11½ in. and 8 in. high, bound with brass, with Reflecting Mirror or Glass in lid, two Trays and five Drawers fitted up for Forceps and other Instruments, Foils, &c., lined with Blue Silk Velvet. With Bramah Lock, two Keys, Cover and Strap .. .. *s.* 250 *d.* 0

Forceps for—

Upper Incisors and Canines, Nickel-plated	(Fig. 1, p. 99) ..	10	0
Lower „ „ „	(„ 4, „ 99) ..	10	0
Upper Bicuspids .. .. „	(„ 7, „ 100) ..	10	0
Lower „ .. .. „	(„ 8, „ 100) ..	10	0
Upper Molars, right .. „	(„ 17, „ 101) ..	10	0
„ „ left .. „	(„ 18, „ 101) ..	10	0
Lower „ .. .. „	(„ 21, „ 102) ..	10	0
Upper Wisdom .. .. „	(„ 19, „ 102) ..	10	0
Lower „ .. .. „	(„ 20, „ 102) ..	10	0
Upper Stumps .. .. „	(„ 30, „ 105) ..	10	0
Lower „ .. .. „	(„ 31, „ 105) ..	10	0
Upper Incisors and Canines (Children's), Nickel-plated	(„ 37, „ 107) ..	10	0

INSTRUMENT CASE—*continued.*

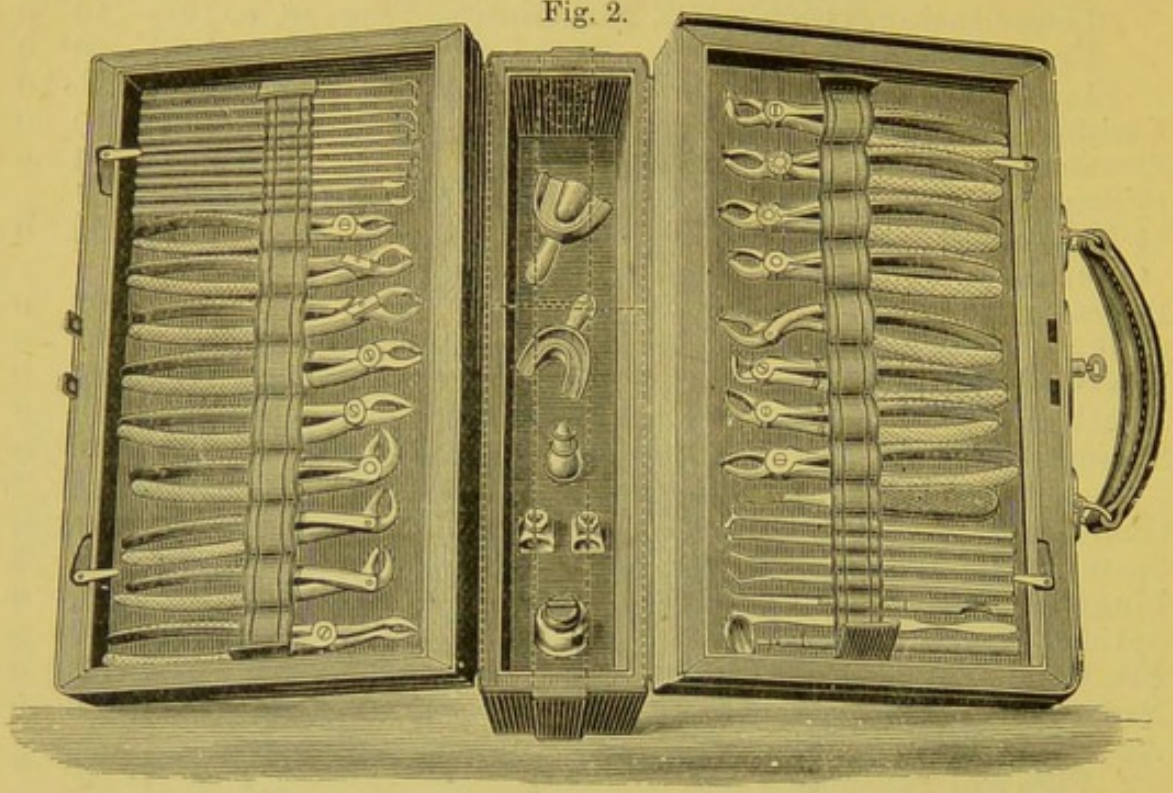
			s.	*d.*
Forceps for—				
Lower Incisors (Children's), Nickel-plated	(Fig. 38, p. 107)		10	0
Upper Molars „ „	(„ 39, „ 108)		10	0
Lower „ „ „	(„ 40, „ 108)		10	0
Excising Forceps, straight „	(„ 57, „ 113)		10	0
Elevator, straight, in Ebony octagon handle	(„ 4, „ 144)		4	6
19 Stoppers „ „	assorted forms		72	0
4 Enamel Cutters „ „	„			
1 Burnisher „ „				
12 Scalers „ „	„ ..		36	0
36 Burs, Drills, and Excavators, Steel, Nickel-plated, assorted ..			34	6
Mouth Mirror, Nickel-plated (Size 3) ..	(Fig. 58, p. 331)		9	0
Mouth Saw, in Ivory handle	(p. 340)		10	6
Scissors, 8-inch, for cutting Foils, Nickel-plated ..	(„ 307)		6	0
„ 4½-inch, curved, for cutting Gum, Nickel-plated	(„ 338)		4	3
Gum Lancet, 3-bladed, in Tortoise-Shell handle ..	(„ 336)		5	6
Spatula, with Ivory handle, Mr. Rowney's ..	(„ 310)		3	3
Plugging Tweezers, Steel octagon, Nickel-plated	(Fig. 11, „ 298)		7	6
Syringe, with 2 Nozzles, plated	(„ 3, „ 313)		9	0
File Carrier, in Ebony Handle			6	6
Nerve Instrument Holder, Ivory Handle ..	(Fig. 15, p. 162)		3	0
Assortment of Saw Blades, Nerve Instruments, Separating Files and Polishing Tapes			8	6
Case complete, with Instruments			630	0

STUDENT'S ROLL-UP LEATHER CASE.

	s.	*d.*
Case, empty	10	6
To hold the following instruments:—		
1 Mouth Mirror in Ebony handle	5	6
1 Bistoury and Tenotome Lancet in Tortoise-shell handle ..	7	0
1 Plugging Tweezers, Steel, Nickel-plated	7	6
2 Probes, Steel, Nickel-plated	1	10
1 Spatula „ „	2	1
12 Burs and Drills „	12	0
18 Excavators „	16	6
16 Scalers, Enamel Cutters and Stoppers, Nickel-plated	24	0
1 Burnisher, double-headed, Nickel-plated	1	9
1 Set Howe's Scalers „	6	0
1 dozen Dividing Files, Stubs'	3	3
½ „ Finishing „ „	2	0
Polishing Tapes, &c.	2	1
Complete	102	0

PORTABLE INSTRUMENT CASE.

Fig. 2.



14 inches long; 11 deep; full width when open 20 inches.

With partitions as illustrated and tray underneath.

Adapted to hold 16 Forceps, Stump Elevator, Mouth Mirror, Gum Lancet, and an assortment of Burs, Drills, Excavators, Stoppers, Scalers, &c., and provided with Well for Impression Trays, Stoppings, Bottles, and useful sundries.

This Case is specially designed for the Dental Surgeon when visiting. If required with instruments the selection is left to the purchaser.

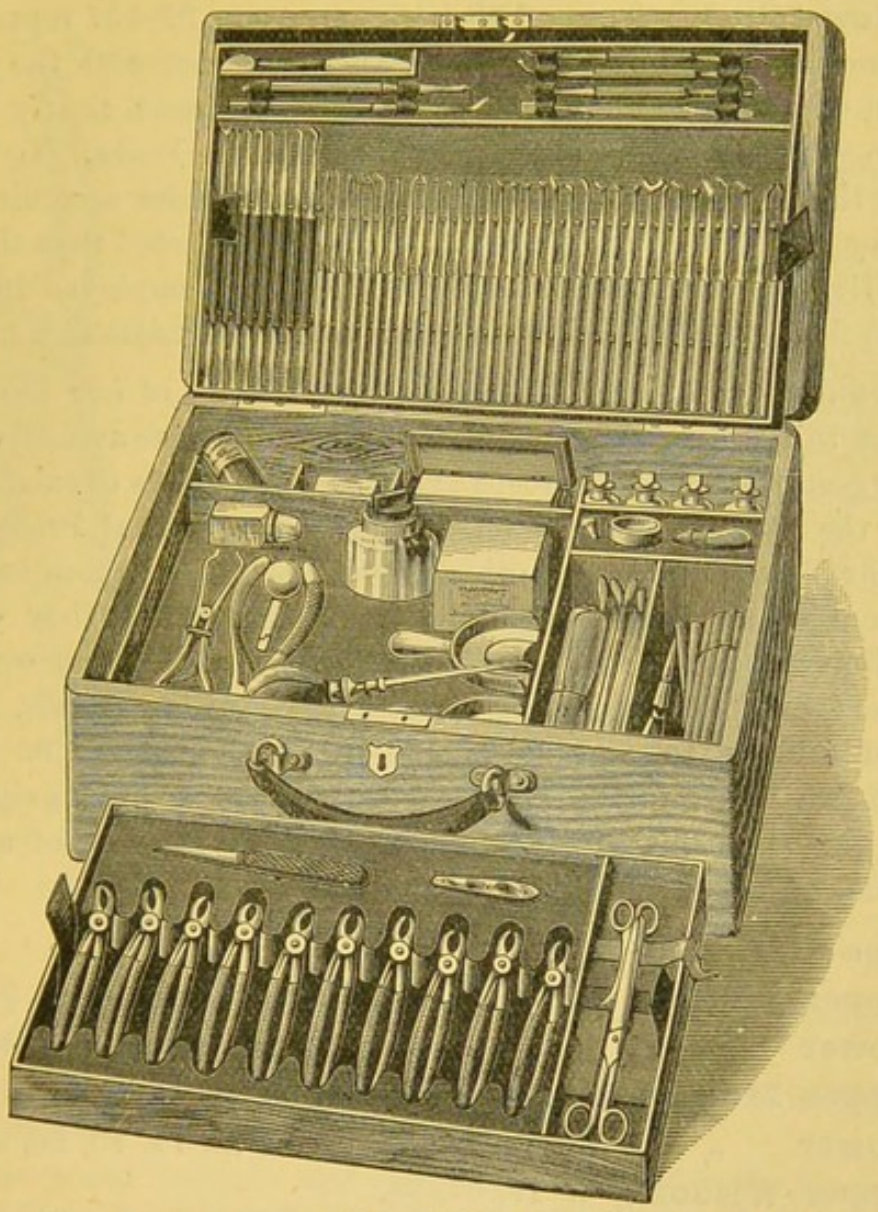
	s.	d.
In Morocco, with Nickel-plated mounts and lock and key, without instruments	60	0

PORTABLE DENTAL CASE, No. 7, with handles, covered with Morocco Leather, and lined with velvet. Dimensions when closed, 12 in. by 9 in., and 3½ in. deep, with compartments for Forceps and other Instruments, Foils, Bottles, &c., with padded lids to protect Instruments. Lock and key.

	s.	d.
Price, without Instruments	37	6

PORTABLE OR STUDENTS' INSTRUMENT CASE.

Fig. 5.



16 inches long; 11 wide; 5½ deep (outside measurement).

Made of Mahogany and provided with two Trays for Forceps and other instruments, underneath which are compartments for Bottles, Files, Canes, &c. There is also a pocket in the lid to hold Foils, Bibulous Paper, &c. Lined throughout with blue cloth, and fitted with lock, two keys, and handle in front.

The Case is equally suitable for the Operating-Room, for visiting, or for Dental Students at the Hospitals.

If required with instruments the selection is left to the purchaser.

	s.	d.
Price, without instruments	70	0
Cover for protecting the wood .. .. extra	11	6

DENTAL FORCEPS.

The New Illustrations of Forceps on pages 99–127 represent the most improved forms in general use, which have met with the approval of the best operators. The upper part of each is drawn nearly full size, in order to give a clear view of the construction of the beaks. To facilitate reference, the Forceps are placed in consecutive order according to the numbers by which they are known. It should be noted that the words, "for the right or for the left side of the mouth," employed in some of the descriptions, mean the right or left side **in the patient's mouth.**

We have devoted special attention to this branch of our business for upwards of thirty-five years, during which time we have availed ourselves of the suggestions for new Forceps and for modifications of existing forms made by the most eminent practitioners in the Dental Profession, including Sir John Tomes and other Operators whose names have never been formally associated with the instruments which they designed. All our Forceps are made of the best steel, and we can confidently recommend them for **lightness, strength, temper, finish, and accuracy of adaptation.** The beaks of each are made to fit the teeth for which they are intended so perfectly, that a firm grip can be obtained, and sufficient pressure applied for the removal of any tooth without danger of crushing the crown.

Forceps for—

Upper Incisors, Canines, and Bicuspids, Figs. 1, 2, 7.
Lower „ „ „ Figs. 4, 8, 13, 75, 81.
Upper Molars, Figs. 17, 18, 27, 28, 65, 66, 89, 90, 92, 93, 94, 95.
Lower „ „ 21, 22, 23, 24, 32, 70, 71, 73, 86, 87.
Upper Wisdom, „ 19, 67, 88.
Lower „ „ 20, 79.
Upper Stumps, „ 29, 30, 41, 44, 51, 52, 76, Campbell's, 77, 78, 80, 83, 85.
Lower „ „ 31, 33, 45, 48, 68, 69, 74.
Children's Teeth, „ 37, 38, 39, 40.
Splitting, „ 55, 56, 72 (right), 72 (left), 91.
Excising, „ 57, 58, 59, 84.

Leather Pouches to hold Forceps, &c. .. .. .. page **107**
Case to hold Extracting Instruments, &c. .. .. „ **108**

FORCEPS FOR UPPER AND LOWER CENTRALS AND CANINES, AND UPPER LATERALS AND BICUSPIDS.*

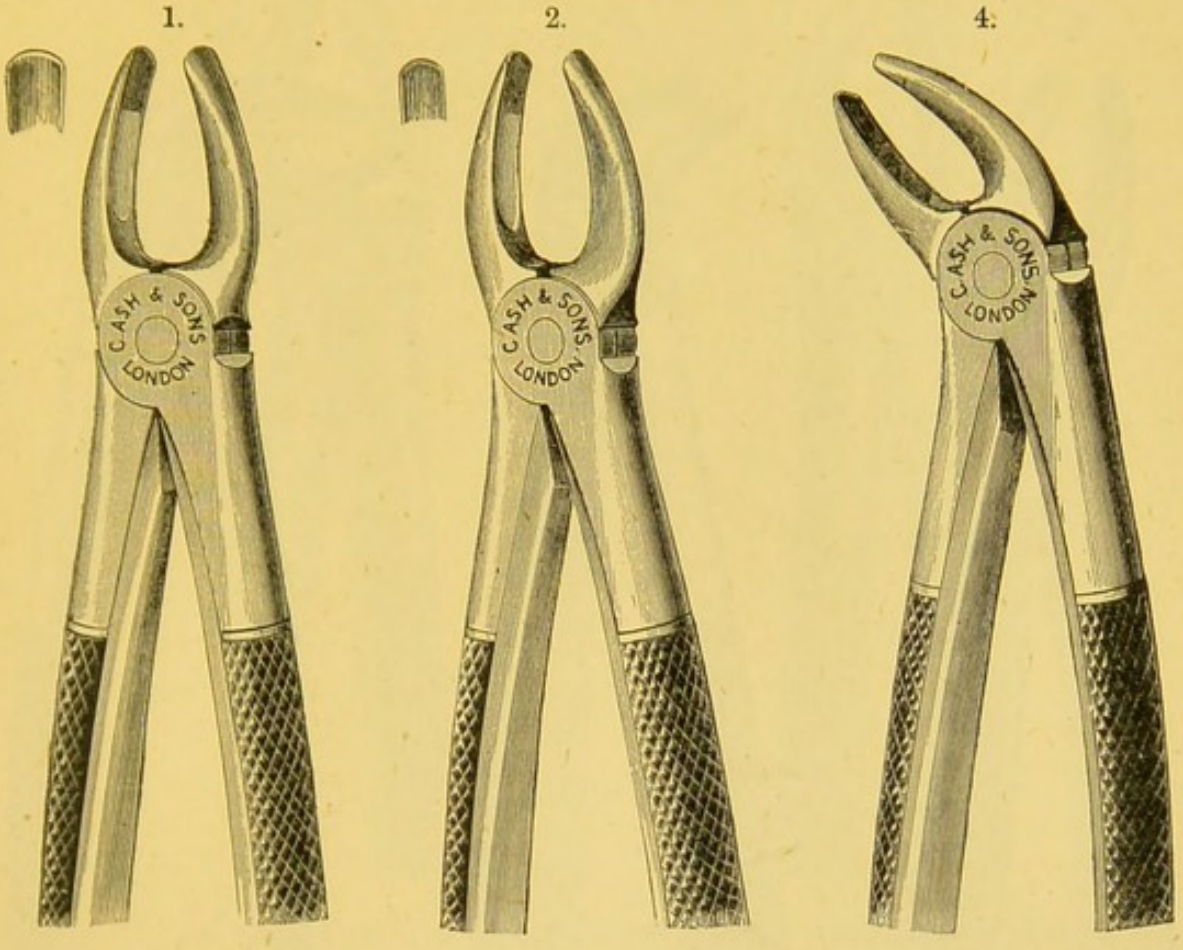


Fig. 1 for upper Centrals and Canines, with broad beaks finely serrated inside, straight handles and circular joint.*

Fig. 2 for upper Laterals and Bicuspids, with narrower beaks than Fig. 1, finely serrated inside and straight handles.

Fig. 4 for lower Incisors and Canines, with bent beaks, as shown in the illustration, finely serrated inside and straight handles.

Forceps for crowded Teeth, each with one very narrow blade—

No. 3 (same form as Fig. 2) for Incisors crowded internally or externally.
„ 5 („ „ 4) „ „ „ .
„ 6 („ „ 4) „ „ externally.

		s.	d.
Price	(Figs. 1, 2, 4) each	9	0
„	(Nos. 3, 5, 6) „	9	0
„ Nickel-plated	extra „	1	0

*** Except where otherwise stated all our English-pattern Forceps are made with circular joint, as shown on this page.**

FORCEPS FOR UPPER AND LOWER BICUSPIDS.

7. 8. 13.

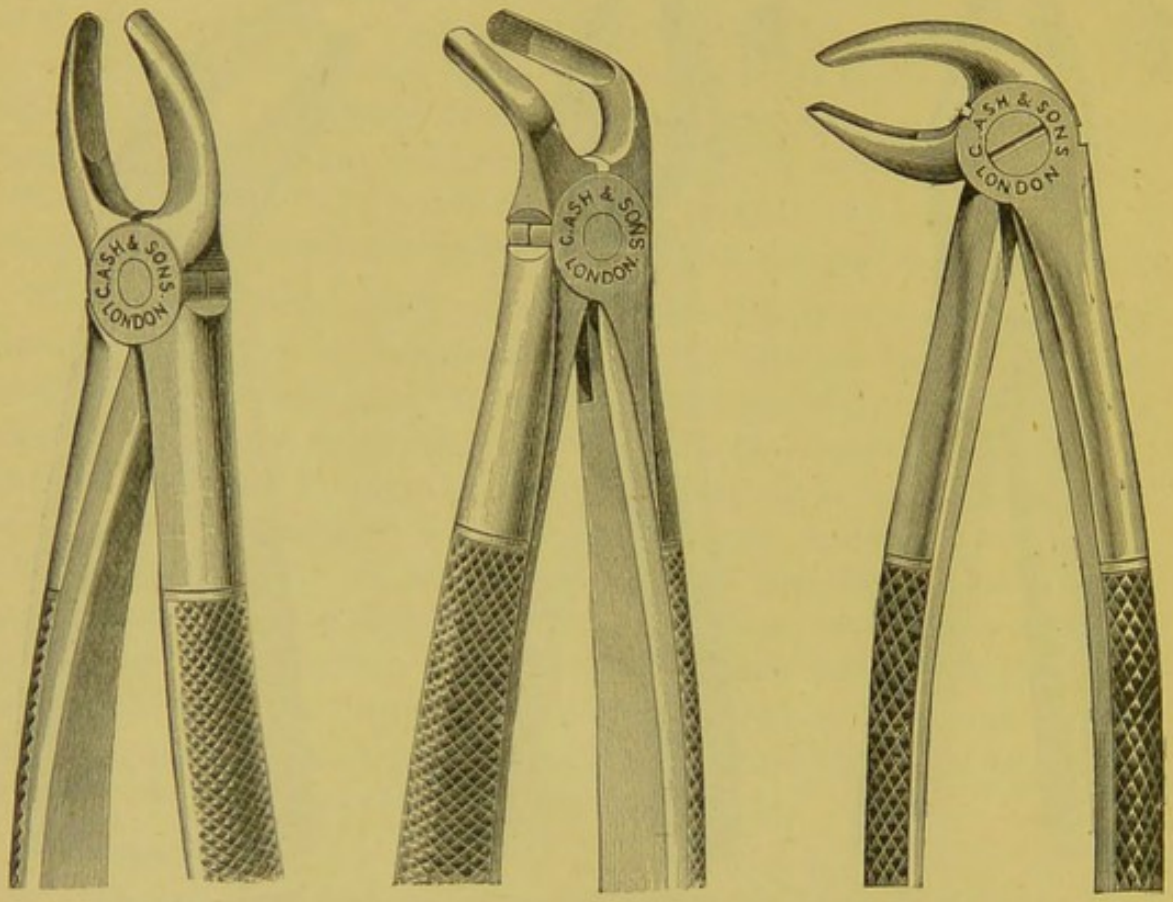


Fig. 7 for upper Bicuspids, with beaks finely serrated inside and handles slightly curved, for either side of the mouth.

Fig. 8 for lower Bicuspids, with bent beaks finely serrated inside and straight handles, for either side of the mouth.

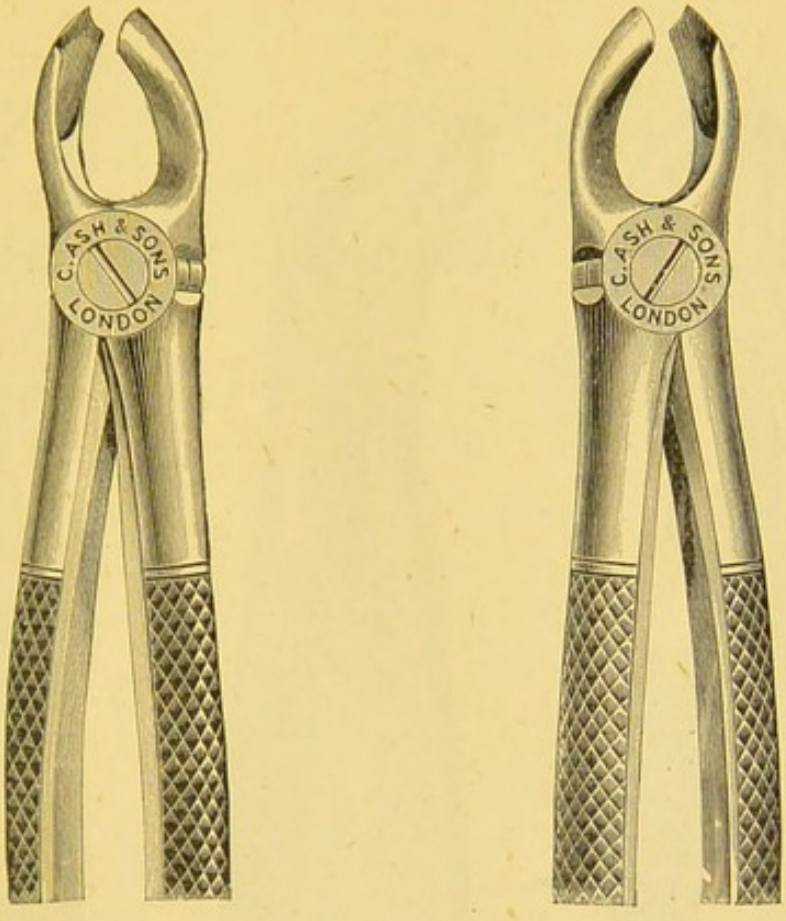
Fig. 13 for lower Bicuspids, Hawk's bill, with beaks finely serrated inside and straight handles, for either side of the mouth.

			s.	d.
Price	(Figs. 7, 8, 13)	each	9	0
„ Nickel-plated	extra	„	1	0

All special orders and repairs are executed as promptly as possible.

FORCEPS FOR UPPER MOLARS.

17. 18.



Figs. 17, 18. These two Forceps form a very useful pair for general use on upper Molar teeth. Made with beaks finely serrated inside and handles slightly curved.

„ 17, 18. Heavier than ordinary pattern.

„ 17, 18. Lighter than ordinary pattern, with Simple Joint, like Fig. 67 on page 116, and sub-alveolar palatine blade.

„ 17, 18. With Simple Joint and of very light build, for children's and for small teeth.

Fig. 17 is for the right and Fig. 18 is for the left side of the mouth.

		s.	*d.*
Price	(Figs. 17, 18) each	9	0
„ Nickel-plated	extra „	1	0

All forms of extracting Forceps with beaks plain inside supplied to order at the same prices as Forceps with serrated beaks.

FORCEPS FOR UPPER AND LOWER WISDOM TEETH AND LOWER MOLARS.

19. 20. 21.

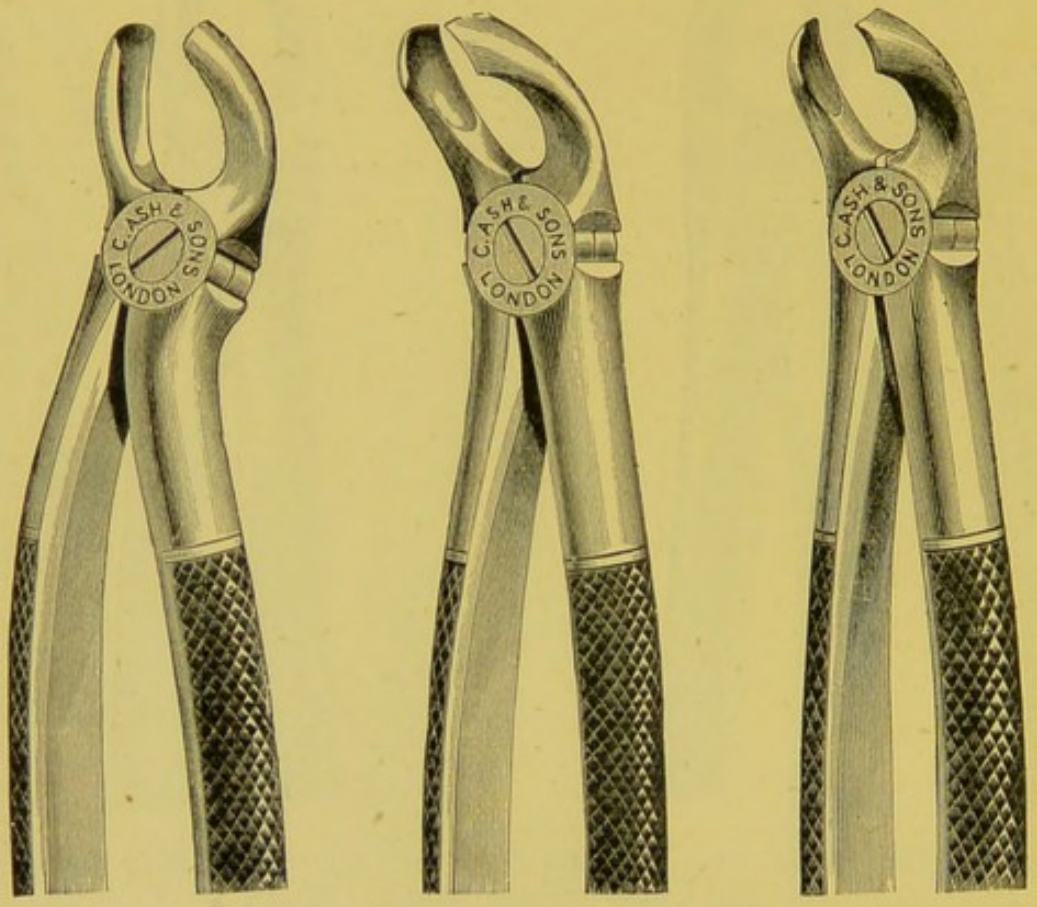


Fig. 19 for upper Wisdom Teeth, with convenient bend for reaching far back into the mouth, handles slightly curved and beaks finely serrated inside, for either side of the mouth.

Fig. 19 Light, with small short blades.

Fig. 20 for lower Wisdom Teeth, with straight handles and beaks finely serrated inside, for either side of the mouth.

Fig. 21 for lower Molars, with straight handles and beaks finely serrated inside, for either side of the mouth.

		s.	*d.*
Price	(Figs. 19, 20, 21) each	9	0
„ Nickel-plated	extra „	1	0

FORCEPS FOR LOWER MOLARS.

22. 23. 24.

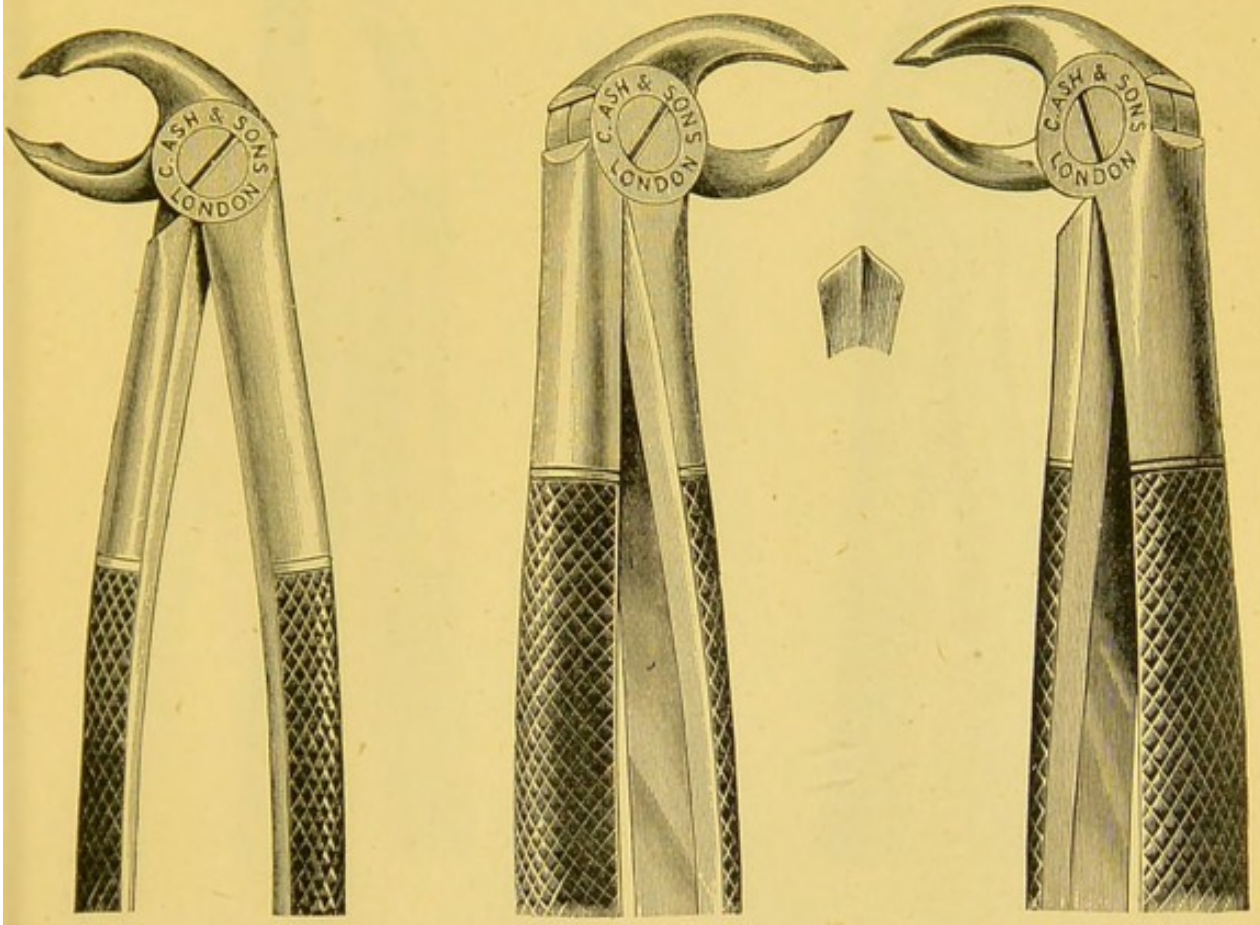


Fig. 22 for lower Molars, Hawk's bill, with straight handles and beaks finely serrated inside, for either side of the mouth.

Figs. 23, 24 for lower Molars, Hawk's bill, with beaks finely serrated inside and straight handles.

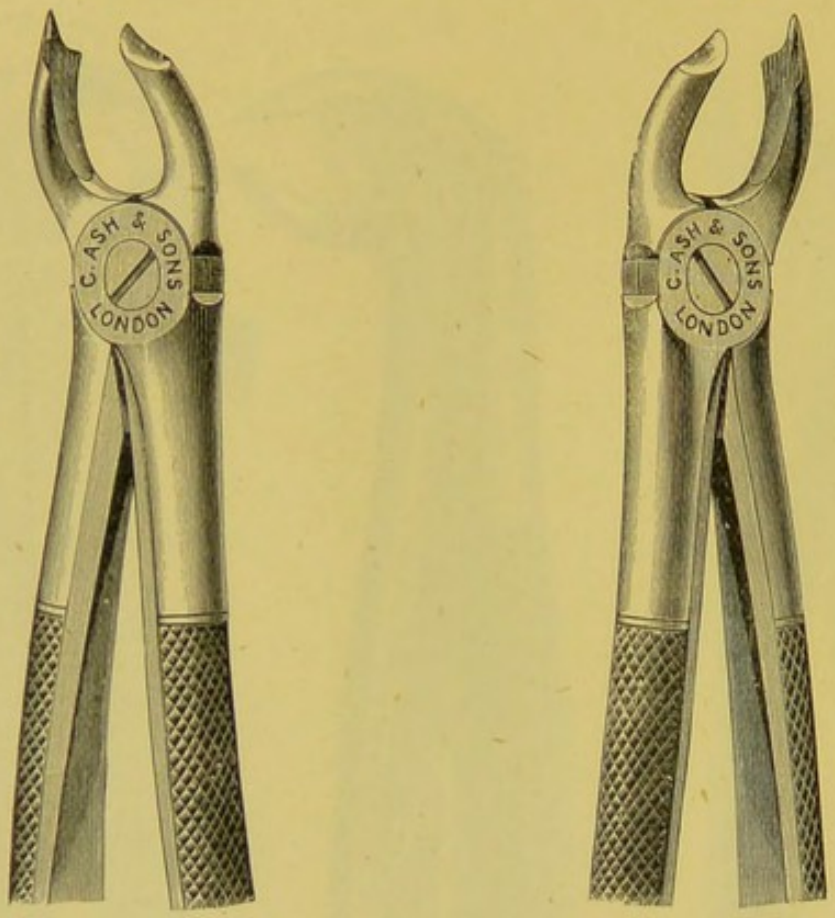
The beaks of these Forceps are curved on one side, which permits of their being readily applied to the back part of the mouth.

Fig. 23 is for the right, and Fig. 24 for the left, side of the mouth.

		s.	*d.*
Price	(Figs. 22, 23, 24) each	9	0
„ Nickel-plated	extra „	1	0

FORCEPS FOR UPPER MOLARS.

27. 28.



These Forceps are intended for extracting upper Molars with decayed and broken down crowns. The inner beak of each is made with lancet point, to admit of being pushed well up under the gum, and rests against the palatine root, while the tapered point on the outer beak passes between the two roots on the buccal side of the jaw, the result being a firm grip of that portion of the tooth which unites the three roots.

Made with beaks finely serrated inside and handles slightly curved.

Fig. 27 is for the right and Fig. 28 is for the left side of the mouth.

		s.	*d.*
Price	(Figs. 27, 28) each	9	0
„ Nickel-plated	extra „	1	0

For Case to hold Extracting Instruments, &c., *see page* 108.

FORCEPS FOR UPPER AND LOWER STUMPS.

29. 30. 31.

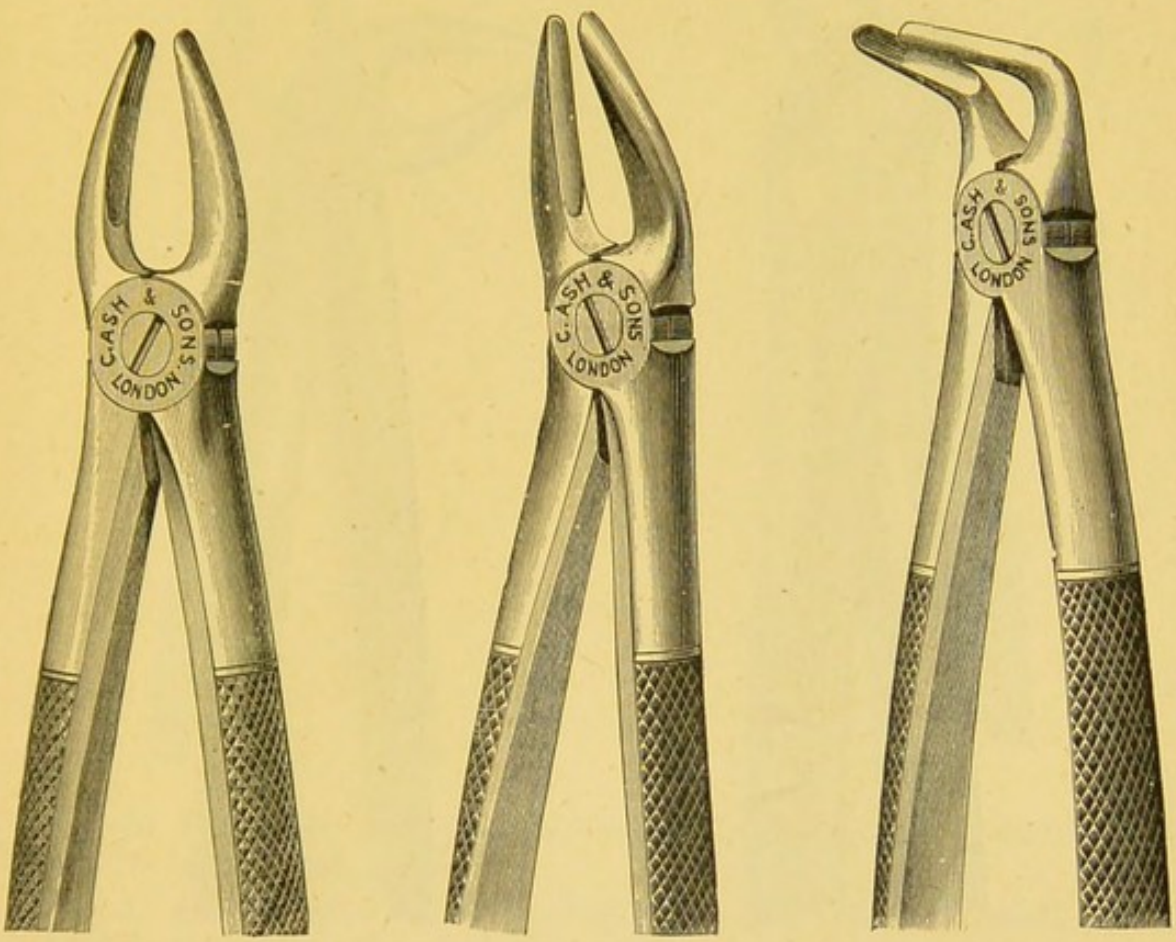


Fig. 29 for upper Stumps, with straight handles and beaks finely serrated inside, for either side of the mouth.

Fig. 29 Light, and with fine long narrow blades.

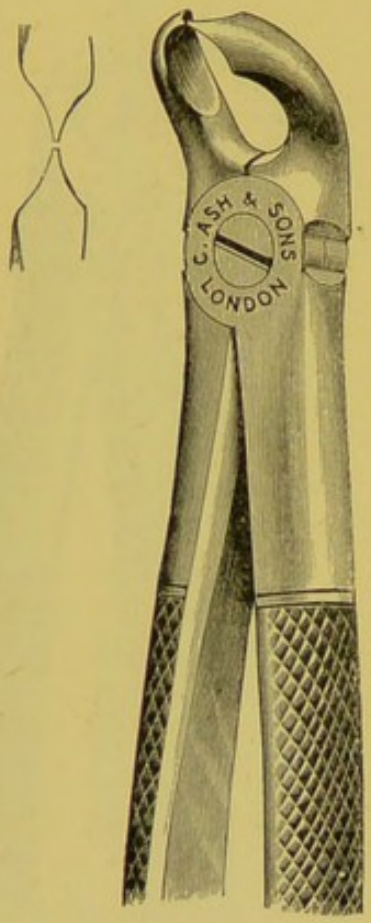
Fig. 30 for upper Stumps, with handles slightly curved and beaks finely serrated inside, for either side of the mouth.

Fig. 31 for lower Stumps, with straight handles and bent beaks finely serrated inside, for either side of the mouth.

		s.	d.
Price	(Figs. 29, 30, 31) each	9	0
„ Nickel-plated	extra „	1	0

FORCEPS FOR LOWER MOLARS AND LOWER STUMPS.

32.



33.

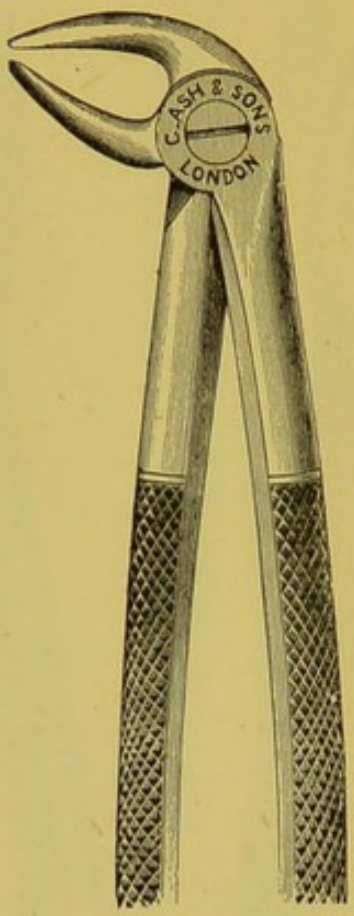


Fig. 32 for lower Molars with decayed and broken down crowns. The points on the beaks go between the two roots and relieve the pressure which there would otherwise be on the frail walls that may remain. Made with straight handles, beaks finely serrated inside and adapted for use on either side of the mouth.

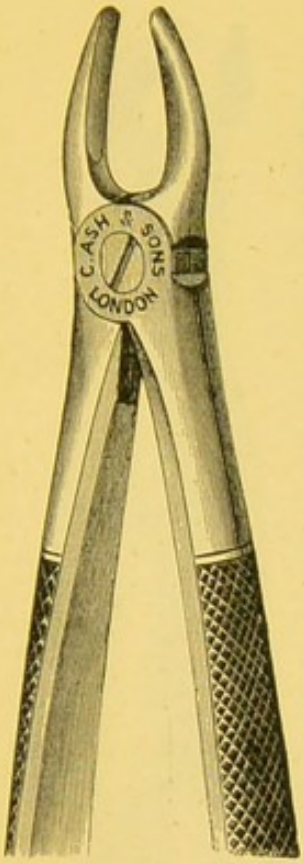
Fig. 33 for lower Stumps, Hawk's bill, with straight handles and beaks finely serrated inside, for either side of the mouth.

Fig. 33 Light, for children's teeth.

		s.	*d.*
Price	(Fig. 32, 33) each	9	0
„ Nickel-plated	extra „	1	0

FORCEPS FOR CHILDREN'S TEETH.

37.



38.

Fig. 37 for upper Incisors and Canines, with straight handles and beaks finely serrated inside.

Fig. 37 with Simple Joint, like Fig. 67 on page 116, and small beaks, as used at the Dental Hospital of London.

Fig. 38 for lower Incisors and Canines, with bent beaks finely serrated inside, and straight handles.

			s.	d.
Price	(Figs. 37, 38) each		9	0
„ Nickel-plated	extra	„	1	0

LEATHER POUCHES FOR FORCEPS.

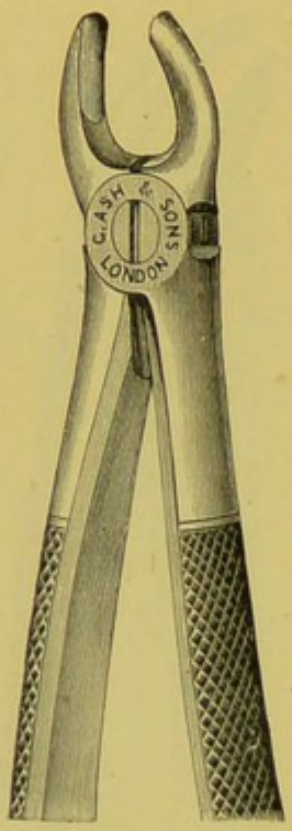
Lined with Chamois Leather or Blue Velvet, and provided with two straps and strong leather handle.

To hold	8	12	16	20	Forceps.
Price	9/-	11/6	13/-	14/6	each.

Leather Pouches to hold Forceps, Stump Elevators, &c., made to order.

FORCEPS FOR CHILDREN'S TEETH.

39.



40.

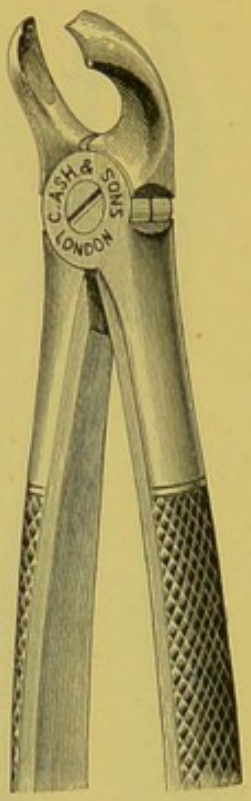


Fig. 39 for upper Molars, with handles slightly curved and beaks finely serrated inside, for either side of the mouth.

Fig. 40 for lower Molars, with straight handles and curved beaks finely serrated inside, for either side of the mouth.

		s.	*d.*
Price	(Figs. 39, 40) each	9	0
„ Nickel-plated	extra „	1	0

EXTRACTING INSTRUMENT CASE.

Arranged to hold 16 Forceps, assorted forms, 3 Elevators, 1 Mouth Mirror, 1 double-ended Probe, and 1 Gum Lancet with two blades.

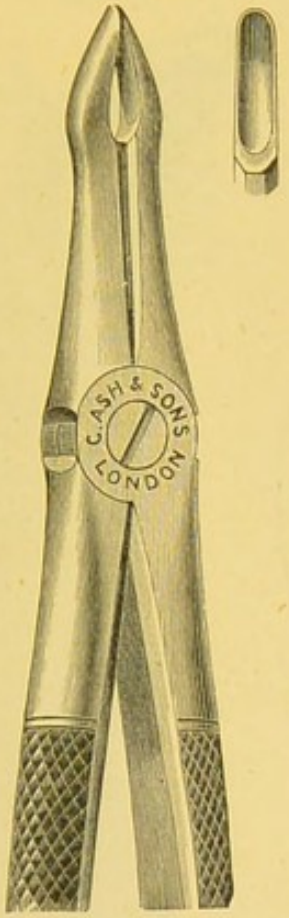
Made of well-seasoned Mahogany, highly polished, with brass-bound corners and lock and key.

	£	*s.*	*d.*
Price of Case, without Instruments	2	0	0
„ „ complete with „	11	12	0

All the Instruments, except the Elevators and Gum Lancet, are Nickel-plated.

FORCEPS FOR UPPER STUMPS.

41.



44.

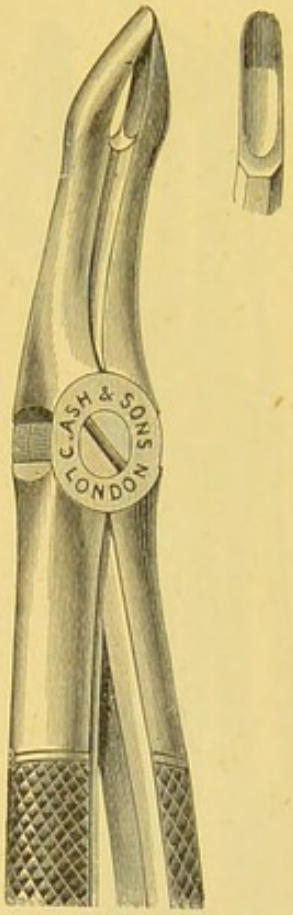


Fig. 41 for upper Stumps, with straight handles and long beaks finely serrated inside, for either side of the mouth.

Fig. 44 for upper Stumps, with straight handles and long curved beaks finely serrated inside, for either side of the mouth.

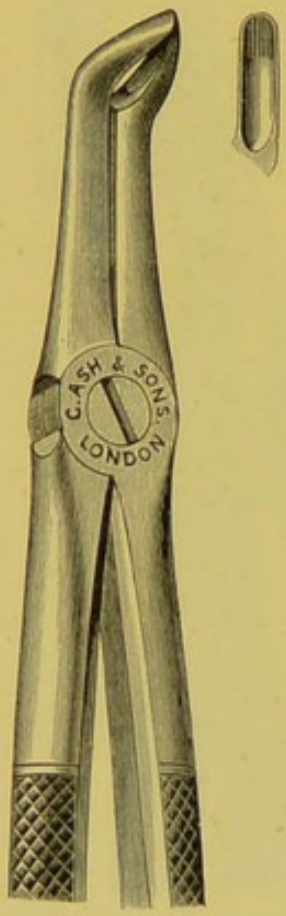
Fig. 44 Light, and with very fine beaks.

			s.	d.
Price	(Figs. 41, 44) each		9	0
„ Nickel-plated	extra	„	1	0

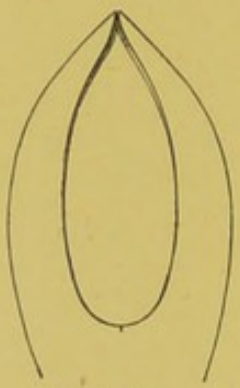
The Forceps shown in this Catalogue may be had extra long or extra strong, to order, at a cost of about one shilling beyond the usual prices.

FORCEPS FOR LOWER STUMPS.

45.



A



Front view of beaks.

48.

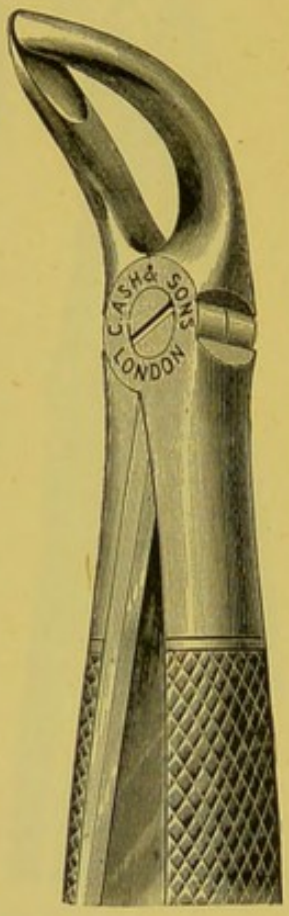


Fig. 45 for lower Stumps, with straight handles and long bent beaks finely serrated inside, for either side of the mouth.

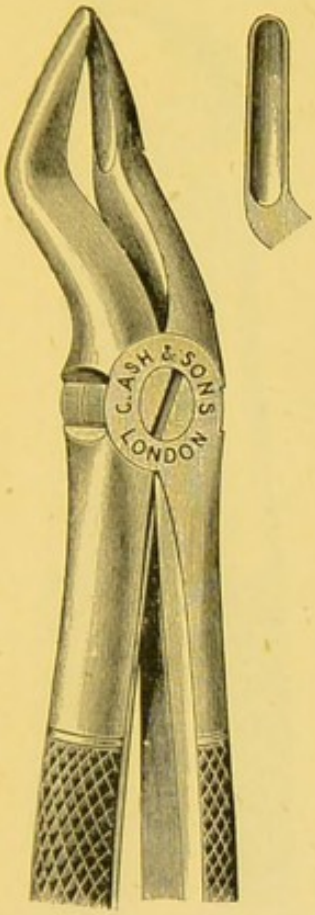
Fig. 48 (Mr. Lawrence Read's) for lower Stumps, with straight handles and long curved beaks finely serrated inside, for either side of the mouth. This instrument is designed to give the Operator a clear view of the stump to be extracted—see Fig. A.

		s.	d.
Price	(Figs. 45, 48) each	9	0
„ Nickel-plated	extra „	1	0

		s.	d.
Forceps re-polished and Nickel-plated ..	**each**	**1**	**6**

FORCEPS FOR UPPER STUMPS.

51



52.

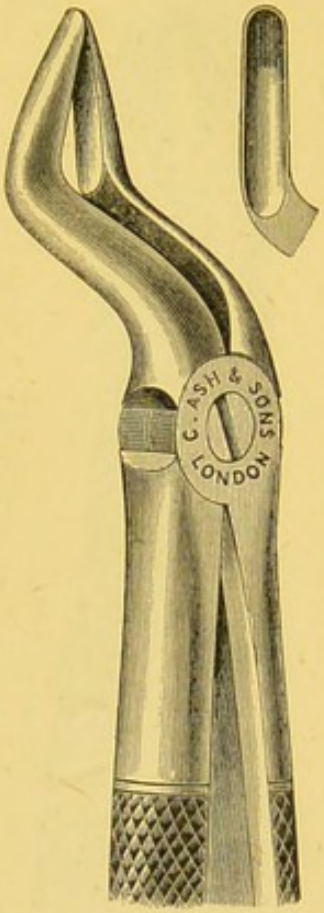


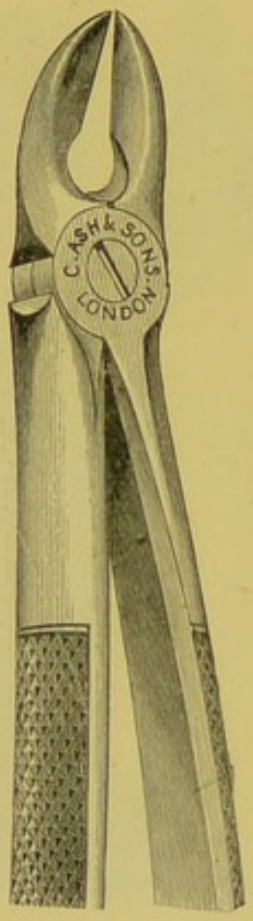
Fig. 51 for upper Stumps, Bayonet form, with straight handles and narrow beaks finely serrated inside, for either side of the mouth. The long bend from the shaft is for reaching far back into the mouth.

Fig. 52 for upper Stumps, Bayonet form, with straight handles and broad beaks finely serrated inside, for either side of the mouth. Like Fig. 51, this instrument is also for reaching far back into the mouth.

		s.	*d.*
Price	(Figs. 51, 52) each	9	0
„ Nickel-plated	extra „	1	0

SPLITTING FORCEPS.

55.



56.

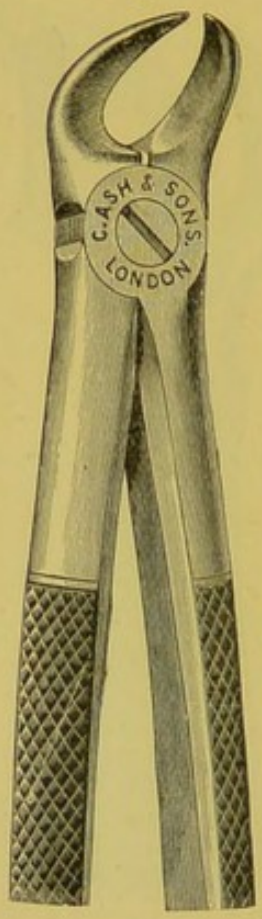


Fig. 55 for separating upper Molar Roots, with handles slightly curved.

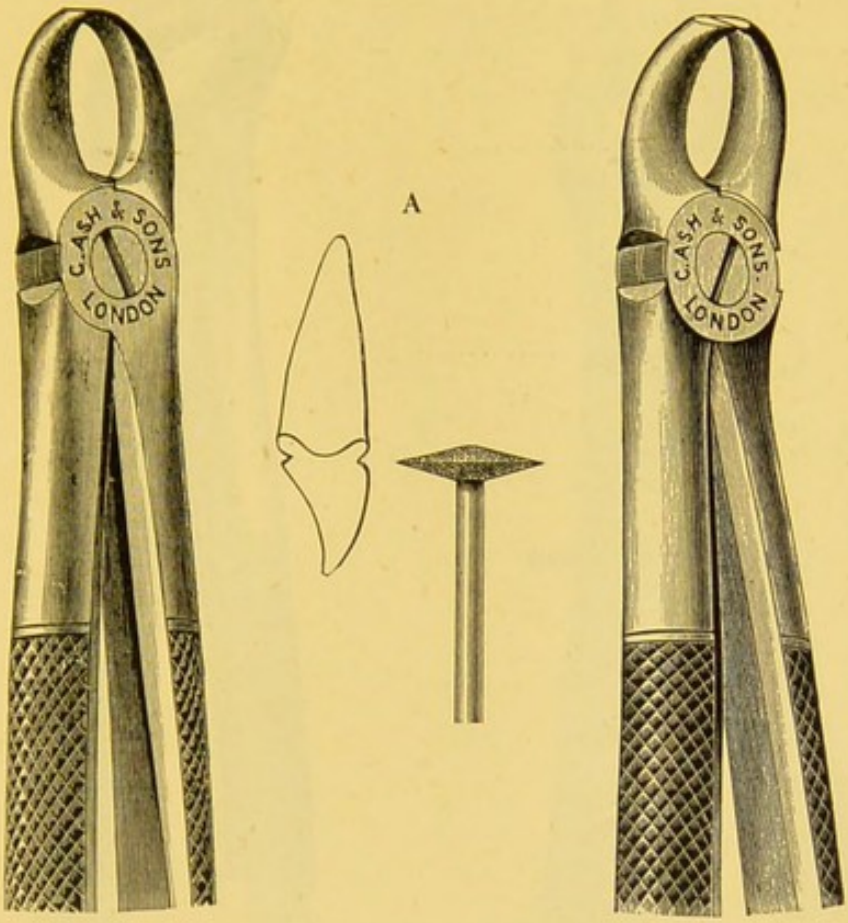
Fig. 56 for separating lower Molar Roots, with straight handles.

		s.	d.
Price	(Figs. 55, 56) each	9	0
„ Nickel-plated	extra „	1	0

New forms of Forceps, as they are introduced, will be illustrated in our Quarterly Circular.

UPPER EXCISING FORCEPS.

57. 58.



When preparing roots for pivoting, &c., it is not safe to use these cutting Forceps until the portion of the tooth to be removed has been already partly cut through (see Fig. A). Neglect of this precaution may result in the root being splintered longitudinally.—*See* "*Tomes' Dental Surgery*," *3rd edition, page* 756.

Fig. 57, with straight handles and straight beaks, is for use on upper teeth on both sides of the mouth.

Fig. 58, with beaks and handles slightly curved, is also for use on upper teeth on both sides of the mouth.

All our excising Forceps are made with handles sufficiently strong not to spring when firm pressure is applied to force the cutting points through the tooth structure.

For widths of beaks see next page.

		s.	d.
Price	(Figs. 57, 58) each	9	0
„ Nickel-plated	extra „	1	0

LOWER EXCISING FORCEPS.

59.

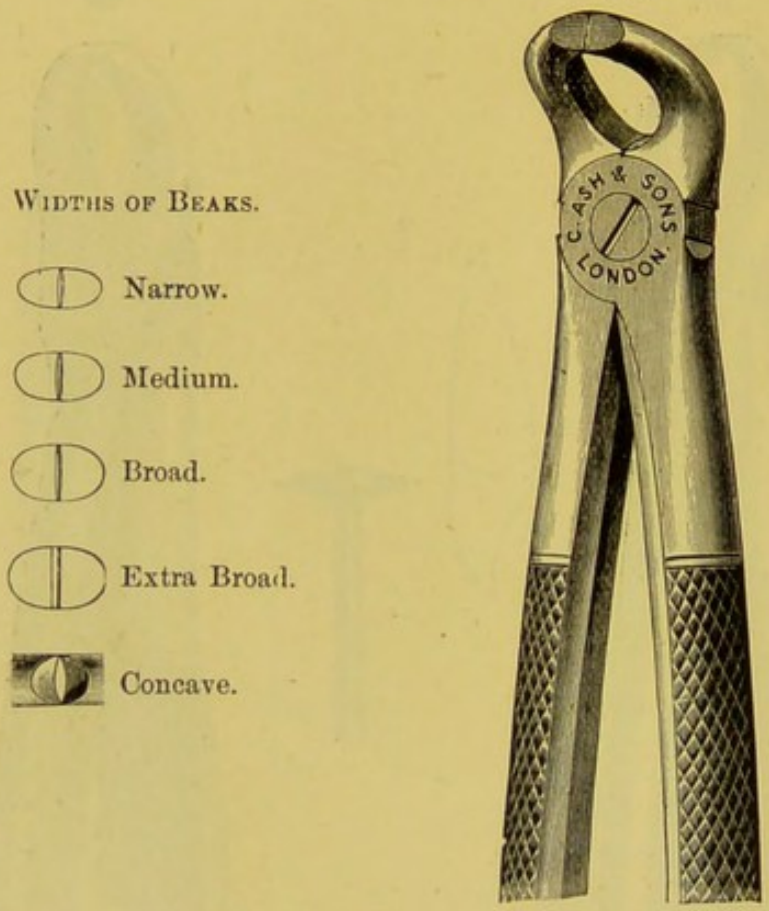


Fig. 59, with straight handles and bent beaks, is for use on lower teeth on both sides of the mouth.

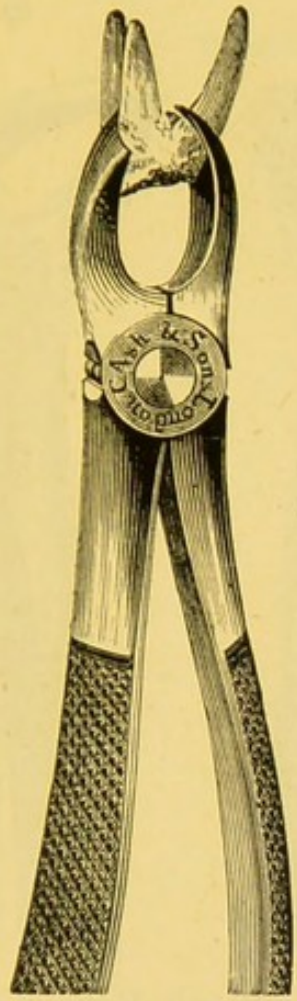
Forceps, Figs. 57, 58 and 59, are kept in stock in the widths shown above, and also extra narrow. Any of them may be nad to order with concave cutting edges.

Mr. Coleman, in his work on Dental Surgery and Pathology, states that excising Forceps are suitable for cutting away projecting portions of alveolar process, &c. On page 245 he says: "Where the alveolar process is abnormally high, and becomes, as it frequently does, conspicuous above the surface when several contiguous teeth have been removed, we may with advantage pare off the prominent portions with suitable bone-cutting forceps; the process of healing will be thereby much accelerated."

		s.	*d.*
Price	(Fig. 59)	9	0
„ Nickel-plated	.. extra	1	0

FORCEPS FOR UPPER MOLARS.

65.



66.

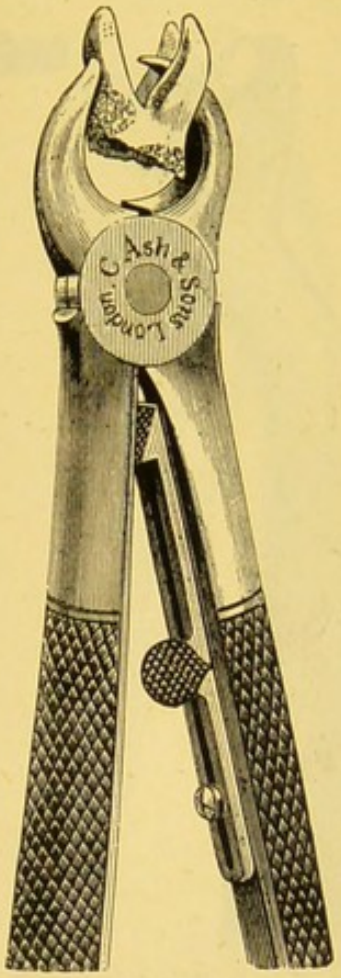


Fig. 65 (Mr. Stevens') for upper Molars with decayed and broken down crowns. The palatine beak has two points which slide on each side of the root, grasping it so firmly that the instrument cannot slip, and the buccal beak grasps the sound portion of the tooth which lies beyond the decayed crown.—*See Mr. Stevens' description in "The British Journal of Dental Science" for* 1871, *pages* 180–182.

It is made in right and left sides, with handles slightly curved, and simple joint like Fig. 67 on the next page, or with circular joint as shown above, where it is illustrated for use on the right side of the mouth.

Fig. 66 (Mr. Baly's) for upper Molars when the crowns are very much decayed and broken down. It is so constructed that the buccal beak passes between the two roots, and splits them if required. The palatine beak is serrated to prevent slipping, and the sliding stop on the handle permits the Operator to fix open both beaks, so that the tooth shall not be split should he desire to attempt to extract the three roots all at once.—*See Mr. Baly's description in "The British Journal of Dental Science" for* 1871, *pages* 55–57.

Made in right and left sides, with handles slightly curved, and circular joint. The illustration shows the instrument for use on the left side of the mouth.

		s.	*d.*
Price	(Figs. 65, 66) each	9	0
„ Nickel-plated	extra „	1	0

FORCEPS FOR UPPER WISDOM TEETH AND FOR LOWER STUMPS.

67. 68. 69.

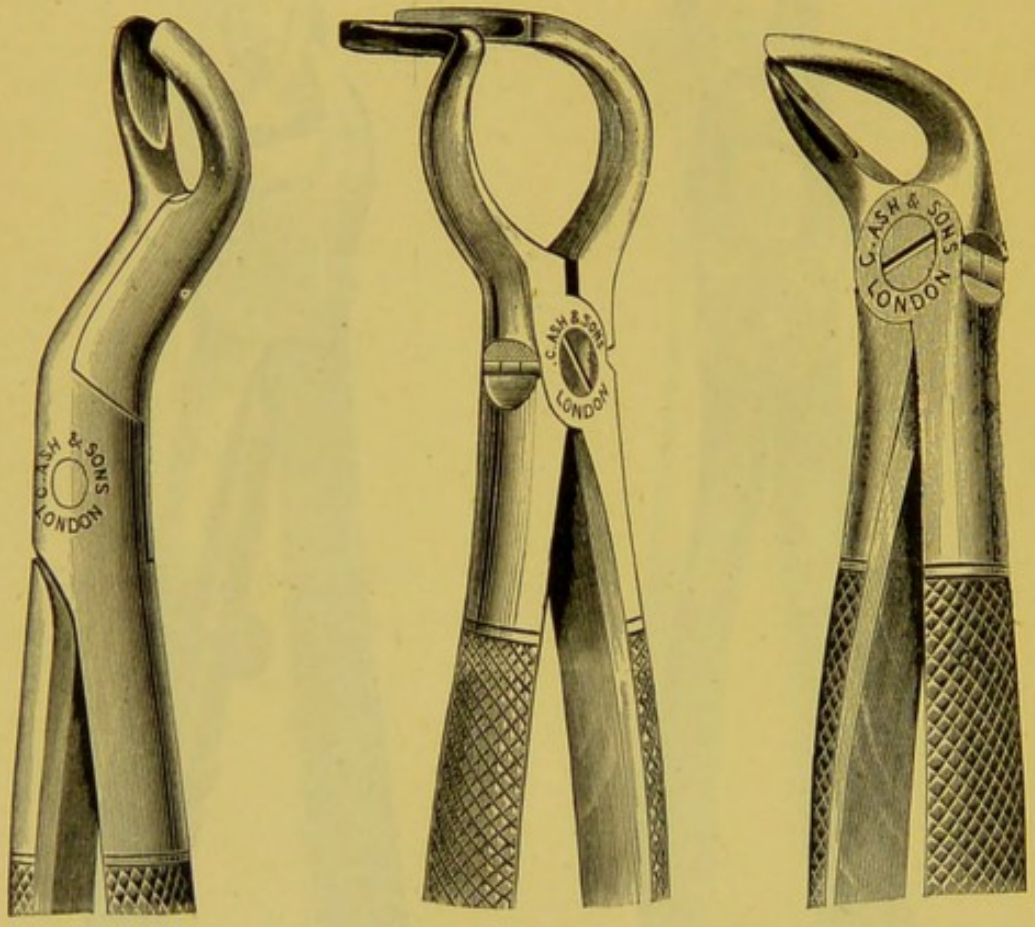


Fig. 67 for badly situated upper Wisdom Teeth, Bayonet form, with straight handles, beaks finely serrated inside and simple joint, for either side of the mouth. This instrument is much liked on account of the long bend from the shaft, and the great reach which it gives to the Operator.

Fig. 68 (Mr. Ryding's) for lower Stumps, with straight handles and beaks finely serrated inside, for either side of the mouth. This instrument is constructed to keep the cheek away from the beaks, and to give a clear view of the stump to be extracted.

Fig. 68, with beaks set at an obtuse-angle, for reaching over high anterior teeth—suggested by Mr. Seymour Hare.

Fig. 69 (King's College Pattern) for lower Stumps on either side of the mouth, with beaks finely serrated inside. The handles of this instrument are bent away from the beaks as shown in the reduced size illustration against Fig. 70, on the next page, for the purpose there stated.

		s.	*d.*
Price	(Figs. 67, 68, 69) each	9	0
„ Nickel-plated	extra „	1	0

FORCEPS FOR LOWER MOLARS.

70. 70 (reduced size). 71.

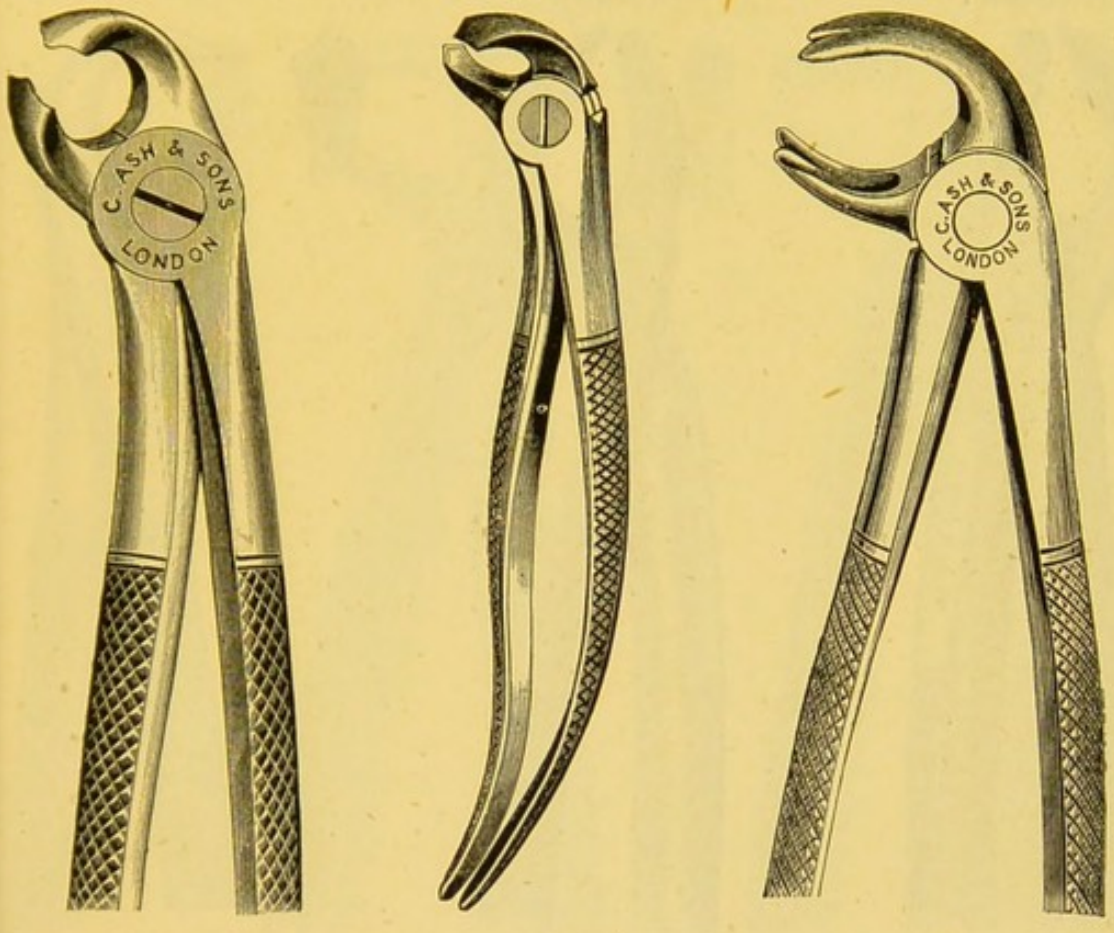


Fig. 70 for lower Molars (King's College Pattern), with beaks finely serrated inside, for either side of the mouth.

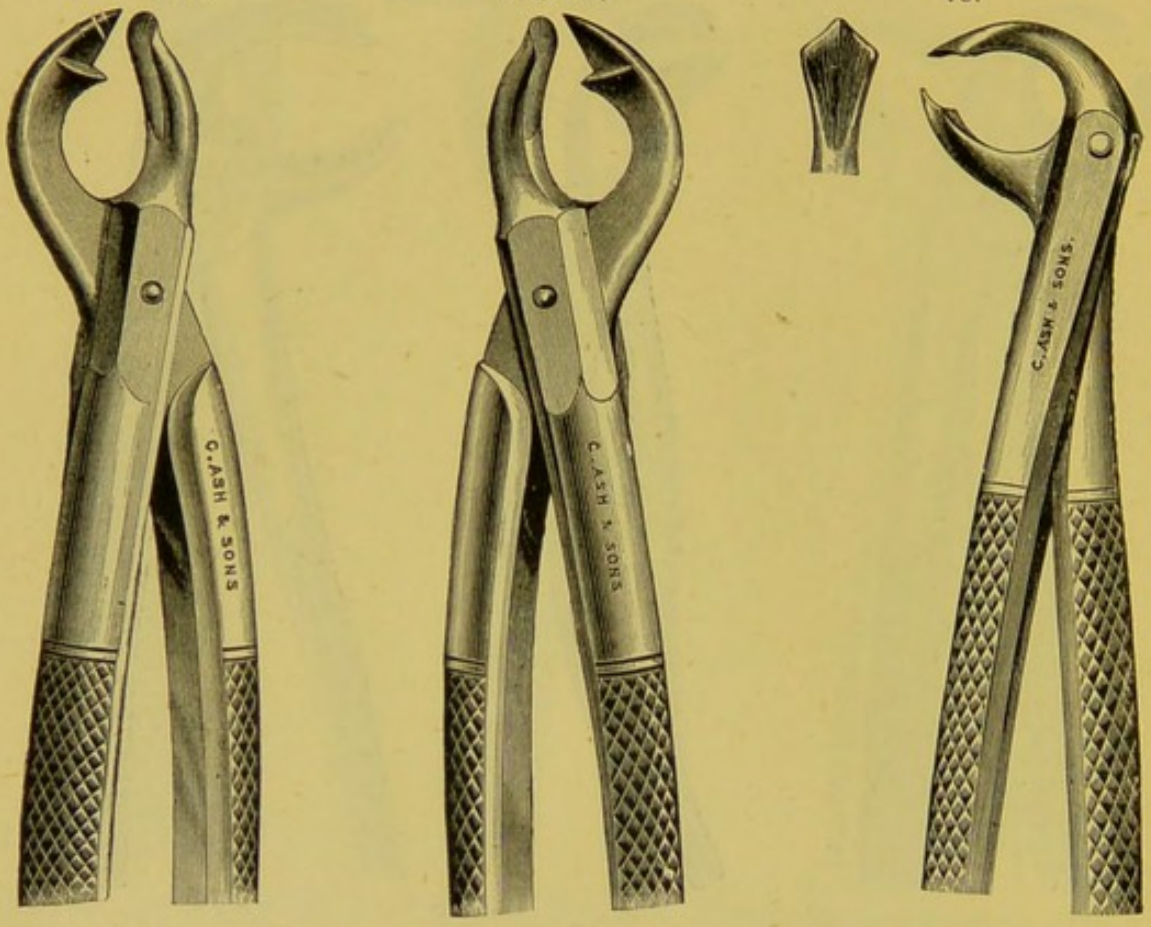
The handles of this instrument are bent away from the beaks, as shown in the reduced size illustration, so that the Operator can see the tooth to be extracted to the best advantage. It is considered a very useful form for quick extractions under nitrous oxide gas, &c.

Fig. 71 (Mr. Hutchinson's), Hawk's bill, for lower Molars with decayed crowns. The beaks are so formed and grooved as to fit on each side of the two roots of a lower Molar. See Mr. Hutchinson's description of the instrument in *The British Journal of Dental Science* for April, 1871, pages 177–180. Made in right and left sides with straight handles.

		s.	d.
Price	(Figs. 70, 71) each	9	0
„ Nickel-plated	extra „	1	0

UPPER SPLITTING FORCEPS AND FORCEPS FOR LOWER MOLARS.

72 (Right). 72 (Left). 73.



Figs. 72, Right and Left, for separating Molar Roots. Designed by Mr. T. W. F. Rowney, of Derby, to meet a want felt for splitting Forceps with more power than existing patterns, and over which the Operator has more control. **The shoulders on the beaks,** shown in the illustrations, rest upon the tooth, and firm pressure may be applied without fear of the cutting points slipping either up or down. Made with pin joint. Mr. Rowney has named them the "Faraday" Splitting Forceps.

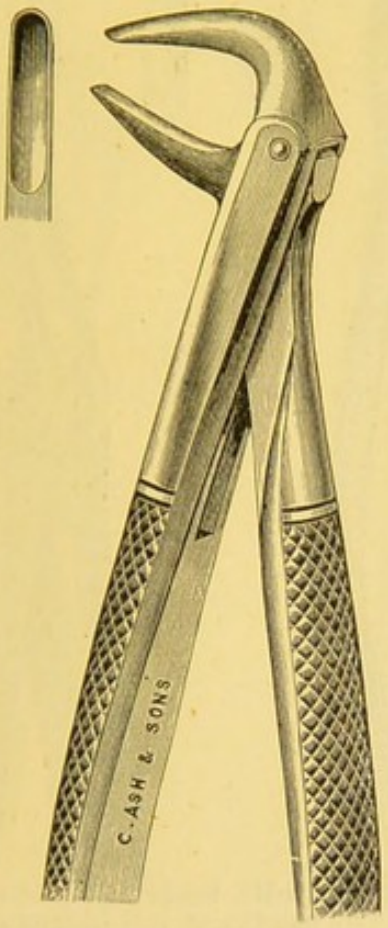
Fig. 73 for lower Molars, Hawk's bill, with straight handles, beaks finely serrated inside and pin joint, for either side of the mouth.

Fig. 73. Right and Left, with beaks curved like Figs. 23 and 24 on page 103.
,, 73. Light, for children's teeth.
,, 73. With Thumb Rest, suggested by Mr. W. Hern.

			s.	d.
Price	(Figs. 72, 73)	each	9	0
,, with Thumb Rest	(Fig. 73)	,,	11	0
,, of any of the above Nickel-plated	extra	,,	1	0

FORCEPS FOR LOWER STUMPS AND FOR LOWER BICUSPIDS.

74.



75.

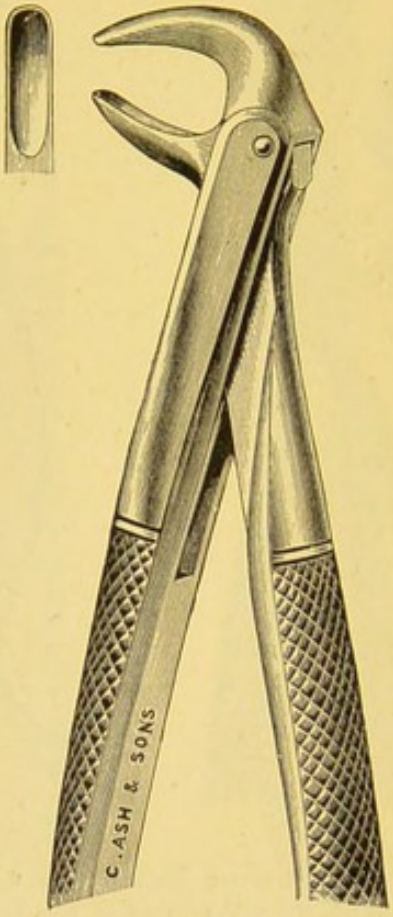


Fig. 74 for lower Stumps on either side of the mouth, with straight handles, pin joint and beaks finely serrated inside.

Fig. 74 narrower than illustrated, for crowded teeth and for small roots.

Fig. 74 with Thumb Rest, suggested by Mr. W. Hern.

Fig. 75 for lower Bicuspids, Hawk's bill, with beaks finely serrated inside, straight handles and pin joint, for either side of the mouth.

			s.	*d.*
Price	(Figs. 74, 75)	each	9	0
„ with Thumb Rest	(Fig. 74)	„	11	0
„ of any of the above, Nickel-plated	extra	„	1	0

FORCEPS FOR UPPER STUMPS.

76. 76 (reduced size). 77.

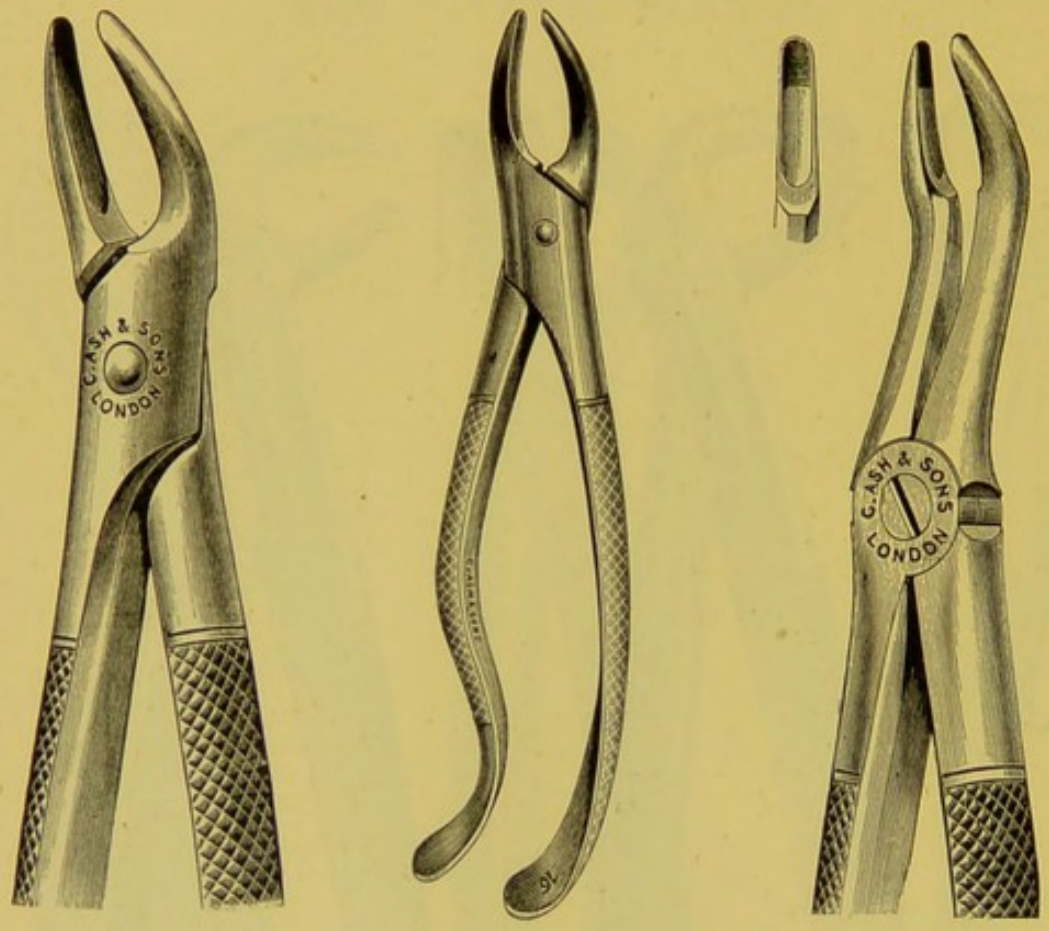


Fig. 76 (Mr. Lawrence Read's) for upper Stumps, with beaks finely serrated inside and simple joint, for either side of the mouth. The handles of this instrument are bent away from the beaks, as shown in the reduced size illustration, so that the Operator can see the stump to be extracted better than with the ordinary form. It is considered very useful when quick extractions during anæsthesia, &c., are necessary.

Fig. 76, heavier than ordinary pattern, with long and strong penetrating beaks for Molar roots, &c.

Fig. 76, lighter than ordinary pattern.

Fig. 76, with short beaks, as used at the Dental Hospital of London.

Forceps (Mr. Walter Campbell's), with beaks like Fig. 76, handles slightly curved and bent round at the ends like Fig. 83 on page 123, for the purpose there described.

Fig. 77 (Dr. Redman's) for upper Stumps, with straight handles and narrow beaks finely serrated inside, for either side of the mouth.

			s.	d.
Price	(Figs. 76, 77)	each	9	0
„	(Mr. Campbell's)	„	9	0
„ Nickel-plated	extra	„	1	0

Forceps repaired and re-polished at moderate charges.

FORCEPS FOR UPPER STUMPS AND FOR LOWER WISDOM TEETH.

78. 79. 79 (back view).

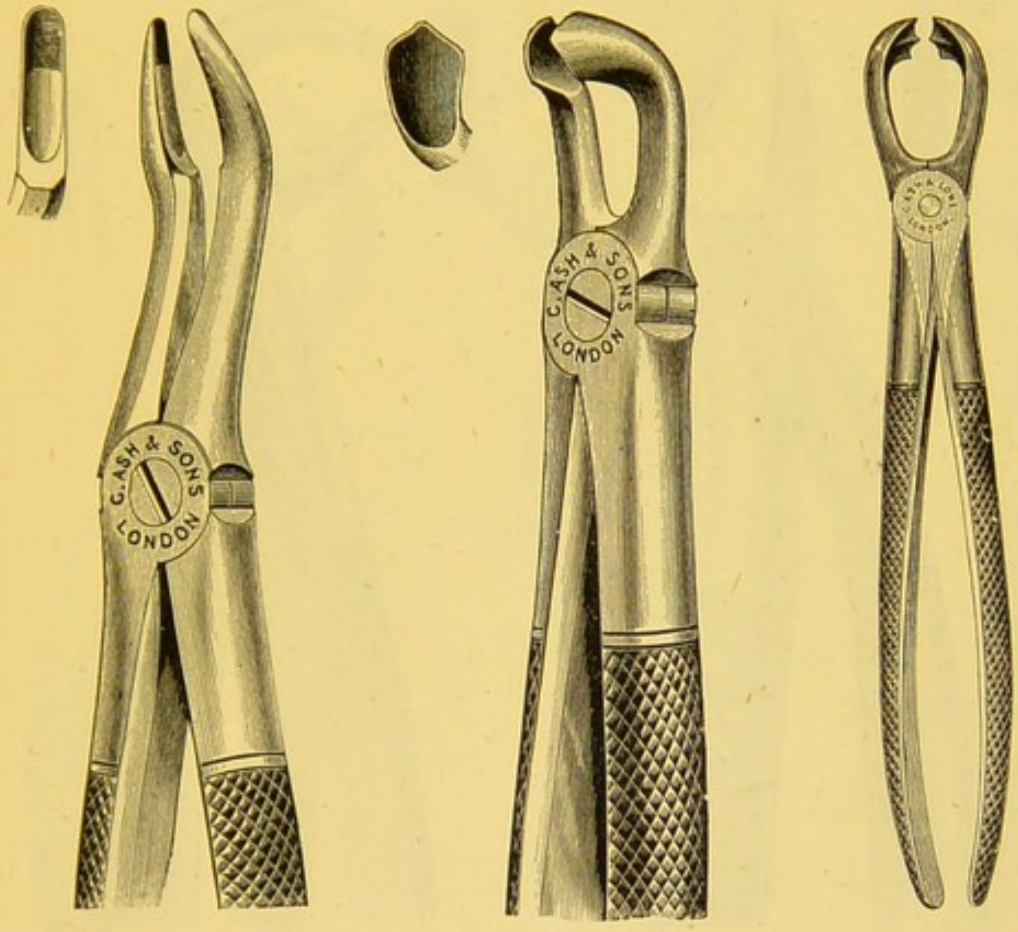


Fig. 78 (Dr. Redman's) for upper Stumps, with straight handles and broad beaks finely serrated inside, for either side of the mouth.

Fig. 79 for lower Wisdom Teeth, with straight handles and beaks finely serrated inside, for either side of the mouth.

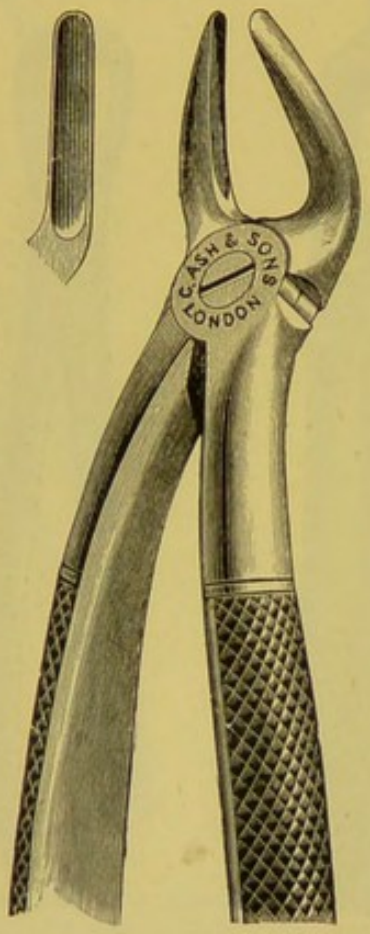
This instrument is so designed that the Operator can distinctly see the tooth to be extracted as he places the beaks of the Forceps upon it —see back view illustration above.

		s.	d.
Price	(Figs. 78, 79) each	9	0
„ Nickel-plated	extra „	1	0

Special Forceps made to Operators' own patterns, and submitted in the rough state for approval before they are finished.

FORCEPS FOR UPPER MOLAR AND WISDOM STUMPS AND FOR LOWER BICUSPIDS.

80.



81.

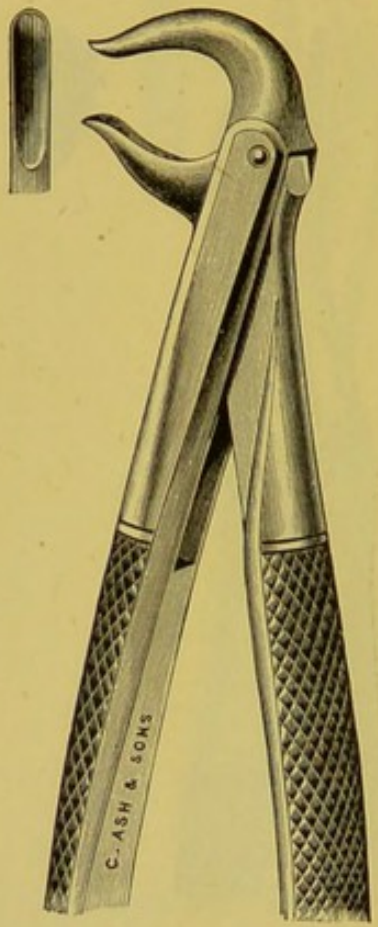


Fig. 80 (Mr. Coleman's) for upper Molar and Wisdom Stumps, with convenient bend for reaching far back into the mouth and beaks finely serrated inside, for either side of the mouth.

Fig. 81 (Mr. Gilbert Walker's) for lower Bicuspids, &c., on either side of the mouth, with sub-alveolar beaks, straight handles and pin joint. Mr. Walker gives a description of this instrument, and his manner of using it, in *The British Journal of Dental Science* for March 1, 1884, pages 197–199.

		s.	*d.*
Price	(Figs. 80, 81) each	9	0
„ Nickel-plated	extra „	1	0

It is not necessary to cut out the illustrations when ordering Forceps, &c., from this Catalogue; a reference to the page and figure will be sufficent for our guidance.

FORCEPS FOR UPPER STUMPS AND LOWER EXCISING FORCEPS.

83. 83 (reduced size). 84.

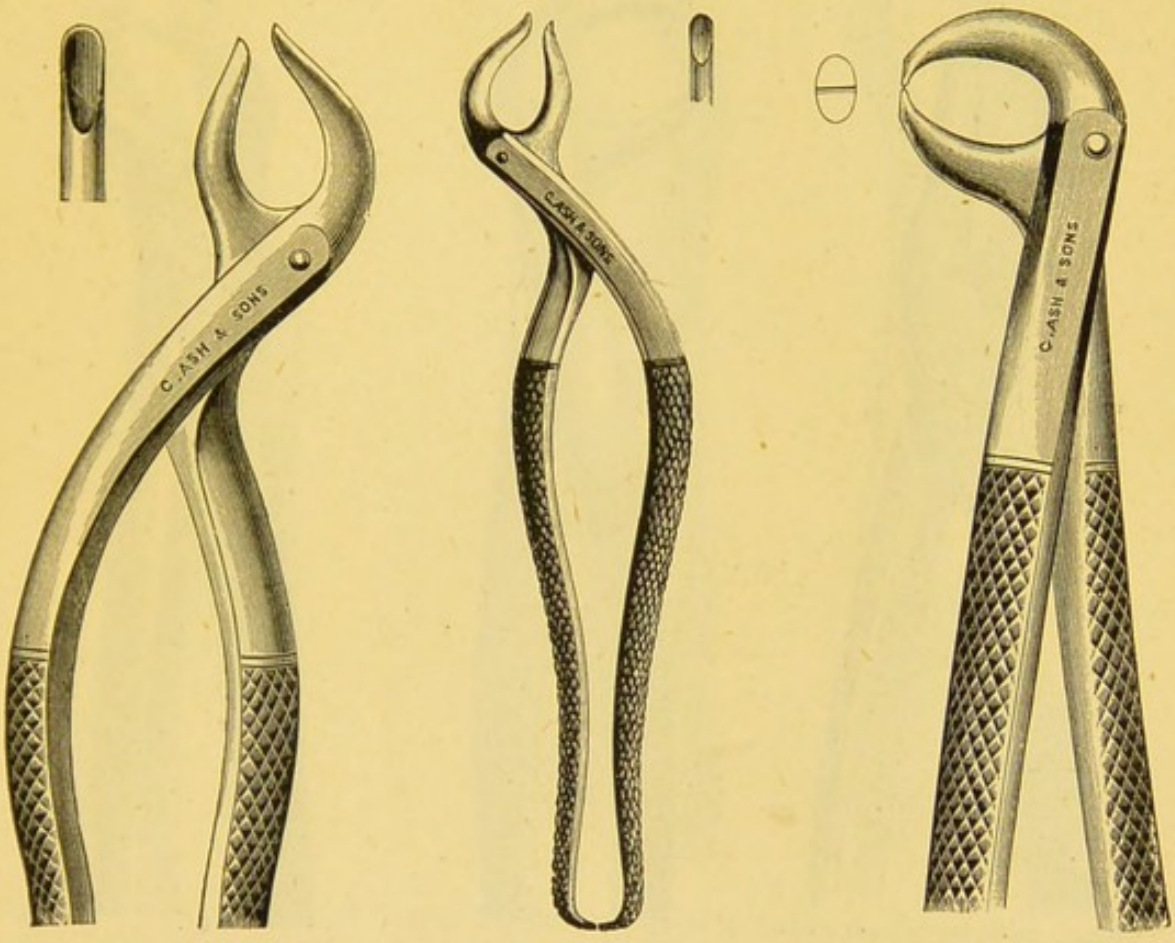


Fig. 83 (Mr. Gilbert Walker's), Universal upper Root, with sub-alveolar beaks and pin joint. The handles are bent round at the ends, as shown in the reduced size illustration, so that the Operator can push the blades well up into the socket before extracting the stump.

Fig. 84 (Mr. E. J. Ladmore's), Hawk's bill, for use on lower teeth on both sides of the mouth, with straight handles and pin joint. This instrument being applied from the sides instead of from the front of the mouth gives the Operator a clear view of the tooth to be excised. Made with medium and narrow beaks—the section shows the width of the medium.

			s.	*d.*
Price	(Figs. 83, 84) each		9	0
„ Nickel-plated	extra	„	1	0

FORCEPS FOR UPPER STUMPS AND FOR LOWER MOLARS.

85. 86. 87.

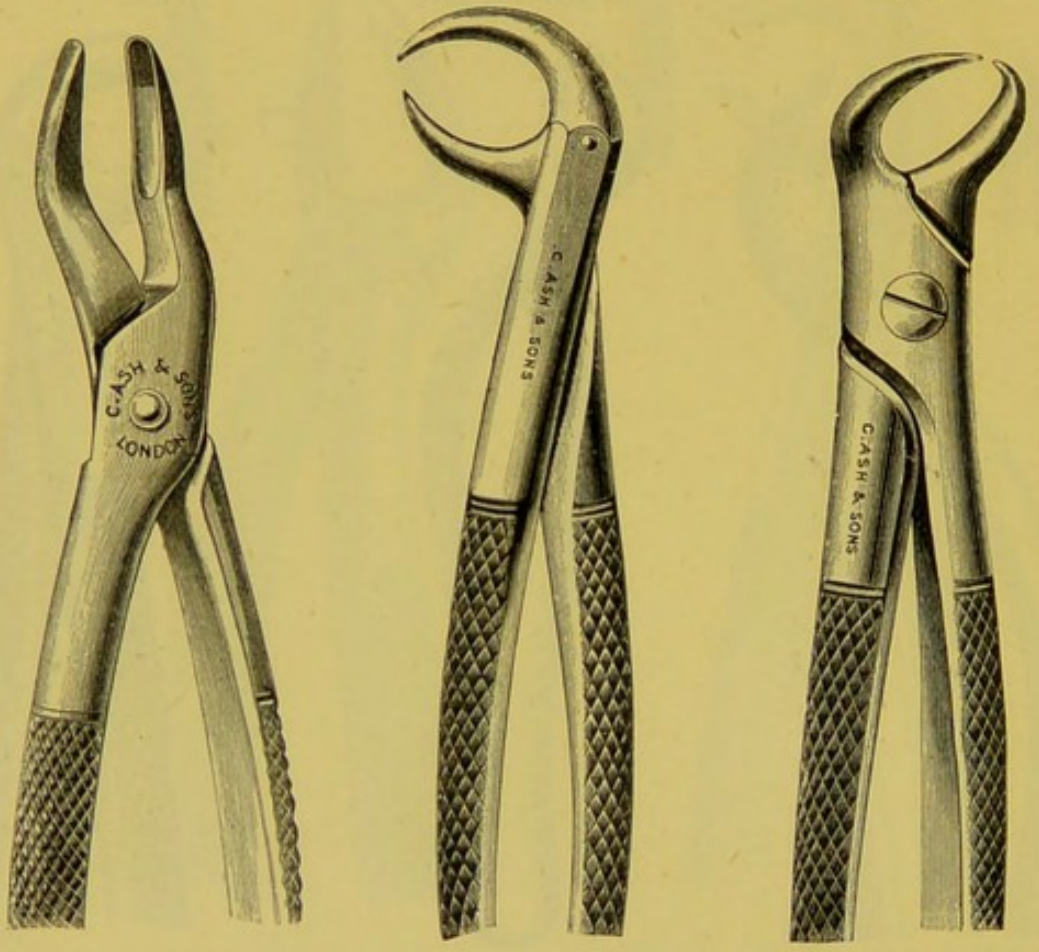


Fig. 85 for upper Stumps, Bayonet form, with short bend, suitable for extracting all stumps in the upper jaw, made with straight handles, beaks finely serrated inside and simple joint.

Fig. 85, with handles like Fig. 76 on page 120—suggested by Mr. Cornelius Robbins.

Fig. 86, Universal lower Molar, Cow-horn, Hawk's bill, with straight handles and pin joint. This instrument, like other Hawk's-bill Forceps, is applied from the sides of the mouth, and gives the Operator a clear view of the tooth to be extracted.

Fig. 87 for lower Molars, Cow-horn, with straight handles and simple joint, for either side of the mouth. The beaks of this instrument are arranged for all extractions to be made from the front of the mouth.

		s.	*d.*
Price	(Figs. 85, 86, 87) each	9	0
,, Nickel-plated	extra ,,	1	0

FORCEPS FOR UPPER WISDOM TEETH AND FOR UPPER MOLARS.

88. 89. 90.

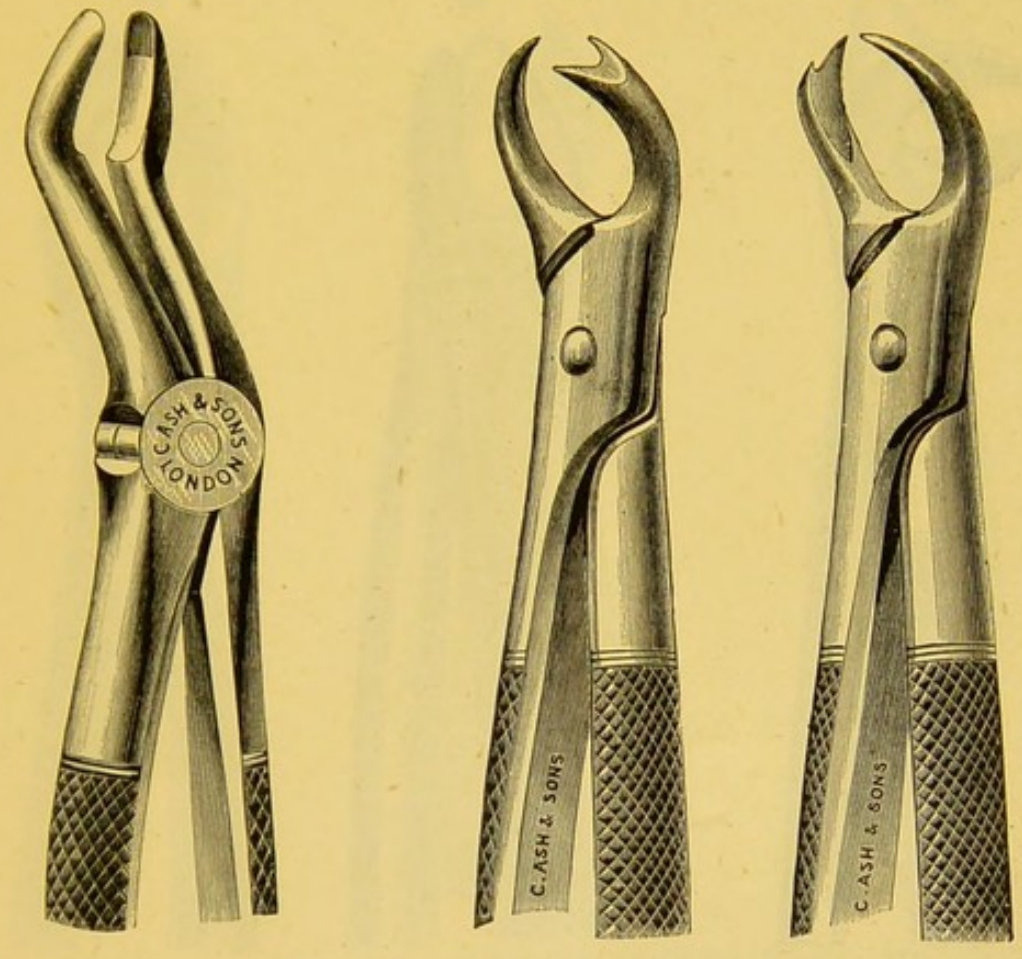


Fig. 88 for upper Wisdom Teeth, Bayonet form, with beaks finely serrated inside for either side of the mouth. The beaks are slightly curved towards the Operator to allow of their being placed well behind the second molar. To clear the lower jaw, the handles are also bent towards the Operator, the ends being in a direct line with the beaks.

Figs. 89, 90 designed by the late Dr. J. Wood, of Dumfries. These Forceps are useful for extracting upper molars when the crowns are very much decayed and broken down. The double-pointed beak embraces each side of the palatine root, grasping it so firmly that the instrument cannot slip. The Cow-horn beak passes between the two roots on the buccal side of the mouth, and thus gives the Operator a firm hold of the sound portion of the tooth which lies beyond the decayed crown. When the beaks are closed there is sufficient space for a full size molar crown to rest between them without any fear of its being crushed.

Made with handles slightly curved, and simple joint. Fig. 89 is for the right, and Fig. 90 is for the left side of the mouth.

		s.	d.
Price	(Figs. 88, 89, 90) each	9	0
„ Nickel-plated	extra „	1	0

LOWER SPLITTING FORCEPS AND FORCEPS FOR UPPER MOLARS.

91. 92. 93.

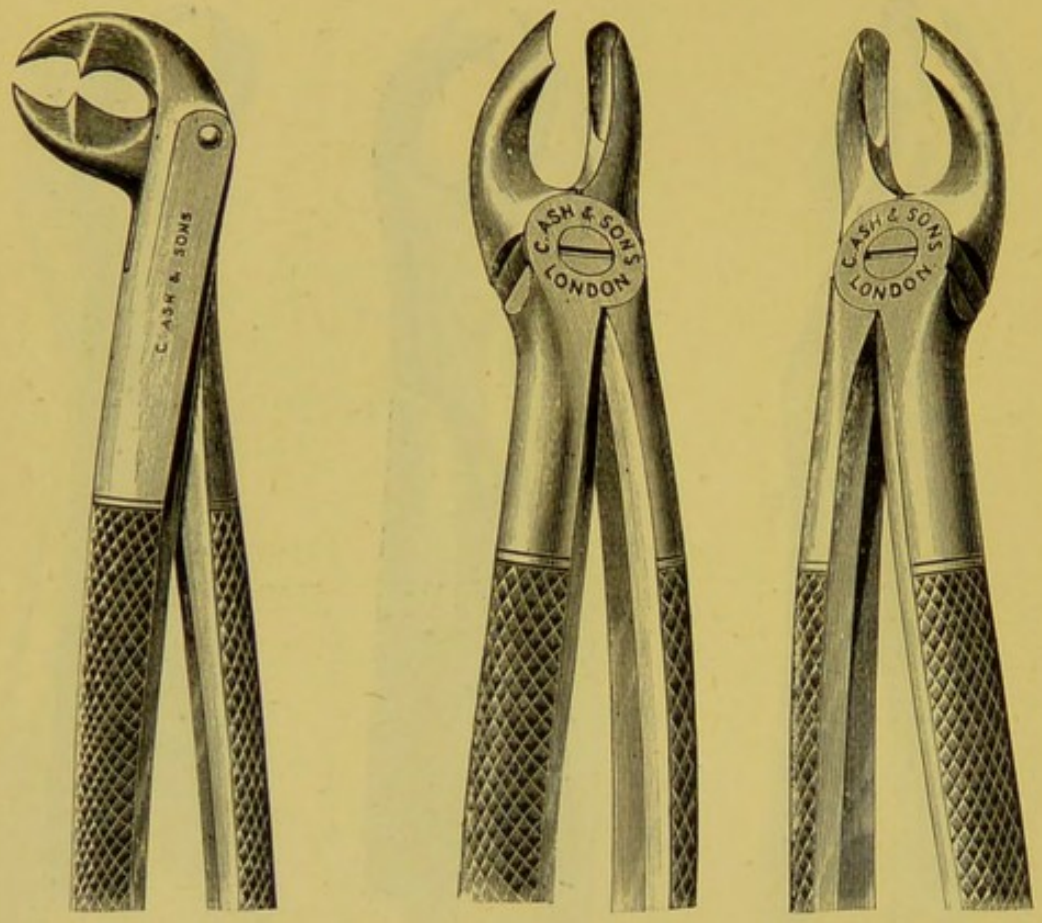


Fig. 91. Hawk's bill splitting Forceps for lower teeth on either side of the mouth. Designed by Mr. T. W. F. Rowney, of Derby. See remarks concerning this instrument and Figs. 72 right and left on page 118.

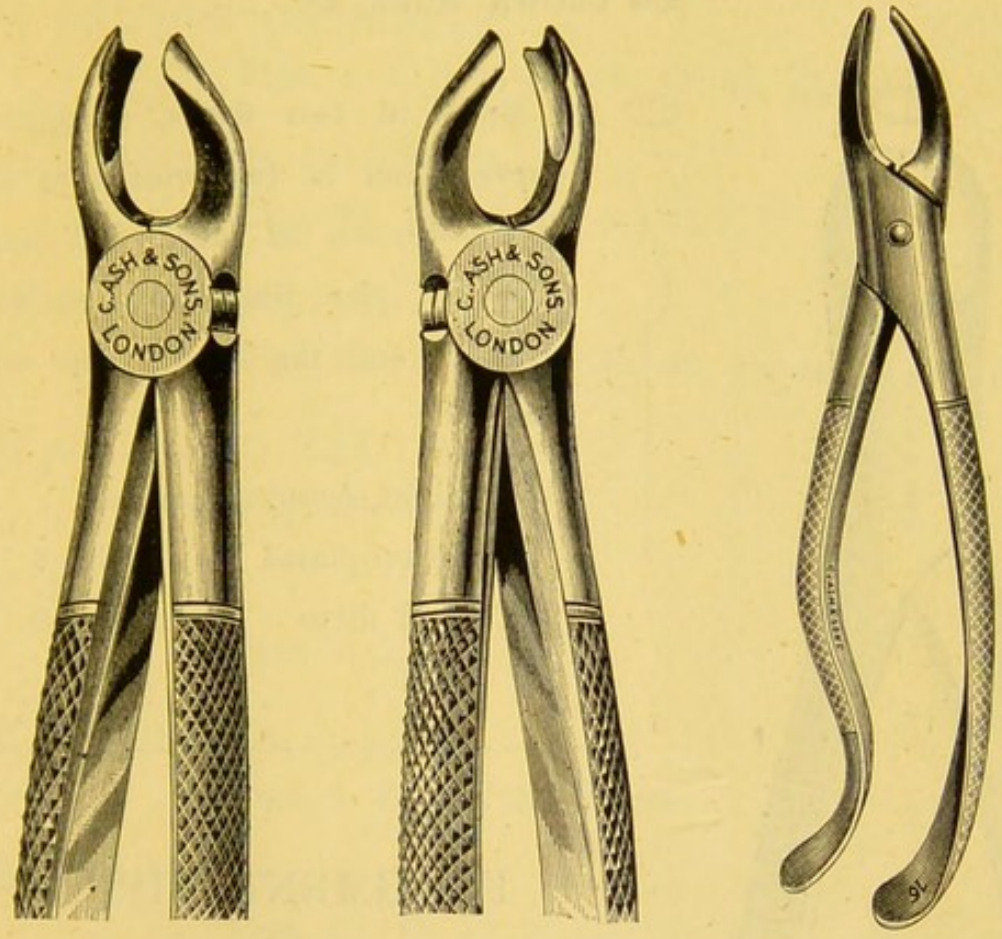
Figs. 92, 93. The bend in the upper part of these Forceps is very convenient for reaching far back into the mouth, the beaks are accurately adapted to the upper second molars, and there is sufficient room between them to admit a full-sized crown without any fear of its being crushed. Made with handles slightly curved and beaks finely serrated inside.

Fig. 92 is for the right and Fig. 93 is for the left side of the mouth.

			s.	*d.*
Price	(Figs. 91, 92, 93)	each	9	0
„ Nickel-plated	extra	„	1	0

FORCEPS FOR UPPER MOLARS.

94. 95. This shows the curve in the handles of 94 and 95.



These Forceps possess some valuable features which are generally admired.

The buccal blades are so accurately constructed that the adaptation to the crown and roots on that side of the mouth is perfect.

The palatine blades are left slightly straighter than usual in the upper part for the purpose of distributing the strain, which would otherwise all have to be borne by the point, over as large a portion of the metal as can be utilised for the purpose without any danger of the crown being crushed.

The illustration on the right-hand side of the page shows the curve in the handles. This curve gives the Operator a better grip and a clearer view of the tooth to be extracted than he can obtain with the ordinary bent handles, and is considered useful when quick extractions during anæsthesia, &c., are necessary.

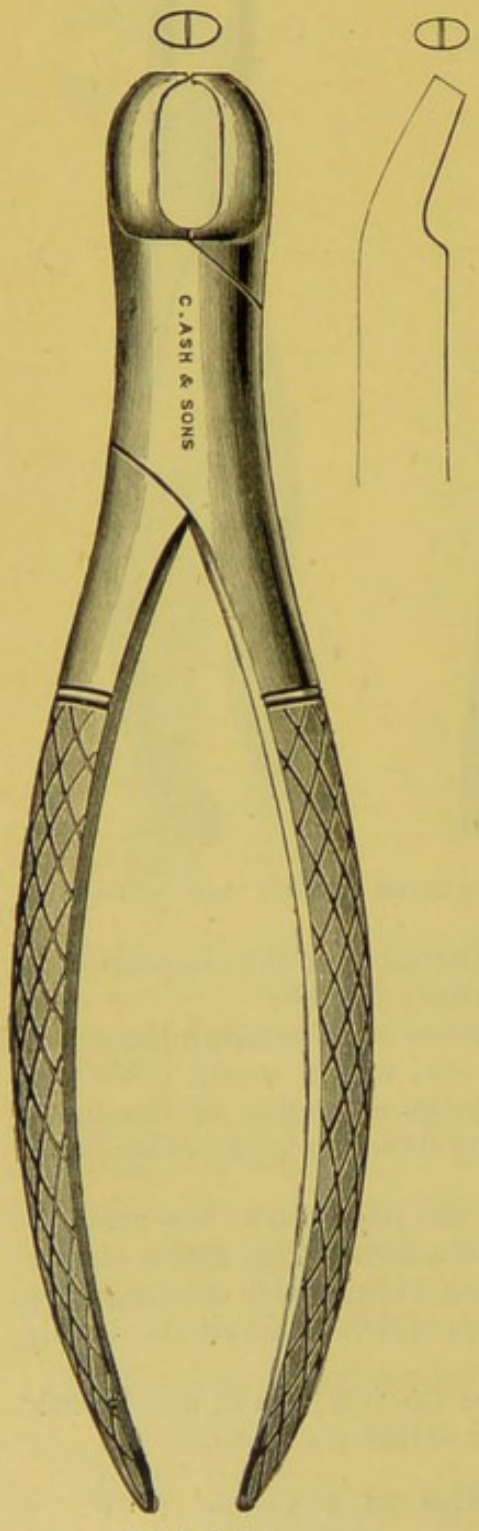
Fig. 94 is for the right and Fig. 95 is for the left side of the mouth.

Figs. 94 and 95 lighter than the above for children's teeth.

		s.	d.
Price	(Figs. 94, 95) each	9	0
„ Nickel-plated	extra „	1	0

ROOT NIPPERS,

FOR CROWN WORK, &c.

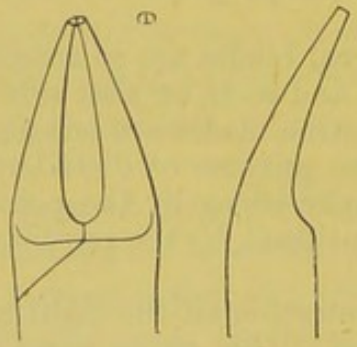


FULL SIZE.

Made in two forms, straight and curved, and in two widths as shown above—known as broad and narrow. The full size illustration shows the straight, and the outline the curved form.

			s.	d.
Straight, broad or narrow,				
Nickel-plated	..	each	6	0
Curved ditto	„	„	6	0

FRAGMENT NIPPERS.



With very narrow, curved, cutting beaks, and handles like the Root Nippers illustrated on this page.

		s.	d.
Price, Nickel-plated	..	6	0

AMERICAN PATTERN FORCEPS.

FOR STUMPS OR ROOTS.

Figs. 1, 2, 3, 7, 35, 49, 50, 63, 65, 69.

SUB-ALVEOLAR FORCEPS.

Figs. 72, 73, 74, 75, 76, 77.

ALVEOLAR FORCEPS.

Figs. 32, 33, 34, 39, 41, 42, 43, 44, 52, 58, 61, 64.

FOR CROWDED TEETH.

Figs. 36, 37, 38.

FOR INCISORS.

Figs. 9, 13, 14, 46, 48.

FOR BICUSPIDS.

Figs. 4, 11, 21, 25, 26, 40.

FOR MOLARS.

Figs. 15, 16, 17, 18, 19, 20, 23, 24, 27, 28, 45, 47, 51, 53, 54, 55, 56, 57, 59, 60, 68, 70, 71.

FOR WISDOM TEETH.

Figs. 5, 8, 10, 22.

EXCISING AND SPLITTING FORCEPS.

Figs. 6, 12, 31, 66, 67.

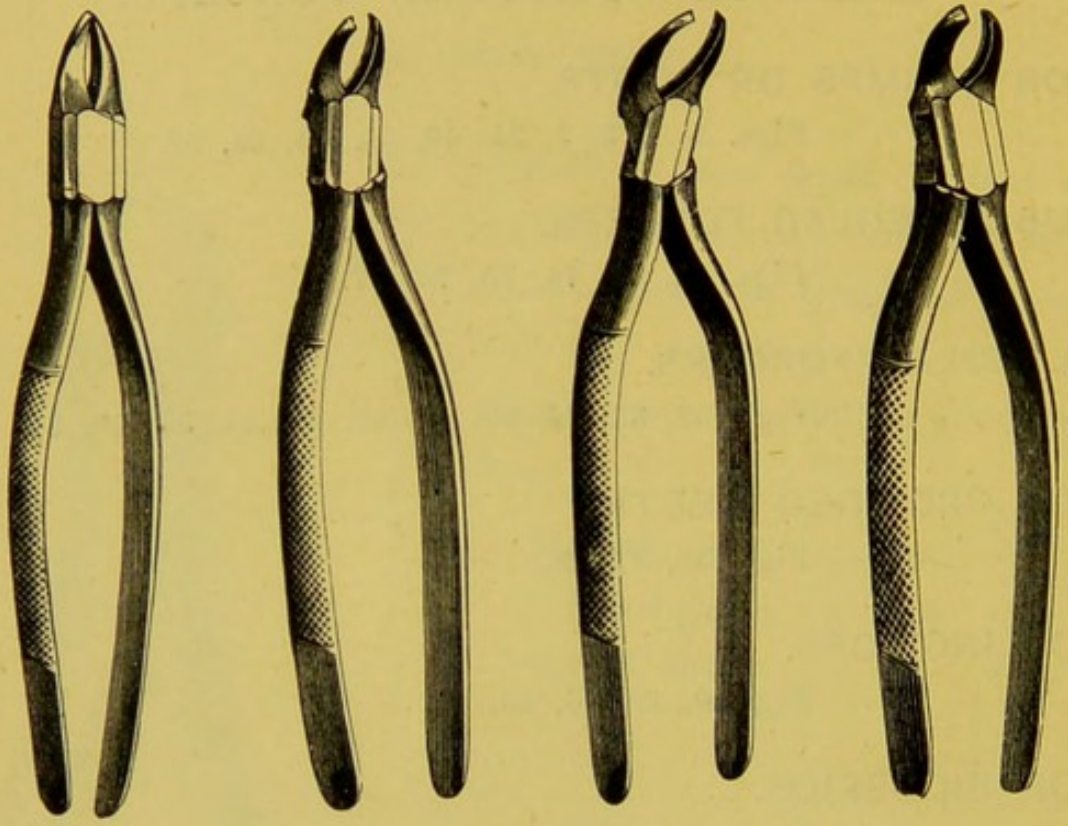
FOR CHILDREN'S TEETH.

Figs. 29, 30, 62.

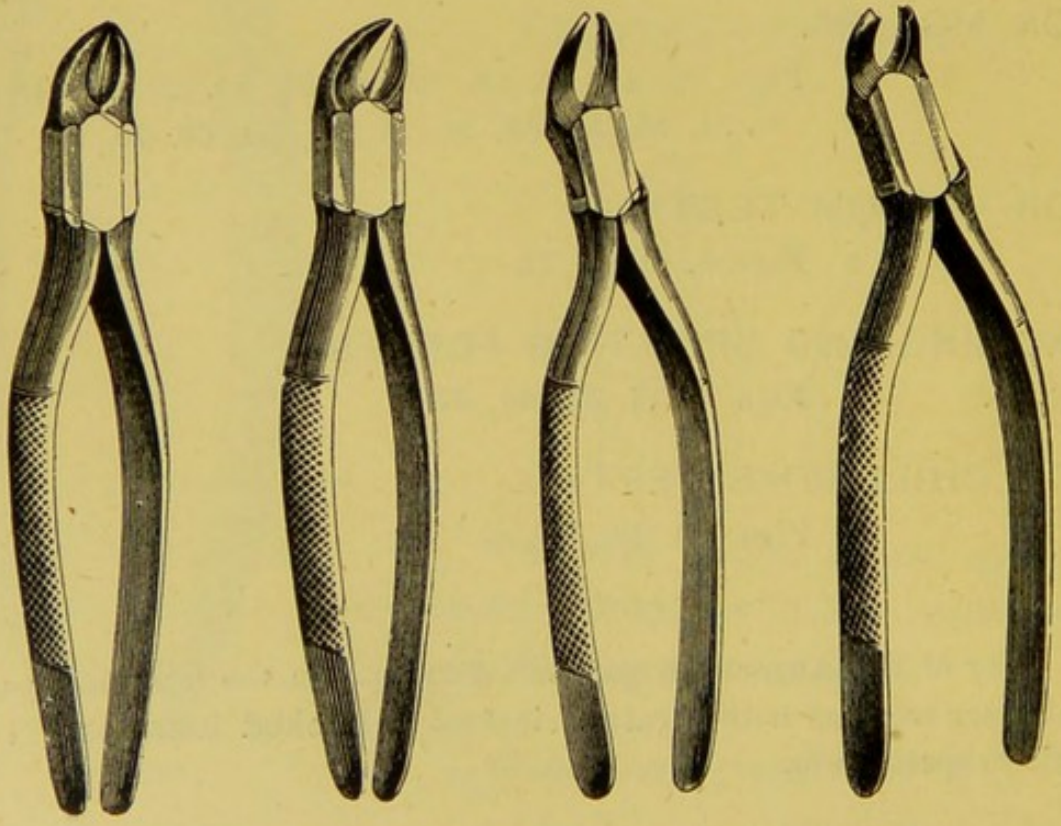
Any of the **American pattern Forceps** on the following pages which are required with **straight** instead of **hooked handles** will be made to special order.

AMERICAN PATTERN FORCEPS.

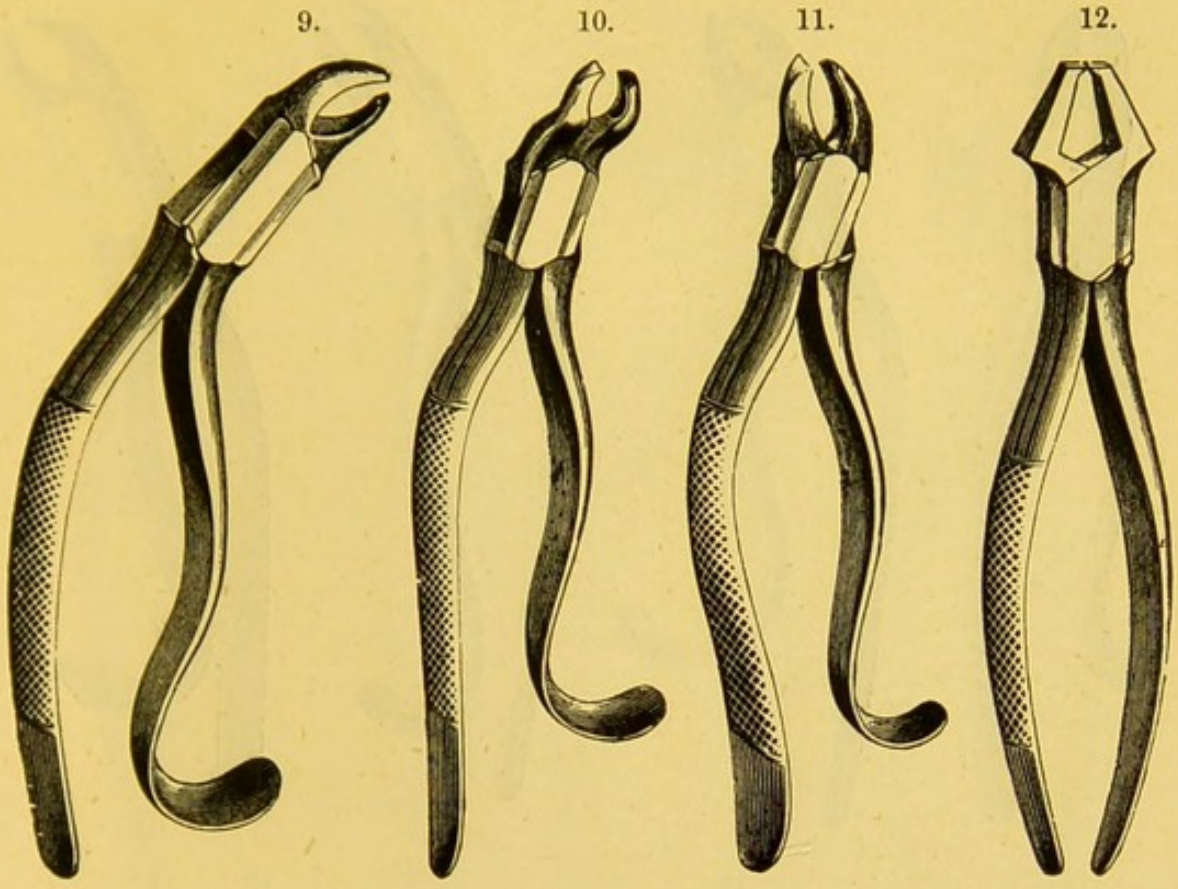
1. 2. 3. 4.



5. 6. 7. 8.



AMERICAN PATTERN FORCEPS.



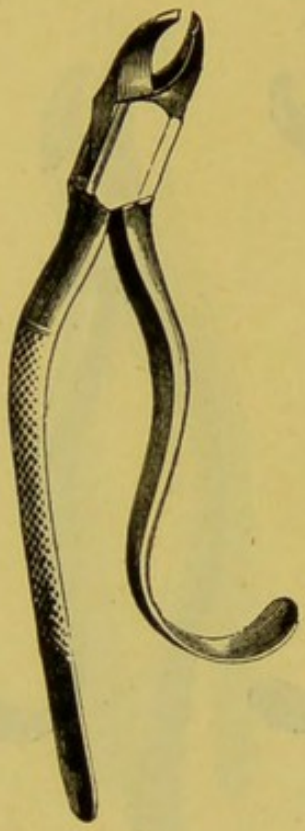
Upper Front Root, straight	Fig.	1.
„ and Lower Root, half-curved	„	2.
Lower Front Root, full curved	„	3.
Upper and Lower Bicuspid, half-curved	„	4.
„ Wisdom for either side (Dr. Physick's)	„	5.
„ and Lower Dividing or Splitting	„	6.
„ Back Root, Universal	„	7.
„ Wisdom for either side	„	8.
Lower Incisor, Hawk's Bill	„	9.
Upper Wisdom for either side	„	10.
„ Bicuspid and Canine	„	11.
„ Excising, straight beaks	„	12.

		s.	d.
Price	each	10	6
„ **Nickel-plated**	„	11	6

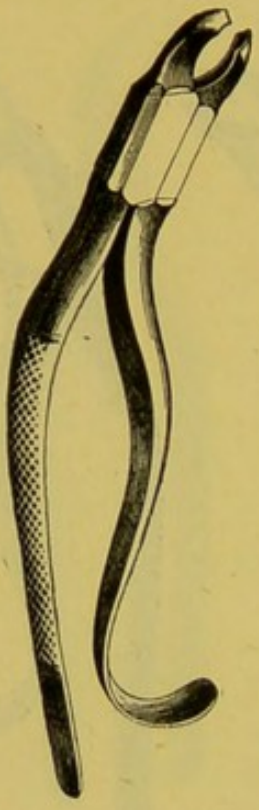
AMERICAN PATTERN FORCEPS.

13.

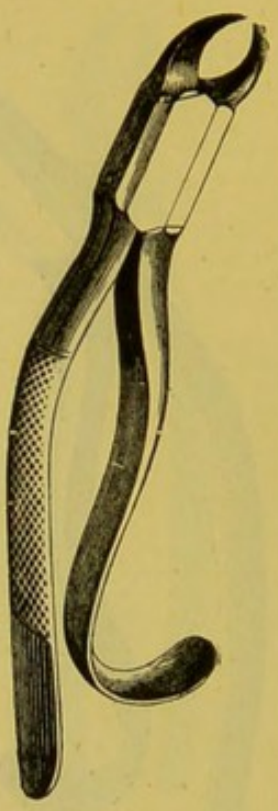
14.



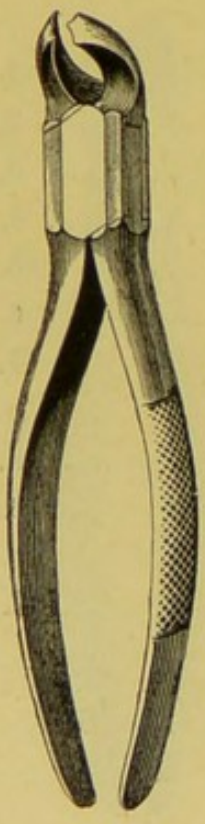
15.



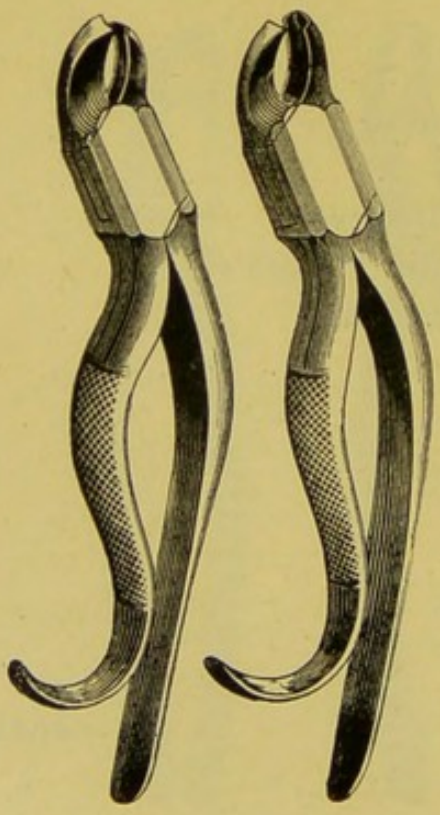
16.



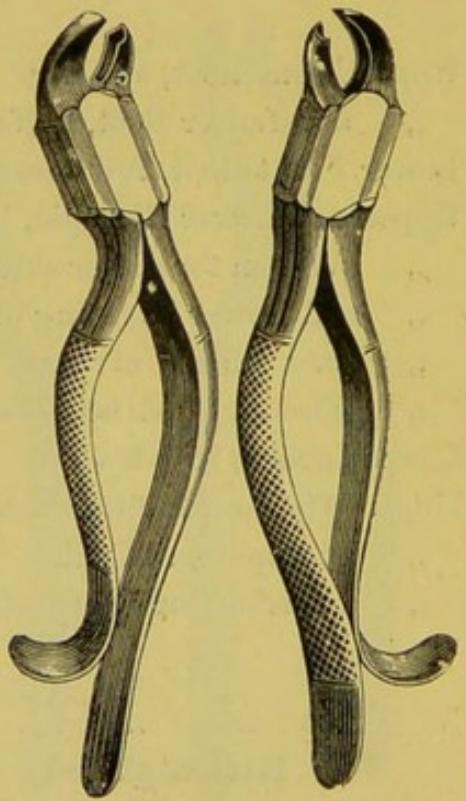
17.



18.

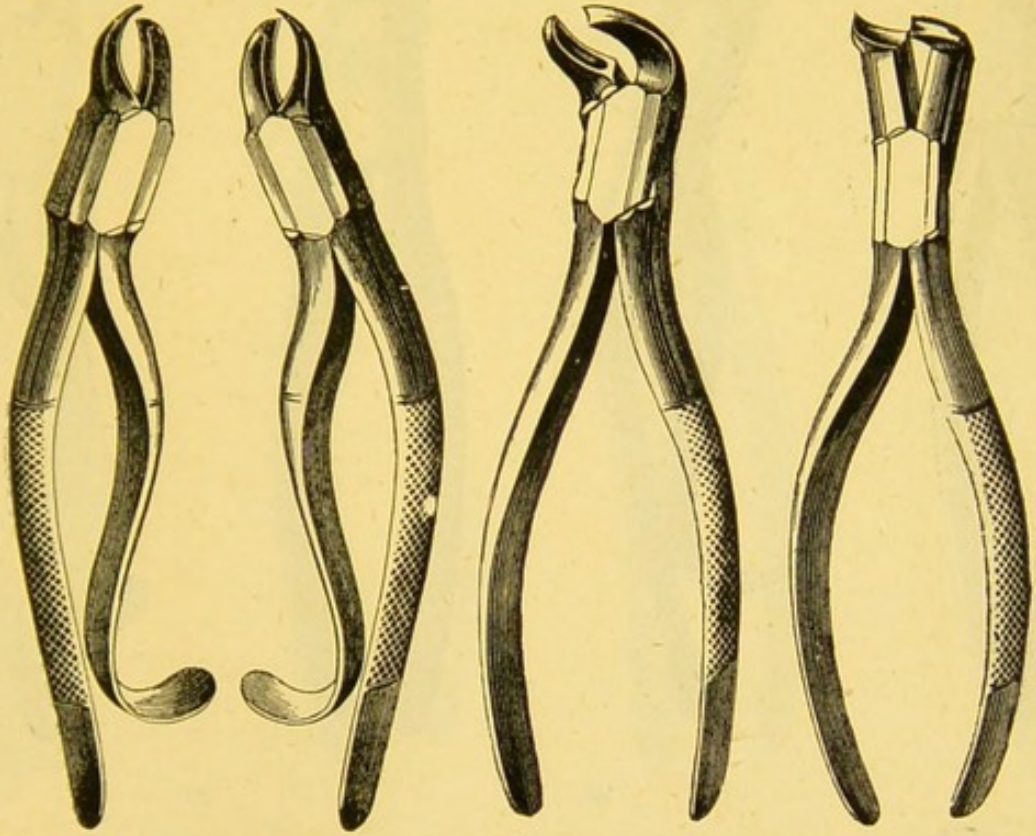


19.



AMERICAN PATTERN FORCEPS.

20. 21. 22.



Upper Incisor	.. ..	Fig. 13.
Lower Incisor and Bicuspid, for either side	.. .. ..	„ 14.
„ Molar (Dr. Harris's)	„	„ 15.
„ „ Cow-horn	„	„ 16.
„ „ for either side	.. ..	„ 17.
Upper Molar, right and left (Dr. Harris's)	.. .. ..	„ 18.
„ „ „	.. ..	„ 19.
„ „ „ Cow-horn	.. ..	„ 20.
Lower Bicuspid and Canine	.. ..	„ 21.
„ Wisdom, for either side	.. ..	„ 22.

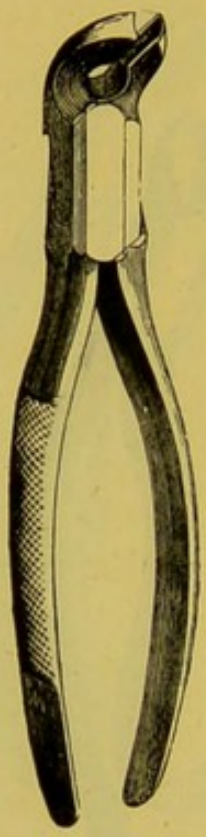
		s.	*d.*
Price	each	**10**	**6**
Nickel-plated	„	**11**	**6**

AMERICAN PATTERN FORCEPS.

23.

24.

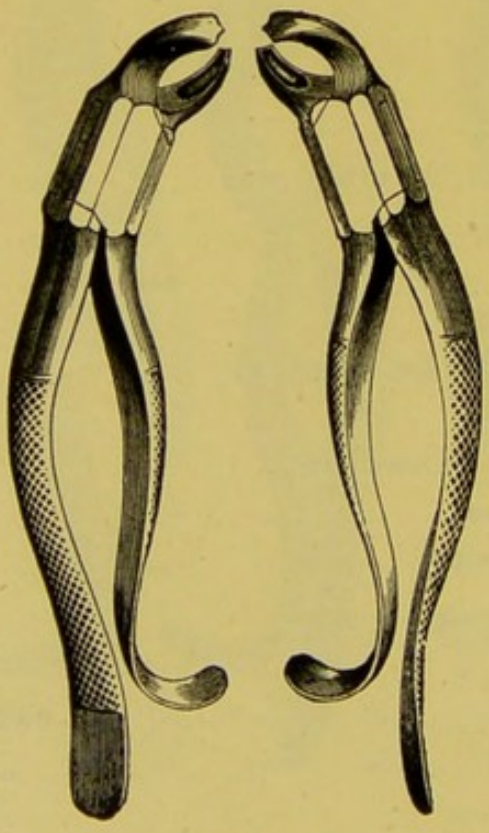
25.



26.

27.

28.

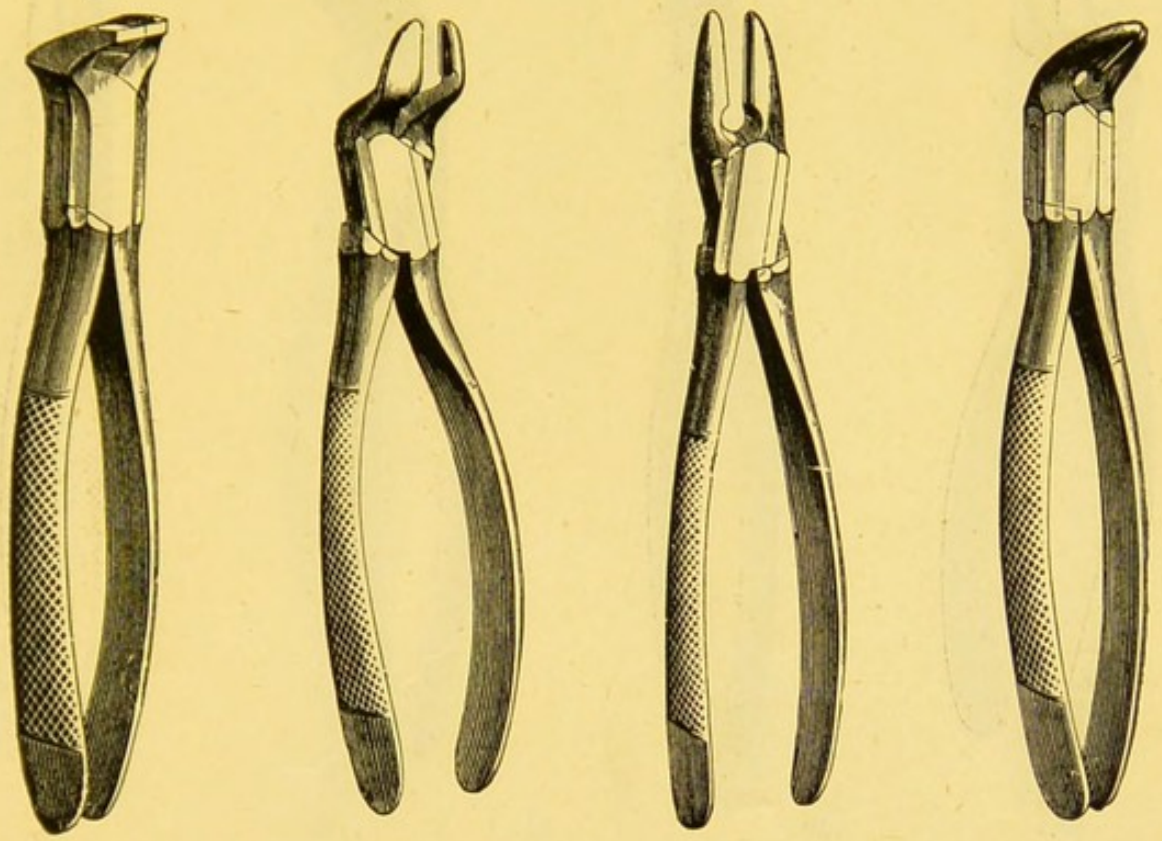


29.

30.

AMERICAN PATTERN FORCEPS.

31. 32. 33. 34.

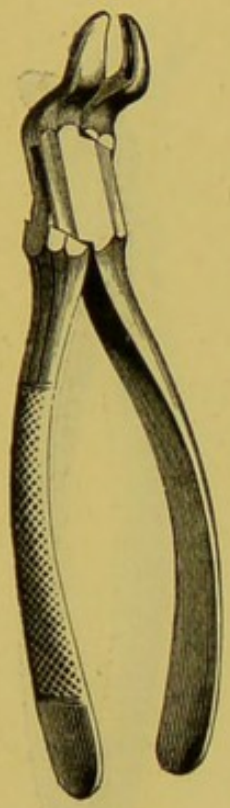


Lower Molar, Cowhorn, for either side	Fig. 23.
Upper „ for either side	„ 24.
Lower Bicuspid, Safety	„ 25.
Upper „ „	„ 26.
Lower Molar, Plain Beaks, for either side	„ 27.
„ „ right and left	„ 28.
Children's Lower, curved for Incisors, &c.	„ 29.
„ Upper, straight „	„ 30.
Lower Excising, Curved Beaks	„ 31.
Upper Bayonet-shape, Alveolar (Dr. Parmly's)	„ 32.
„ Straight-Beaks, „ „	„ 33.
Lower Curved „ „ „	„ 34.

		s.	*d.*
Price	each	10	6
„ **Nickel-plated**	„	11	6

AMERICAN PATTERN FORCEPS.

35.

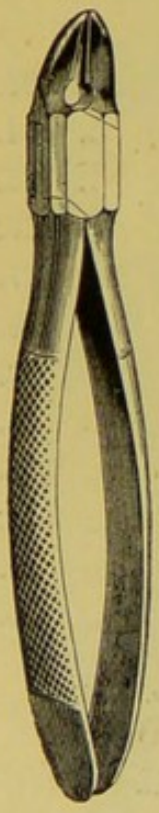


36.

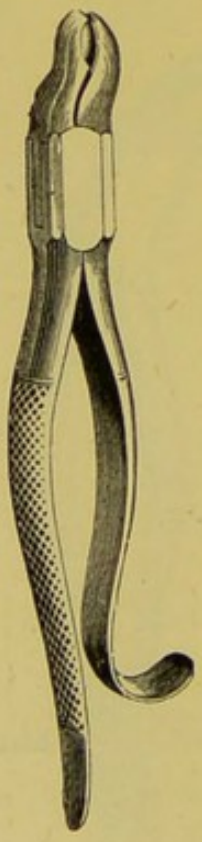
37.

38.

39.

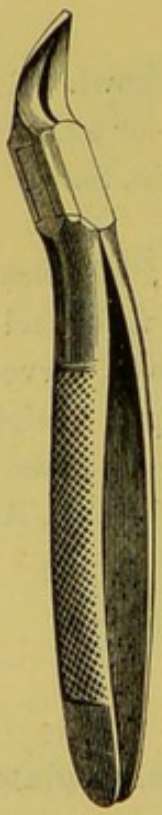


40.



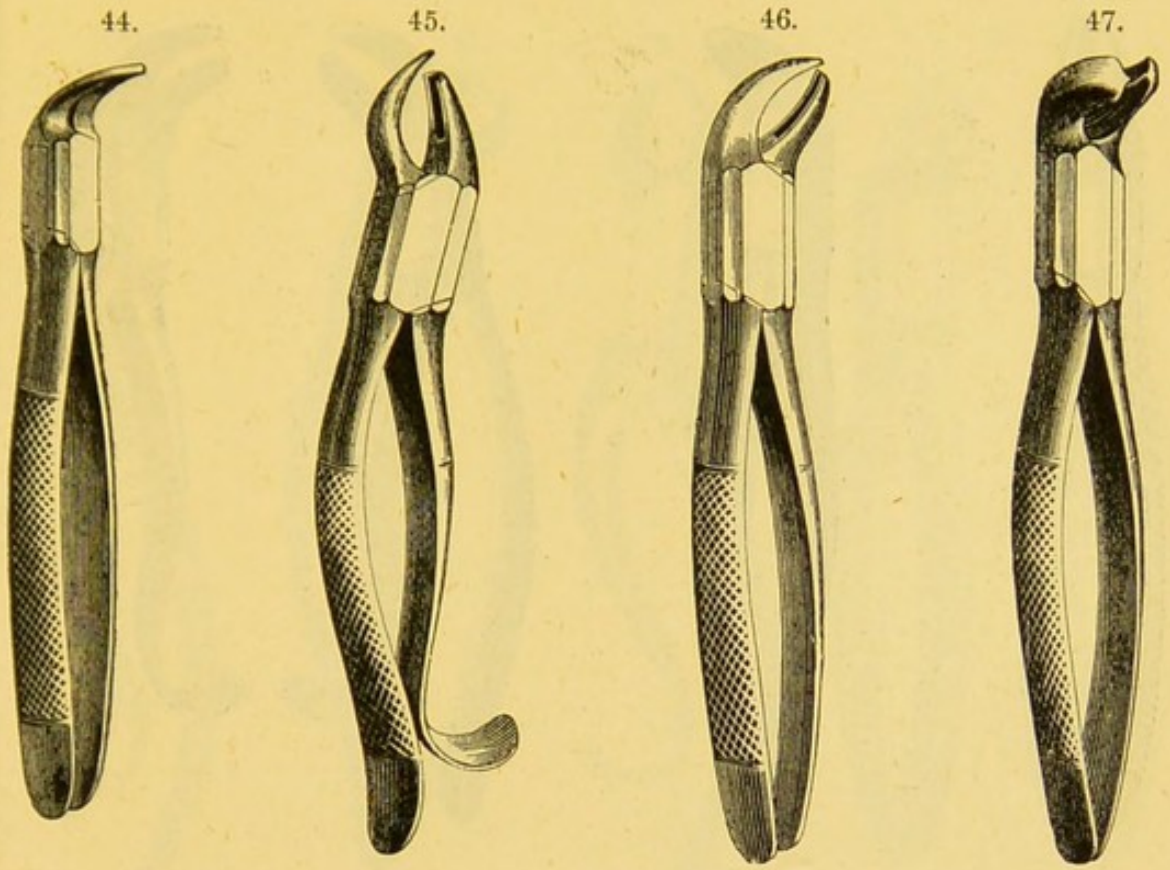
41.

42.



43.

AMERICAN PATTERN FORCEPS.

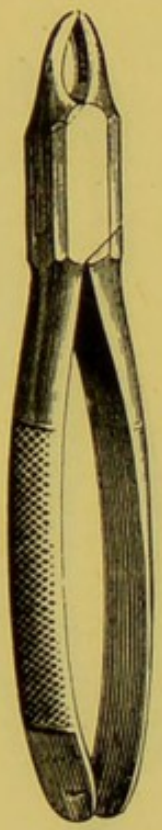


Upper Root, bayonet	.. ..	Fig. 35.
„ Narrow Beak, half-curved, for crowded teeth	.. ..	„ 36.
„ „ „ full-curved, „ „	.. ..	„ 37.
„ „ „ straight, „ „	.. ..	„ 38.
„ Half-curved Beak, Alveolar (Dr. Parmly's)	.. ..	„ 39.
„ Bicuspid and Incisor	.. ..	„ 40.
„ Half-curved Beak, Alveolar	.. ..	„ 41.
„ Back, long beak, „	.. ..	„ 42.
„ Straight Beak, „	.. ..	„ 43.
Lower Long Beak, full-curved, Alveolar	.. .. ..	„ 44.
Upper Molar, Cowhorn, for either side	.. ..	„ 45.
Lower Incisor, and for crowded teeth, Hawk's Bill	.. ..	„ 46.
„ Molar, for either side (Mr. Hutchinson's)	.. ..	„ 47.

		s.	*d.*
Price	each	10	6
„ **Nickel-plated**	„	11	6

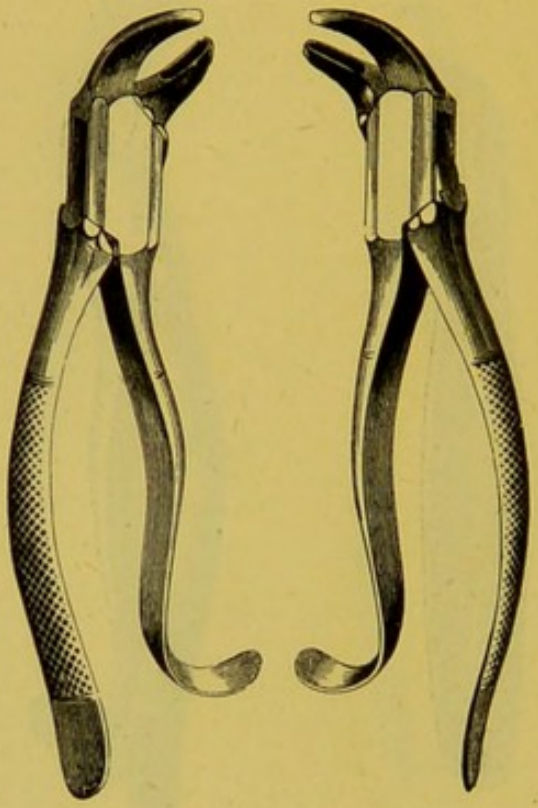
AMERICAN PATTERN FORCEPS.

48.



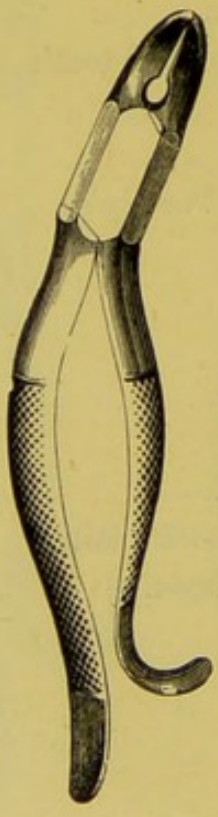
49.

50.

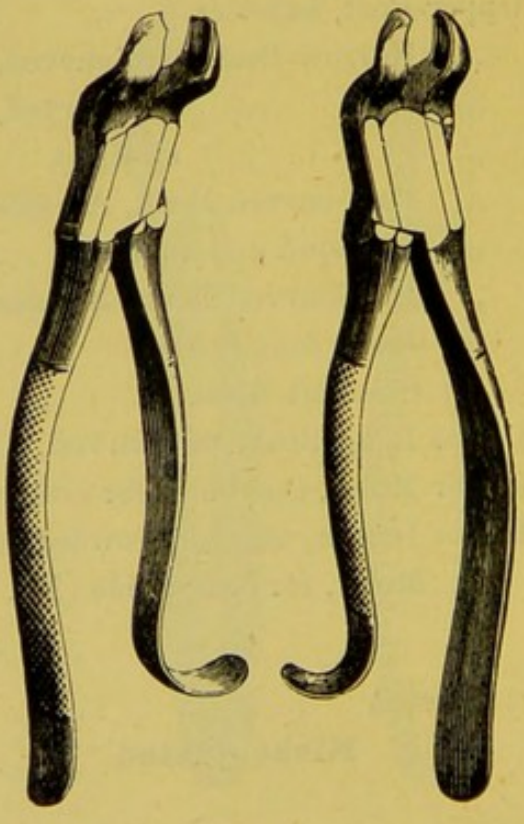


51.

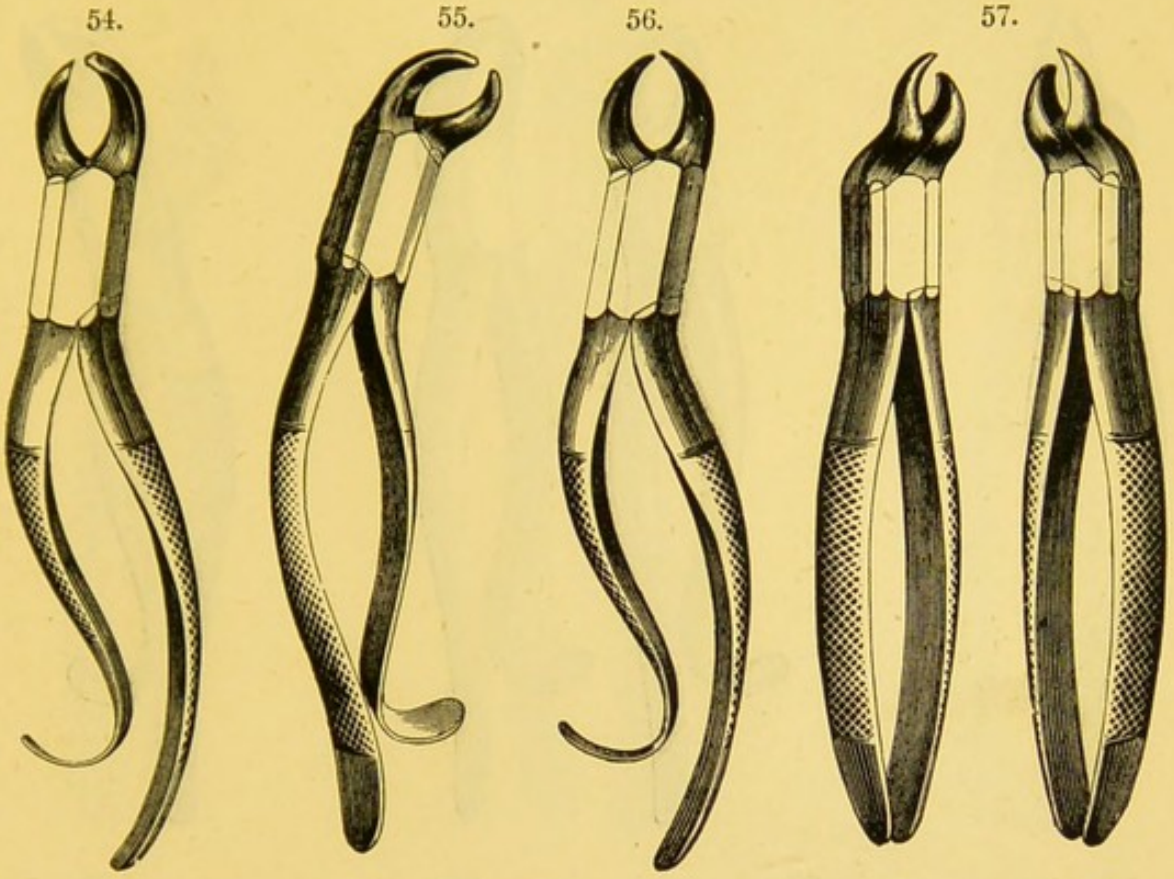
52.



53.



AMERICAN PATTERN FORCEPS.

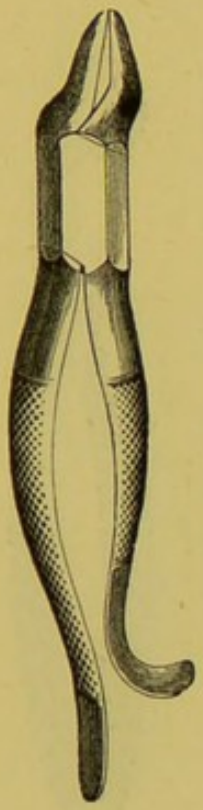


Upper Lateral Incisor	Fig. 48.
Lower Molar Root with Crowns	„ 49.
„ „ „ Right and Left	„ 50.
„ „ „ for either side (Dr. Wolverton's)	„ 51.
„ for either side, Alveolar (Dr. Parmly's)	„ 52.
Upper Molar, Right and Left	„ 53.
Lower „ for left side	„ 54.
(Fig. 28 is used for the right side to Fig. 54.)	
Lower Molar, Cowhorn, for Right side	„ 55.
„ „ „ Left „	„ 56.
Upper „ „ Right and Left	„ 57.

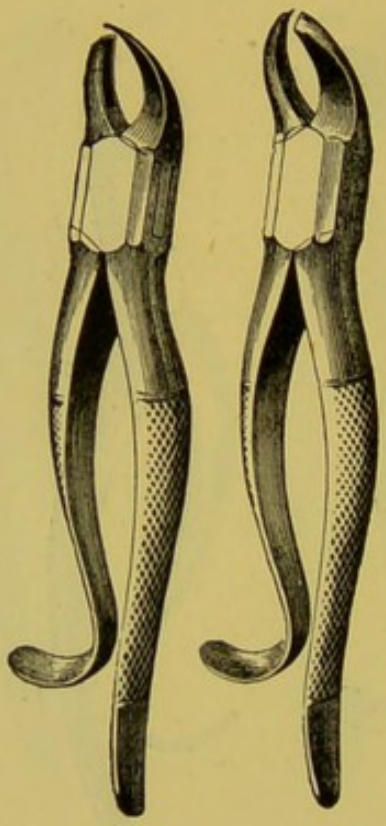
		s.	*d.*
Price	each	**10**	**6**
„ **Nickel-plated**	„	**11**	**6**

AMERICAN PATTERN FORCEPS.

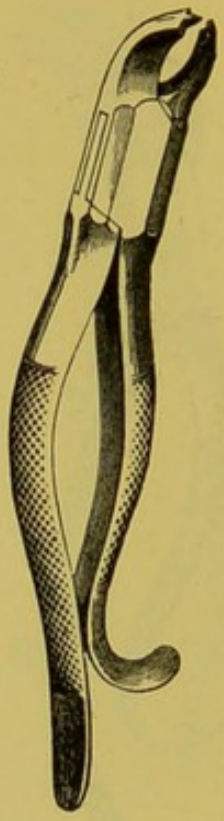
58.



59.



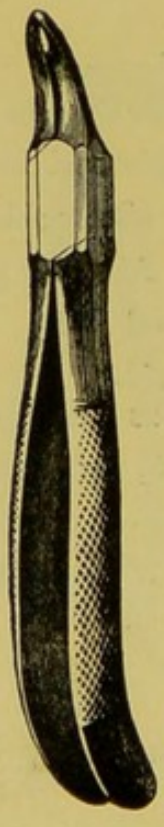
60.



61.

62.

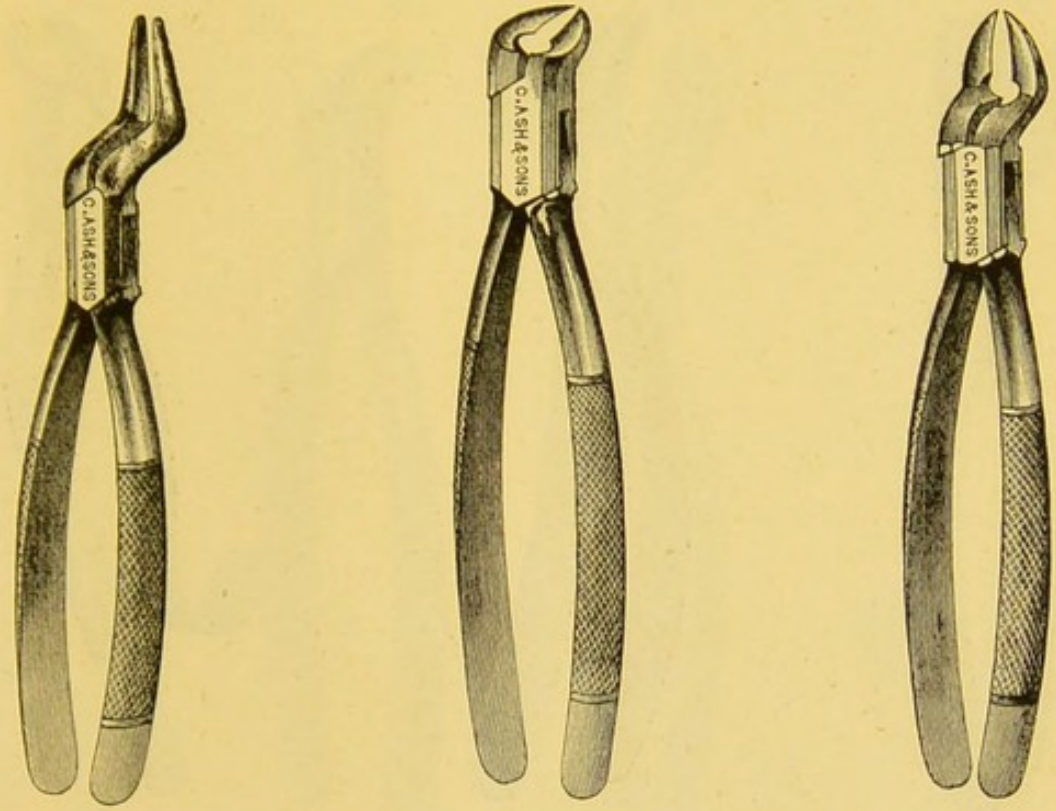
63.



64.

AMERICAN PATTERN FORCEPS.

65. 66. 67.



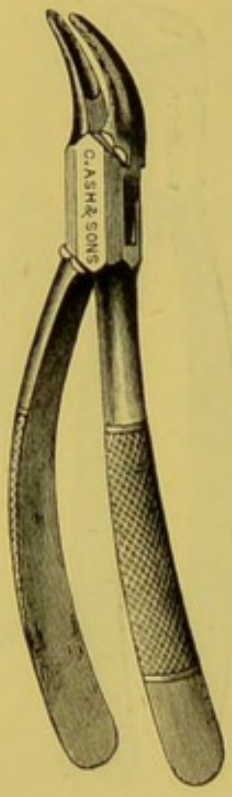
Upper Incisors and Canines, Alveolar	Fig. 58.
„ Molar, Cowhorn, right and left	„ 59.
Lower „ for either side (Dr. Wolverton)	„ 60.
Upper Back, Alveolar Nipping, for cutting away the process after extraction	„ 61.
Children's and Universal Root	„ 62.
Universal Spicula for Fragments	„ 63.
Upper Front, Alveolar Nipping, for cutting away the process after extraction	„ 64.
Universal Root, bayonet form (Dr. Arrington's)	„ 65.
Lower Separating and Elevating Root (Dr. Stellwagen's) ..	„ 66.
Upper „ „ „ „ ..	„ 67.

		s.	*d.*
Price	each	**10**	**6**
„ **Nickel-plated**	„	**11**	**6**

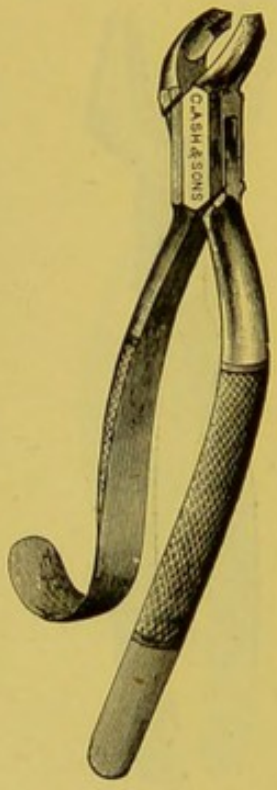
AMERICAN PATTERN FORCEPS.

68.

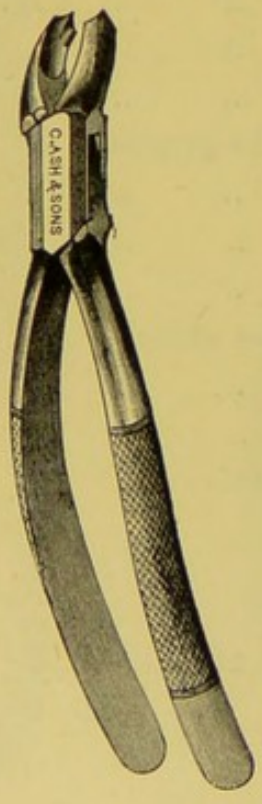
69.



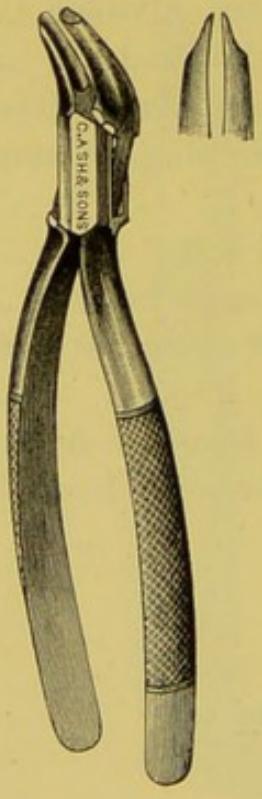
70.



71.

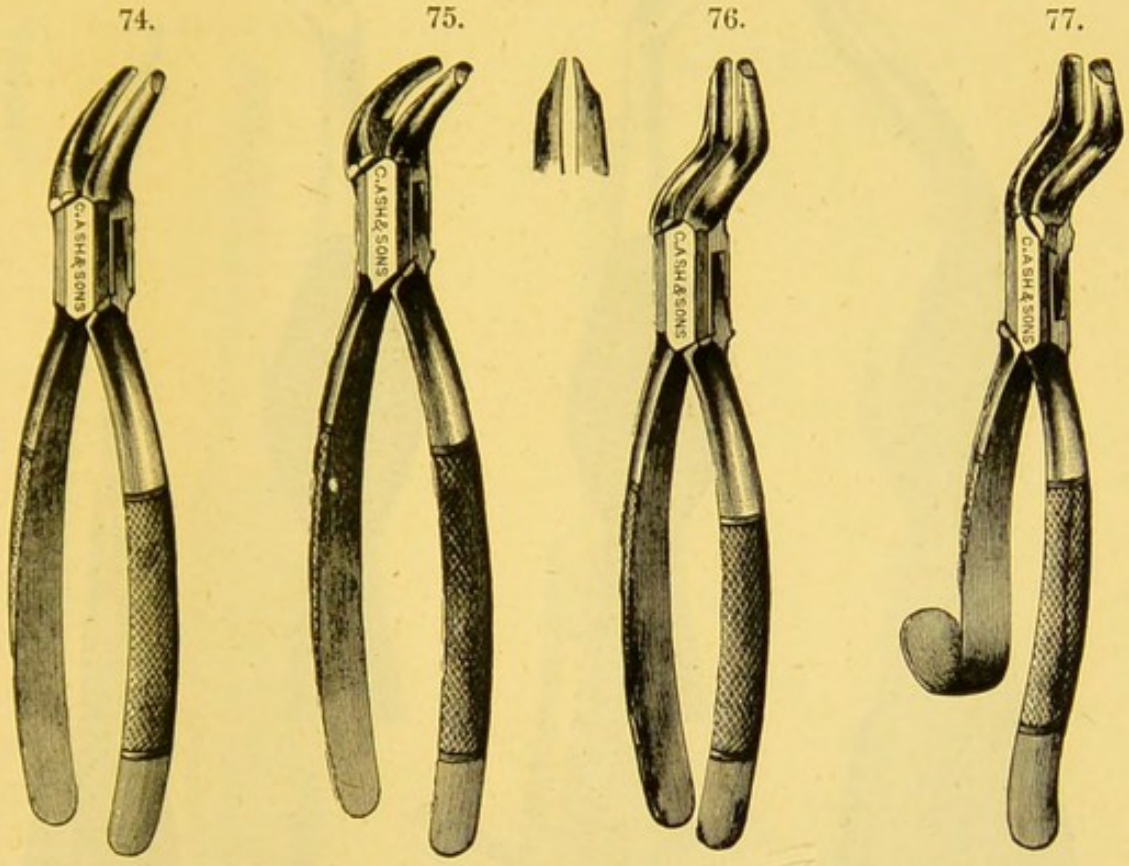


72.



73.

AMERICAN PATTERN FORCEPS.

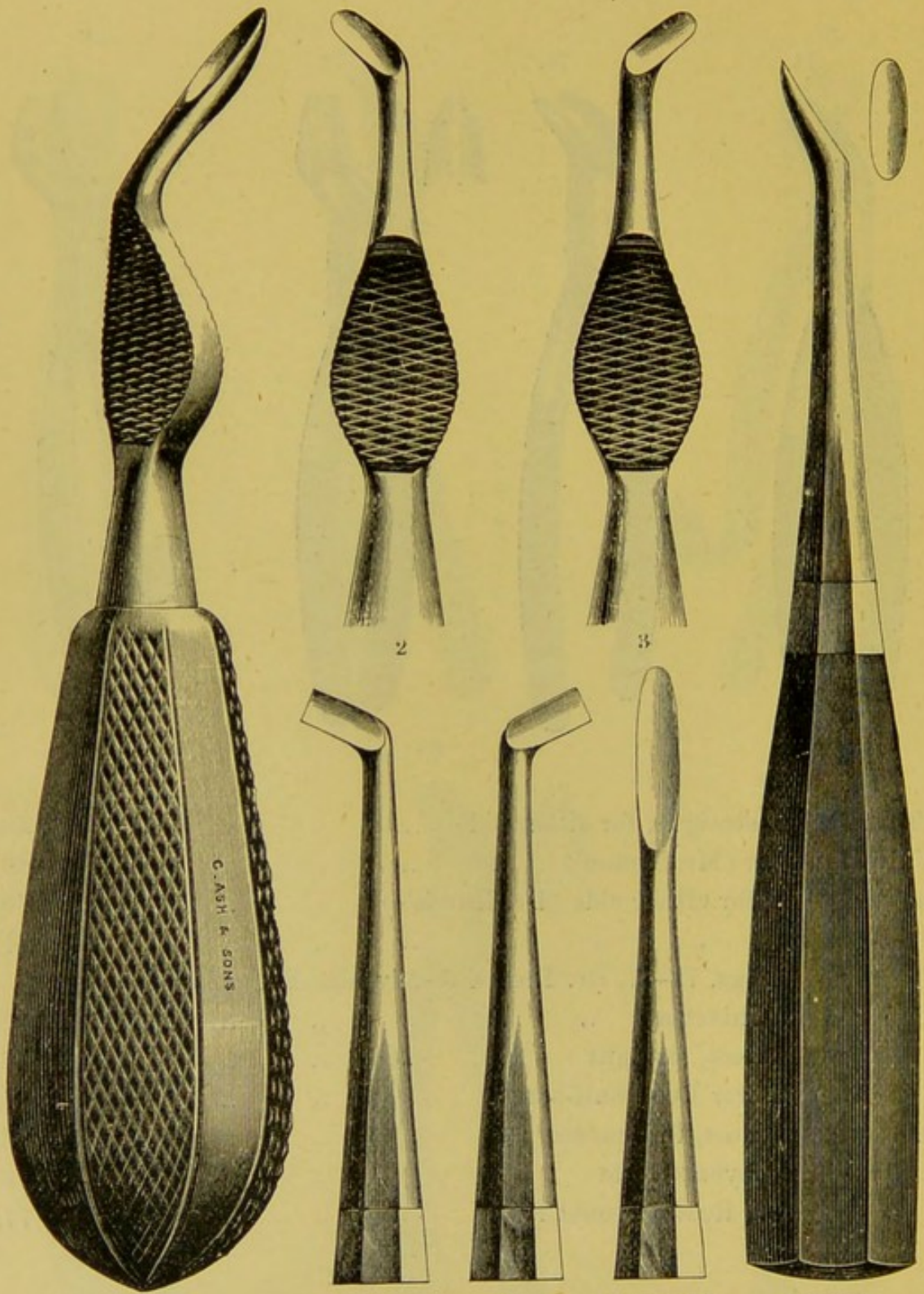


Upper Molar, straight, for either side	Fig. 68.
Universal Root (Mr. Tomes')	„ 69.
Lower Molar, for either side (Dr. Harris's)	„ 70.
„ „ „ „	„ 71.
Figs. 72–77, Dr. Tees' Sub-Alveolar Forceps :—	
Upper Root, Universal	„ 72.
„ Front Root, straight	„ 73.
„ and Lower Root, half-curved	„ 74.
Lower Front Root, full-curved	„ 75.
Upper Root, bayonet form	„ 76.
„ Wisdom Root, bayonet form	„ 77.

		s.	*d.*
Price	each	10	6
„ Nickel-plated	„	11	6

STUMP ELEVATORS.

FULL SIZE.



1. 6. 5. 4 (straight). 4 (bent).

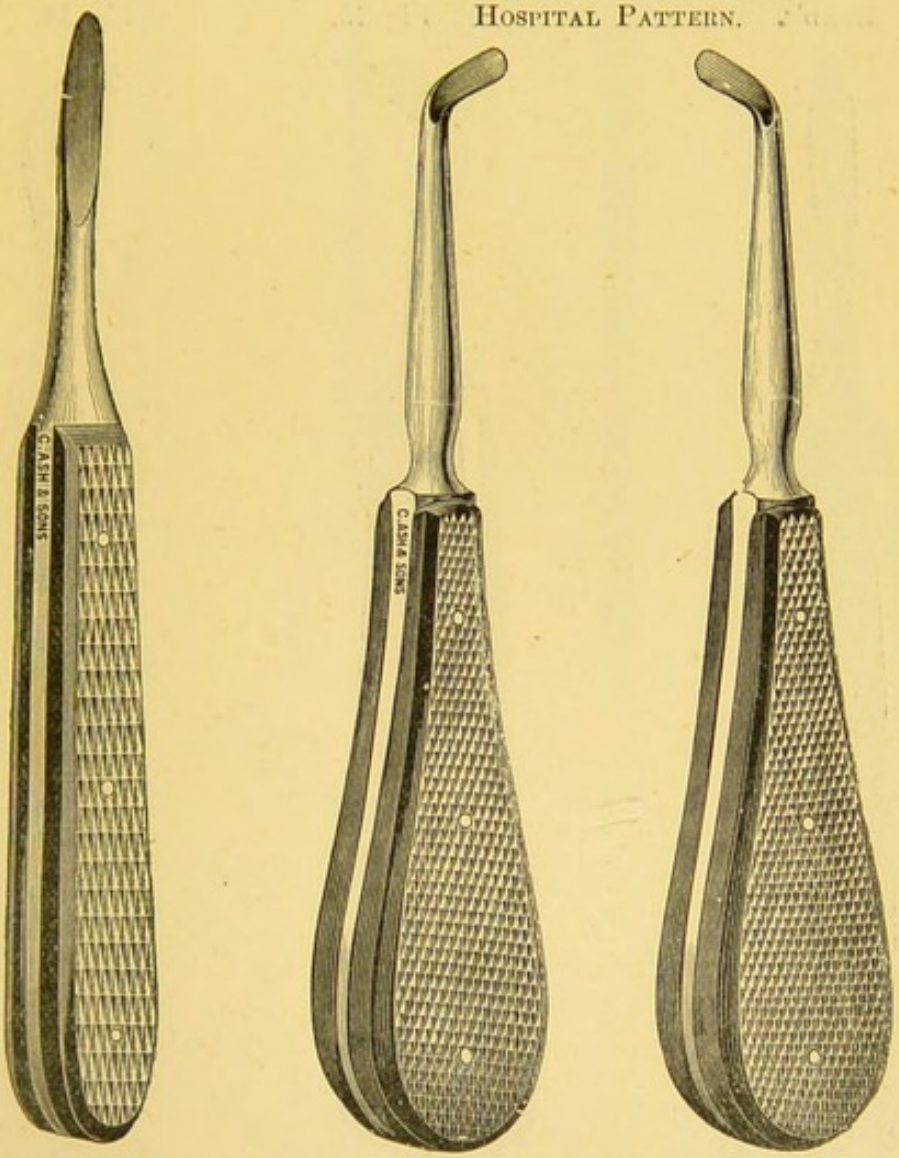
These are all made with plain blades.

STUMP ELEVATORS.

THREE-FOURTHS SIZE.

COLEMAN'S.

HOSPITAL PATTERN.



Straight. Left. Right.

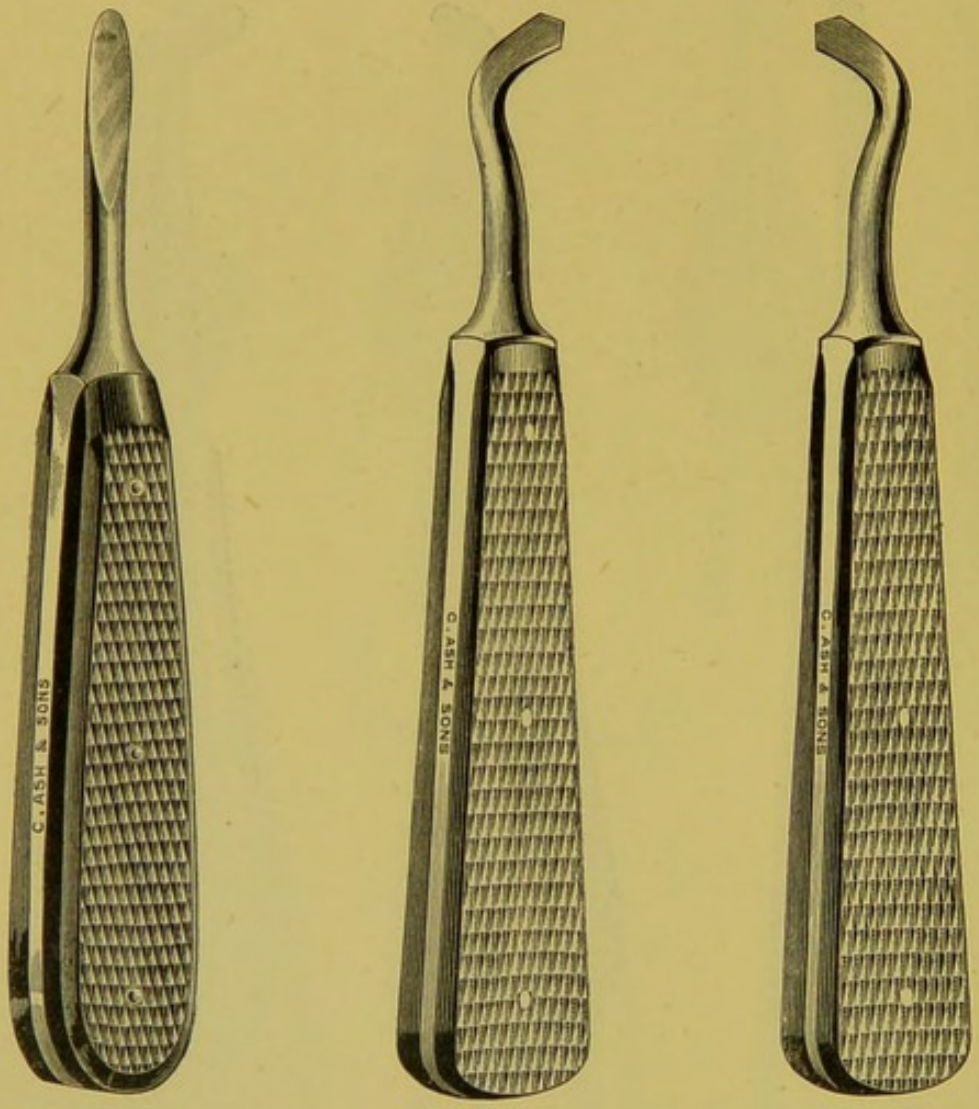
These are all made with serrated blades, and form a very useful set.

					s.	d.
Elevators, Figs. 1, 2, 3, in Ebony handles (Mr. Thomson's)				each	7	6
,, ,, 4, 5, 6,	,,	,,	.. .. ..	,,	4	6
,, Straight	,,	,,	(Mr. Coleman's)	,,	6	0
,, Left	,,	,,	(Hospital Pattern)	,,	7	6
,, Right	,,	,,	(,, ,,)	,,	7	6

STUMP ELEVATORS.

THREE-FOURTHS SIZE.

READ'S. Fig. 15. Fig. 16.

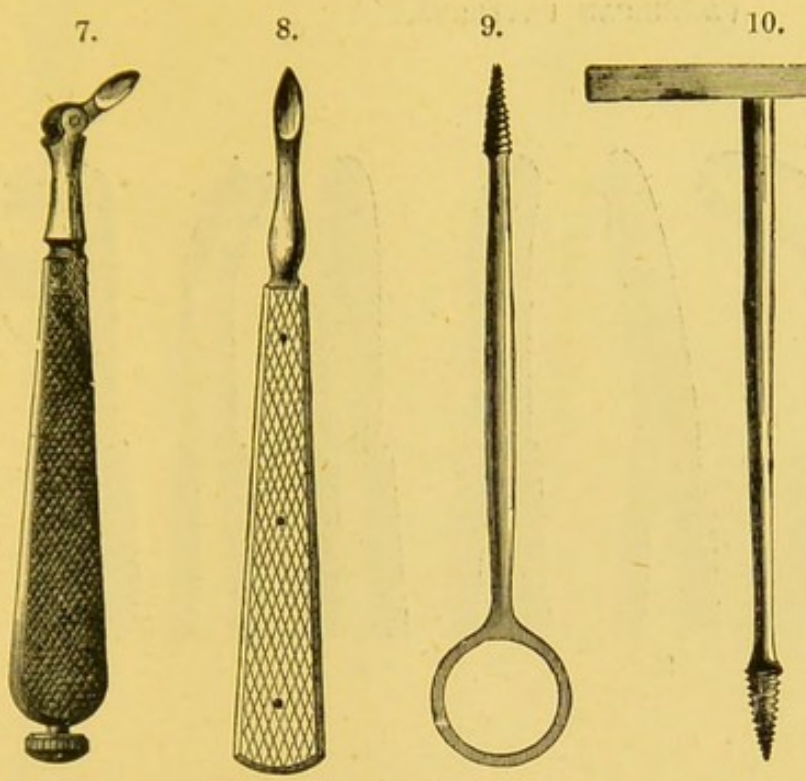


Straight. Left. Right.

With plain blades. The Left and Right are in general use at the National Dental Hospital.

	s.	d.
Elevator, Straight, in Ebony handle (Mr. Lawrence Read's)	6	0
„ „ in large Ebony handle, like the Hospital pattern on page 145	6	6
„ Left, in Ebony handle .. .. (Fig. 15)	7	6
„ Right, „ .. .. („ 16)	7	6

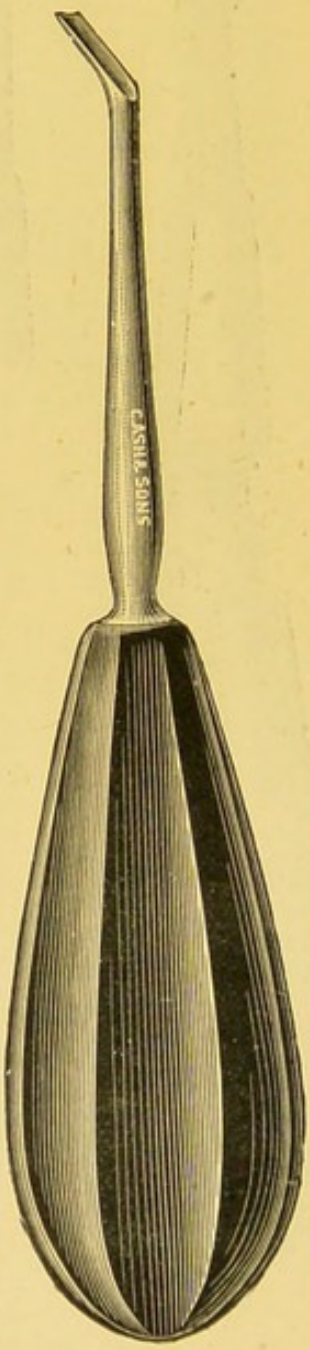
STUMP ELEVATORS.



Lengths

$5\frac{3}{4}$ ins. $5\frac{5}{8}$ ins. $3\frac{7}{8}$ ins. $3\frac{3}{4}$ ins.

Berlin Klinik.



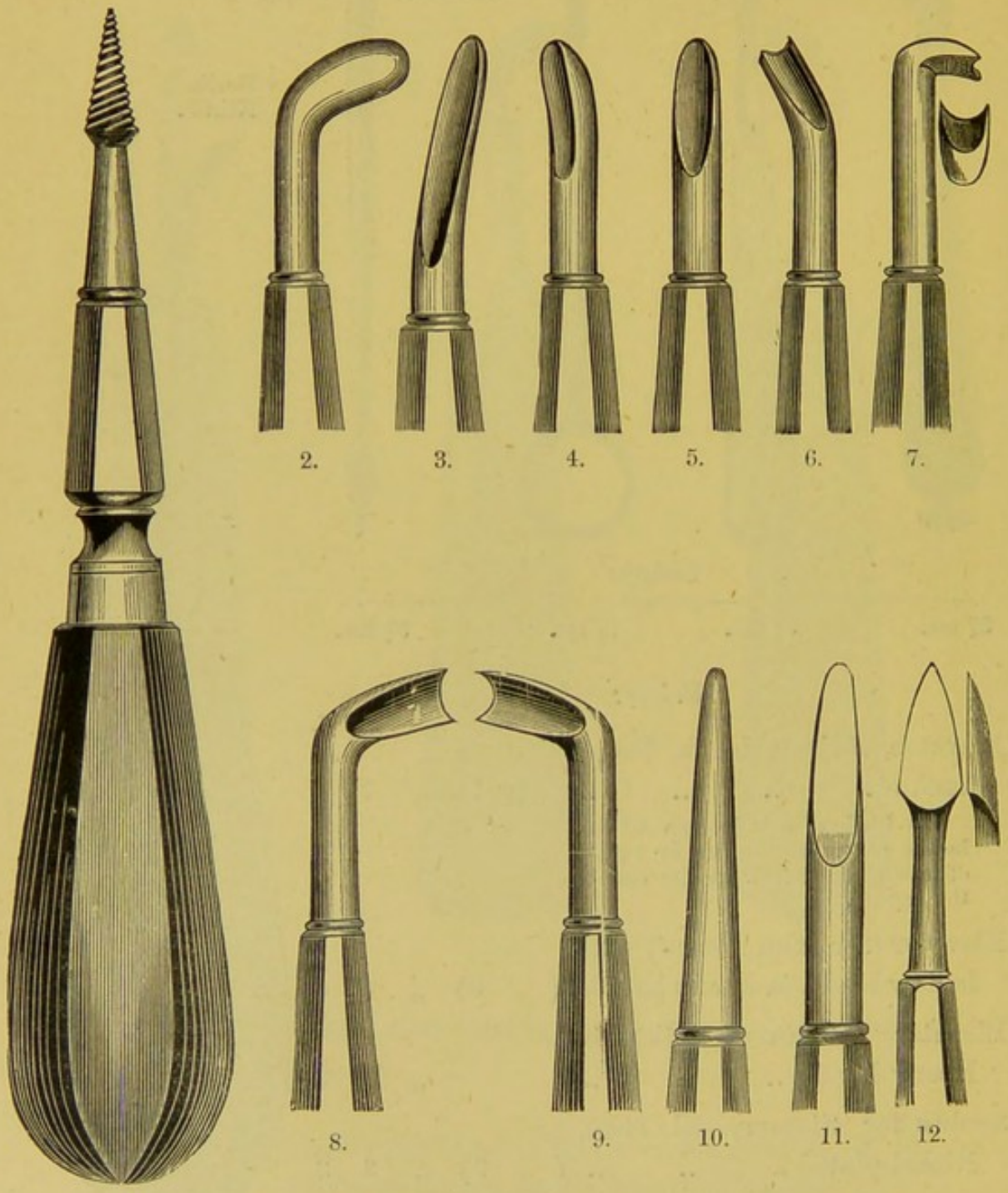
Prices:

		s.	d.
Elevator, Adjustable, in Ebony handle .. .. (Fig. 7) each		7	6
The blade of this instrument can be set at various angles by means of the thumb-screw at the end of the handle.			
Elevator (Sir John Tomes') with hollow blade, in Ebony handle	(„ 8) „	6	0
Elevator (Berlin Klinik) in Ebony handle	„	3	6
Screws for Stumps, all steel, Nickel-plated	(„ 9) „	3	3
„ „ „ „	(„ 10) „	3	3

Elevators of other forms made or obtained to order.

STUMP ELEVATORS.

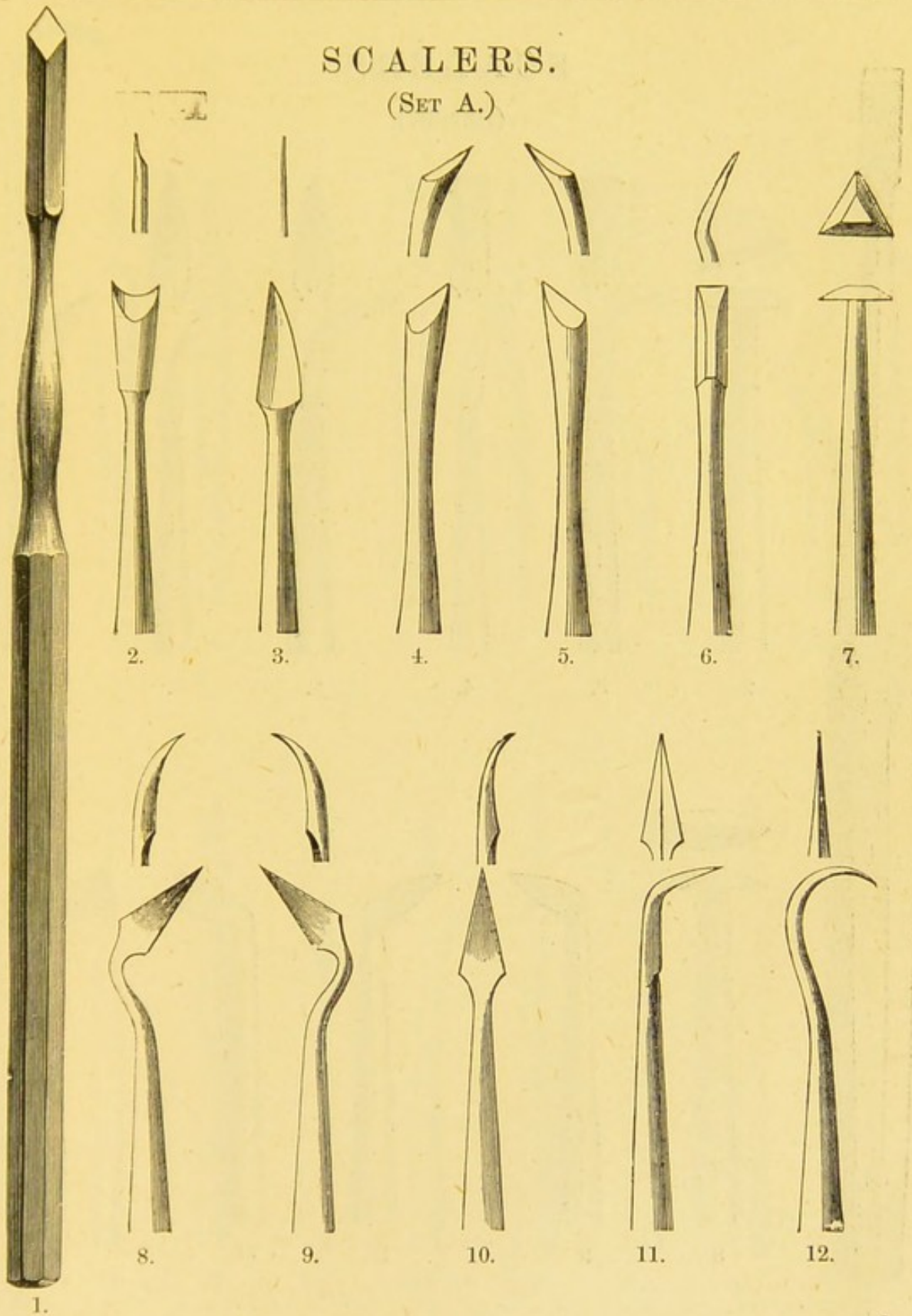
(AMERICAN PATTERNS.)



			s.	d.
In Ebony handles, as illustrated	..	(Figs. 1–12) each	6	0

SCALERS.

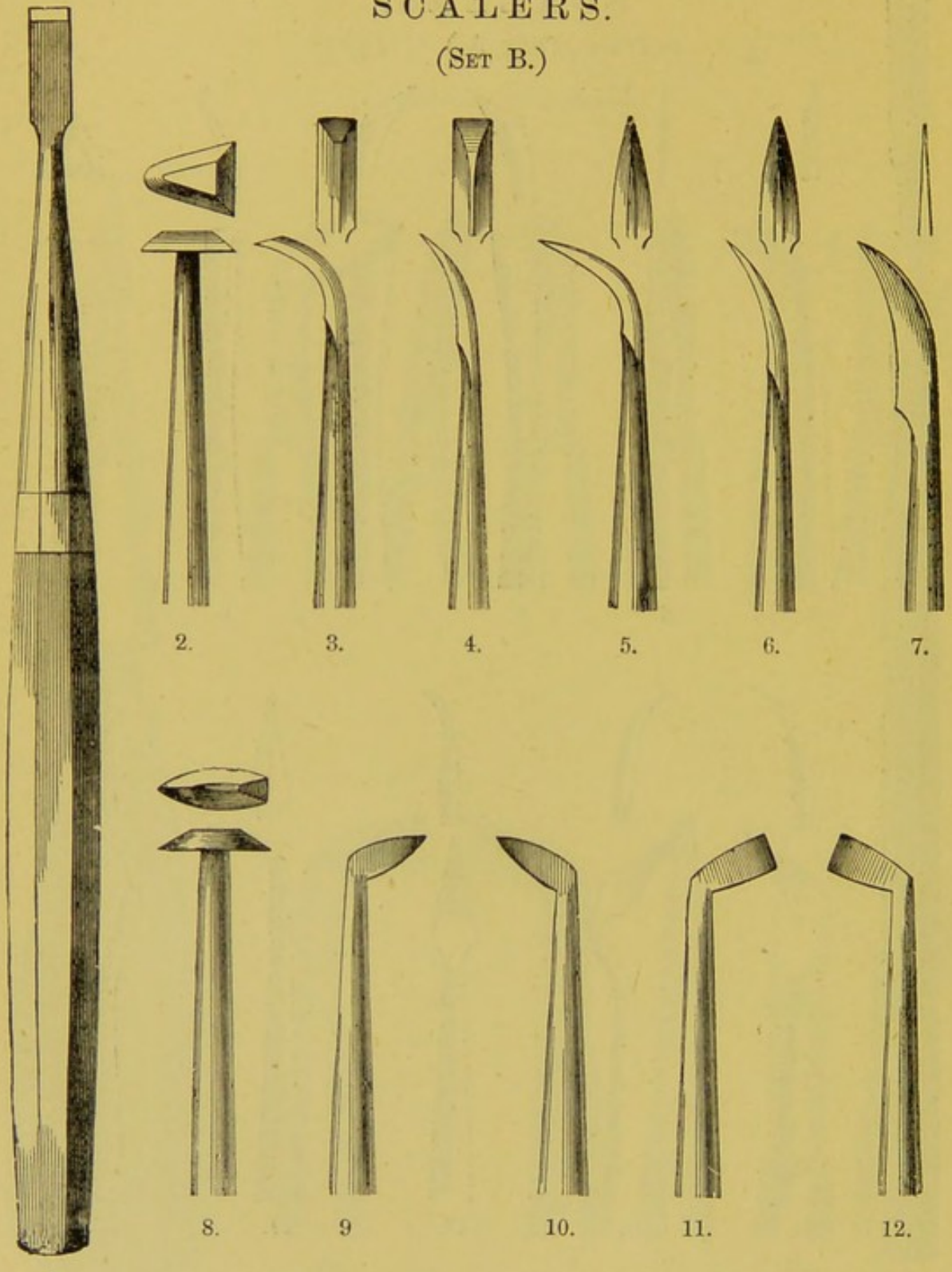
(Set A.)



			s.	d.
In Steel octagon handles	(Figs. 1–12)	each	1	2
„ „ Nickel-plated ..	(„ „)	„	1	6
In Ebony handles, like Fig. 1, Set B, to order	(„ „)	„	3	0

SCALERS.

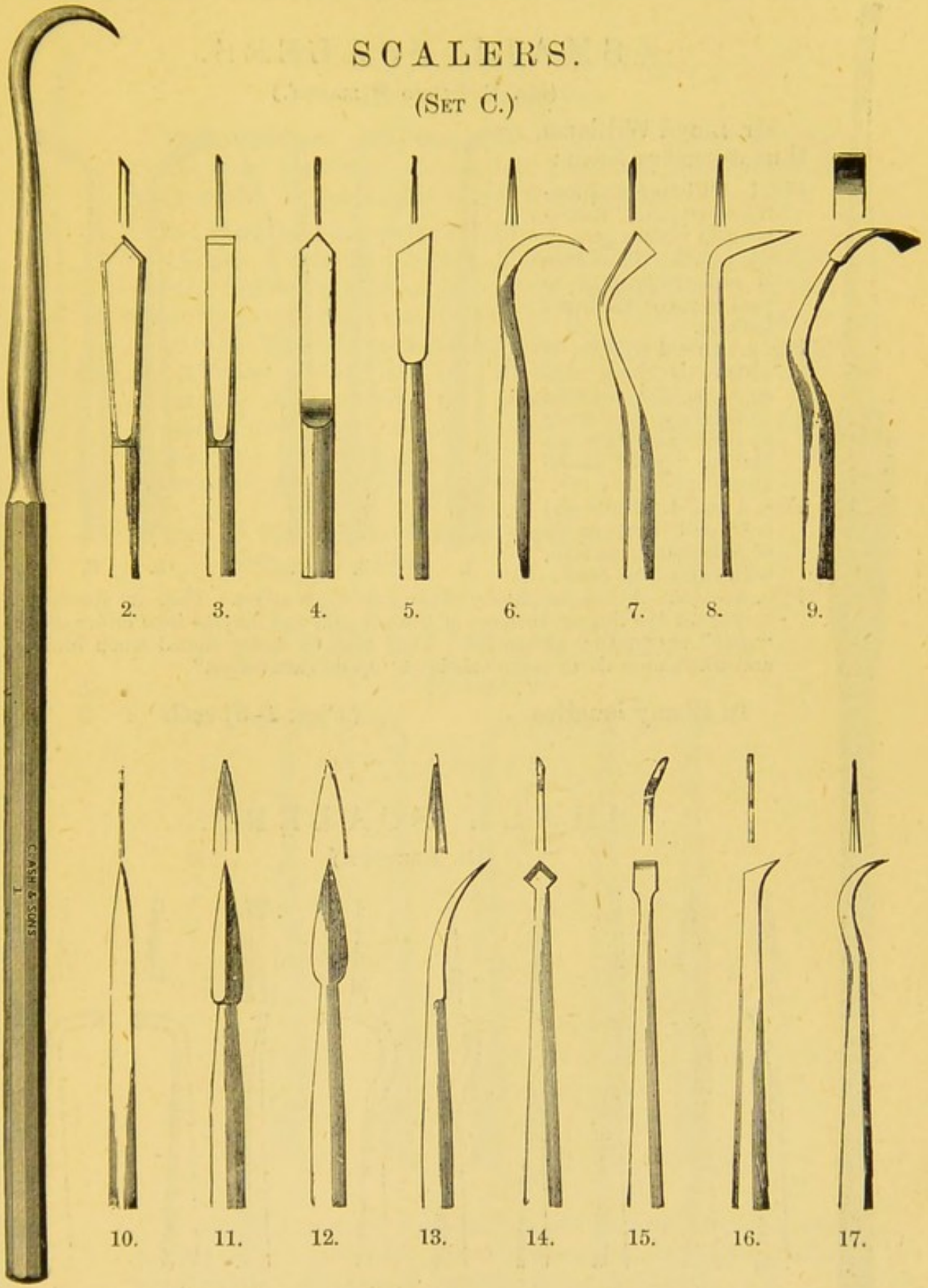
(Set B.)



				s.	d.
In Steel octagon handles, like Fig. 1, Set A (Figs. 1–12)			each	1	2
„ „	Nickel-plated ..	(„ „)	„	1	6
In Ebony octagon handles, like Fig. 1 ..		(„ „)	„	3	0

SCALERS.

(Set C.)



1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17.

				s.	d.
In Steel octagon handles	(Figs. 1–17)	each		1	0
„ „ Nickel-plated ..	(„ „)	„		1	4

1

SMALL SCALERS.

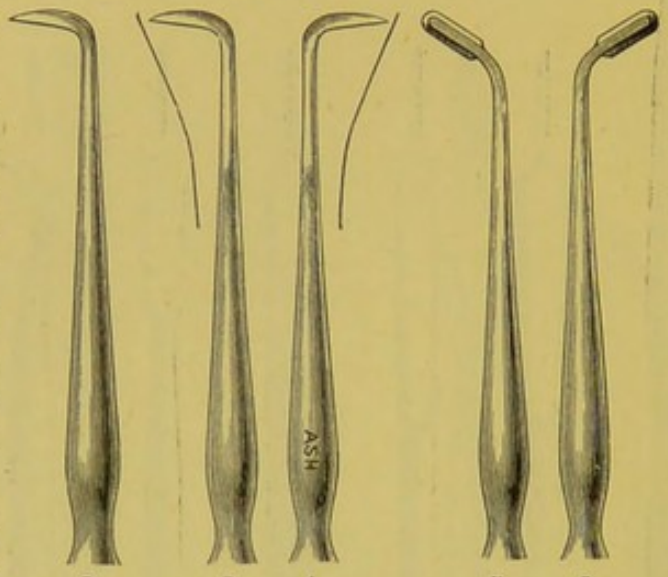
(Mr. E. Lloyd Williams'.)

Mr. Lloyd Williams thus describes them:

Fig. 1. Will be found useful as a "push" instrument in various parts of the mouth. The blade is sufficiently thin to pass between the lower incisors.

Fig. 2. An old pattern, in which the bulk and angle of the working surface have been made as serviceable as possible for "pull" movement.

Figs. 3 and 4. Right and left "pull" instruments of a favourite pattern, with extra long reach.



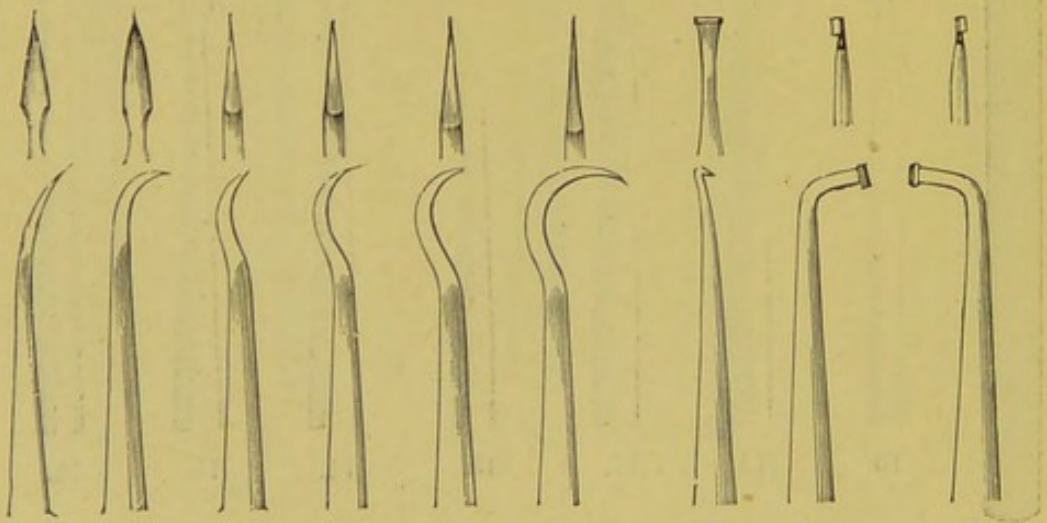
2. 3. 4. 5. 6.

Figs. 5 and 6. Are spoon chisels cutting on three edges. They are specially useful for the lingual surfaces of lower teeth, and may be used either with "pull" or "push" movement. They may be easily stoned when blunt, and when worn down make excellent "spoon excavators."

		s.	d.
In Ebony handles	(Figs. 1–6) each	1	9

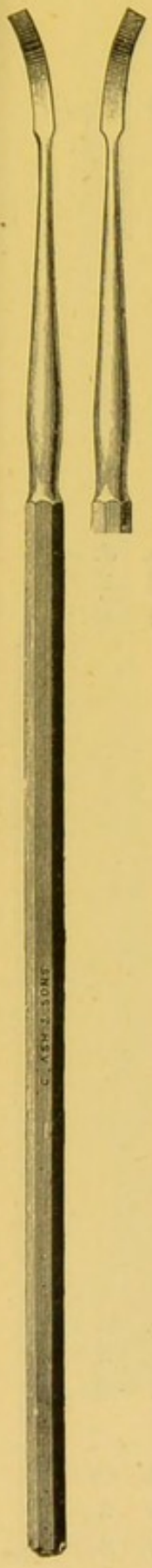
SMALL SCALERS.

(Dr. Abbott's.)



1. 2. 3. 4. 5. 6. 7. 8. 9.

		s.	d.
Set of 9 in Steel octagon handles	each	1	2
,, ,, ,, Nickel-plated ..	,,	1	6



FINE SCALERS.

(Dr. A. W. Harlan's.)

These Scalers are specially intended for removing tartar from the lower molars, but they will also be found very useful for passing between the incisors.

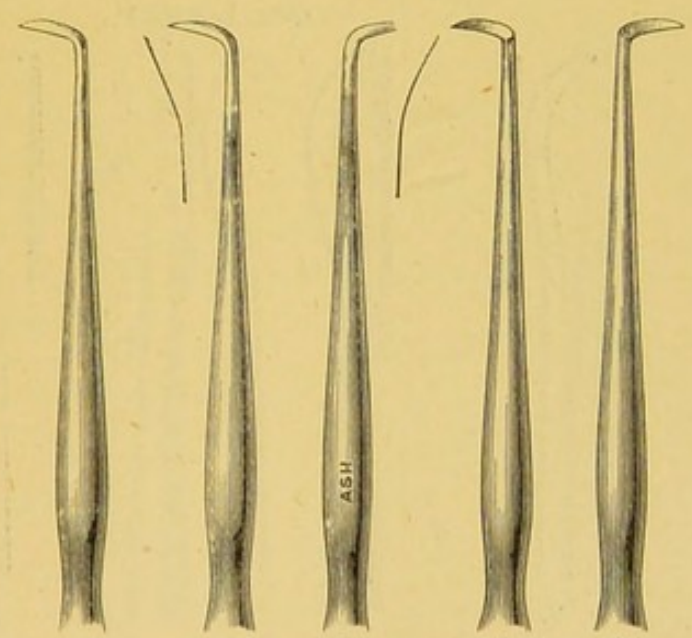
Dr. Harlan thus speaks of them:

"When I was in London I omitted to state that the pair of Scalers are to be used with a pushing motion, and that they are particularly useful in removing deposits from the lingual surfaces of the lower teeth. The Practitioner who handles delicate instruments will appreciate their value for detaching deposits on the proximal surfaces of all teeth; and in fact he will notice, as he uses them longer, that they complete the set, so universally popular, of my friend Dr. Cushing."

	s.	d.
Set of 2, right and left, in blued Steel octagon handles .. .. .. each	1	2

FINE SCALERS.

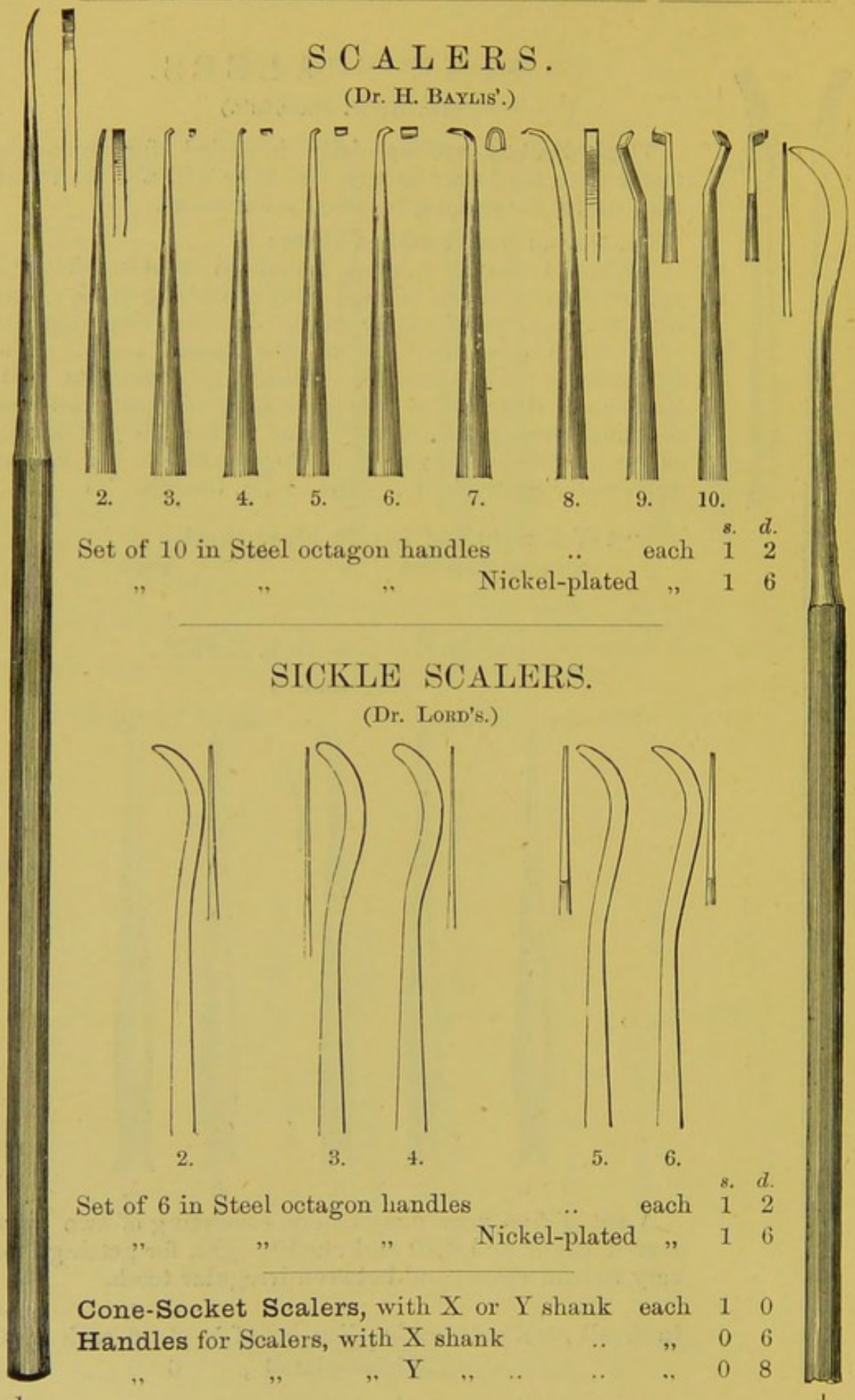
(Dr. Howe's.)



1. 2. 3. 4. 5.

A set of five very fine Scalers, consisting of two pairs curved Right and Left and one Straight, for getting into very narrow spaces and between irregular teeth.

		s.	d.		s.	d.
In Small Steel octagon handles	set of 5	4	6	each	1	0
,, ,, Nickel-plated	,,	6	0	,,	1	4



1.

SCALERS.

(Dr. H. Baylis'.)

2. 3. 4. 5. 6. 7. 8. 9. 10.

		s.	d.
Set of 10 in Steel octagon handles ..	each	1	2
,, ,, ,, Nickel-plated	,,	1	6

SICKLE SCALERS.

(Dr. Lord's.)

2. 3. 4. 5. 6.

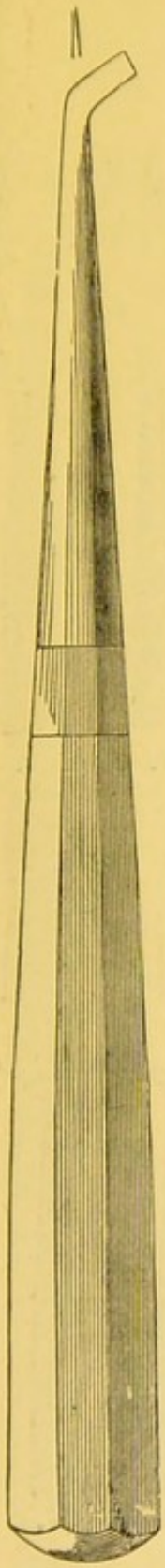
		s.	d.
Set of 6 in Steel octagon handles ..	each	1	2
,, ,, ,, Nickel-plated	,,	1	6

Cone-Socket Scalers, with X or Y shank	each	1	0
Handles for Scalers, with X shank ..	,,	0	6
,, ,, ,, Y ,, ...	,,	0	8

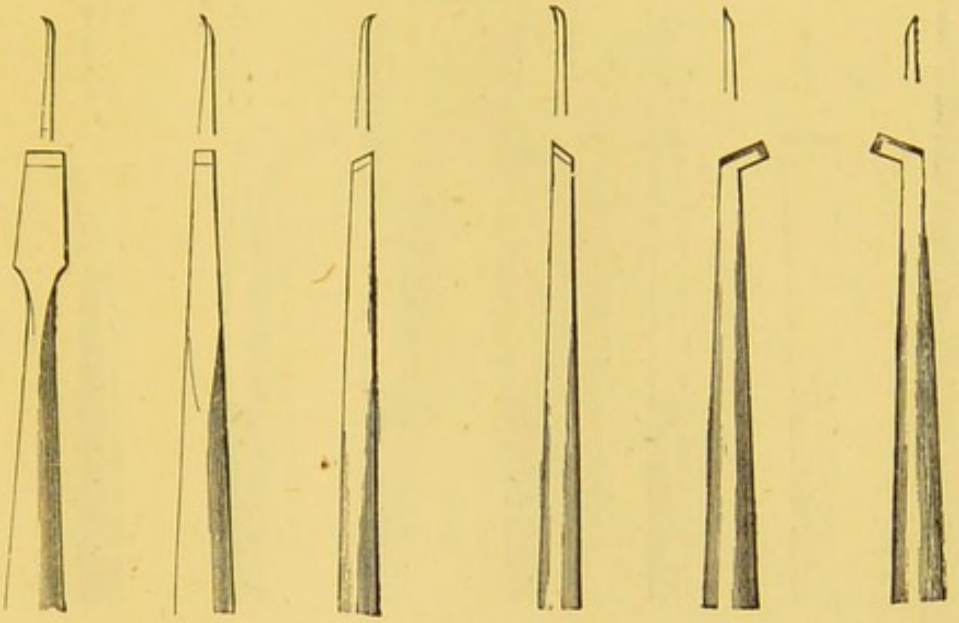
1.

ENAMEL CUTTERS.

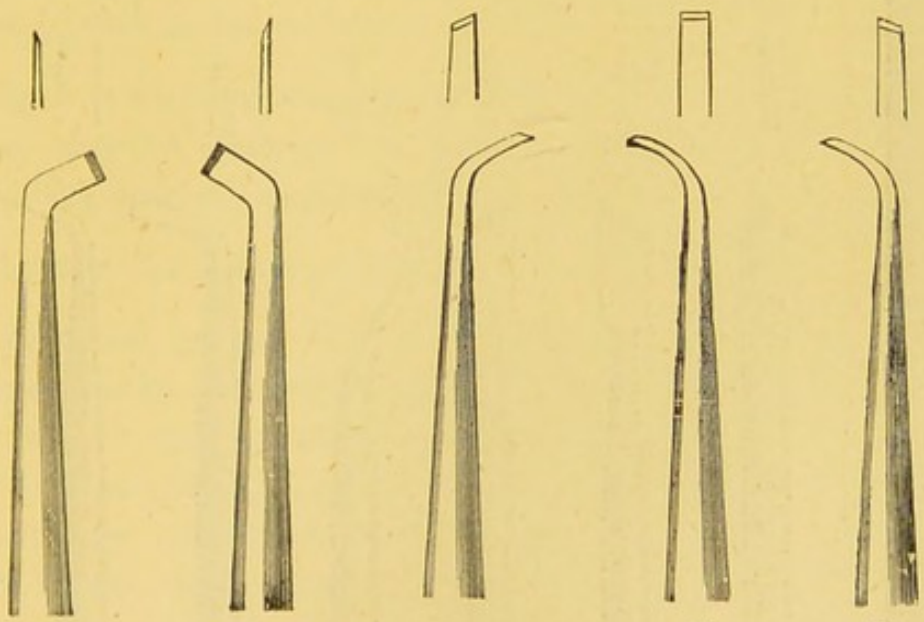
(Set A.)



1.



2. 3. 4. 5. 6. 7.

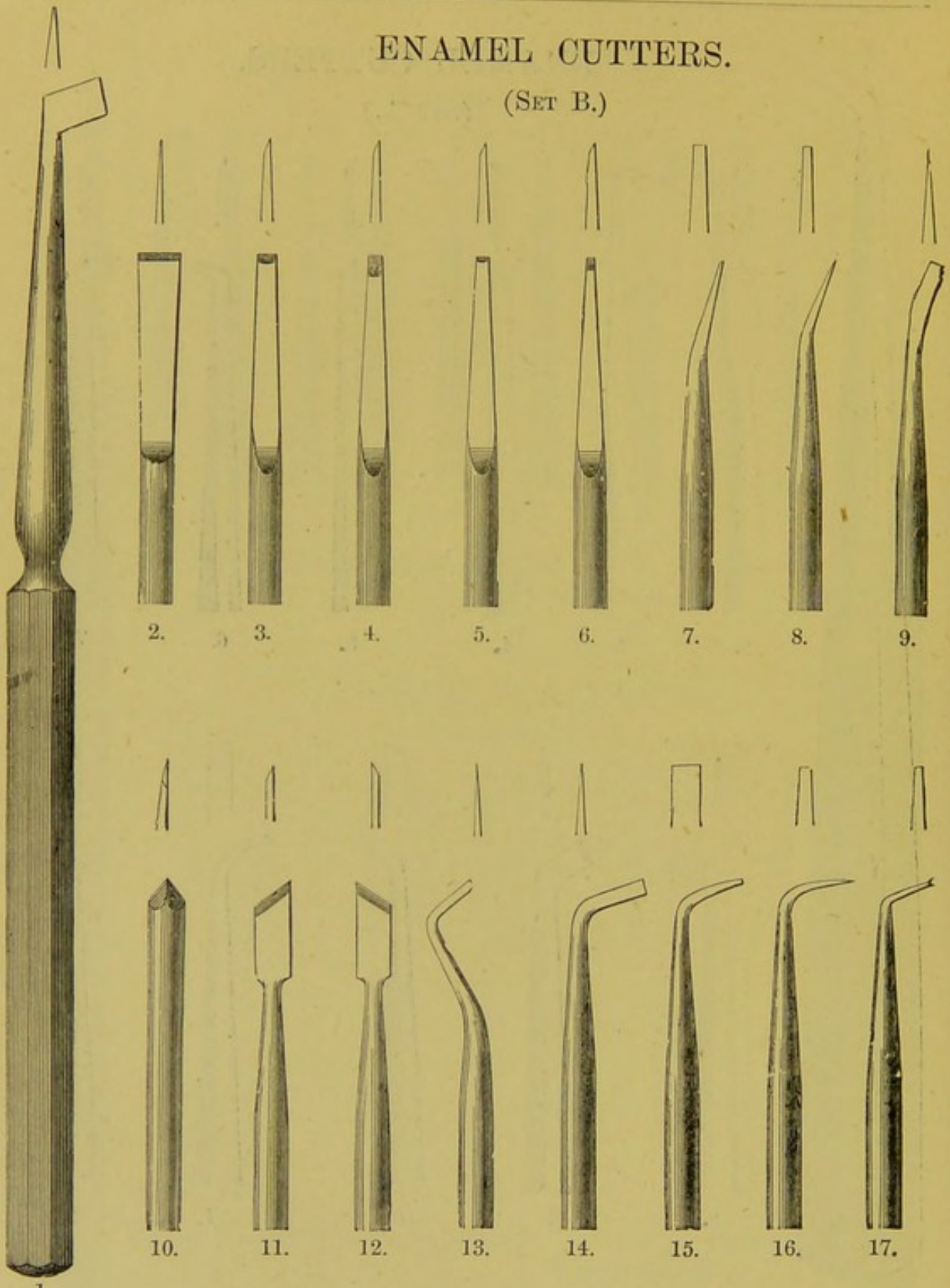


8. 9. 10. 11. 12.

			s.	d.
In Steel octagon handles, like Fig. 1, set B ..	(Figs. 1–12)	each	1	2
„ „ Nickel-plated ..	(„ „)	„	1	6
In Ebony octagon handles, to order, like Fig. 1	(„ „)	„	3	0

ENAMEL CUTTERS.

(Set B.)

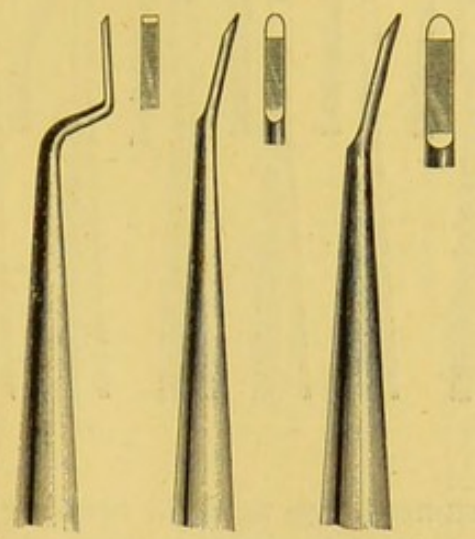


		s.	d.
In Steel octagon handles	(Figs. 1–17) each	1	2
,, ,, Nickel-plated ..	(,, ,,) ,,	1	6
In Ebony handles, like Fig. 1, Set A, to order	(,, ,,) ,,	3	0

ENAMEL CHISELS.

(Dr. W. Mitchell's.)

1.



2. 3. 4.

Dr. Mitchell says: "I find the Bayonet Chisels (Figs. 1 and 2) of great value in preparing approximal superior bicuspid and molar cavities.

Fig. 1 is used for shaping the buccal wall of the cavity; it can also be employed to great advantage as a scraper along the cervical margins of this class of cavities.

Fig. 2 is for making the palatine wall parallel.

The small gouge, Fig. 3, I find very useful wherever enamel is to be cut away, especially in opening up approximal cavities in bicuspids and molars; also for the same purpose in crown cavities. It can be used either with hand pressure or with the mallet, and is a valuable instrument for rapid work in the electric mallet, saving both time and burs.

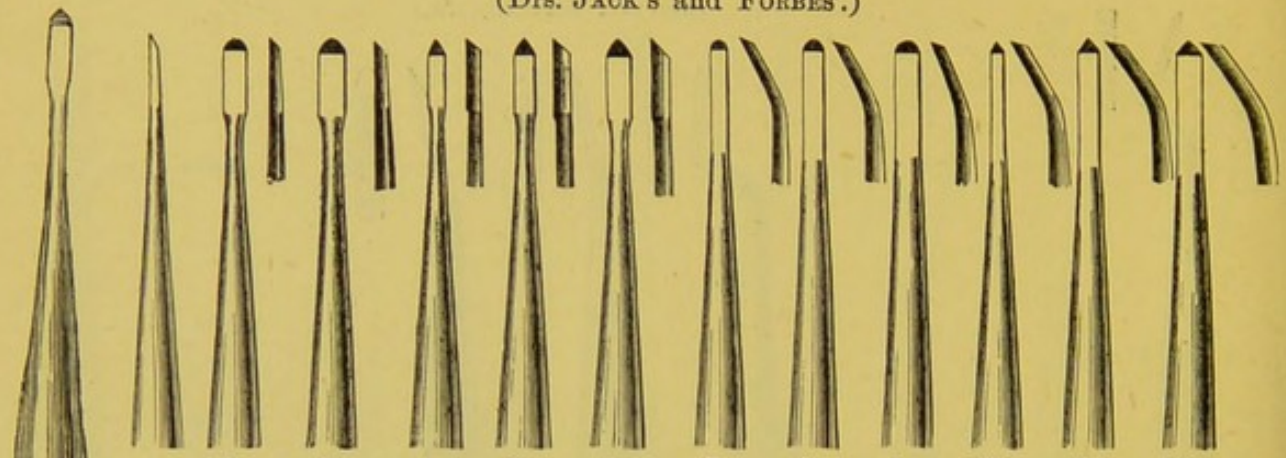
The large gouge, Fig. 4, is for places where heavy cuts may be necessary."

The points of these instruments are so shaped that the most delicate cuts can be made with them.

			s.	*d.*
In file-cut handles like Fig. 1	..	(Figs. 1–4) each	1	9

PARABOLOID AND GOUGE CHISELS.

(Drs. Jack's and Forbes'.)



2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.

These instruments are used for opening fissures, cutting retaining grooves in large cavities ready for stopping, and for cutting enamel.

			s.	d.
In Steel file-cut handles	(Figs. 1–12)	each	1	9
,, ,, Nickel-plated ..	(,, ,,)	,,	2	1
,, octagon handles	(,, ,,)	,,	1	2
,, ,, Nickel-plated ..	(,, ,,)	,,	1	6

ENAMEL CHISELS.

DOUBLE-ENDED.

(Dr. Parmly Brown's.)

Set of 6 for heavy work, very useful shapes. In blued handles.

		s.	d.
Price	each	2	6

ENAMEL CHISEL.

DOUBLE-ENDED.

(Hospital Pattern.)

For general work we can recommend this as a most serviceable instrument.

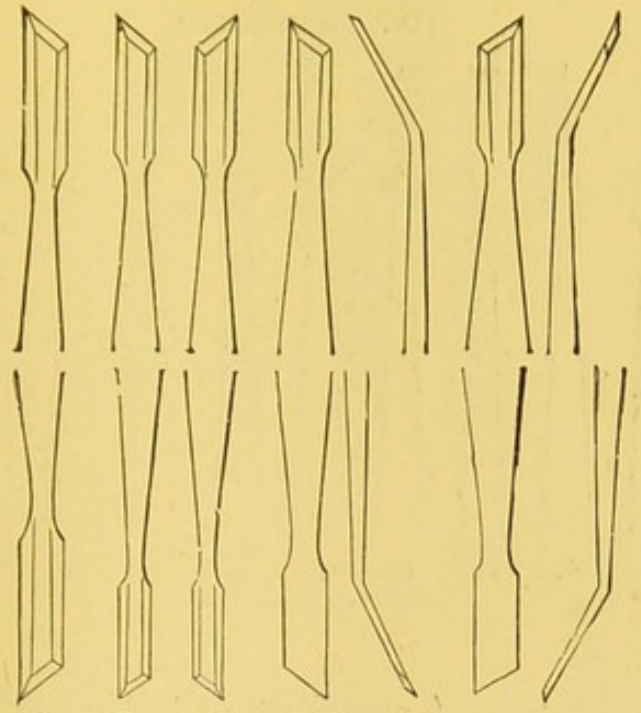
1.

	s.	d.
In file-cut handle	2	6

1.

ENAMEL CUTTERS.

(Dr. JACK'S.)

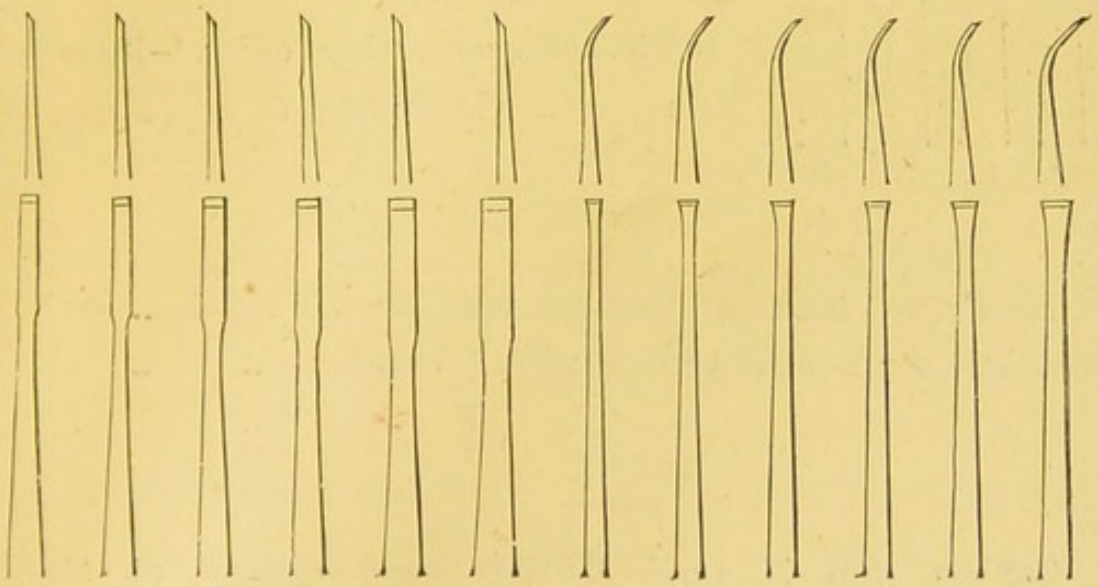


2. 3. 4. 5. 6.

			s.	d.
In rights and lefts, double-ended ..	(Figs. 1–6)	each	6	0

ENAMEL CUTTERS.

(Dr. ABBOTT'S.)

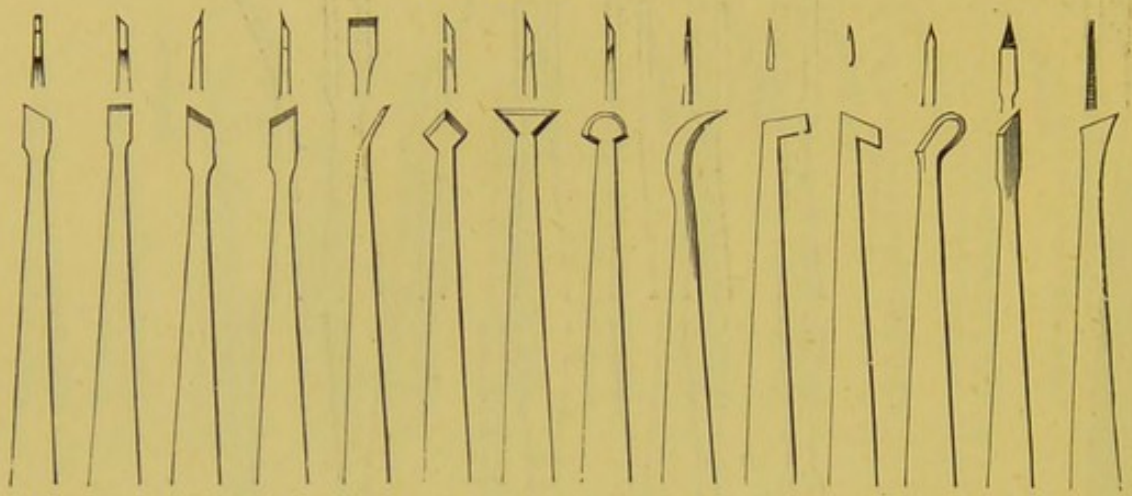


1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.

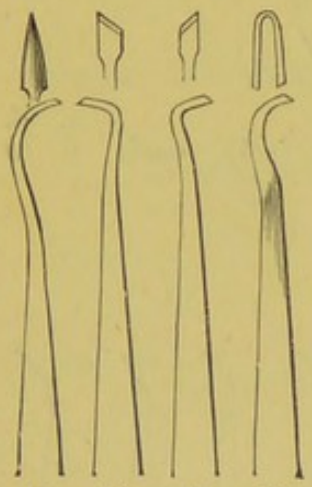
			s.	d.
In Steel octagon handles	(Figs. 1–12)	each	1	2
„ „ Nickel-plated	(„ „)	„	1	6
„ File-cut „	(„ „)	„	1	9

ENAMEL CUTTERS.

(Dr. ARRINGTON'S.)



1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14.



15. 16. 17. 18.

A useful set of instruments, designed to give every form and angle required.

They are also very useful as small scalers.

	s.	d.
In Steel octagon handles (Figs. 1–18) each	1	2
„ „ Nickel-plated („ „) „	1	6

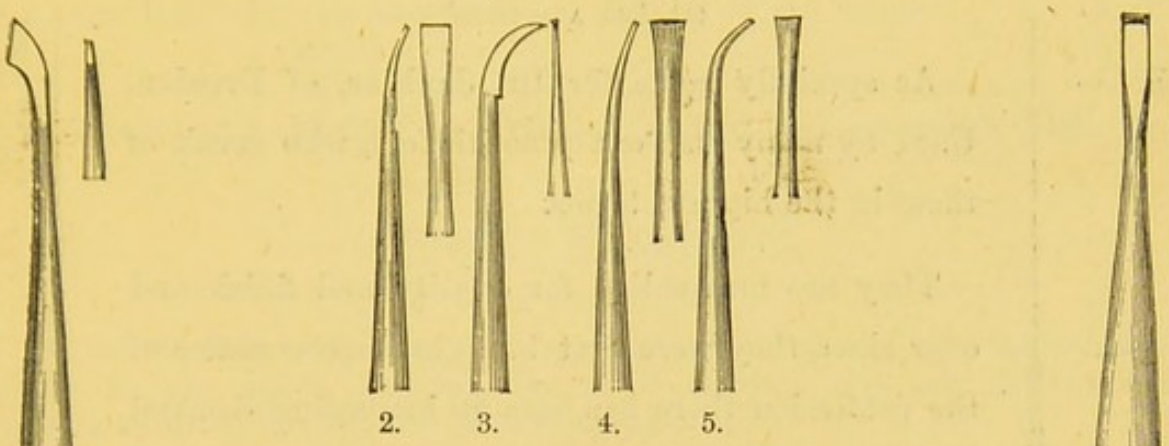
	s.	d.
Cone-Socket Enamel Cutters, with X or Y shank .. each	1	0
Handles for Enamel Cutters with X shank .. .. „	0	6
„ „ „ Y „ .. .. „	0	8

Scalers and Enamel Cutters re-sharpened at moderate prices.

All forms of Scalers and Enamel Cutters made or obtained to order.

ENAMEL CUTTERS.

(Dr. Butler's.)



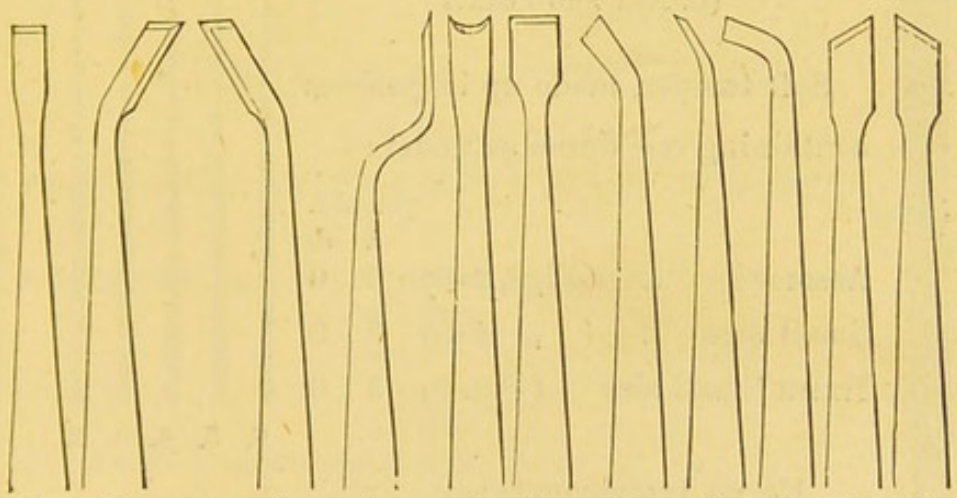
2. 3. 4. 5.

		s.	d.
In Steel octagon handles	(Figs. 1–5) each	1	2
„ „ Nickel-plated	(„ „) „	1	6

1.

ENAMEL CUTTERS.

(Dr. Darby's.)



2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.

		s.	d.
In Steel file-cut handles	(Figs. 1–12) each	2	0
„ „ Nickel-plated	(„ „) „	2	4
„ octagon handles	(„ „) „	1	2
„ „ Nickel-plated	(„ „) „	1	6
Enamel Cutters re-pointed	per doz.	6	0

1.

NERVE INSTRUMENTS.

EXTRA FINE.

(C. Ash and Sons'.)

1.

As specially made for Dr. Jenkins, of Dresden. Used by many eminent practitioners, who speak of them in the highest terms.

They are unequalled for quality and finish, and ever since they were first brought to the notice of the profession there has been an increasing demand for them. Put up in packets of one dozen.

		s.	d.
Price	per packet	3	0

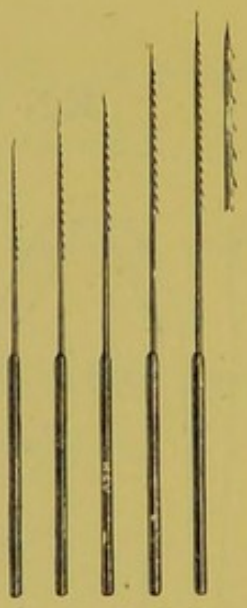
14. 15.

NERVE INSTRUMENTS.

(C. Ash and Sons'.)

Soft temper, made up in packets containing one dozen as under:—

		per pkt. s.	d.
Assorted ..	(Figs. 2–6)	3	0
Small size ..	(„ 4–5)	3	0
Extra Small size	(Fig. 6)	3	0



6. 5. 4. 3. 2.

Nerve Instruments:—

		s.	d.
In Steel handles, made up in packets of one dozen, soft temper ..	(Fig. 14)	3	6

Nerve Instrument Holders:—

			s.	d.
In Ivory handle	(Fig. 15)	each	3	0
„ Bone „	(„ 16)	„	0	4

16.

NERVE INSTRUMENTS.

(American.)

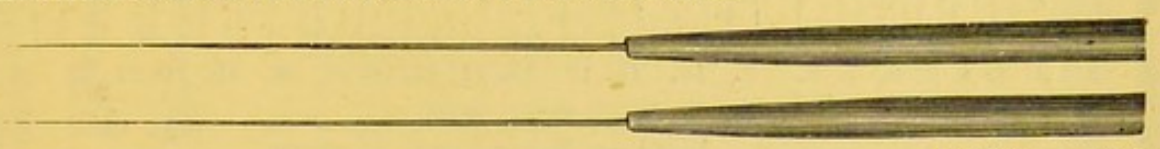
	per pkt. s.	d.
Soft and half soft, assorted forms, in packets of one dozen ..	3	0
„ „ small size „ „ ..	3	0
„ „ extra small size „ „ ..	3	0

These will fit Holders (Figs. 14 and 15) on page 162.

NERVE BRISTLES.

(Dr. Donaldson's.)

In hard rubber handles, spring tempered, roughened or hooked, for removing the nerve, clearing the nerve cavity, and for introducing medicaments in the treatment of abscesses, &c.



	per box. s.	d.	each. s.	d.
In boxes, containing ½-doz. assorted sizes	4	6	0	10
„ „ „ all hooked	4	6	0	10
American make „ „ assorted	5	3	1	0
„ „ „ „ all hooked	5	3	1	0

PULP-CANAL CLEANSERS.

(Dr. Donaldson's.)

With barbed ends, American make, put up as follows:—

No.	per box. s.	d.	each. s.	d.
1. In boxes, containing ½-doz. assorted sizes, with long handles	7	0	1	3
2. „ „ „ all fine „ „ „	7	0	1	3
3. „ „ „ assorted „ with short „	7	0	1	3
4. In packages, „ „ „ „ without „	5	3	1	0
5. „ „ „ all fine „ „ „	5	3	1	0
6. For Adjustable Holder—*see below.*				

For Platinum and Iridium Nerve Instruments see page 166.

ADJUSTABLE HOLDER

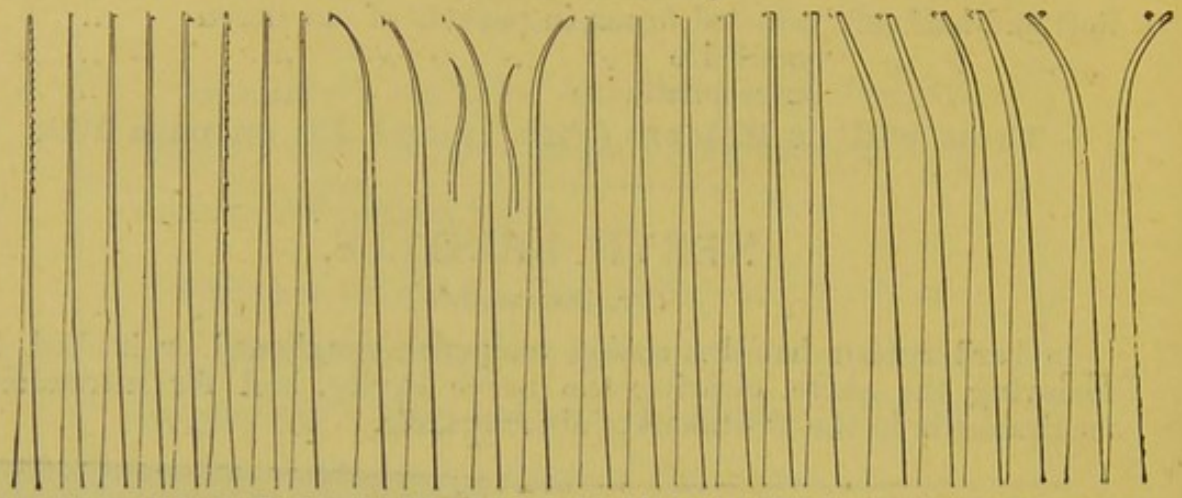
FOR NERVE INSTRUMENTS.

(Dr. Donaldson's.)

	s.	d.
Price with six Cleansers, known as No. 6	10	6
Separately { Holder only	6	3
Separately { Package of six Cleansers, known as No. 6 ..	5	3

NERVE INSTRUMENTS.

(Dr. Arrington's.)



1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24.

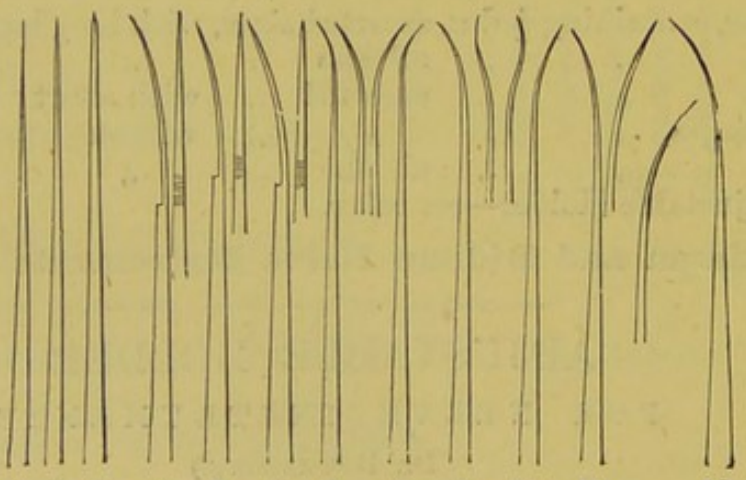
Figs. 1–12 are Nerve Extractors.
„ 13–24 are Nerve-Canal Stoppers.

		s.	d.
In Steel handles, blued	per set of 24	17	6
„ „ „	each	0	10

Small square-handled Steel Nerve Instruments, soft-temper, hooked, sizes of Arrington's Figs. 2, 3, 4, 5	per doz.	8	6
	each	0	9

NERVE-CANAL STOPPERS.

(Dr. Hunter's.)

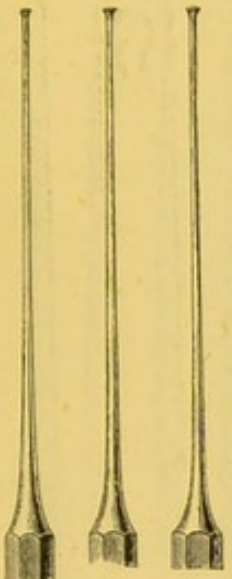


1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.

				s.	d.
In Steel octagon handles, blued ..	(Figs. 1–12)	each		1	0
1. „ „ „ ..	(„ „)	per set		11	0

NERVE-CANAL PLUGGERS.

FIGS. 1, 2, 3, FOR PLASTIC FILLINGS.



2. 3.

Of soft temper to admit of being bent for use on upper and lower teeth. The three sizes are made to correspond with sizes 137, 138, 139 and S. M. L. of the Nerve-Canal Drills shown on pages 214 and 215, which they are intended to follow after a root has been prepared for filling :—

Fig. 1 being used after Drill Fig. 137 or S.
„ 2 „ „ „ 138 „ M.
„ 3 „ „ „ 139 „ L.

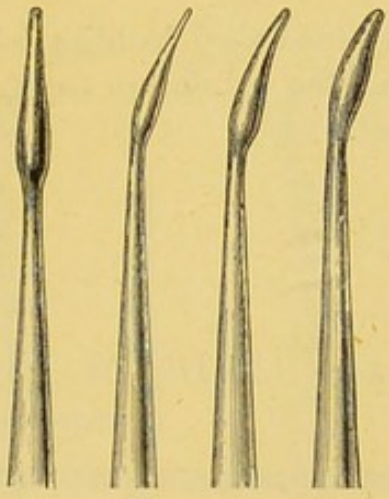
	s.	d.
Price, in blued handles (Figs. 1, 2, 3) each	1	0

1.

NERVE-CANAL PLUGGERS,

FOR PLASTIC FILLINGS.

(Mr. E. LECHMERE'S.)



2. 3. 4. 5.

1

Mr. Lechmere says: "The special features of these pluggers are that, being conical, they readily release themselves from the filling when being withdrawn, and thus do not displace any of the filling that has been carried to the desired position. Their ends being blunt do not pierce the filling, but drive it onward, while their shape tends to make them force it into thorough adaptation to the canal."

Figs. 1 and 2 are for filling the canals of incisors; they are also useful in all cases where a straight instrument can be employed.

Figs. 3, 4 and 5 are for filling the canals of molars and bicuspids when used with the aid of the mouth mirror.

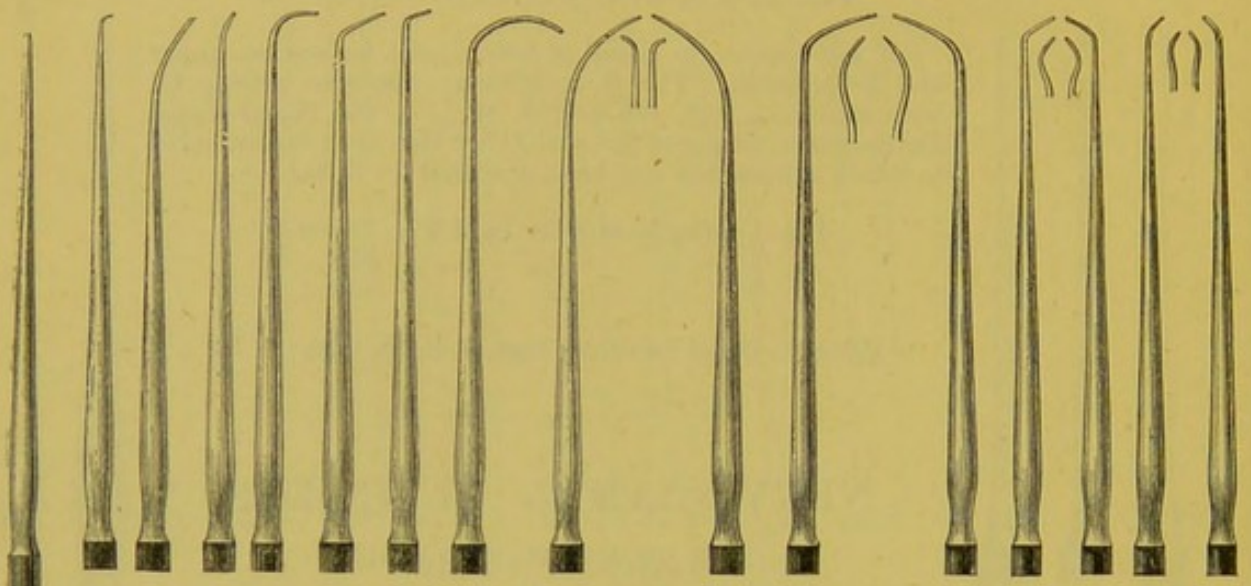
Fig. 5 will also be found useful for other than root-fillings.

Prices :

		s.	d.
In Steel handles, Nickel-plated ..	per set of 5	7	0
„ „ „ ..	.. each	1	6

PROBES,

WITH VERY FINE POINTS.

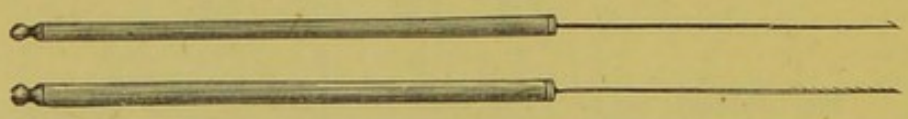


In small round blued-steel handles with turned ends. They form a very useful set, but the points are too fine to admit of the instruments being nickel-plated.

		s.	d.
Price	each	0	9

PLATINUM AND IRIDIUM NERVE INSTRUMENTS.

(AMERICAN.)



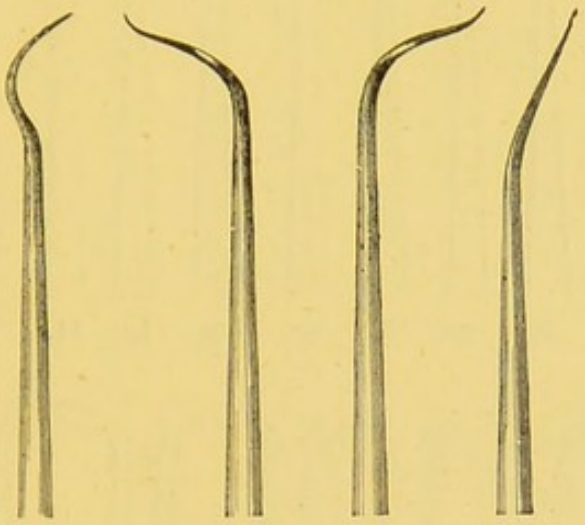
Put up in packages as follows:—

		s.	d.
Quarter-dozen, barbed	per packet	3	0
Half- ,, ,, ...	,,	6	0
Quarter- ,, hooked	,,	3	0
Half- ,, ,, ...	,,	6	0

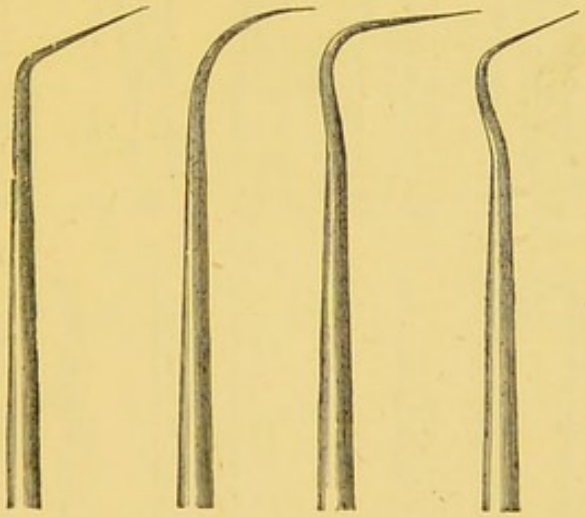
Cone-Socket Probes, all forms	each	0	6
Handles for do.	,,	0	6

PROBES
AND
NERVE INSTRUMENTS.

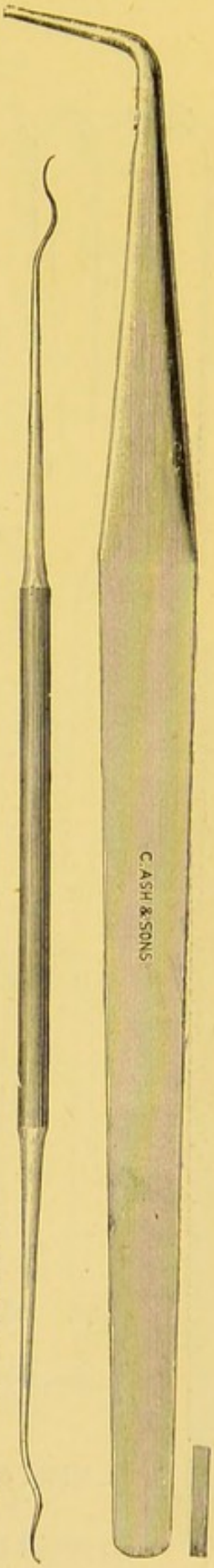
1.



2. 3. 4. 5.



6. 7. 8. 9.



12.

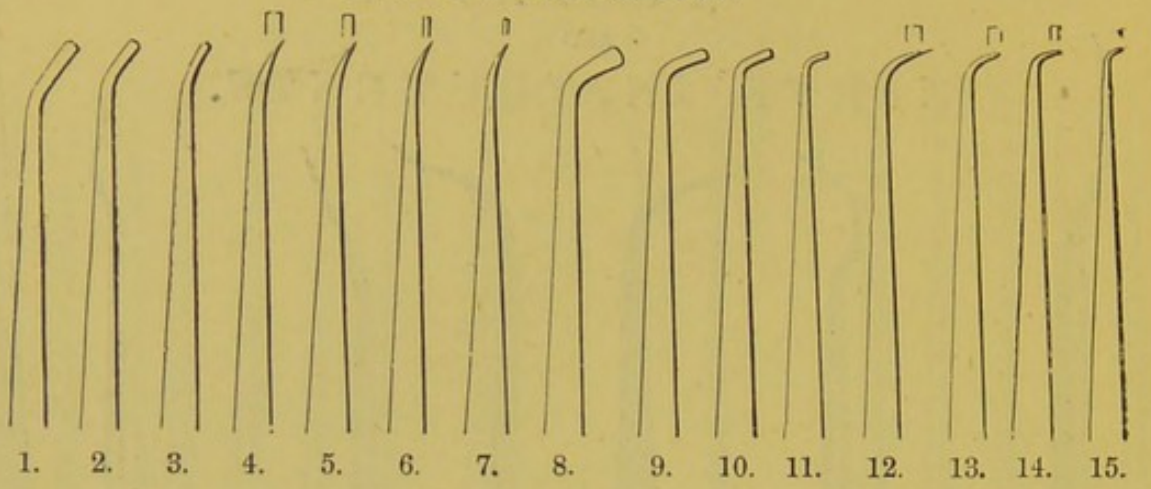
13.

				s.	*d.*
In Steel octagon handles		(Figs. 1–9)	each	0	8
„ „	Nickel-plated	(„ „)	„	0	11
„ „	various, double-ended	..	„	1	2
„ „	Nickel-plated	.. ..	„	1	6
Probe (Dr. Weston's) and Plugging Assistant, double-ended		(Fig. 12)	„	1	6
Probe (Mr. Moon's), for ascertaining the position of stumps which are overgrown with gum, Nickel-plated		(Fig. 13)	„	2	0

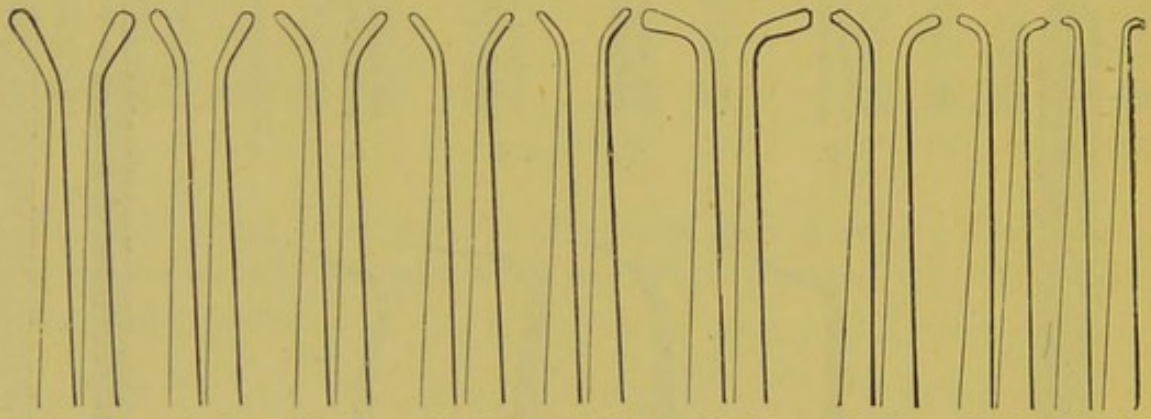
Other Probes made or obtained to order.

EXCAVATORS.

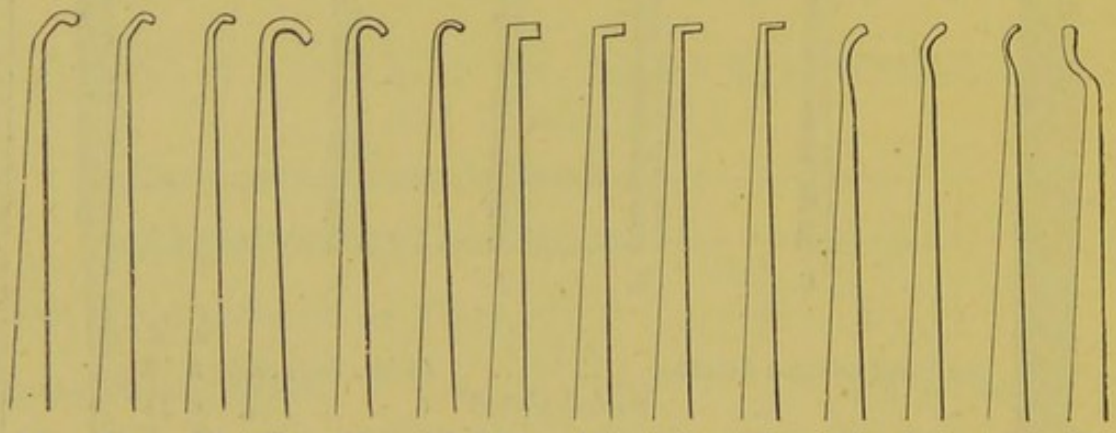
1.



1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15.



16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33.

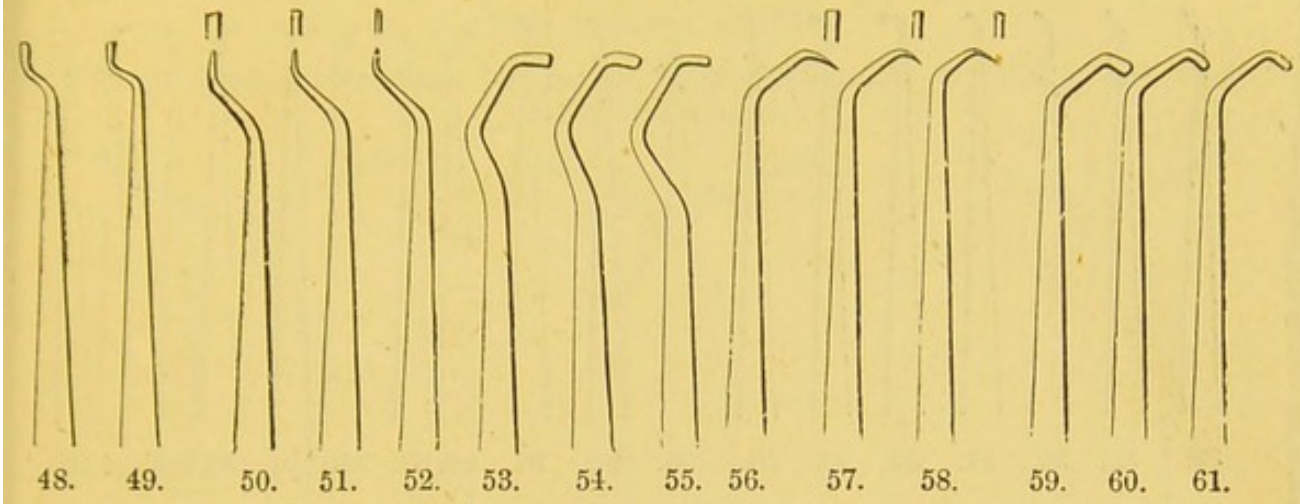


34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47.

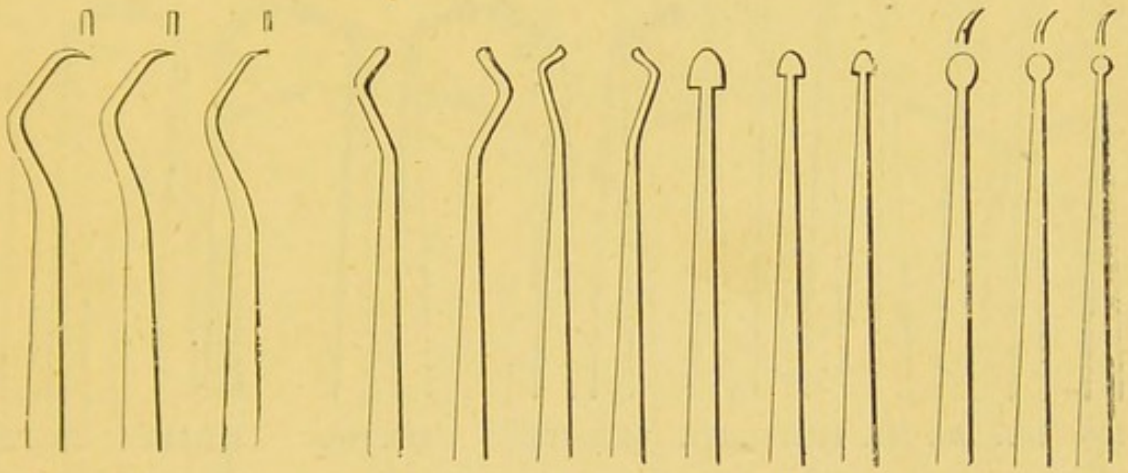
Nos. 1–15 are all flat and cut either way. Nos. 16–33 are curved right and left.
Nos. 34–47 are all flat and cut either way.

			s.	d.
In Steel octagon handles	(Figs. 1–47)	each	0	8
,, ,, Nickel-plated ..	(,, ,,)	,,	0	11
In blued Steel handles, tapered like Fig. 87		,,	1	0

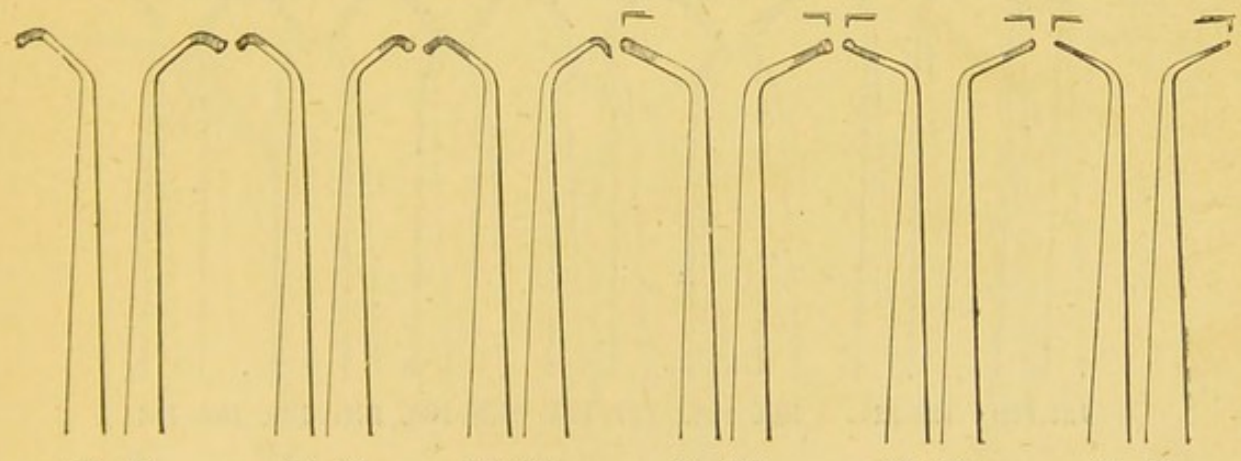
EXCAVATORS.



48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61.



62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74.



75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86.

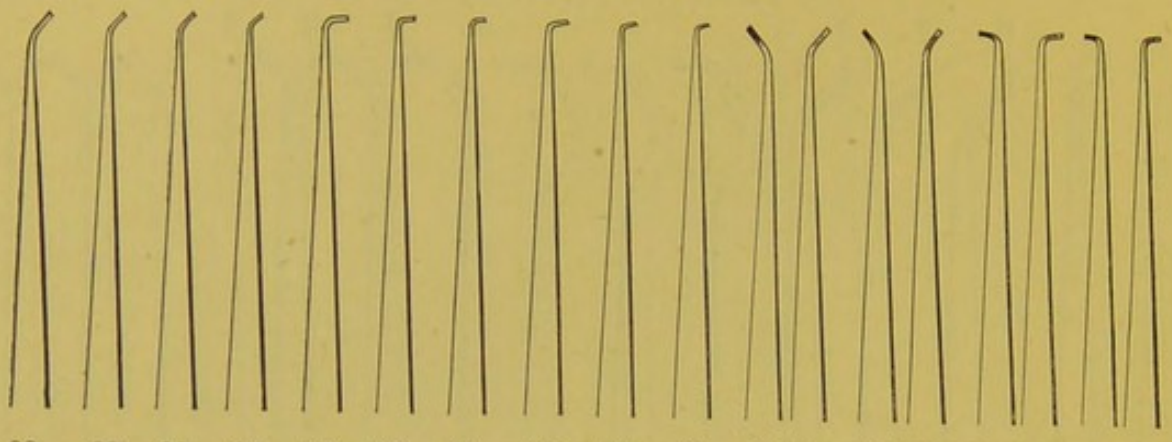
Nos. 48–64 are flat and cut either way.
„ 65–68 are curved right and left.

Nos. 69–74 are flat and cut either way.
„ 75–86 are double-curved right and left.

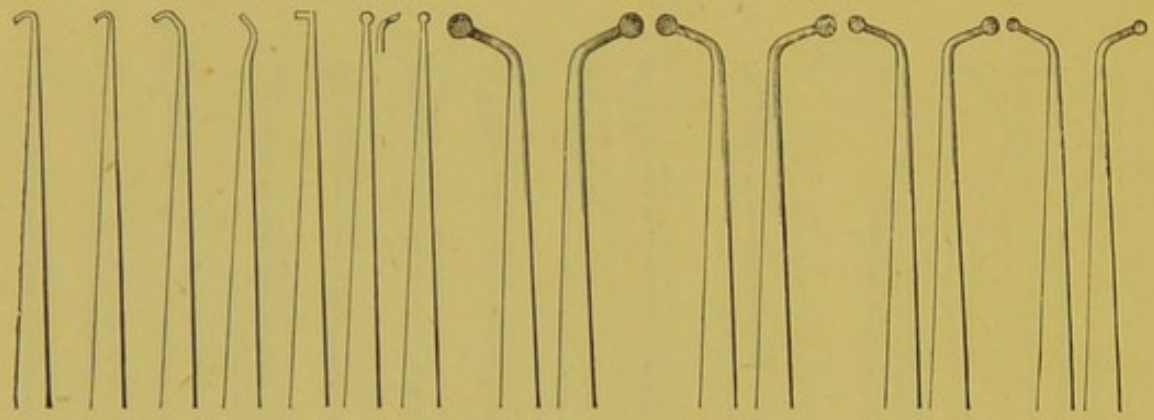
			s.	d.
In Steel octagon handles	(Figs. 48–86)	each	0	8
„ „ Nickel-plated ..	(„ „)	„	0	11
In blued Steel handles, tapered like Fig. 87		„	1	0

EXCAVATORS.

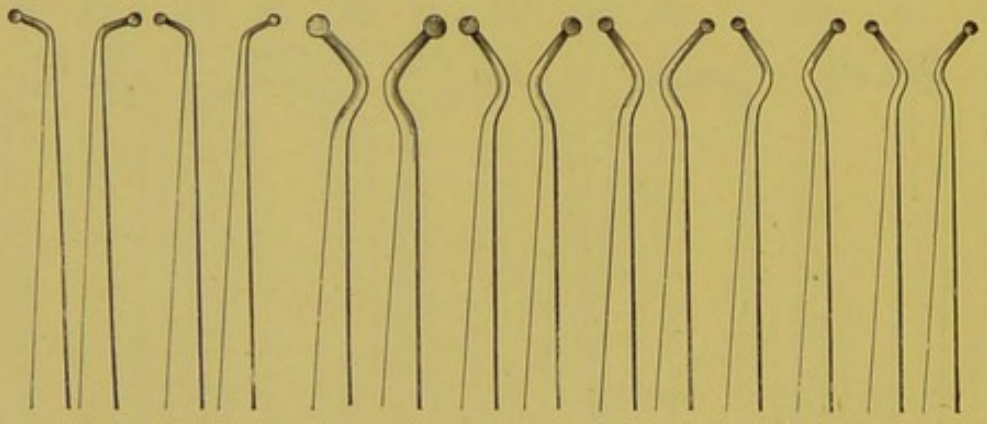
87.



88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105.



106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120.



121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134.

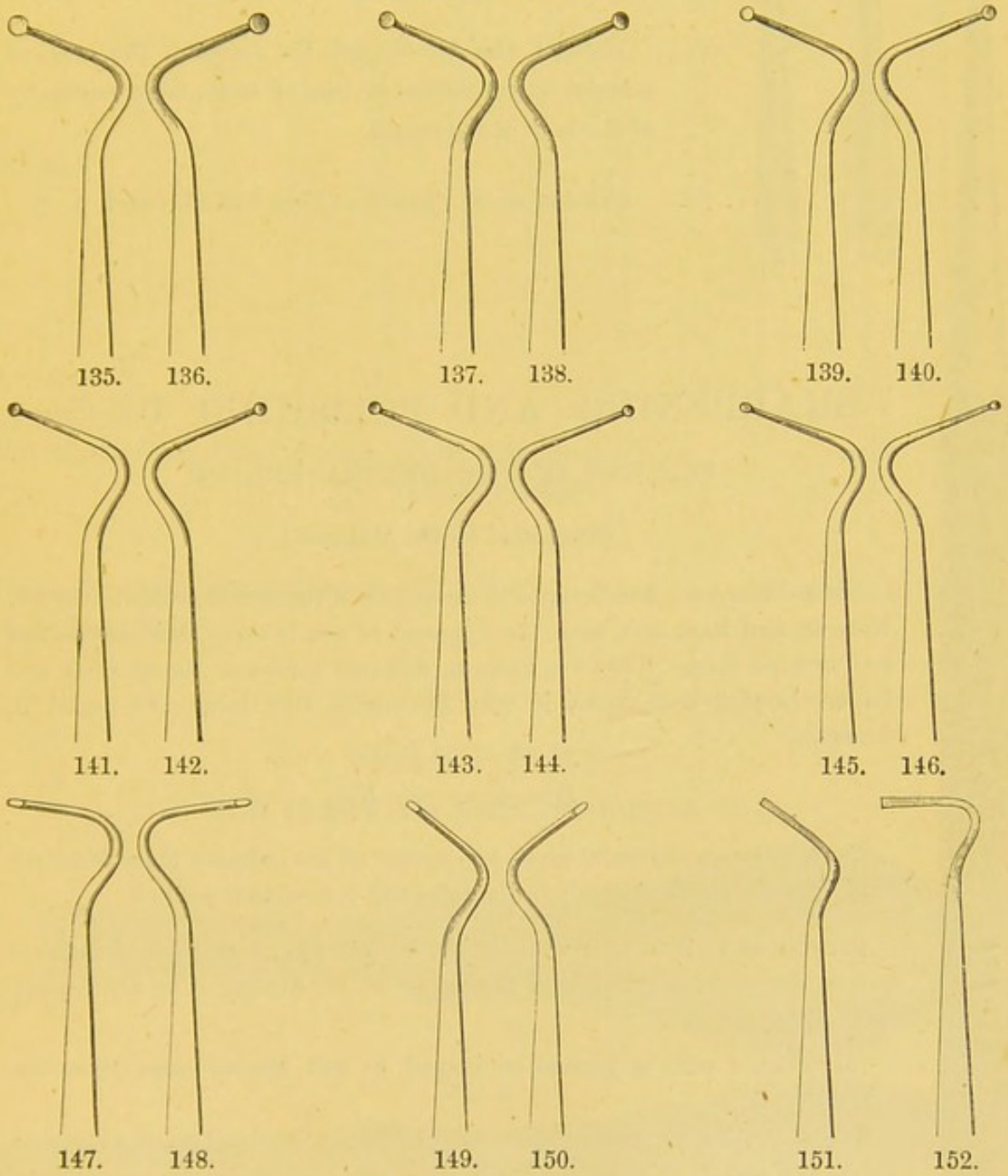
Nos. 87 – 97 are straight, and cut either way.
„ 98–105 are curved right and left.
„ 106–112 are straight, and cut either way.
„ 113–134 spoon-shape, curved right and left.

		s.	d.
In blued Steel handles, tapered	(Fig. 87) each	1	0
In plain octagon handles, like Fig. 1 on page 168 ..	„	0	8
„ „ Nickel-plated „ „ ..	„	0	11

EXCAVATORS,

FOR DEEP CAVITIES.

These Excavators will be found very useful for reaching far back into the mouth.



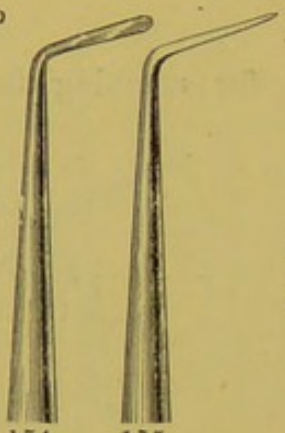
135. 136. 137. 138. 139. 140.

141. 142. 143. 144. 145. 146.

147. 148. 149. 150. 151. 152.

135–146, flat spoon shape, curved right and left.
147–150, with oval tapered points, curved right and left.
151, for upper cavities, flat pointed. It cuts either way.
152, „ lower „ „ „ „

		s.	d.
In Steel octagon handles	each	0	8
„ „ „ Nickel-plated	„	0	11



154. 155.

EXCAVATORS.

(Mr. R. H. Woodhouse's.)

Hatchet and hoe-shaped for reaching the cervical margins in interstitial cavities of teeth, more especially at the back of the mouth.

	s.	d.
Price in wooden handles (Figs. 153–155) each	1	9

153.

SHARPENING AND POLISHING DISCS,

FOR USE IN THE DENTAL ENGINE.

(Suggested by Dr. McLean.)

These Discs were first brought to the notice of the dental profession by Dr. McLean, and have met with the approval of nearly every dentist who has seen or tried them. They are made in different grades of Emery Cloth and Paper—varying from coarse to very fine—each Disc being two inches in diameter.

Directions for Use.

Place a disc on the metal plate, and mount on the ordinary Huey Mandrel, holding the Handpiece firmly in the left hand in a vertical position.

Excavators, Chisels, Drills, Sculptors, in fact any instrument or tool can now be sharpened or polished as desired by simply holding it on the rapidly revolving disc.

Instruments can be ground or shaped to suit special cases in a few minutes.

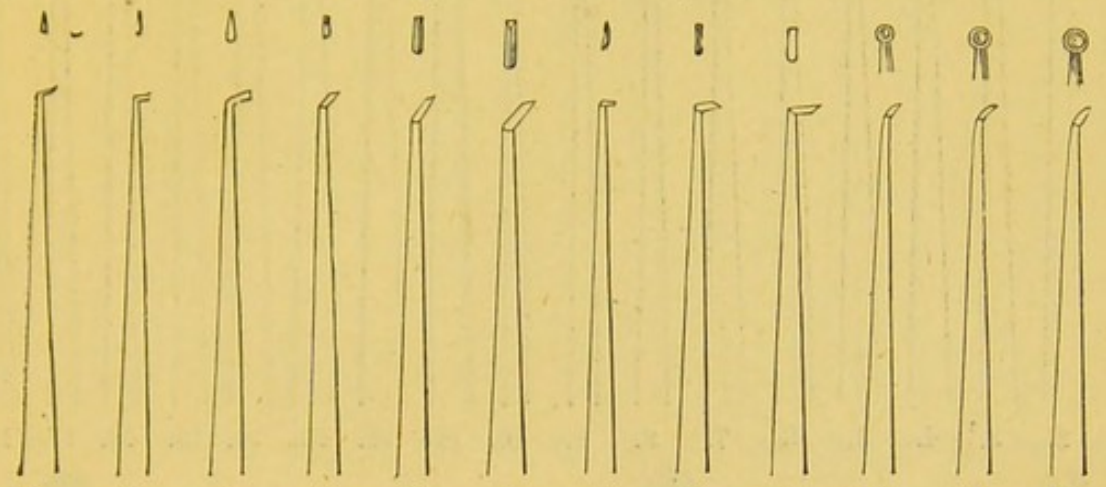
The cloth disc is placed between the sharpening disc and metal plate, and serves as a pad when using for fine work.

Prices:

		s.	d.
Boxes of 100 Discs, assorted grits	per box	2	0
Metal Plates, Nickel-plated	each	0	4
Huey's Mandrels (Fig. 228, page 219)	„	1	0

EXCAVATORS.

(Dr. WETHERBEE'S.)



		s.	d.
Set of 12, Chisel and Spoon, plain octagon	each	1	0
„ „ „ Nickel-plated	„	1	3
Cone-Socket Excavators, all forms	each	0	6
Handles for do.	„	0	6

BRUSHES,

FOR CLEANING BURS, STOPPERS, ETC.

Fig. 1.

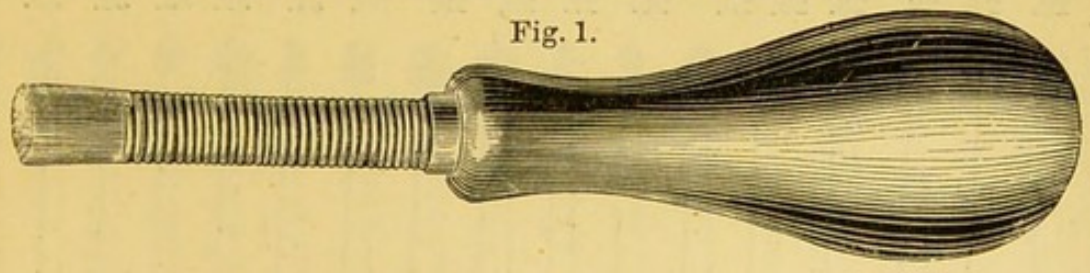
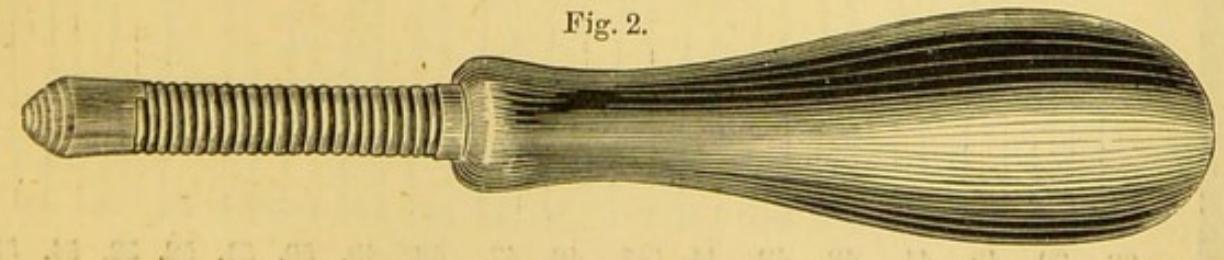
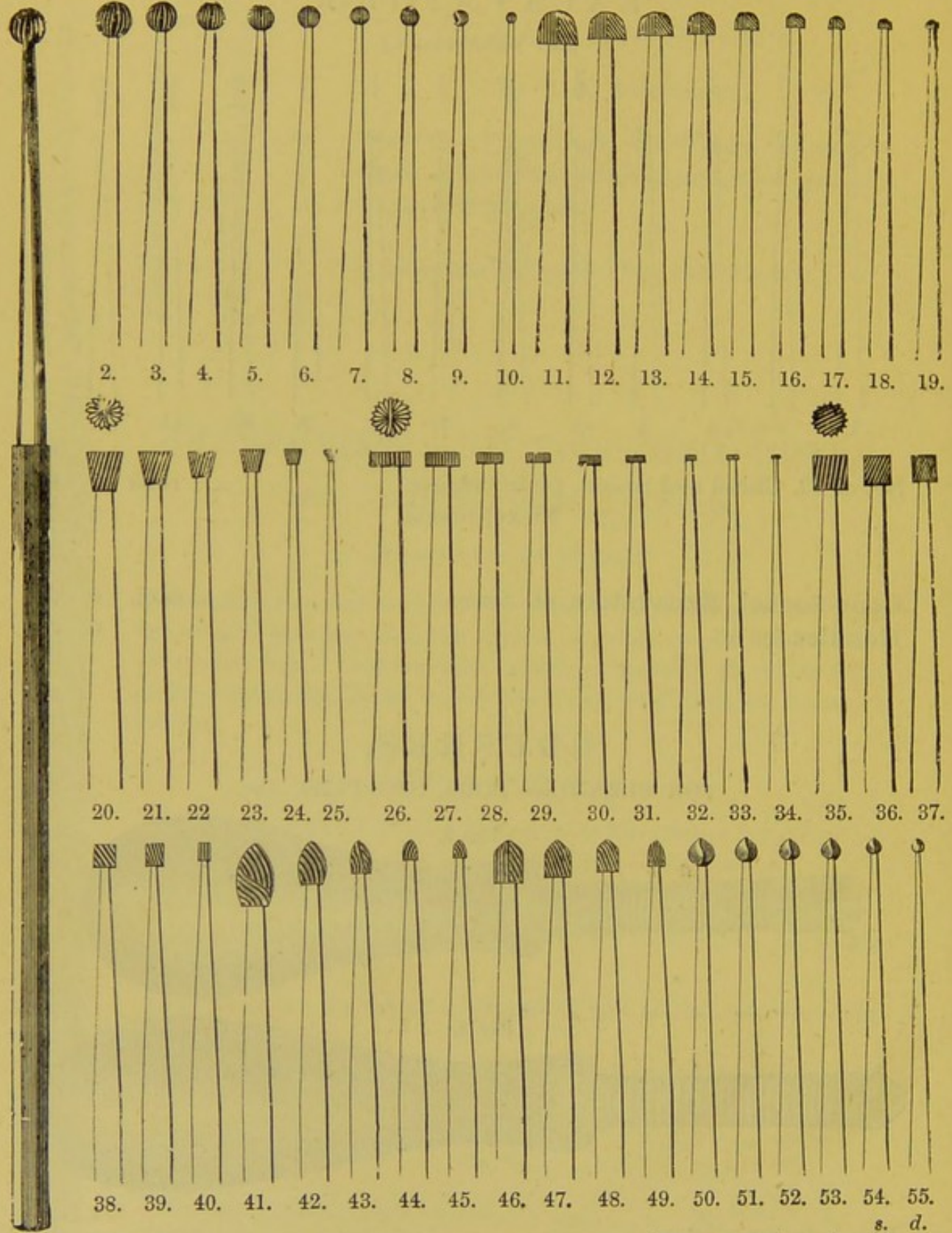


Fig. 2.



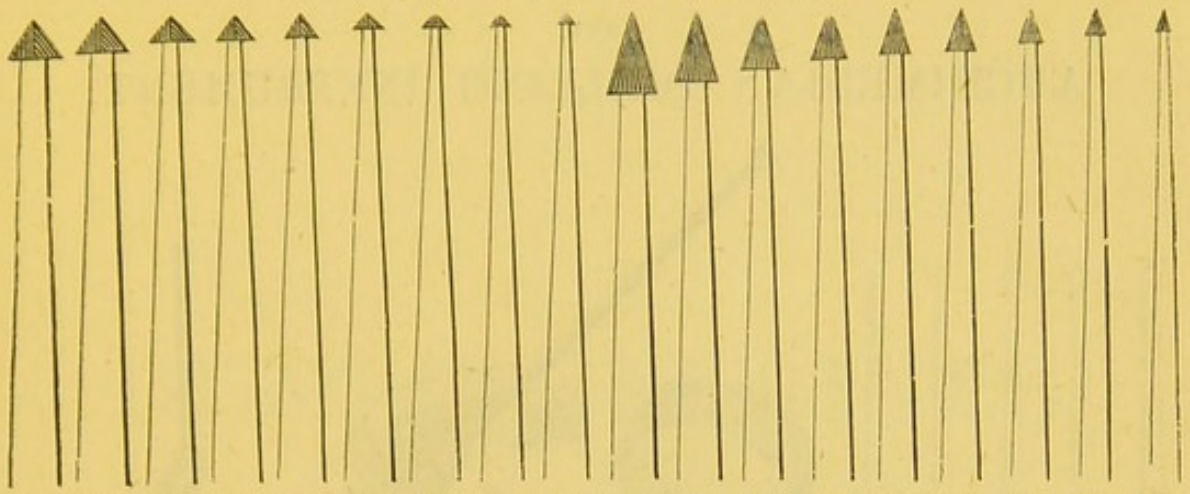
	s.	d.
Fig. 1, in brass wire	2	0
„ 2 (American), in steel wire	2	9

BURS AND DRILLS.

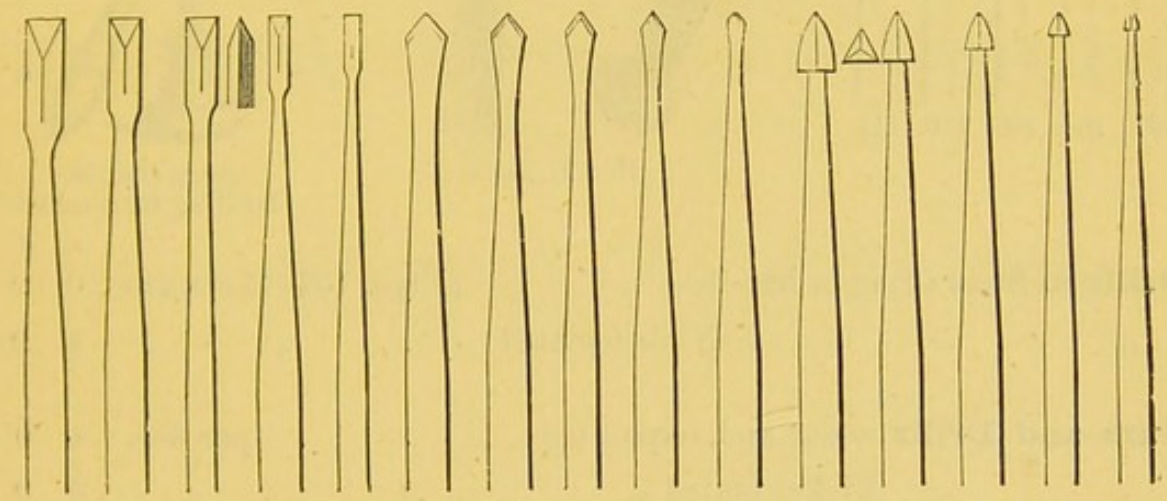


				s.	d.
1.	In Steel octagon handles	(Figs. 1–55)	each	0	9
	„ „ Nickel-plated ..	(„ „)	„	1	6

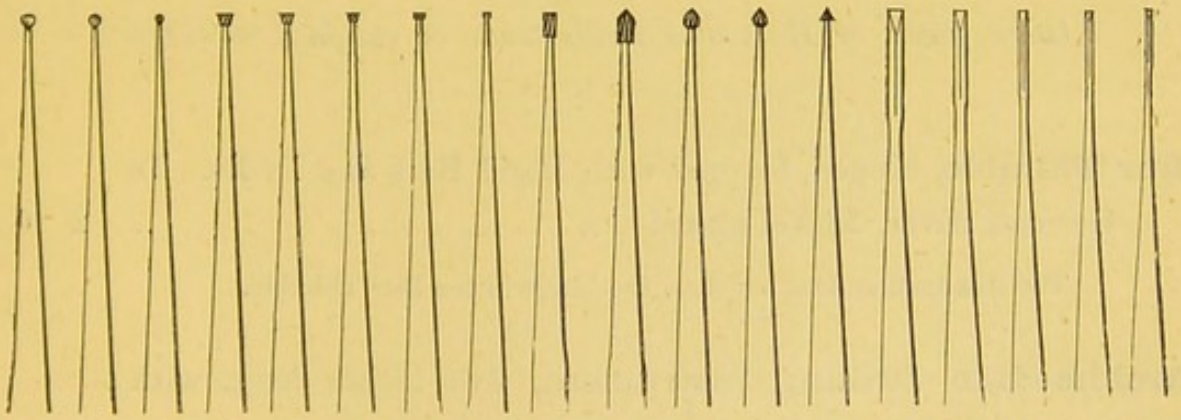
BURS AND DRILLS.



56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73.



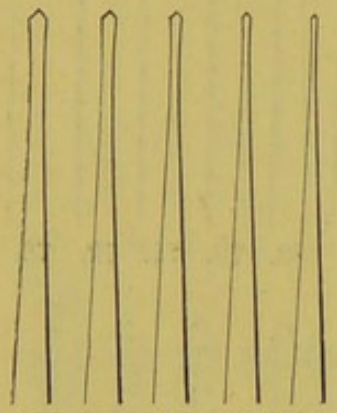
74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88.



89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106.

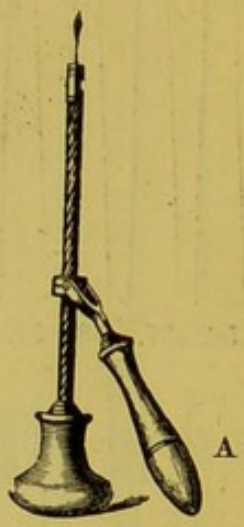
				s.	d.
In Steel octagon handles	..	..	.. (Figs. 56–106) each	0	9
„	„	Nickel-plated	.. („ „) „	1	0

DRILLS, BUR THIMBLE, AND ARCHIMEDIAN DRILLING INSTRUMENT.



107. 108. 109. 110. 111.

Bur Thimble.



Archimedian Drilling Instrument.

		s.	d.
Drills in Steel octagon handles	(Figs. 107–111) each	0	9
„ „ „ Nickel-plated	(„ „) „	1	0
Burs and Drills re-cut and re-pointed	per doz.	4	0
„ „ Nickel-plated	„	3	0

Other forms of Burs and Drills made or obtained to order.

Bur Thimble, hinged, for use with Hand Burs and Drills. In German silver, Nickel-plated 2 0

The illustration does not show the hinge in the Bur Thimble.

Archimedian Drilling Instrument, five inches long, with tapered Steel socket. In Ebony handle, with three Burs and Drills 9 0

The extra Burs or Drills are usually put in the handle at A.

Burs and Drills, with tapered ends for ditto .. per doz. 9 0

DENTAL ENGINES,

ELECTRICAL DENTAL MOTORS,

GAS ENGINE AND DYNAMO,

AND ALL KINDS OF

ENGINE INSTRUMENTS AND APPLIANCES.

NOTES.

In ordering extra Handpieces, please say for which Engine they are required.

Always state which Handpiece is used when ordering Engine Instruments. If there is any doubt on this point, send an old bur as a pattern.

When ordering Right, Acute, or Obtuse-Angle Attachments, be careful to state for which Handpiece they are wanted.

The Instruments for these Attachments are shown on page 206. Do not omit to mention which style is required—Fig. 1 or Fig. 2.

We are prepared to supply all kinds of dental materials of American manufacture at published prices, including Engines, Engine Instruments and Appliances, that are mentioned or illustrated in any of the various American Catalogues and Journals.

When ordering goods always quote the figure or state the page of the Catalogue or List on which each article is to be found. This will ensure prompt and accurate execution of orders, and has become necessary now that there are various editions of the English and American Catalogues in existence.

Do not mutilate this or any other Catalogue by cutting out the illustrations. A reference to the page and figure, or article, will be quite sufficient, provided the name and date of the Catalogue are given.

Any article not in stock when an order is received, will be obtained with the least possible delay.

CLAUDIUS ASH AND SONS, LIMITED.

PATENT IMPROVED DENTAL ENGINE

(Dr. Parsons Shaw's).

This Engine has all the motions of the **human elbow and wrist,** and is admitted by the first Operators to be the best at present made. For freedom of movement it is unequalled, and will bear the strictest comparison with any other for workmanship and finish. It is in general use at the Dental Hospital of London.

Description.

The movable arm, which works at a right angle to the upright rod B, has a flexible joint forming an elbow; this elbow is connected to the rod A by a spiral spring, which gives motion to the mandrels.

A second spring connects the **handpiece** with the rod A; this gives complete freedom to the Operator, and enables him to apply the instrument to any part of the mouth.

The position of the mandrel A to which the handpiece is attached must, when in use, be about at a right angle with the other portion of the flexible joint or elbow. If this rule be observed, the whole arm is so flexible, and the handpiece so light in the hand, that the Operator can execute his work with the greatest ease to himself and comfort to the patient.

As the first joint of the flexible arm, when in use, points a little to the left of the patient, the treadle is placed to the left of the wheel, so that the Operator can reach the handpiece without inconvenience.

The Engine is made with a rocking motion, which allows the upright rod B to be drawn forward 15 inches, or pushed a similar distance away from the vertical position. It is necessary when using this motion to take hold of the upright; it cannot be controlled from the handpiece. The upright is made tension-tight, and will remain where it is placed

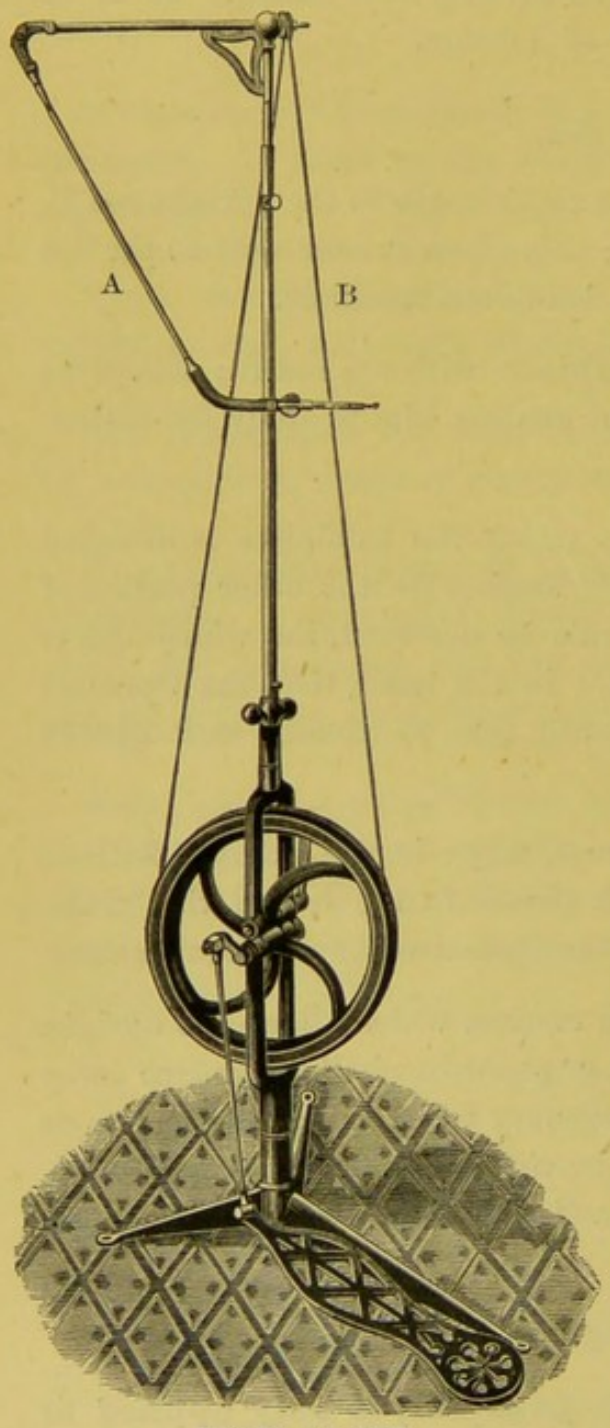
Each Engine is fitted with the Improved Elbow Joint, illustrated and explained on pages 182 and 183.

Mr. Ellis's Joint, described on page 181, is only applied to the upright to order.

SHAW'S PATENTED DENTAL ENGINE,

WITH IMPROVED ELBOW JOINT AND MANDREL A, ENCLOSED IN METAL SHEATH.

(Manufactured by C. ASH AND SONS, Limited.)



ENGINE AT REST.

Prices:

	s.	d.
Engine (all bright parts Nickel-plated) with Improved Elbow Joint, Improved Cone-regulating Hand-piece and 14 points	175	0
Ditto, with Mr. Ellis's Joint (*see next page*) .. .. extra	25	0
Ditto, with Right, Acute, or Obtuse-Angle Attachment, extra	20	0
Upper part of Engine separately, **with Mandrel A enclosed in Metal Sheath**	105	0

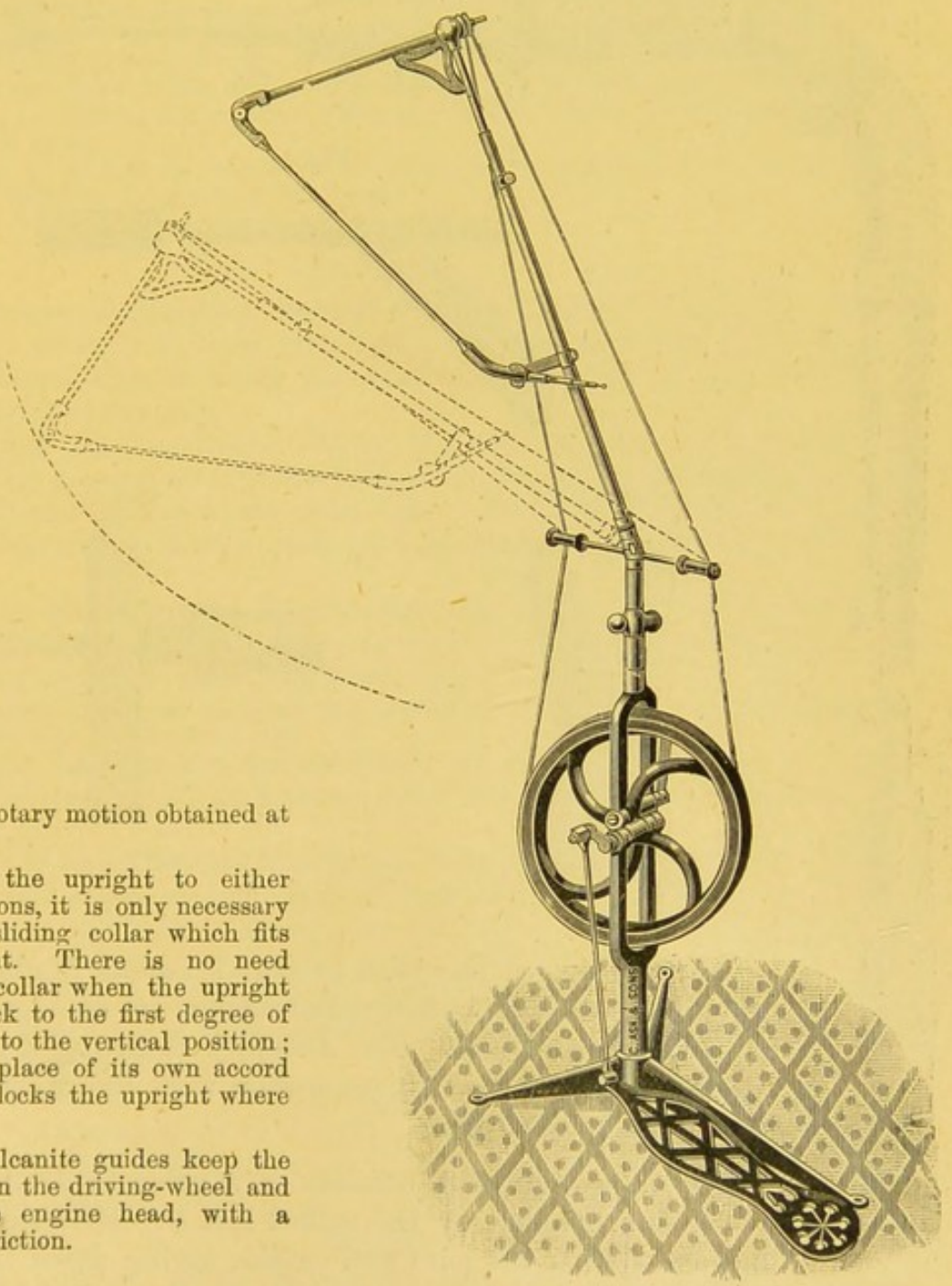
Parts separately:

		s.	d.
Improved Cone-regulating Hand-piece, with Flexible Leather-covered Spring		39	0
No. 1 Right, Acute, or Obtuse-Angle Attachment		20	0
Spiral for Upright		2	6
Elbow Springs, Inside, ..	each	1	0
„ „ Outside ..	„	0	6
Driving „ Inside ..	„	0	7
Leather-covered Wrist Springs	„	4	0
Leather Covers for Springs	„	0	5
Engine Bands	„	0	5
Finest White Oil	per bottle	0	6
Holland Cover for Engine ..		1	6
Engine Treadle		5	0

UNIVERSAL JOINT FOR SHAW'S ENGINE.

(PATENTED.)

Invented by Mr. JOHN ELLIS, of Sandown.



Mr. Ellis's Universal Joint, for securing lateral and rotary motion, adds greatly to the usefulness of Shaw's Dental Engine for operations upon teeth in the upper jaw.

The Joint is controlled by a spring clutch which secures the upright of the engine in either of the two positions illustrated on this page — the dotted lines showing the lower of the two, with the degree of rotary motion obtained at this angle.

To incline the upright to either of these positions, it is only necessary to raise the sliding collar which fits over the joint. There is no need to touch the collar when the upright is brought back to the first degree of inclination or to the vertical position; it drops into place of its own accord and securely locks the upright where desired.

The two vulcanite guides keep the engine-band on the driving-wheel and pulley of the engine head, with a minimum of friction.

	s.	d.
Charge for fixing Ellis's Universal Joint to Shaw's Engines at present in Use .. .. .. each	**25**	**0**

IMPROVED ELBOW JOINT

(Patented October, 1886),

For Dr. PARSONS SHAW'S DENTAL ENGINE.

Fig. 1.

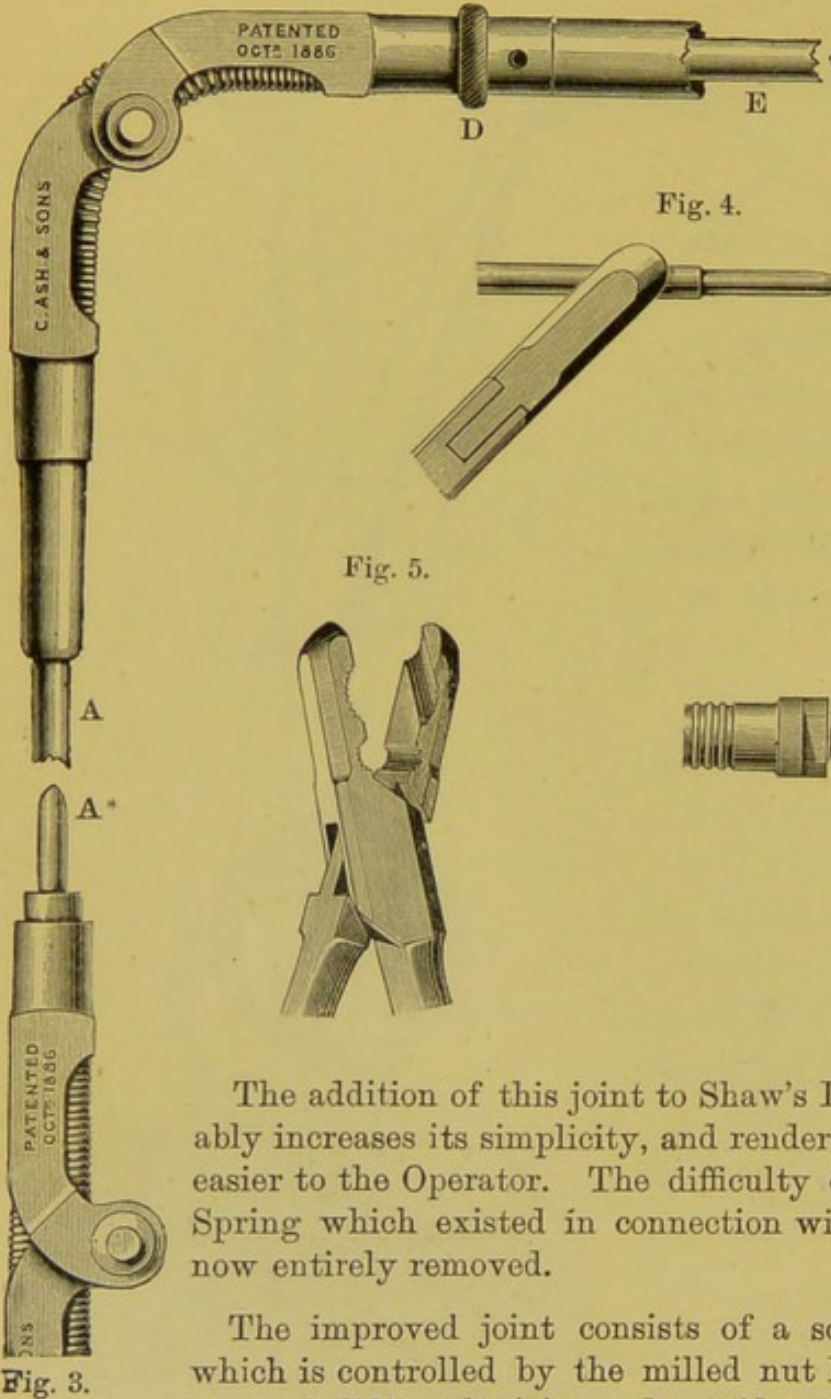


Fig. 3.

Fig. 2.

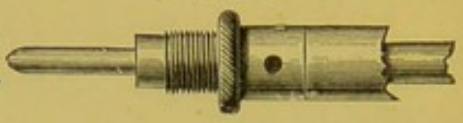


Fig. 4.

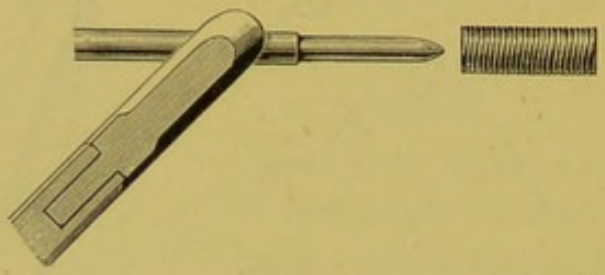
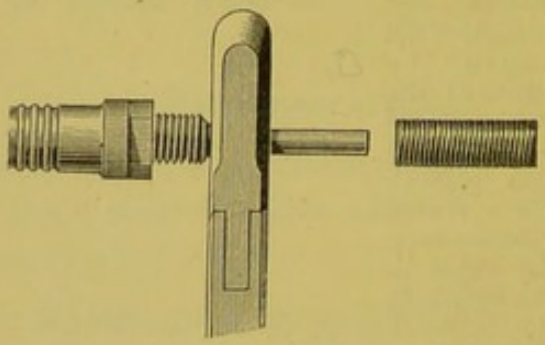


Fig. 5.

Fig. 6.



The addition of this joint to Shaw's Dental Engine considerably increases its simplicity, and renders its management much easier to the Operator. The difficulty of fitting a new Elbow Spring which existed in connection with the original joint is now entirely removed.

The improved joint consists of a screwed detachable end, which is controlled by the milled nut D. By unscrewing this nut and sliding the joint and outside spring down the mandrel A, the inner spring is exposed to view, on the reduced end of the mandrel A*, and should it be broken or require renewing, a new spring can be fitted very quickly without any trouble or delay.

IMPROVED ELBOW JOINT—*continued.*

Description.

Fig. 1 shows the improved joint complete, with the outside and inside flexible connecting-springs attached to the mandrels A E, ready for use.
„ 2 shows the reduced end of the mandrel E on Fig. 1, after the elbow joint has been unscrewed at D.
„ 3 shows the top reduced end of the mandrel A on Fig. 1, after the elbow joint has been drawn down over it.
„ 4 shows the manner in which the mandrel A should be held while the inside elbow spring is being fitted to it.
„ 5 shows the head of the pliers, with angular and horizontal grooves, which we supply for holding the mandrels while new driving and elbow springs are being fitted to them.
„ 6 shows the end of the handpiece mandrel held in the horizontal groove of the pliers ready for the spring to be pressed on.

Directions.

To Remove a Broken Inside Elbow Spring.—Hold the elbow joint firmly to keep it from turning in the bearing, unscrew it at D—see Fig. 1—and slide it along the mandrel A, over the broken portion of the spring, out of the way.

Then grasp the mandrel A below the shoulder with the pliers—as shown in Fig. 4—and remove the broken portion of the spring by turning it to the left and pulling at the same time. Next take hold of the pulley-wheel and remove the broken portion of the spring from mandrel E in the same way.

To Fit a New Inside Elbow Spring.—Grasp the mandrel A just below the shoulder with the pliers—as shown in Fig. 4—press on the new spring as far as the shoulder, and while doing so, turn it to the left.

NOTE.—The action of turning the spring to the left opens it sufficiently for it to slip on the mandrel.

Then take hold of the pulley-wheel and force the other end of the spring on mandrel E in like manner, draw forward the joint and screw it in position.

To Renew the Driving Spring of the Handpiece.—Unscrew the leather-covered sleeve spring, grasp the mandrel with the pliers—see Fig. 6—turn the spring which is being removed to the left, and pull slightly at the same time. Press on the new spring, and in doing so screw it to the left. Be very careful to hold the mandrel perfectly tight in the pliers close to the end where the new spring is being fitted, or there is a danger of bending the mandrel.

Mr. G. C. McAdam, of Hereford, says: "In removing or fitting on an elbow or wrist spring of Shaw's engine, the spring should be held in a fold of thin rubber-dam, which clings to it in a way that nothing else will, and effectually protects the fingers."

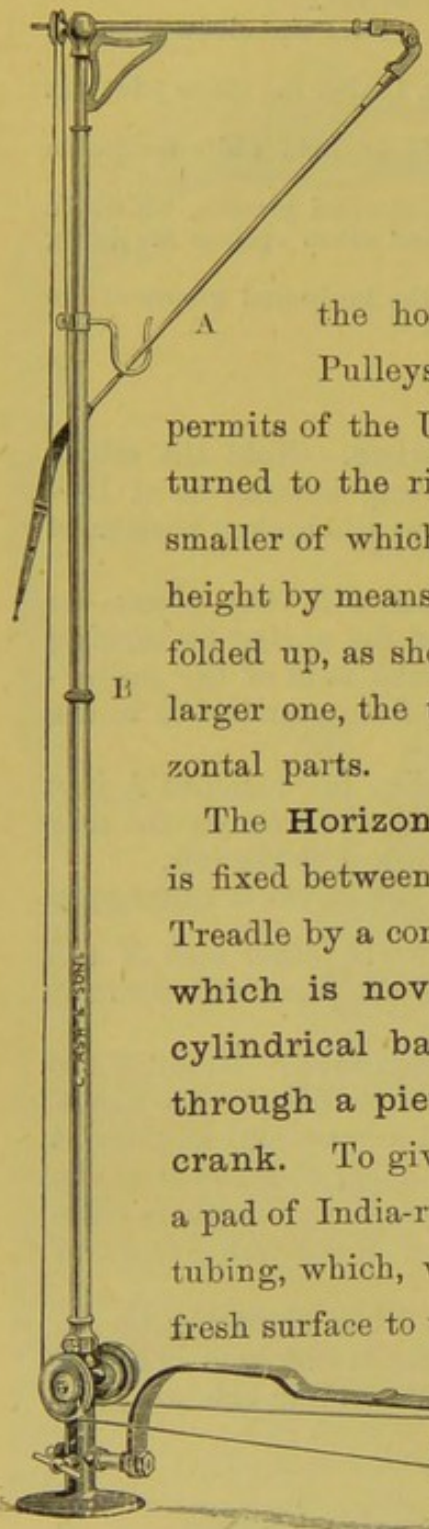
Prices:

	s.	d.
Improved Elbow Joint fitted to any Shaw's Engine now in use which has the original Joint	30	0
Grooved Pliers, 5 inches long .. .. (Fig. 5)	3	6

CAMPBELL'S HORIZONTAL ENGINE.

(PATENTED.)

Manufactured by C. ASH AND SONS, Limited.

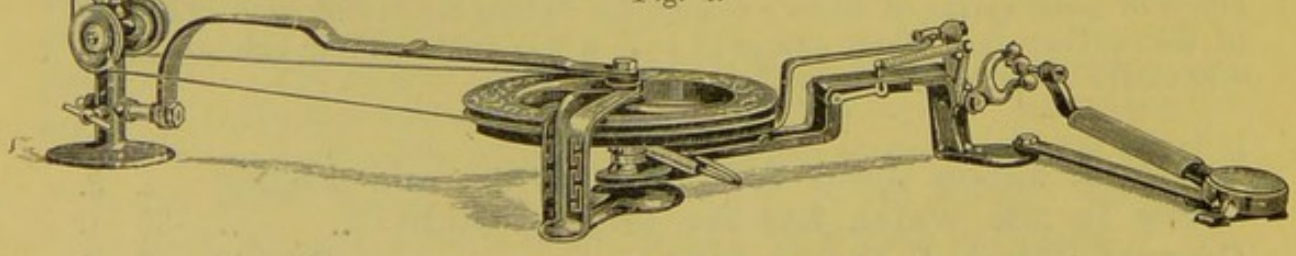


The **Top Part** of the Engine shown in the accompanying engraving is Shaw's, the Mandrel A being enclosed in a metal sheath.

The **Upright Standard** is mounted on a base of its own, and can be detached from the horizontal portion at will. It consists of two Pulleys for the Driving Cord, a Vertical Socket, which permits of the Upright being drawn forward to any extent, or turned to the right or left, and two Hollow Metal Tubes, the smaller of which slides inside the other and can be fixed at any height by means of the milled collar B. When the Engine is folded up, as shown in Fig. 2, the smaller tube rests inside the larger one, the two together being drawn down over the horizontal parts.

The **Horizontal Portion** consists of Driving Wheel, which is fixed between hardened steel centres and is attached to the Treadle by a connecting rod and bell crank; **and the Treadle, which is novel in form, and may be described as a cylindrical bar with heel-piece and pin which passes through a pierced round ball that is fixed in the bell crank.** To give a good foothold the heel-piece is covered with a pad of India-rubber, and the cylindrical bar with India-rubber tubing, which, when worn, may be partially turned to expose a fresh surface to wear.

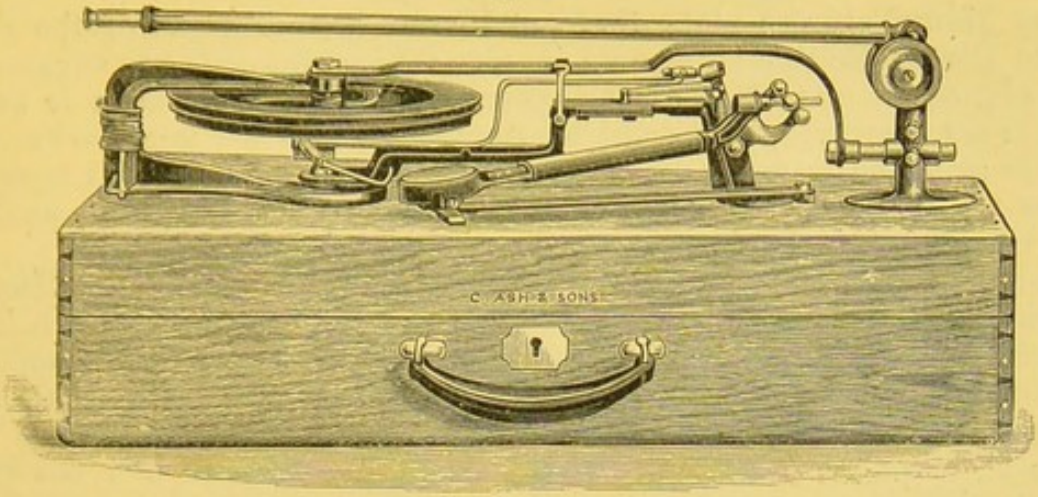
Fig. 1.



Engine mounted ready for use.

CAMPBELL'S HORIZONTAL ENGINE—*continued.*

Fig. 2.



Engine folded up ready for placing in box.

Advantages.

1. **The Upright, with Top Part, stands on the left hand side of Chair,** and the Horizontal Parts can be placed under the footboard of or behind the Chair, out of sight of the patient and out of the way of the Operator; they can also be placed under the **raised legs** of our **improved Morrison's Chair.**

2. It is more accessible in use to the Operator than an engine which is placed on the right-hand side of the patient.

3. The Top Part with which it is furnished is admitted by the best Operators to be the best at present made.

4. The Upright Standard being fixed on a separate base, and attached to the pivotal bar of the driving wheel, can be moved with the greatest ease into any desired position. It is not fixed or rigid—the base is purposely made small to give freedom to the upright —but yields readily to the slightest backward or forward force that may be exerted upon it. Dr. Campbell finds this a great advantage in practice.

5. The Pedal can be worked with the foot in any position, and can be brought quite close to the chair, or pushed far enough away from the Operator for an assistant to work it.

6. The engine is powerful, easy running, and noiseless.

7. It can be packed or set up in less than two minutes, is very portable, and therefore suitable for use by those Operators who sometimes visit patients at their own homes.

8. It is eminently adapted for dentists in the Colonies and in India whose practice is not confined to one settled place.

9. The parts that are most subject to wear can be cheaply renewed.

10. As a piece of mechanism it is very perfect, and will give satisfaction to every Operator who not only values a good engine, but will see that it is kept clean and nicely oiled.

Prices:

		£	*s.*	*d.*
Engine complete, as illustrated	(Fig. 1)	12	10	0
Extra parts for renewing—				
Inside Elbow Springs for Top Part	each	0	1	0
Outside ,, ,, ,, ...	,,	0	0	6
Driving or Wrist ,, ,, ...	,,	0	0	7
Off-Centre Springs for Driving Wheel	,,	0	0	9
Mahogany box for holding Engine, &c. ..	(Fig. 2)	1	12	6

THE S. S. WHITE SIDE-WHEEL DENTAL ENGINE.

The Manufacturers state that:—"Recent modifications of the S. S. White Dental Engine so change its general appearance as to suggest at first glance an alteration of the general lines upon which it is built. This is not, however, borne out by the facts. The old landmarks—the flexible arm, the rocking upright, and the spring pitman, first brought out in the original S. S. White Dental Engine—are still there, as they have been from the beginning, nearly twenty years ago.

The new form will be known as the S. S. White Side-Wheel Dental Engine, so called from the most important of the modifications which it presents—the substitution of the yoke of the base by an open frame for the driving-wheel, which is supported at one end of a pinion journaled through it, with the crank-shaft at the other end. The spokes are 'dished' to centre the weight of the rim. The pitman is a flat steel spring with brass attachment and ball bearing for the crank-shaft. There is no external balance-spring. Instead, an adjustable coil working in a tube placed below the pinion automatically returns the rocking-standard to the perpendicular. The standard has a movement toward the operator of 7 inches; away from him of 3 inches, a range which experience shows to be ample.

The base is made with one hinged toe—that which permits the engine to be tilted toward the operator. When so tilted, it holds its position firmly on the floor, while bringing the flexible arm and pulley-head immediately in front of the patient, with the treadle presenting itself to the operator's foot conveniently for easy operating.

The spring pitman holds the crank off centre when the engine is at rest, and the pedal always in place for a forward motion on foot-pressure.

The flexible arm, when not in use, should be dropped vertically beside the upright. This preserves the straightness of the shaft and sleeve, and prevents their becoming 'set' in a curve. Dentists who do not attend carefully to this requirement should use an arm support."

The Side-Wheel Engine is made with four sizes of driving-wheels known as E, F, G, H. The weight and diameter of each wheel are as under:—

E,	weight about	$6\frac{3}{4}$	lbs.;	diameter,	10	inches.
F,	„	„	$8\frac{3}{4}$	„	„	$12\frac{3}{8}$	„
G,	„	„	$15\frac{1}{2}$	„	„	$12\frac{3}{8}$	„
H,	„	„	$14\frac{1}{4}$	„	„	15	„

The E or regular style is kept in stock; styles F, G and H are supplied to order.

NOTE.—When ordering extra Cables or Sheaths for S. S. White's Engine, always be careful to state whether they are wanted for the Old or New Style, as there is a great difference in them.

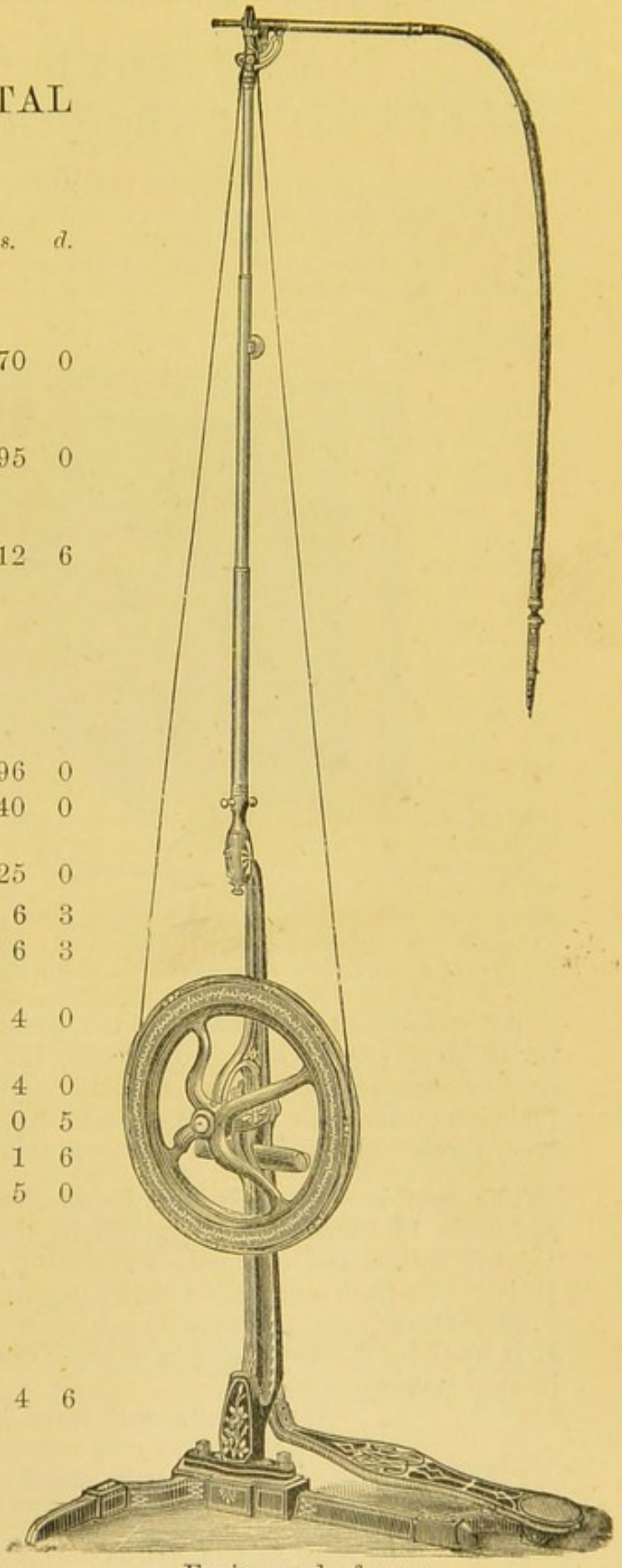
THE S. S. WHITE SIDE-WHEEL DENTAL ENGINE—*continued.*

Prices:

	s.	d.
Engine complete, Style E (all bright parts Nickel-plated), with Straight Handpiece and 14 points	170	0
Ditto, ditto, with Right, Acute or Obtuse-Angle Attachment	195	0
Engines with large driving-wheels, Styles F, G, and H .. .. extra	12	6

Parts separately:

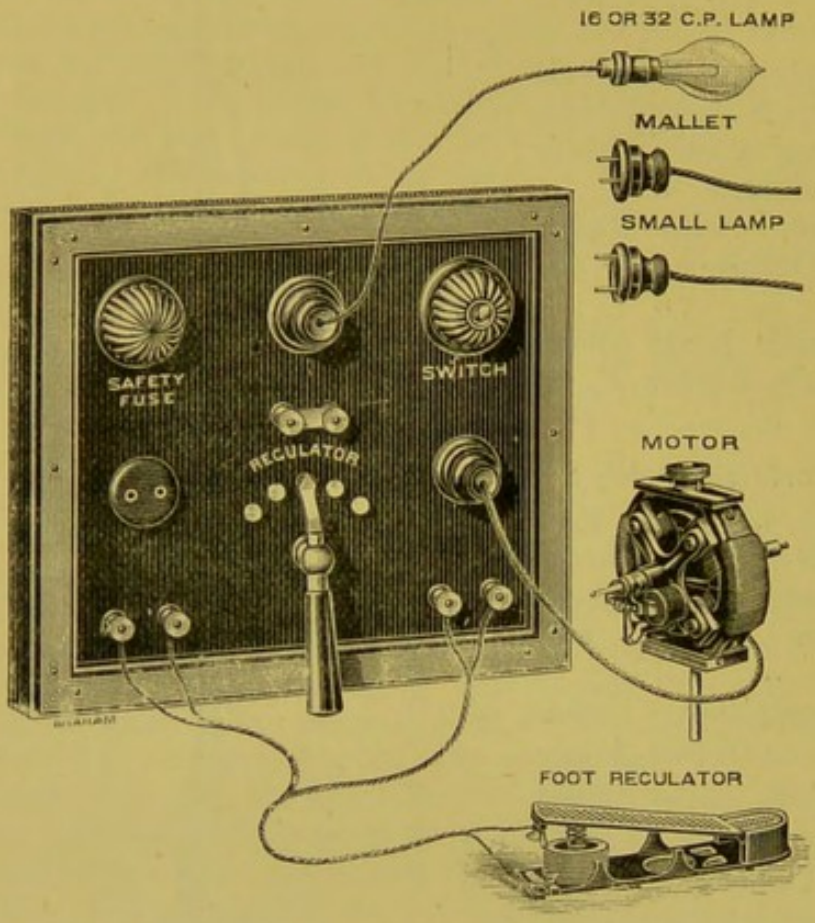
Flexible Arm or Upper Part of S. S. White's Improved Engine, including Straight Handpiece, Cable, and Sheath	96	0
Straight Handpieces each	40	0
Right, Acute, or Obtuse-Angle Attachments .. each	25	0
Cables .. .. .. „	6	3
Sheaths for Cables .. „	6	3
Steel Noses for Straight Handpieces .. .. each	4	0
Hoods for Right-Angle Attachment .. .. each	4	0
Engine Band .. .. „	0	5
Holland Covers for Engine „	1	6
Engine Treadle	5	0
Note.—Extra Cables or Sheaths for S. S. White's **old style** Engine same prices as above.		
Engine Arm Support for either old or new style	4	6



Engine ready for use.

THE BOYD WALLIS ELECTRIC PRESSURE REGULATOR.

(Miller and Wood's Patent.)



By means of this apparatus the pressure of the electricity supplied for lighting purposes by the Electric Light Companies can be regulated, so that the smallest lamp or other apparatus not requiring the full pressure (volts) can be worked with the greatest ease and convenience from the house mains at an almost nominal cost for current.

The combined Switch Board and Pressure Regulator, shown in the figure, is 14 inches by 12 inches in size, and is adapted for use with a Dental Motor, Mallet, small Examining Lamp, and Working Reflector. It is made from enamelled slate, mounted in mahogany, with polished brass fittings, the pressure being reduced by high resistance carbons. It is used by leading dentists in their operating rooms, and is handsome in appearance.

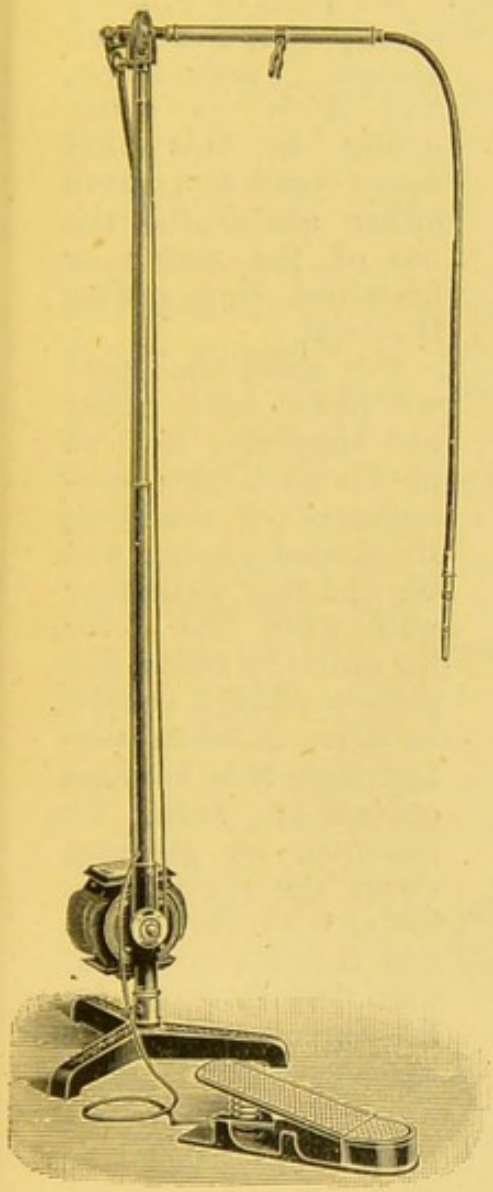
Modified to suit special requirements.

Directions for use are sent with each Regulator.

	s.	*d.*
Price, minus Wires	140	0

ELECTRIC MOTOR FOR CONTINUOUS AND ALTERNATING CURRENTS.

(Messrs. Cuttriss, Wallis & Co.'s.)



It is generally conceded by the Profession that the Electro-Motor, when properly constructed and intelligently used, is superior to all other forms of power in the Operating Room. Messrs. Cuttriss, Wallis & Co. have just perfected an entirely new design of apparatus, as here illustrated, specially for working with electric light currents, both continuous and alternating, which by a slight alteration in the winding can also be used with the usual battery current.

The Motor, which is of ample power for the heaviest work, is rigidly attached to the stand near its base, and electrically insulated from it. By having the motor near the base the stability of the stand is increased, the weight on the top is reduced to a minimum, and the Motor is out of sight of the patient, a point which will be appreciated by the dentist when operating on nervous patients. From the Motor the motion is conveyed by a thin cord to a two-speed pulley, which, with the clutch, is supported on the top of the stand, and from thence through a long movable arm and the usual movable shaft to the handpiece. The patent clutch, which is an unique feature of the "Cuttriss" Motor, is operated by a pneumatic device controlled by the foot, so that the instrument can be instantly started or stopped at the will of the operator without affecting the Motor, which continues to work until the current is switched off. The pneumatic system insures immunity from risk of shock to the patient when high tension currents are used and avoids the complication of wires which would be involved if worked electrically. Only one twin flexible cord fitted with plug connections is used to connect the Motor to the source of supply, so there is no fear of making a "short-circuit" or of connecting the wires the wrong way. The two grooved pulleys provide for a considerable variation of speed without any loss of power; and the starting and stopping switch, which may be fixed on the wall or other convenient place, provides for further regulation. The Motor is fitted with a reversing switch, and works very noiselessly with either continuous or alternating currents. The cost when working at full load is under twopence per hour with current at eightpence per B. T. U. (Board of Trade Unit).

Prices:

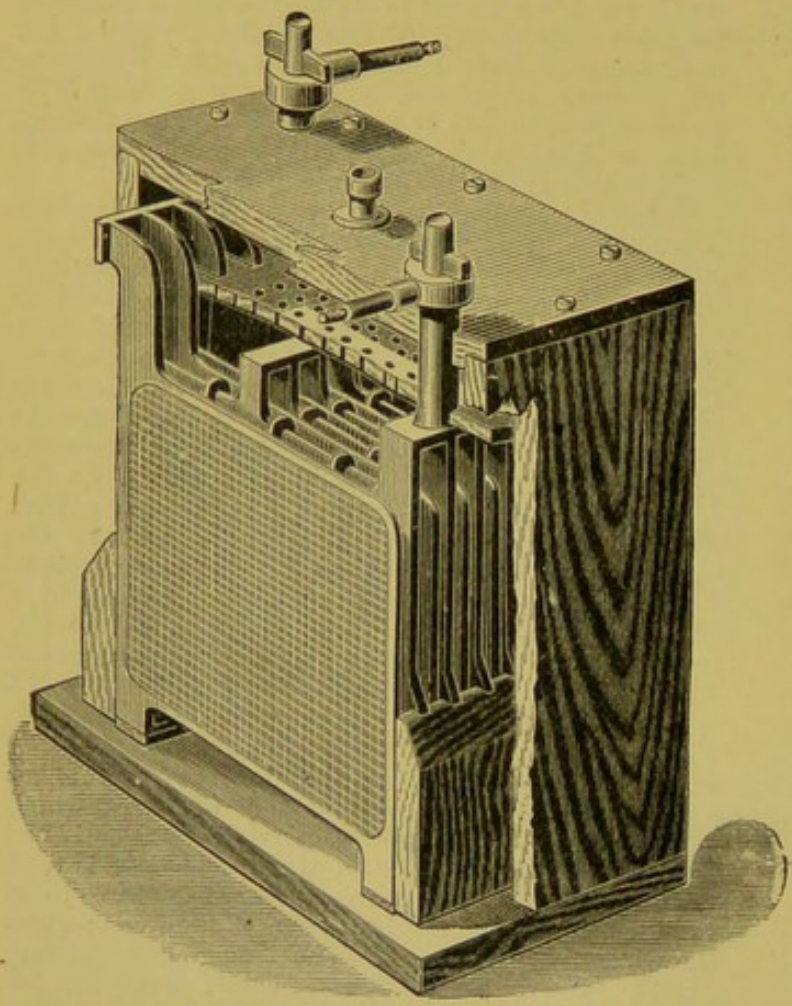
	£	s.	d.
Motor, Stand, Foot-Press and Hand-Regulator for Alternating Current ..	12	0	0
" " " " for Continuous " ..	12	0	0
Original form of Motor with Automatic Clutch, to fit on top of Stand, with Stand and Foot-Press complete, for use with Accumulators	7	10	0
(Five Accumulators are recommended for working this Motor.)			
Engine Arm, consisting of Cable, Sheath, Flexible Wrist Attachment, Handpiece, and Arm Support, for any of the above .. .. extra	3	2	6

Wires are charged extra according to length and quality required.

"E. P. S." ACCUMULATORS,

OR SECONDARY BATTERIES.

The greatest difficulty that has hitherto been experienced in connection with Electric-Motors has been the battery. All kinds of primary batteries have been tried, but we do not know of any that has given general satisfaction, and it is no doubt owing to this that many operators have either abandoned the use of the motor or abstained from giving it a trial.



L Type (15 Plate) Teak Cell.
(The 7 plate size is recommended for dental purposes.)

For some time past we have been using and supplying L Type (7 Plate) Teak Accumulators of the form illustrated here, and we find that while four will work the motor for ordinary needs, five possess enough energy to drive it when performing the heaviest operation; such, for example, as grinding down the stump of a molar with the largest and thickest corundum disc that is made for the purpose.

These Accumulators can be charged or recharged in any town where there is a shunt wound continuous current dynamo. The price for doing this is from 1*s.* 6*d.* to 1*s.* 9*d.* each.

The E. M. F. of each when discharging is 2 Volts.

During charge each requires an E. M. F. of from 2·1 to 2·5 Volts.

Dilute Sulphuric Acid 1180 sp. gr. should be used and should be free from impurities.

The estimated working capacity of each is 130 Ampere hours.

		£	*s.*	*d.*
L Type (7 plate) Teak Accumulators	each	1	10	0

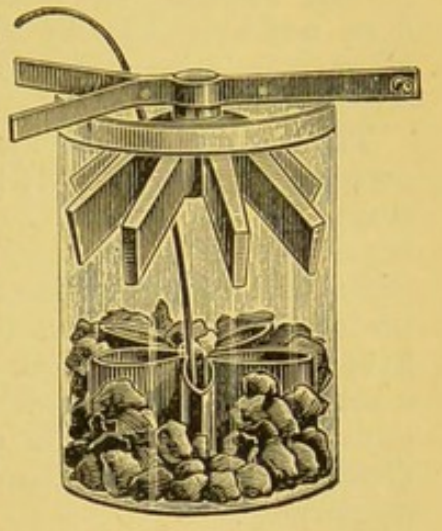
THE "ELMWOOD" PRIMARY BATTERY

(CUTTRISS, WALLIS & Co.'s),

FOR CHARGING AN E. P. S. FOUR-CELL ACCUMULATOR.

ELECTRICAL POWER FOR COUNTRY DENTISTS.

Long experience has proved that Accumulators or Storage Cells are the best form of Batteries which can be relied on for working Electro-Motors for dental use, but, owing to the want of facilities for re-charging the cells, many dentists who would gladly avail themselves of the advantages of the Electro-Motor are at present unable to do so. Where a supply of gas is available, the "Elmwood" gas-engine and dynamo set meets this difficulty, and the large number which have been sold expressly for that purpose testifies to its utility. It is useless, however, to those country practitioners who have not gas at command; they want a simple arrangement, independent of gas, that will yield reliable results. Several sets of a form of Battery which meets the want have been in regular use for many months, and they are giving complete satisfaction. One Cell of this Battery is shown in the Illustration.



The apparatus consists of a set of a special form of Primary Battery cells, which is used to charge the accumulator at night while it is not in use. After the Battery has been set up (preferably in a cellar or other cool place), no attention is required until it is exhausted, which will not be for several months, according to the amount of current taken from the Accumulator. No acids are used, and the only point to be observed is that it should remain perfectly undisturbed. It may be asked, why not use the Primary Battery direct, and save the cost of the Accumulator? The reason is, that the current from the Primary Battery is too weak to work the Motor direct. The weak current is stored in the Accumulator at night and keeps the latter in good working condition for use during the day. All that is necessary is to turn a small switch night and morning. Full instructions for connecting and starting the Primary Battery are sent with the apparatus.

Prices:

	£	*s.*	*d.*
4 Cell Accumulator	2	2	6
12 Cell "Elmwood" Primary Battery	4	16	0

THE KIRBY DENTAL MOTOR.

This Motor is made to be used with a primary battery or storage cells, and with continuous or alternating current direct from electric lighting wires, without requiring the addition of resistance coils, switch boards, transformers, or choking coils; it has also other special features which are not possessed by any similar machine. Amongst these the chief points are that it is regulated by automatic governors, which give it the power to do very heavy work, even when running at an exceedingly slow speed; and, further, that there is absolutely **no trouble** in using it—the starting and stopping, which are sudden and complete, being done automatically by the act of carrying the handpiece to the part where it is to be used, and laying it down when done with.

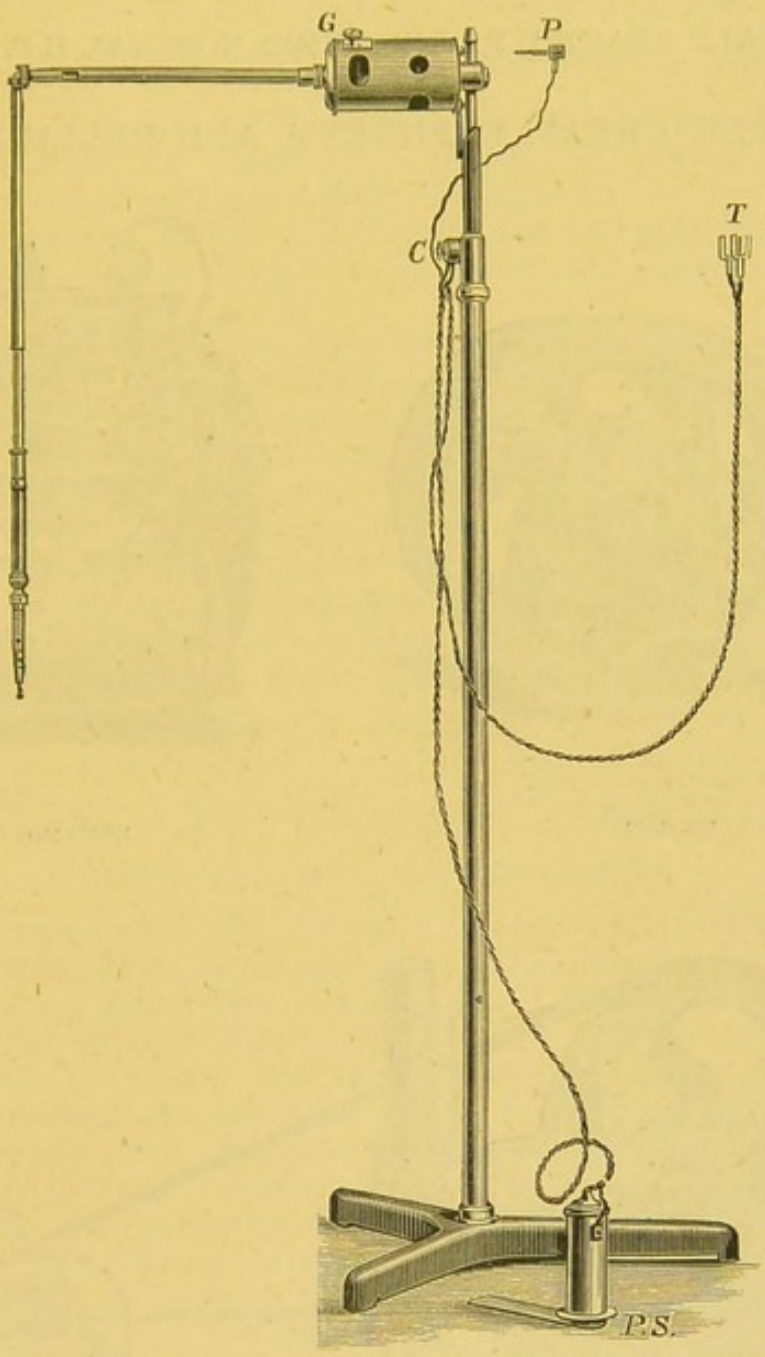
The foot is not employed at all except in case of emergency, when by pressing the pillar switch, or kicking against it—this switch should of course be placed in an accessible position, say under the front or back leg of the chair—the motor is brought to a dead stop. This arrangement will commend itself to most operators, but some will, no doubt, prefer to have a switch that can be moved about, to one that is always fixed in a given position. To meet this demand, Mr. Kirby has designed a heavy pillar switch which will stand alone and can be moved about anywhere at will. Its action is the same as the one shown in the illustration, but the diameter is increased to make it heavy enough for its purpose.

Either pattern can be had with the Motor by simply stating which is wanted; failing this, the one shown is usually sent. The heavy switch has the advantage of always being close to the operator, if so placed, while the fixed one, although not so convenient in this respect, is never in the way of the feet, and can at all times be instantly found.

In addition to these points the motor is not formidable in appearance, the working parts being enclosed; it is quiet in action, easily reversible, and can be instantly removed from the stand. The connecting wires are attached without screwing, and the parts are properly insulated to prevent the possibility of shock from induction or other cause. Each motor requires a more or less considerable difference of construction for employment with the various kinds of current at command, but in the action and method of working all are alike. For alternating current an entirely new principle has been invented which is self-starting and self-contained. For the use of those who are unable to employ storage cells, or current from electric light leads, a very simple primary battery can be supplied of a kind which has been in use by the inventor for a number of years, which involves no trouble or dirt in charging and keeping in workable condition.

Four Accumulators are recommended for working this Motor.

THE KIRBY DENTAL MOTOR—*continued.*



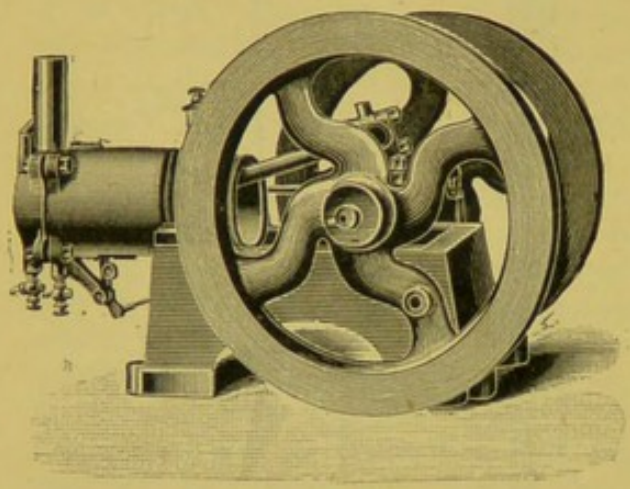
G. Speed-regulating Screw.
P. Instantaneous Stop-Motion Plug.
C. Connecting Plug.
T. Terminals for attaching to Battery.
P.S. Pillar Switch.

	£	s.	d.
Motor with Arm, Handpiece with Flexible Attachment, Stand, Switch, and Wires complete for Battery or Storage Cells (Accumulators)	13	10	0
Do. do. for 110 Volt Electric Light Lead ..	15	15	6
Do. do. for Alternating Current	16	15	6
Any of the above with 4 Accumulators .. .. extra	6	0	0
	0		

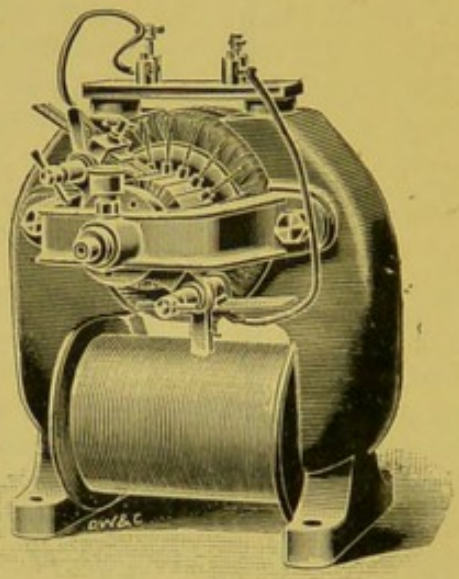
THE "ELMWOOD" GAS ENGINE.

HALF BRAKE H.P. ONE-THIRD NOMINAL H.P.

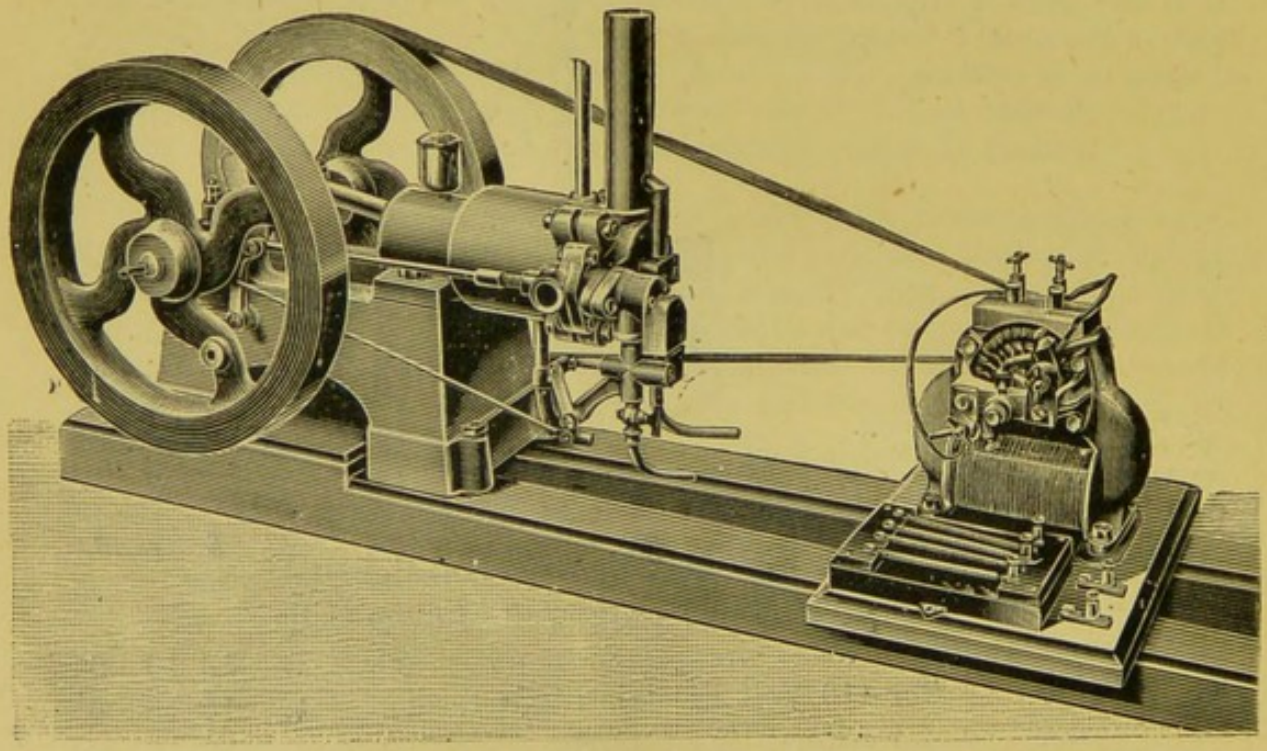
SIMPLE, CHEAP, EFFICIENT, AND RELIABLE.



ENGINE.



DYNAMO.



ENGINE AND DYNAMO COMBINED.

THE "ELMWOOD" GAS ENGINE.

HALF BRAKE H.P. ONE-THIRD NOMINAL H.P.

FOR DRIVING GRINDING AND POLISHING LATHES.

Messrs. Cuttriss, Wallis and Co. say: This Engine has been designed to meet the demand for a well-made, reliable and cheap gas-engine, suitable for driving grinding and polishing lathes.

While excellence of design and fitting has not been neglected, all useless finish has been avoided, so as to reduce the price to the lowest possible figure.

The Engine is fitted with two heavy fly-wheels, and will develop half H.P. on the brake, at a speed of 350 revolutions a minute. Each Engine is carefully tested to its full power before leaving the Works, and full instructions for erecting and working are supplied. The consumption of gas is very low considering the size of the Engine, being less than three-farthings per hour, reckoning the gas at 3*s*. per 1000 cubic feet.

The Engines that are working in various parts of the country, on the Continent, and in the Colonies, give general satisfaction.

The floor space occupied by the engine is 28 × 14 inches; Weight, 1½ cwts.; Diameter of Fly Wheels, 15 inches; Normal Speed, 350 revolutions per minute.

ENGINE AND DYNAMO COMBINED,

FOR RE-CHARGING ACCUMULATORS.

The same Firm state: The difficulty experienced in some localities in getting Accumulators re-charged with electricity debars many dentists from availing themselves of the acknowledged advantages of the Electro-Motor in the operating-room. To meet this difficulty we have combined a small dynamo with the gas-engine, so that now it is possible for any one who has a gas supply to charge his own Accumulators. The Engine and Dynamo are fitted on a strong wooden frame, and supplied with an adjustable resistance, so that the current can be regulated to suit the particular Accumulators in use. It is well known that to keep Accumulators in good order they should be frequently re-charged and never allowed to become thoroughly exhausted. By running the Engine and Dynamo for one or two hours every day or every other day according to the demands on the current, the Accumulators can always be kept in good condition, and the annoyance of the current failing during an operation entirely avoided.

Prices:	£	*s.*	*d.*
Engine only, complete with Gas-Bag and Water Vessel ..	16	10	0
Packing .. .. extra	0	6	0
Engine and Dynamo Set, complete	25	0	0
Packing .. .. extra	0	7	0
Am-meter for indicating the strength of the current when charging .. .. extra	0	18	0

S. S. WHITE'S PATTERN (No. 4) HANDPIECE,

WITH

ASH'S IMPROVED CONE-REGULATING ARRANGEMENT, FOR SHAW'S, S. S. WHITE'S, AND OTHER DENTAL ENGINES.

The principal features in this Handpiece are the Coned Point A A, Socket B B, and Regulating Screw D.

It is well known that after a time the inner part of a Handpiece becomes loose, through constant friction and wearing away of the nose or socket in which it is fixed. This causes the points to shake about and work unsteadily, to the great annoyance and inconvenience of the Operator.

By means of the Coned Socket and Regulating Screw which have been introduced in the S. S. White's Pattern No. 4 Handpiece, the Operator can adjust the inner part and thus ensure a steady and reliable working of the point.

Description.

Fig. 1.—Handpiece complete, ready for attaching to Engine.

„ 2.—Inner part of Handpiece, showing Coned Point A A, Socket B B, and Blued Jam-Nut C.

„ 3.—Engine Bur.

„ 4.—Double-ended Spanner for regulating.

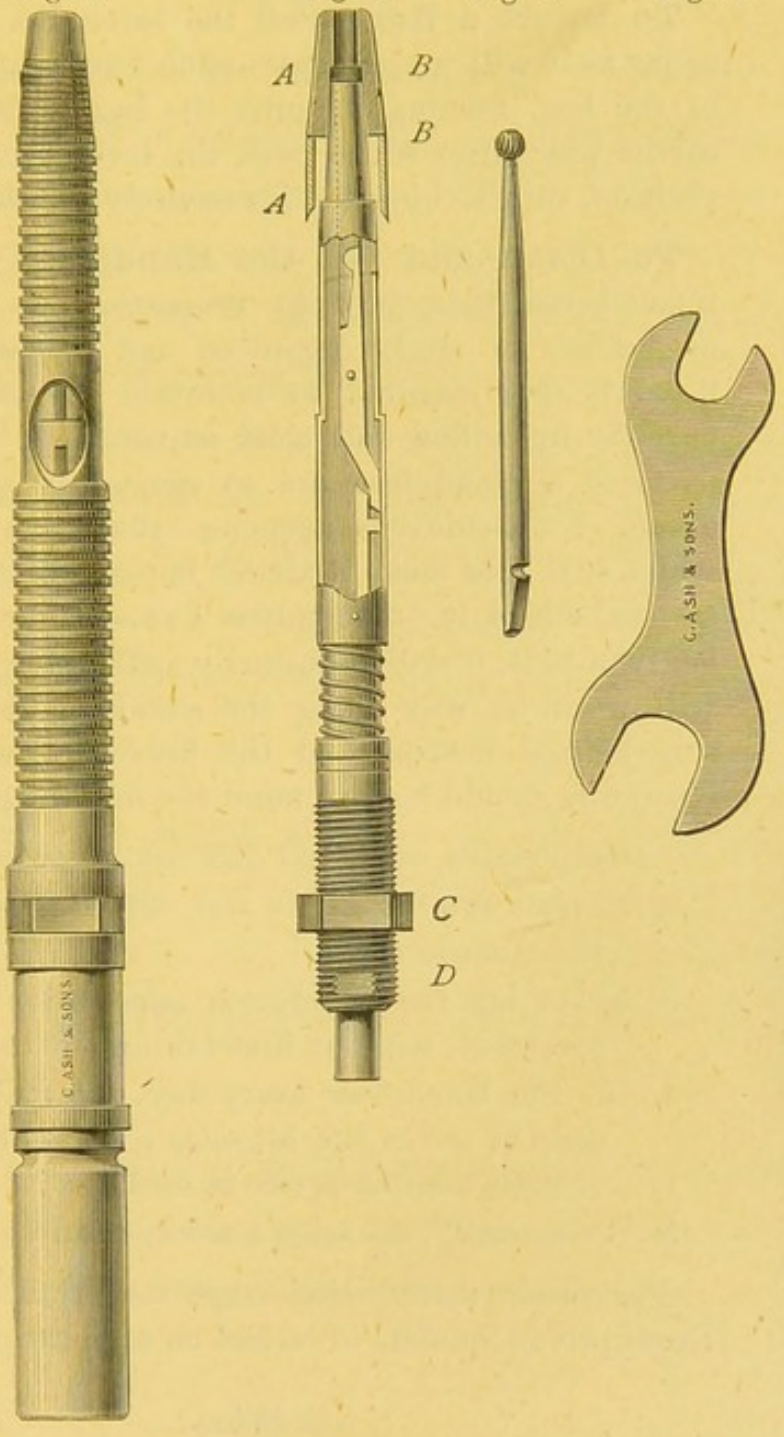
TO TAKE UP WEAR.

Unscrew the blued jam-nut C with the large end of the spanner; then screw the outer case down towards it far enough to allow the inner part to work easily—but not too freely—and tighten the jam-nut against the case.

S. S. WHITE'S PATTERN (No. 4) HANDPIECE,

WITH ASH'S CONE-REGULATING ARRANGEMENT.

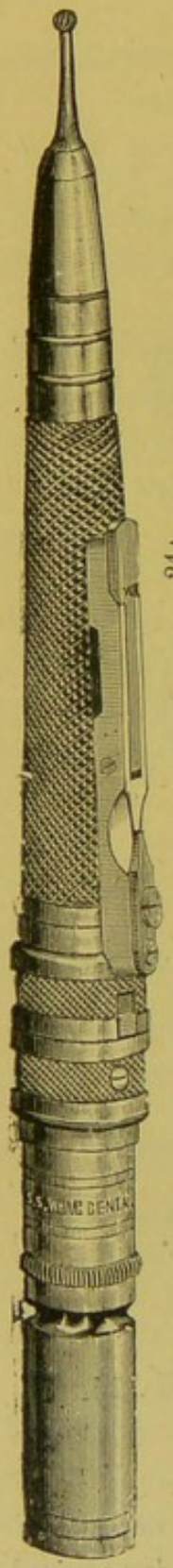
Fig. 1. Fig. 2. Fig. 3. Fig. 4.



		s.	d.
Handpiece, as illustrated	(Fig. 1)	35	0
„ with Flexible Leather-covered Spring for attaching to Shaw's Engine		39	0
„ „ to White's „		45	6
Extra Steel Noses for Handpiece	each	4	0

When ordering, please state for which Engine the Handpiece is required.

S. S. WHITE'S CONE-JOURNAL HANDPIECE (No. 6).



No. 6.

To Insert a Bur.—Pull the lever No. 24A backward as far as it will go without undue force; insert the shank of the bur, turning it until the lug is felt to pass the carrier-pin; after which push the lever back to its former position, thus locking the bit securely in the socket.

To Clean and Oil the Handpiece.—It should be remembered that just in proportion as any piece of mechanism is nicely organized and its parts accurately fitted is care required to maintain the efficiency which depends upon fine and close adjustments. The working parts of a Handpiece are so constantly exposed to the effects of mischievous agencies—the circumstances under which it is used make it almost impossible to keep moisture (saliva) out of it—that, unless a reasonable amount of care is given to it, it will necessarily suffer injury. The saliva will work its way along the shank of the bit into the cone-journal bearing and the bit-socket, and cause rust. Operators should bear in mind the following directions:—

1. Keep saliva, rust, and dirt out of the bit-socket.
2. Never put a bit with a wet, dirty, or rusty shank into the Handpiece.
3. Never lay the Handpiece aside, after completing an operation, without first taking out the bit.
4. Oil the Handpiece every day, not omitting to put a drop of oil in the bit-socket, unless the engine-oiler or some similar device is used.
5. Occasionally, say once a week, clean the Handpiece.

For fuller information respecting this Handpiece, see Descriptive Circular, to be had on application.

Prices:

	s.	*d.*
Cone-Journal Handpiece, No. 6, for S. S. White's Engine	40	0
Cone-Journal Handpiece, No. 6, with Flexible Attachment for Shaw's Engine	47	6
„ „ White's „	50	6

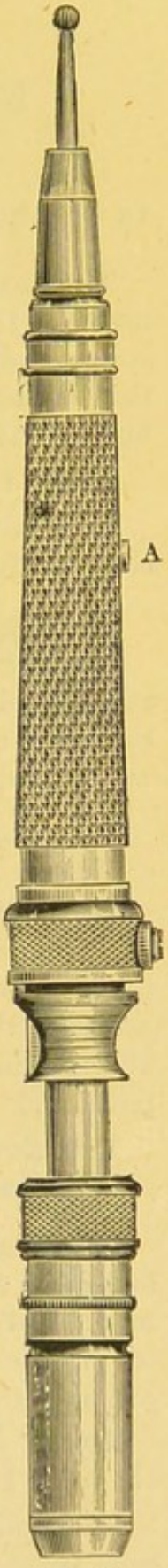
IMPROVED CHUCK HANDPIECE (No. 7)

(AMERICAN.)

To secure a Bur in the Handpiece.—Push the bur into the spindle as far as it will go, and draw out the front section of the Handpiece case, using only a very *moderate* force. Try this a few times, observing how very little power is required to secure the bur firmly, and so learn to avoid overstraining the Chuck apparatus. To release the bur, push in the front section of the Handpiece. These motions can be easily made with one hand, by grasping the back portion of the Handpiece between the third and fourth fingers and the palm of the hand, and the forward end between the thumb and the first finger.

To Attach the Right Angle it is only necessary to place it over the end of the Handpiece, observing that the notch in the end of the sleeve engages with the stud A on the Handpiece. Close the Chuck as in securing a bur.

For directions how to attach the Handpiece to different Engines, to Oil and Clean and to Take up Wear, see Descriptive Circular, which may be had on application.



No. 7.

Prices:

	s.	*d.*
Chuck Handpiece, No. 7, for S. S. White's Engine	40	0
„ „ „ with Flexible Attachment, for Shaw's Engine ..	47	6
„ „ „ „ White's „ ..	50	6

CHUCK HANDPIECE (No. 8)
AND
RIGHT-ANGLE ATTACHMENT (No. 3).

(AMERICAN.)

In ordering the Handpiece, please state for which Engine it is required.

The latest form of this Handpiece is controlled by a single milled nut, No. 18, shown in the illustration. By pressing down the flat steel spring and sliding the outer case towards the nose of the Handpiece, this milled nut is exposed to view. A screwing-up motion chucks the bur, and the reverse action unchucks it.

Work the chuck a few times to become familiar with it.

Care should be taken not to draw the chuck into the case too far, for if this be done the bur cannot be inserted.

To adapt the Handpiece to S. S. White's Engine:
Unscrew the lower end of the Handpiece, slide it along the cable, attach cable in the usual way, allowing sufficient margin for play, replace the lower end of the Handpiece, and secure to the sheath by screwing it on the mount.

To adapt it to Shaw's Engine:
When the Handpiece is required for Shaw's Engine, it is supplied with an extra mandrel, driving spring, and leather-covered sleeve spring.

Unscrew the latter and push it well out of the way on the mandrel, then grasp the mandrel near the end with the pliers, shown on page 182, press on the driving spring, and screw it to the left while doing so. When this is accomplished, screw the leather-covered sleeve spring in position.

The action of screwing the driving spring to the left opens it sufficiently for it to slip on the mandrel.

To clean and oil: Loosen adjusting nut, turn out the front casing, and draw the cable forward. Clasp between thumb and finger the black milled nut, which is about the journal, and turn off the long case. Oil in groove of the taper bearing, and through the round opening in the journal—not too much—and, say, once or twice a week.

Do not disturb the brass jam-nut, which is used to regulate the fit of the taper bearing, or to take up possible wear.

Fuller directions with illustrations of all the parts are supplied with each Handpiece.

DIRECTIONS FOR USING RIGHT-ANGLE ATTACHMENT (No. 3).

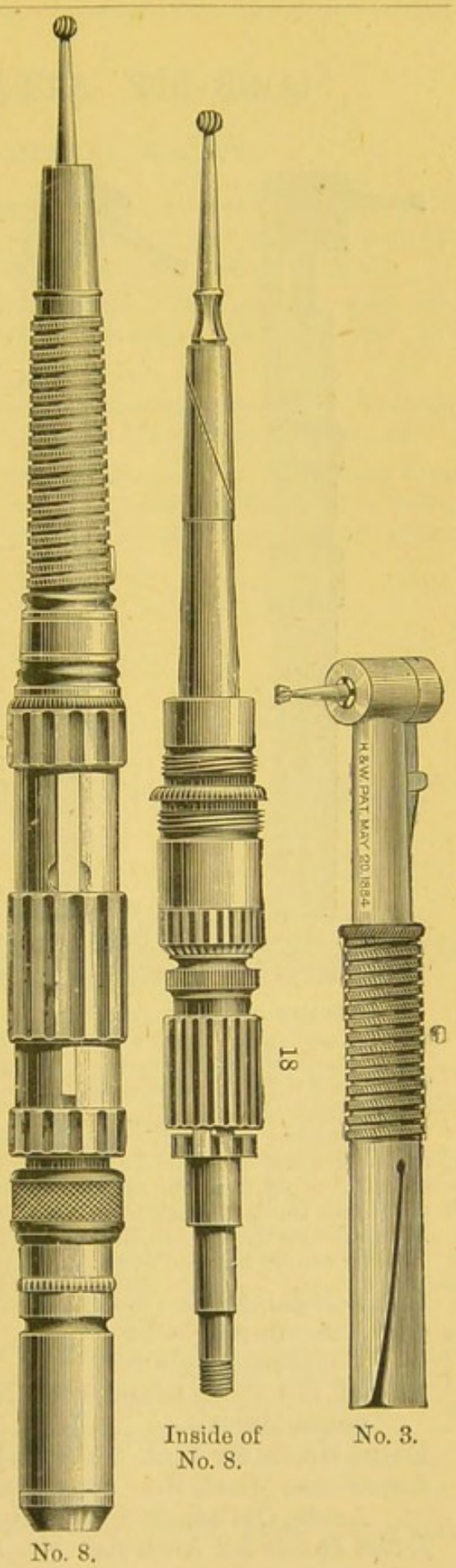
Adjust the Attachment to the straight Handpiece, chucking firmly same as for ordinary bur; then throwing back the cap which covers the chucking nut, turn the nut away from you a trifle to unchuck the point, and towards you firmly to chuck the same.

There is a small pin in the socket of the chuck. Be particular, when inserting a bur, to put the niche in the shank over it, before attempting to lock the bur in position.

To oil, unscrew the head from sleeve at the blued steel-ring and draw out the mandrel with pinion head. Oil the gearing and mandrel and put together, taking care that the pinion wheels lock. Oil about once a week. **Never** leave a point in the chuck after completing an operation.

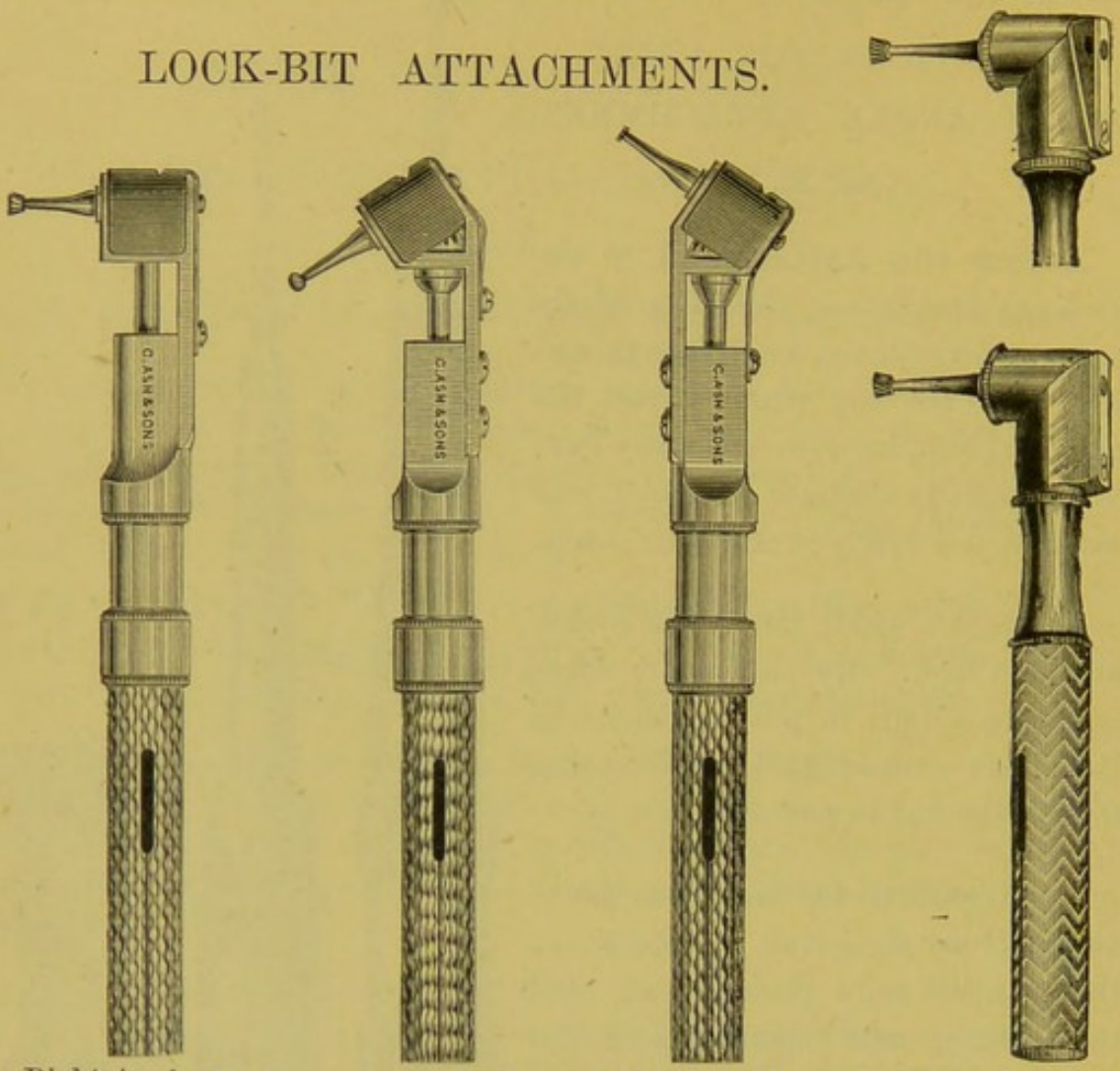
It can be had for any Handpiece. Please state for which it is required when ordering.

	s.	*d.*
Chuck Handpiece, No. 8, for S. S. White's Engine ..	40	0
Ditto, with Flexible Attachment for Shaw's Engine ..	47	6
Ditto, for White's „ ..	50	6
Right - Angle Attachment (No. 3)	25	0



No. 8. Inside of No. 8. No. 3.

LOCK-BIT ATTACHMENTS.



Right Angle, No. 1. Acute Angle. Obtuse Angle. Right Angle, No. 2.

Directions.

To Secure a Bit in the Right Angle No. 1.—Push the shank of the bit gently into the socket, turning it at the same time, until it is felt to engage with the carrier-pin. To remove a bit, lift the spring slightly with the finger-nail and pull the bit out, turning it to free it from the carrier-pin. These directions are also applicable to the Acute- and Obtuse-angle Attachments.

To Secure a Bit in the Right Angle No. 2.—Catch the finger-nail on the milled free end of the latch, swing it out, and press the shank of the bit gently into the socket, turning it at the same time until the lug on the end is felt to pass the carrier-pin; push the latch back to its position, when the bit will be held firmly. Opening the latch releases the bit, which can then be pulled out.

Never remove the head except for repairs. Oil often.

		s.	*d.*
Ash's Right-Angle (No. 1) for No. 4 Handpiece, page 197	each	20	0
„ Acute-Angle for „ „ „	„	20	0
„ Obtuse-Angle for „ „ „	„	20	0
Any of the above adapted for Nos. 6, 7, or 8 Handpieces, pages 198-201	„	20	0
Extra Hoods for Lock-bit Attachments	„	4	0
American Lock-Bit Attachments, No. 1 Right-Angle, Acute, Obtuse, or No. 2 Right-Angle, for any Handpiece	„	25	0
Extra Hoods for American No. 1 Right-Angle Attachment	„	4	0

POWER'S ENGINE MALLET,

FOR USE WITH ANY DENTAL ENGINE.

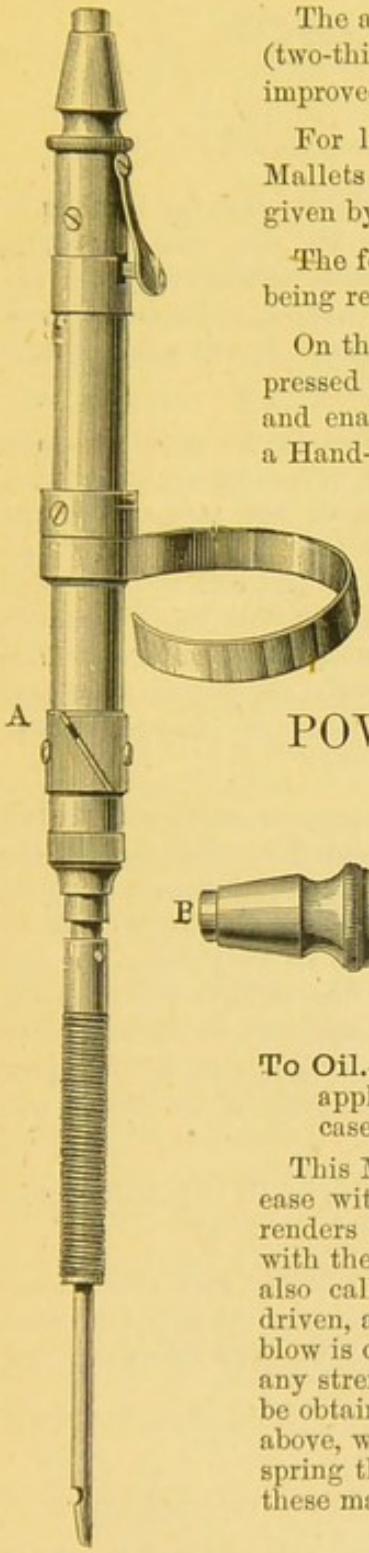


Fig. 1.

The accompanying illustration shows the latest form of this Mallet (two-thirds size). Since it was first introduced it has been greatly improved, and we can recommend it with the fullest confidence.

For lightness and rapidity of blow it is superior to most other Mallets used with the Engine, approaching very nearly the blow given by the Electric Mallet.

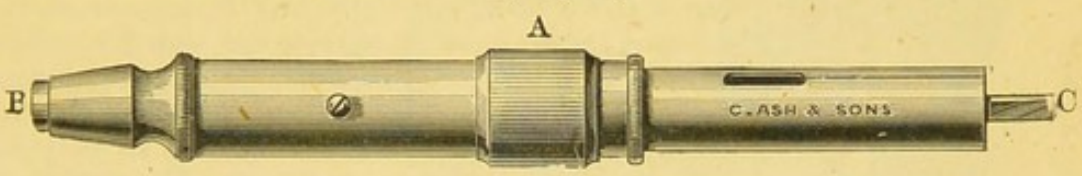
The force of the blow is entirely under the control of the Operator, being regulated by the split ring A on the **spring** end of the case.

On the **point** end of the case there is a spring which, upon being pressed by the finger, stops the blow while the Engine is in motion, and enables the Operator to pick up gold, or to use it temporarily as a Hand-Plugger.

			s.	*d.*
Price, with Finger Ring	(Fig. 1)		40	0
Extra Springs with Tang		each	2	6

POWER'S SIMPLE ENGINE MALLET.

(Fig. 2.)



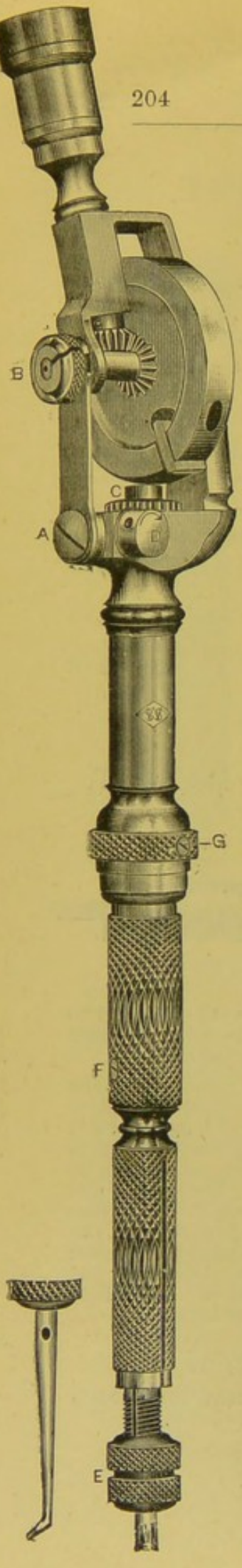
FULL SIZE.

To Oil.—To keep the Mallet in good working order, it is necessary to apply a little oil occasionally between the nose and the outer case at B, and to pour a few drops down by the tang at C.

This Mallet is much liked on account of its compactness; and the ease with which it can be slipped over the nose of the handpiece renders it particularly useful for those Engines which are supplied with the flexible wrist movement, or duplex-spring connection as it is also called. It works equally well whichever way the Engine is driven, a feature which is wanting in some mallets. The force of the blow is controlled by the milled nut A, and so wide is the range that any strength of blow, from a very gentle to a very powerful one, can be obtained. It possesses all the advantages of the mallet illustrated above, with this exception, it lacks the stop motion produced by the spring there shown on the **point end of the mallet case.** Both these mallets are designed to carry the points with screw-ends.

		s.	*d.*
Price for any Handpiece ..	(Fig. 2)	24	0

When ordering either of the above, state for which Handpiece it is required.



THE BONWILL
IMPROVED MECHANICAL MALLET
(No. 1) FOR SOCKET-POINTS.

(AMERICAN.)

The Manufacturers thus describe it :—

"In this Mallet the blow is delivered by a revolving hammer, a metal wheel with a steel plate let into its rim, and projecting sufficiently to strike the head of the plunger at each revolution of the wheel. The other end of the plunger is hollow, and split in three sections for the reception of the plugging point. It will hold securely the Snow and Lewis, Cone-Socket, or Engine-bits.

The rapidity of the blows is only limited by the speed at which the engine is run. The force of the blow can be varied by running the engine faster or slower, or by greater or less pressure on the plugging-point, or by squeezing the split portion of the case. As sent out, the Mallets are properly adjusted for use, and on no account must the hammer projection be disturbed. All the adjustment necessary is to be accomplished by turning the adjuster. This revolves a worm-gear, which moves very slowly, permitting an adjustment as close as the thousandth part of an inch. No change ought to be necessary except from wear.

The Mallet is held in the right hand like a pen or pencil, with the two first fingers resting upon the squeeze-nut, and the thumb against the milled portion of the case. This manner of holding it gives complete control of the working of the Mallet. The blows may be intermitted temporarily without stopping the engine, as in picking up and placing the gold, by simply extending the fingers, thus removing the end of the plunger from contact with the hammer; or the blows may be made almost continuous, by flexing the fingers; or the plugging point may be turned and directed by a movement of the thumb and fingers.

The milled portion of the case is swivelled at G, to permit change in the position of the plugging-point.

We can supply the Bonwill Mechanical Mallet with attachments for the No. 4, No. 6, No. 7, or No. 8 Handpieces, for the Slip-Joint Connection, and for the Bonwill Engine. The illustration shows the Slip-Joint Connection."

Directions for use with each Mallet.

	s.	*d.*
Price	41	8

In ordering be sure to indicate which Attachment is wanted.

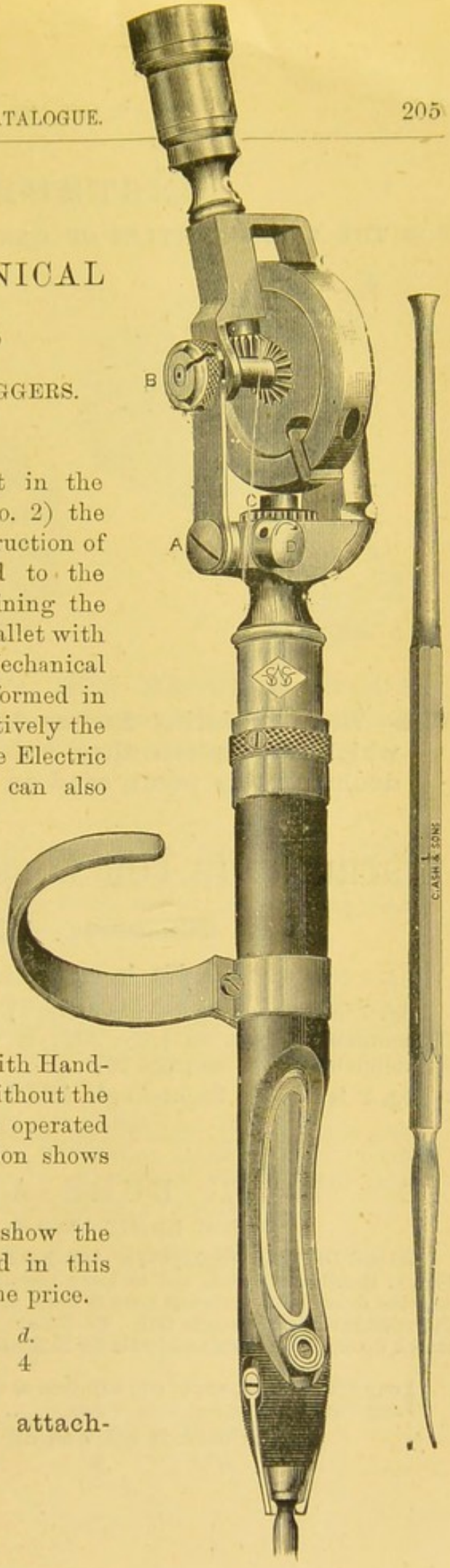
For Mallet Points see pages 257 and 262-270.

THE BONWILL

IMPROVED MECHANICAL MALLET (No. 2),

FOR ELECTRIC MALLET PLUGGERS.

(AMERICAN.)



The Manufacturers state that in the Improved Mechanical Mallet (No. 2) the advantages of the form and construction of the Electric Mallet are adapted to the needs of engine-work. By combining the stem and holder of the Electric Mallet with the striking mechanism of the Mechanical Mallet (No. 1), an appliance is formed in which the operator can use effectively the long-handle pluggers made for the Electric Mallet. Ordinary socket-points can also be used in it with equal facility in a socket-handle.

The stem is of hard rubber or vulcanite, with finger-slot, stop-motion, springs for holding the instrument steady, and ring for the support of the Mallet.

The No. 2 Mallet can be used with Hand-pieces Nos. 4, 6, 7, or 8, with or without the Slip-Joint Connection, and can be operated with any engine. The illustration shows the Slip-Joint Connection.

The plugger is illustrated to show the character of the Instrument used in this Mallet, but it is not included in the price.

	s.	*d.*
Price	58	4

In ordering, state which attachment is wanted.

INSTRUMENTS

FOR THE VARIOUS STYLES OF HANDPIECES AT PRESENT IN USE.

For Handpieces
Nos. 4, 7, and 8.

For Cone-Journals
Nos. 2 and 6.

N.B.—When Ordering Engine Instruments, please state for which Handpiece they are required. If there is any doubt on this point, send an old Bur as a pattern.

INSTRUMENTS FOR LOCK-BIT ATTACHMENTS.

Fig. 1.

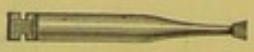


Fig. 2.

Fig. 1 is for the Right-Angle (No. 1) and the Acute and Obtuse-Angle Attachments shown on page 202; it will also fit No. 3, Right-Angle Attachment shown on page 201.

Fig. 2 is for the Right-Angle Attachment, No. 2, shown on page 202.

LONG BURS AND DRILLS

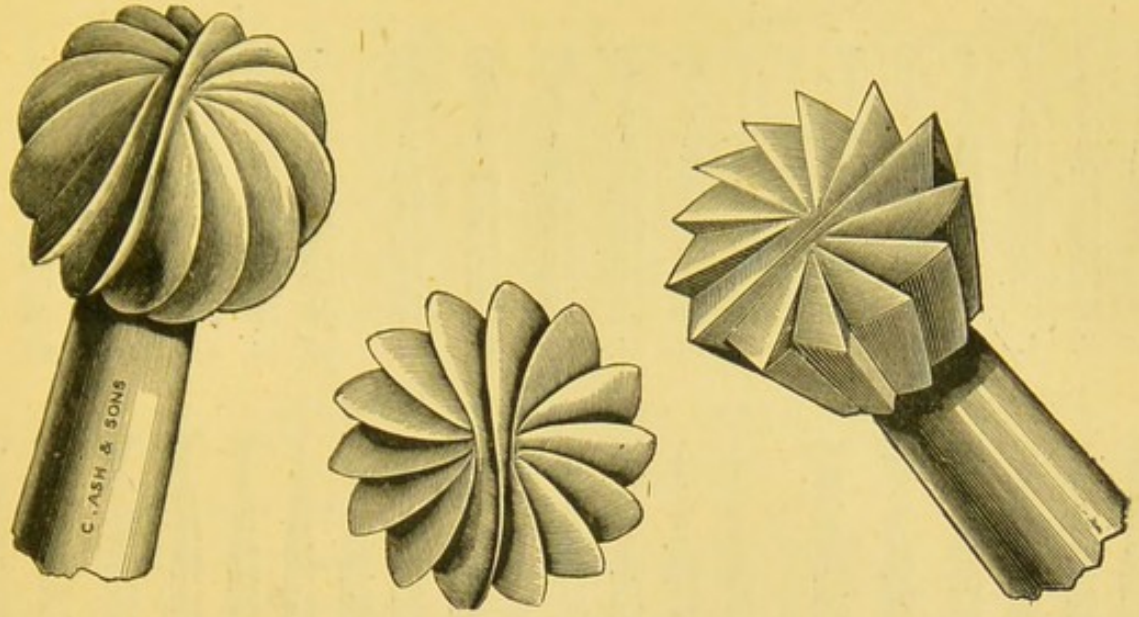
FOR RIGHT-ANGLE ATTACHMENT.

Burs and Drills for Right-Angle Attachment are frequently required longer than Fig. 1, illustrated above, and to meet the demand which has arisen for them, we keep the most useful forms and sizes in stock, **an eighth of an inch longer than the regular Right-Angle Bit.** To distinguish them from the regular kind we have named them: Long Burs and Drills for Right-Angle Attachment.

		s.	d.
Long Stoned Burs, cavity cut, any form or size (Figs. 1–101)	per doz.	10	0
Long Cavity Drills, any form or size .. (,, 102–116)	,,	6	0

10 per cent. is allowed off 4 doz. Engine Burs.
15 ,, ,, 1 gross ,,

STONED ENGINE BURS.



Enlarged views of Burs FROM OUR REGULAR STOCK, showing the number of leaves on each which experience has proved the most suitable for practical use.

We are pleased to state that our **STONED ENGINE BURS** give such universal satisfaction that we can confidently recommend them as being thoroughly well fitted for doing the work that is required of them, with a minimum of pain to the patient.

For **Strength** and **Temper, Price** and **Quality,** we believe them to be unequalled. **They are Hand-made, the Teeth are of equal length throughout,** great care being taken to make them regular in shape, and every Tooth on each instrument is brought to a keen-cutting edge by means of Arkansas stone.

The steel of which they are made is carefully selected and the best that can be obtained, and we have received a large number of unsolicited testimonials from operators in all parts of the world of their **Lasting Qualities** and **Splendid Cutting Properties.**

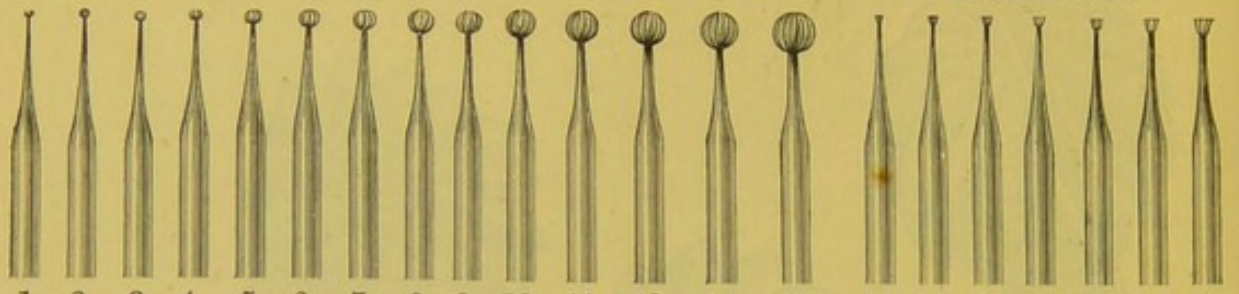
Thus encouraged, we beg to state that no pains will be spared to maintain the high reputation which we have gained for these Burs.

		s.	*d.*
Cavity-cut Stoned Burs, all sizes ..	per doz.	10	0
Finishing-cut „ „ ..	„	15	0

Ten per cent. discount allowed off 4 doz. Burs.
Fifteen „ „ „ 1 gross „

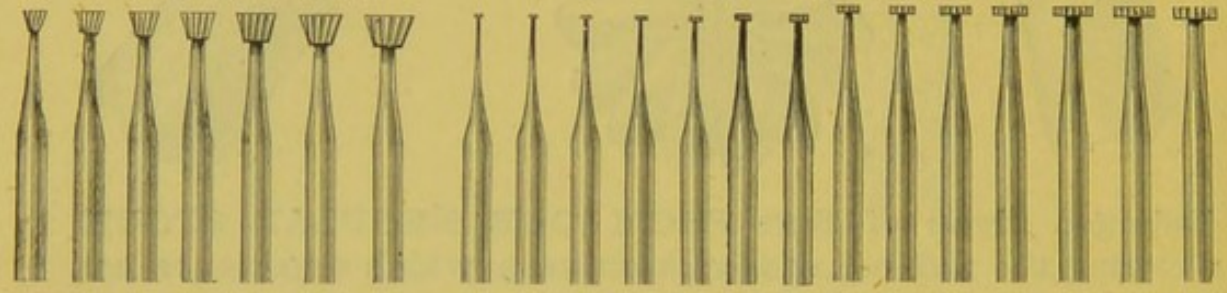
STONED CAVITY BURS.

Round. Inverted Cone.



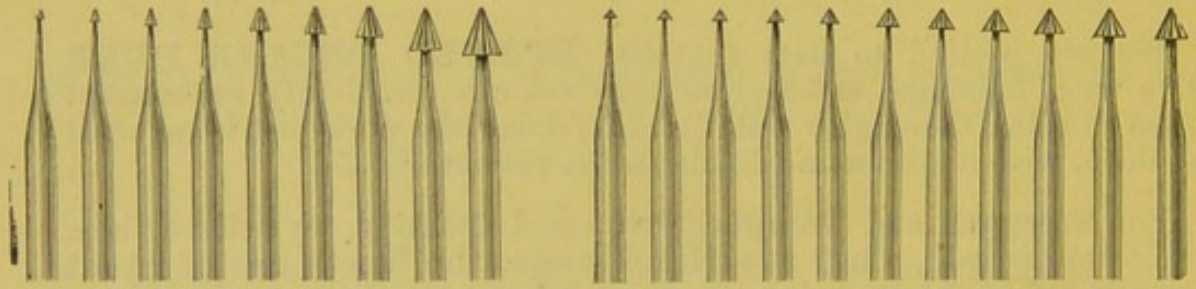
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21.

Inverted Cone. Wheel.



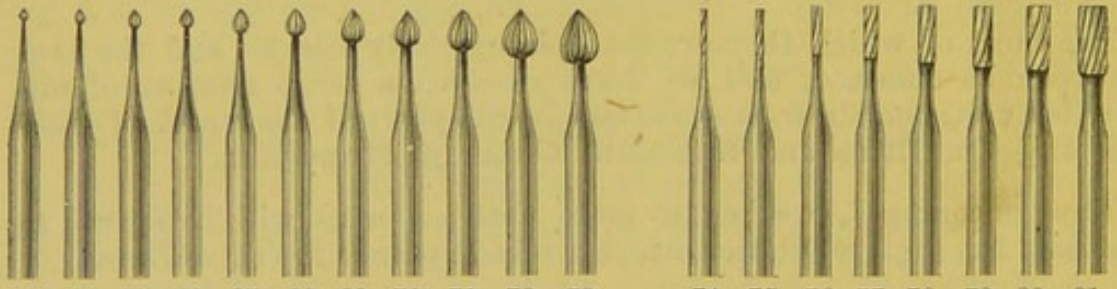
22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42.

Cone. Triangular.



43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62.

Bud. Flat Fissure.



63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81.

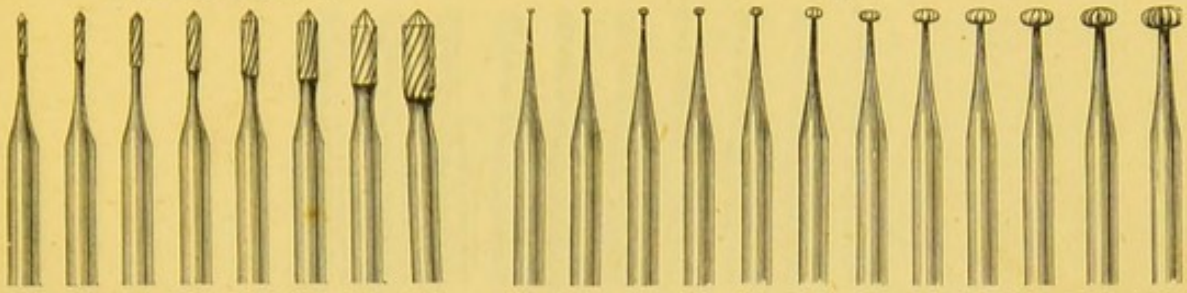
For any Handpiece or Attachment:

		s.	d.
Price, all sizes	per doz.	10	0

A discount of 10 per cent. is allowed off 4 dozen.
„ „ 15 „ „ 1 gross.

STONED CAVITY BURS—*continued.*

Pointed Fissure. Oval.



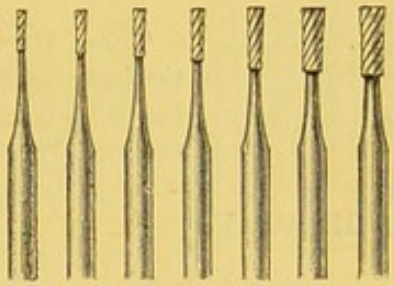
82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101

INVERTED-CONE FISSURE.

(Mr. E. Lechmere's.)

Mr. Lechmere says:

"These Burs are extremely useful in giving a general undercut character to all crown cavities, for shaping the cervical wall, and for undercutting all large interstitial cavities where the cutting surface of the tooth is also involved."



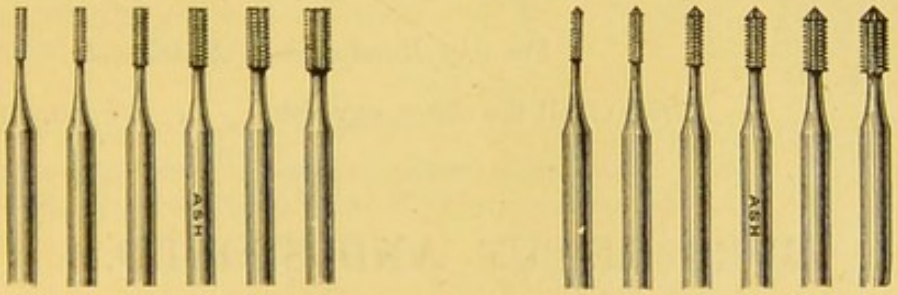
Sizes: 000. 00. 0. K. I. H. G.

For any Handpiece or Attachment:

		s.	d.
Price, all sizes	per doz.	10	0

ENAMEL-CUTTING BURS.

Flat Fissure. Pointed Fissure.



Sizes: 00. 0. K. I. H. G. 00. 0. K. I. H. G.

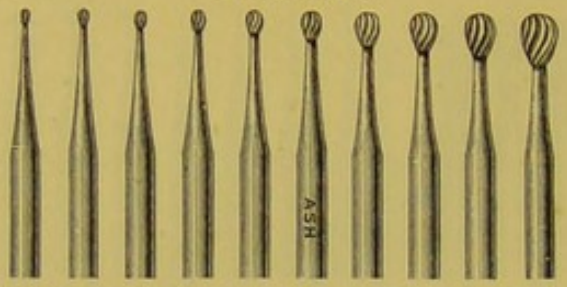
The heads of these Burs are fluted, each leaf is vertical, and has a saw-edge. They cut enamel with great rapidity, and are very highly spoken of by those who use them.

Prices:

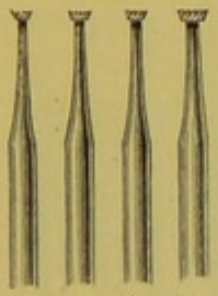
		s.	d.
All sizes, for Handpieces, Nos. 4, 7, 8.—See style on page 206 ..	per doz.	8	0
„ for Cone-Journal Handpieces, Nos. 2 and 6 „ ..	„	10	0
„ for Lock-Bit Attachments taking burs like Fig. 1 on page 206	„	8	0
„ for No. 2 Right-Angle Attachment „ „ 2 „	„	10	0

STONED CAVITY BURS—*continued.*

PEAR SHAPE.



Sizes: 000. 00. 0. K. I. H. G. F. E. D.

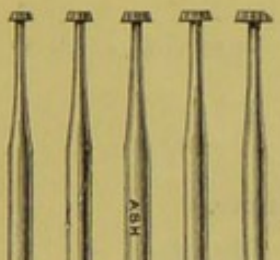


I. H. G. F.

SHALLOW INVERTED-CONE,

FOR MAKING UNDERCUTS, &c.

These Burs are well adapted for deep cavities; but they are particularly useful for shallow cavities, as they enable the Operator to make undercuts where the tooth substance will best admit of it without unduly weakening the walls.



H. G. F. E. D.

TAPERING WHEEL,

WITH SMOOTH TOPS.

Mr. Balkwill, of Plymouth, to whom we are indebted for the following description of the use of these Burs, thinks the late Mr. Spence Bate was the first to suggest them.

"They are intended for opening out large crown cavities of upper molars, which have overhanging edges of enamel, the action being to pass the bur head into the cavity and then cut against the edge, whilst *drawing* the rotating bur backwards or outwards, so as to avoid any danger of the bur touching the nerve, which might occur in using the ordinary one in the opposite direction."

For any Handpiece or Attachment:

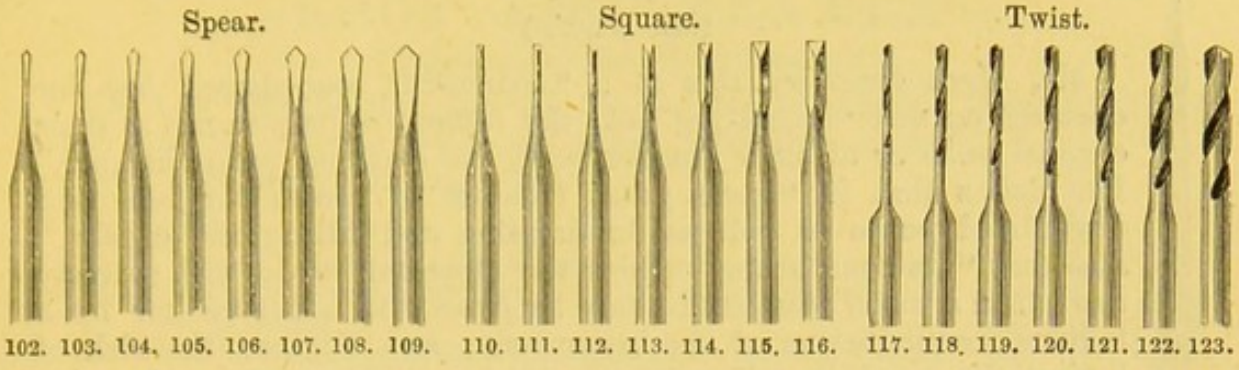
		s.	d.
Price of all the above, any size ..	per doz.	10	0

BURS RE-CUT AND STONED.

We do an extensive business in renovating Burs that have been used, but we cannot undertake to re-cut less than one dozen. To make such Burs quite sound throughout, it is usually found necessary to reduce them somewhat in size.

		s.	d.
Cavity Burs re-cut and stoned	per doz.	5	0
Finishing	per doz. from 7*s.* to	8	0

DRILLS.



Prices:

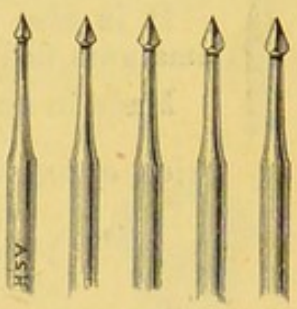
		s.	d.
Spear and Square Drills for Cone-Journal Handpieces, Nos. 2 and 6	(Figs. 102–116) each	0	9
The same for any other Handpiece or Attachment		0	6
Twist Drills for any ,, ,,	(Figs. 117–123)	1	0
Drills re-pointed	per doz.	3	0

TRIANGULAR OR TROCAR DRILLS.

(Suggested by Mr. George Pedley.)

Mr. Pedley says: "Trocar Drills are useful for opening fissures on the grinding surfaces of teeth, for penetrating enamel to reach decay, and for starting openings when trephining. The form of point prevents running about, so incidental to other forms of drills when commencing an opening; and for this reason the smaller sizes are well suited for drilling through standing metal backs when replacing broken flat teeth."

These Drills are also extremely useful for cutting out old amalgam fillings.



1. 2. 3. 4. 5.

Prices:

		s.	d.
For Handpieces Nos. 4, 7, and 8	(Figs. 1–5) each	0	6
,, Cone-Journal Handpieces Nos. 2 and 6	(,, ,,) ,,	0	9
,, Right, Acute, and Obtuse Angle Attachment	(,, ,,) ,,	0	6

PIN-SIZE ENGINE DRILL.

For pivot work, &c., corresponding in size to our pin-size wire.

	s.	d.
Price	1	0

When ordering any of the above, please state for which Handpiece they are required.

NERVE-CANAL BUR.

(Mr. Hern's.)

Mr. Hern describes this as a "coarse-cut, cone-shaped bur for opening up and 'funnelling out' the orifices of pulp canals at their coronal ends or at their junction with the common pulp chamber." He claims that it "gives great freedom of access for removing devitalized pulps as well as for dressing and filling the canals;" also that "its cone shape enables the Operator to do with scarcely more than a touch what could only be done with a fissure bur by a tedious circumduction of the instrument; and, further, the risk of boring the canal is reduced to a minimum. The right-angle point is made with long shank to reach the orifice of the canal."

		s.	d.
Nerve-Canal Bur, Cavity Cut, Stoned, for Straight Handpiece or Right-Angle Attachment ..	each	0	10

EXTRA-LONG CHISEL-POINTED FISSURE DRILL.

This Drill will penetrate fissures better than an ordinary fissure bur, the chisel point contributing to this end, and yet no matter how rapidly it cuts, the *débris* does not obstruct its progress, but lodges in the worm of the stem well out of the way of the cutting point.

It is also a useful instrument for drilling out old gold and amalgam fillings.

Made in sizes 1/o and 2/o, shown on our Bur Gauge.

		s.	d.
Price, either size	each	1	0

SQUARING BUR,

FOR TRIMMING AND SHAPING ROOTS.

(Mr. Thos. G. Read's.)

After having excised the standing portions of the tooth above the gum, Mr. Read says:—

"Trim off the enamel all round the stump with chisels, and when this is done follow on with this **squaring bur** until the stump is sufficiently shaped to receive the artificial crown. (If the adjacent teeth are close to the stump it will only be possible to trim the labial and lingual edges)."

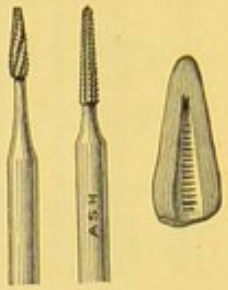
	s.	d.
Squaring Bur, as illustrated	1	3

When ordering any of the above, please state for which Handpiece they are required.

ROOT ROUGHENERS.

(Suggested by Mr. W. R. Humby.)

Fig. 1 is flame-shape, and Fig. 2 has a long, square, tapering head. They are both made with saw-edges like the enamel-cutting burs shown on page 209.



1. 2.

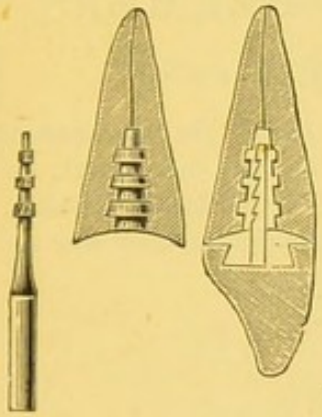
Mr. Humby says :—

"The advantages I claim for the root rougheners are:

1. That the hole may be roughened in the widest diameter of the root; and
2. That the size of the grooves is automatically proportioned, as shown by the section of the root illustrated, the larger grooves being in the thick end, while the smaller ones are at the apex, with tapering intermediate sizes."

Prices:

		s.	d.
For Handpieces, Nos. 4, 7, 8	(Figs. 1, 2) each	0	8
„ Cone Journal Handpieces, Nos. 2 and 6 ..	(„ „) „	0	10



GROOVING BUR.

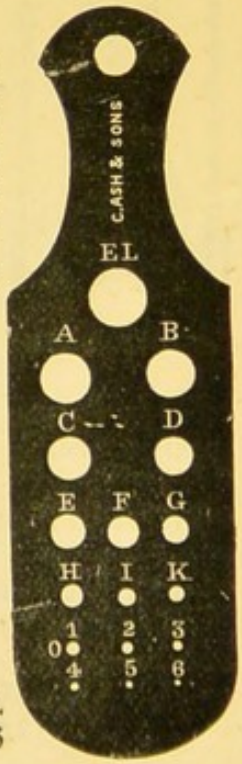
For making retaining points, in the walls of roots, previous to filling and crowning.

When the barbed pin upon which the crown is mounted is pressed home, the filling material is forced into the grooves, and a secure hold is thus obtained.

	s.	d.
Price, for any Handpiece, stoned ..	1	3

ASH'S BUR GAUGE.

This Gauge shows the seventeen different sizes of Engine Burs, &c., which we make in some of the forms illustrated on pages 208 and 209. It will serve as a useful guide in ordering Engine Instruments. E L means extra large, for which we charge 1*s.* each; A to K carry their own meaning, and O is represented by the figures 1 to 6, which are known as 1/o, 2/o, 3/o, 4/o, 5/o, 6/o.



The several kinds are made as under:

The **Round, Inverted Cone, Wheel** and **Oval Burs.**
One size larger and two smaller than illustrated on pages 208, 209.

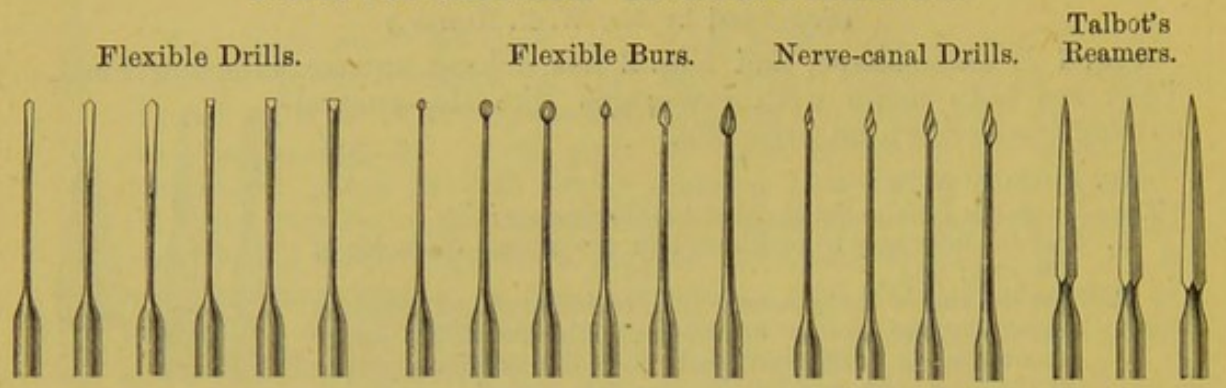
The **Cone, Triangular** and **Bud-shape Burs.**
Only in the sizes illustrated on page 208.

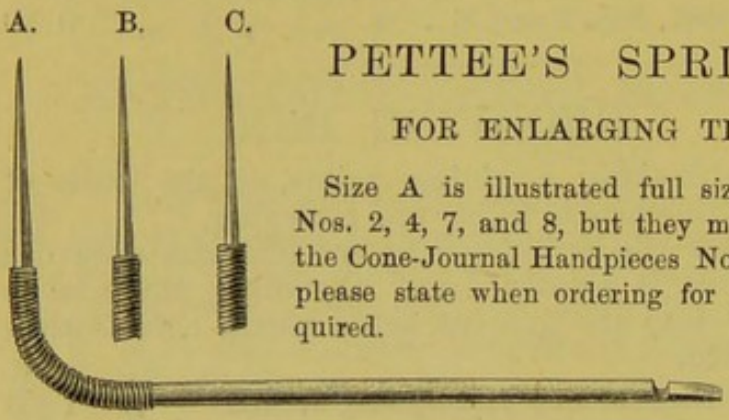
The **Flat Fissure and Pointed Fissure Burs.**
Three sizes smaller than illustrated on pages 208, 209.

The **Spear-shape and Square Drills.**
Three sizes smaller than illustrated on page 211.

	s.	d.
Price of Bur Gauge in Steel, Nickel-plated ..	1	6

NERVE-CANAL INSTRUMENTS.

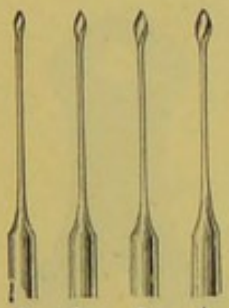




PETTEE'S SPRING REAMERS,

FOR ENLARGING THE NERVE CANAL.

Size A is illustrated full size with shank for Handpieces Nos. 2, 4, 7, and 8, but they may also be had with shank for the Cone-Journal Handpieces Nos. 2 and 6. To avoid mistakes, please state when ordering for which Handpiece they are required.



NERVE-CANAL DRILLS.

(Dr. St. George Elliott's.)

These drills cut very rapidly, and can be sharpened on an oil stone when they become dulled. They are novel in form, each head consisting of three leaves so arranged that the greatest amount of strength is secured with extreme delicacy of edge.

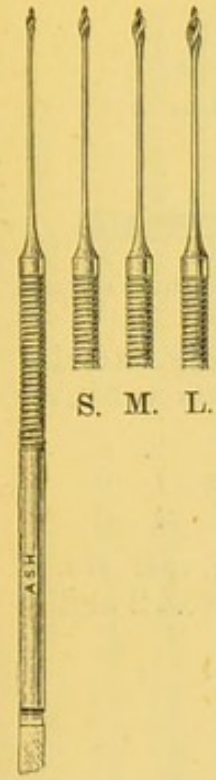
They are much esteemed by those Operators who use them, and are preferred to other Nerve-Canal Drills.

Prices for any Handpiece or Attachment:

			s.	d.
Flexible Drills	(Figs. 124–129)	each	1	0
„ Burs	(„ 130–135)	„	1	0
Nerve-Canal Drills	(„ 136–139)	„	1	6
Talbot's Reamers	(„ 140–142)	„	1	0
Pettee's Spring Reamers	(„ A, B, C)	„	3	0
Elliott's Nerve-Canal Drills	(„ 1, 2, 3, 4)	„	1	6

10 per cent. allowed off 4 dozen Engine Burs.
15 „ „ 1 gross „

NERVE-CANAL DRILLS.



Made with Springs in Stems, for Straight Handpiece, in sizes extra small, small, medium, and large, corresponding in sizes to 136–139, on the opposite page.

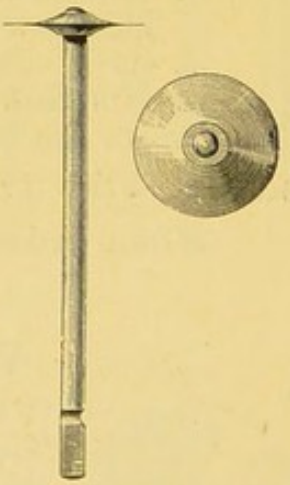
These Nerve-Canal Drills have recently been greatly improved, and now give much satisfaction. The cutting edges are carried up to the guide point, which is found to be a decided advantage, as the drills cut much more rapidly and give less pain to the patient. Being carefully tempered, they are tough and not easily broken.

The Nerve-Canal Pluggers mentioned on page 165 are intended for use in conjunction with these drills. See remarks on that page.

				s.	*d.*
Ex. S.	Price ..	(Ex.S, S, M, and L)	each	2	0

KNIFE WHEELS,

FOR CUTTING GUM, TRIMMING AND SMOOTHING FILLINGS, &c.



Suggested by Dr. W. H. Rollins. Made in three sizes, with lancet cutting edges. The illustration shows a wheel for S. S. White's No. 4 Handpiece, but they may be had, to order, for any other Handpiece or Attachment.

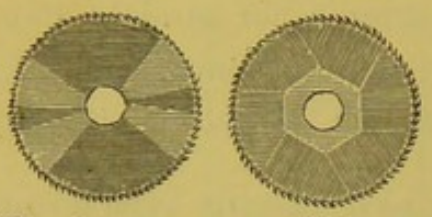
Prices:

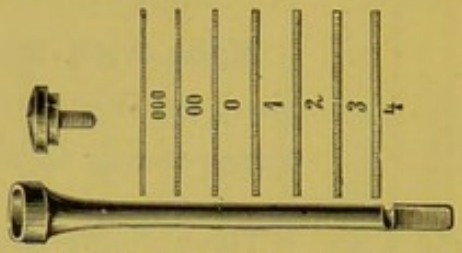
		s.	*d.*
Large size, diameter $\frac{3}{4}$ inch	each	3	0
Medium „ „ $\frac{1}{2}$ „	„	2	3
Small „ „ $\frac{1}{4}$ „	„	1	9

CIRCULAR STEEL SAWS AND WHEEL BURS,

FOR SEPARATING TEETH, &c.

Saw. Wheel Bur.





The **Saws** are made in eight sizes, numbered 00000 to 3, and correspond in thickness to the same sizes of Stubs' Dividing Files.

The **Wheel Burs,** which are cut on one side and edge only, are also made in eight sizes, numbered 0000 to 4, of the same thickness as Stubs' Dividing Files of the same numbers.

		s.	d.
Price, unmounted, any size or kind	each	1	0
Screw-head Mandrels for carrying the same ..	„	1	3

The Mandrel, as illustrated, is adapted for No. 4, No. 7, and No. 8 Handpieces; but it can be had for Cone-Journal Handpieces Nos. 2 and 6, at the same price.

CROWN SAW.

(Dr. Meriam's.)

Saw.

It is stated in *Tomes' Dental Surgery*, Third Edition, page 756, that when preparing roots for pivoting, &c., it is not safe to use the excising Forceps until the portion of the tooth to be removed has been already partly cut through, and that neglect of this precaution may result in the root being splintered longitudinally or in the Forceps being broken.

This Saw is well adapted for the purpose; it cuts rapidly, and is small enough not to touch the adjacent teeth during use. In molars that are much decayed the remaining portions of the crown can be removed from the inside of the cavity.

	s.	d.
Price for any Handpiece	1	6

When ordering, please state for which it is required.

VERY THIN STEEL SAWS.

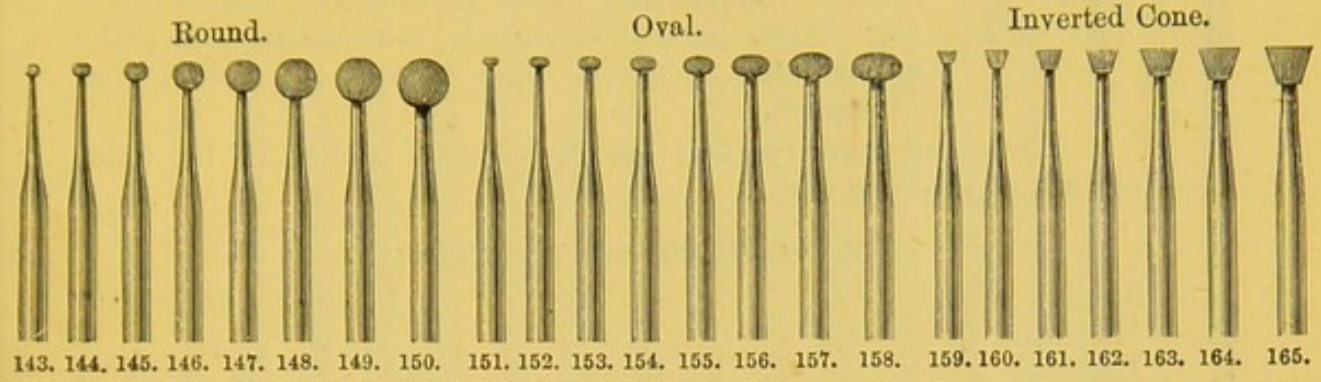
$\frac{3}{4}$ inch.

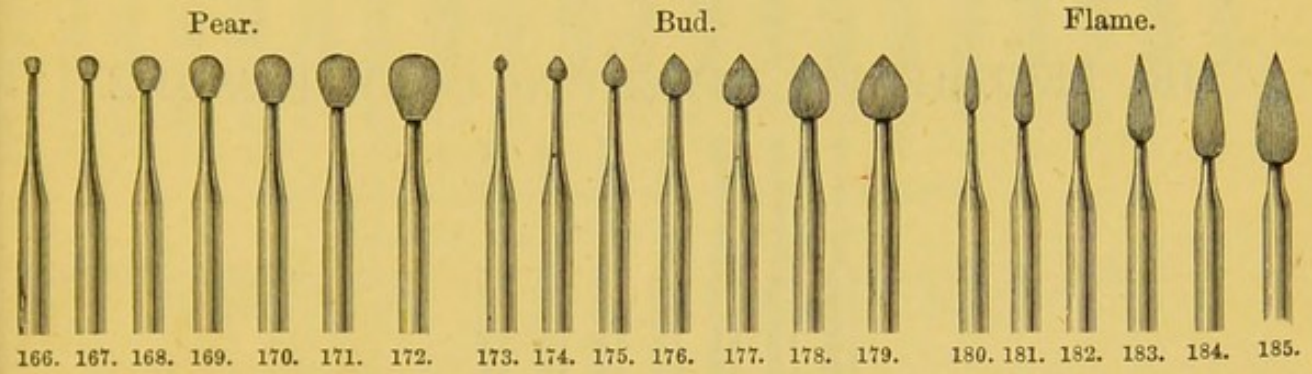
For separating fillings, cutting sections of bone, &c. These saws are so thin that they should be allowed to feed themselves to obtain the best results. They cut with great rapidity, but will not bear heavy pressing against the material which is being cut. Made in four sizes, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, and $\frac{7}{8}$ of an inch in diameter.

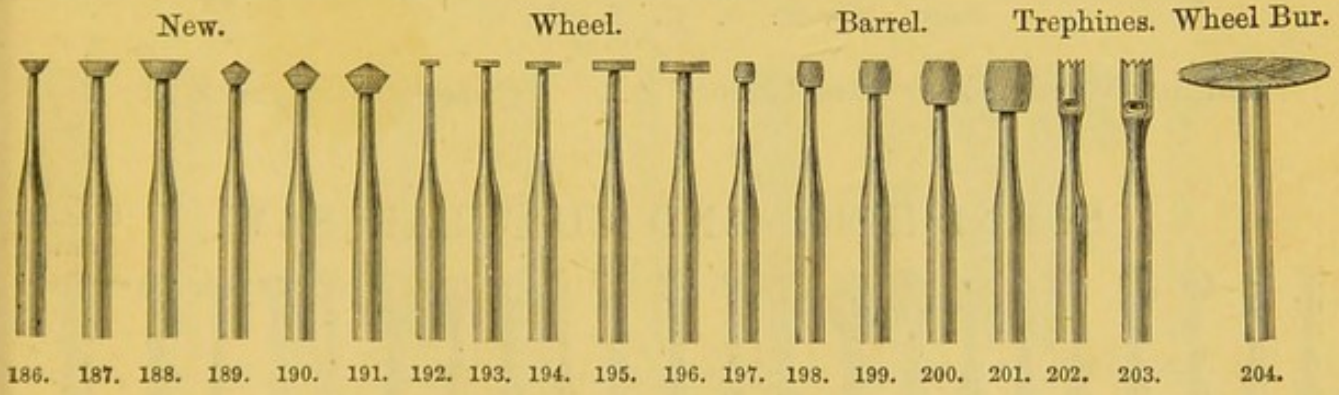
		s.	d.
Price, any size	each	0	6

STONED FINISHING BURS.

TREPHINES AND WHEEL BURS.





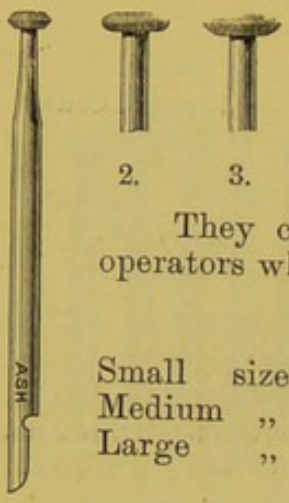


Prices for any Handpiece or Attachment:

			s.	d.
Stoned Finishing Burs, all sizes	(Figs. 143–201)	each	1	3
Trephines	(„ 202, 203)	„	1	6
Wheel Burs, large size	(Fig. 204)	„	3	0
„ medium „	(„ 204)	„	2	9
„ small „	(„ 204)	„	2	3

		From s.	From d.	To s.	To d.
Finishing Burs, re-cut and stoned ..	per doz.	7	0	8	0

STONED FINISHING BURS—*continued.*



1.

2. 3.

(Mr. A. H. Farebrother's.)

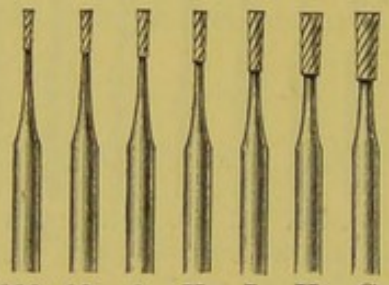
Mr. Farebrother has introduced the Finishing Burs, here illustrated, for cutting away the superfluous gold in the crowns of molars and bicuspids.

They cut rapidly, and are favourably spoken of by those operators who use them.

For any Handpiece or Attachment:

			s.	d.
Small size	(Fig. 1)	each	1	9
Medium „	(„ 2)	„	2	0
Large „	(„ 3)	„	2	3

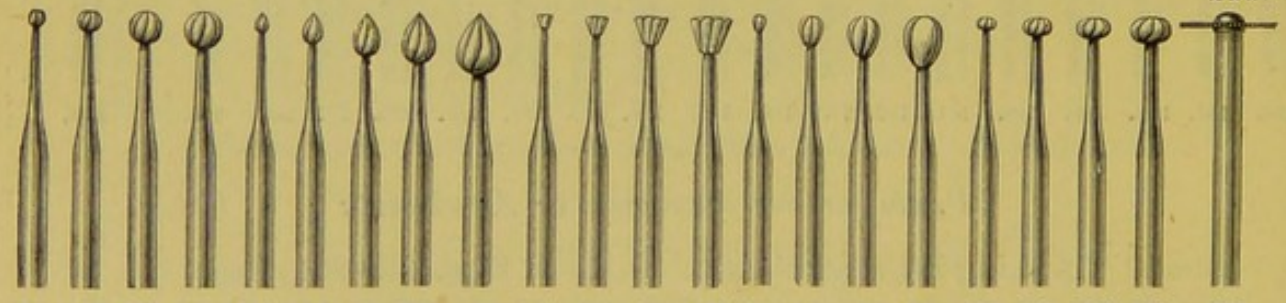
MR. LECHMERE'S INVERTED CONE FISSURE.



Sizes 000. 00. 0. K. I. H. G.

			s.	d.
For any Handpiece or Attachment ..	(Sizes 000-G)	each	1	3

BURNISHERS AND CIRCULAR SAW.



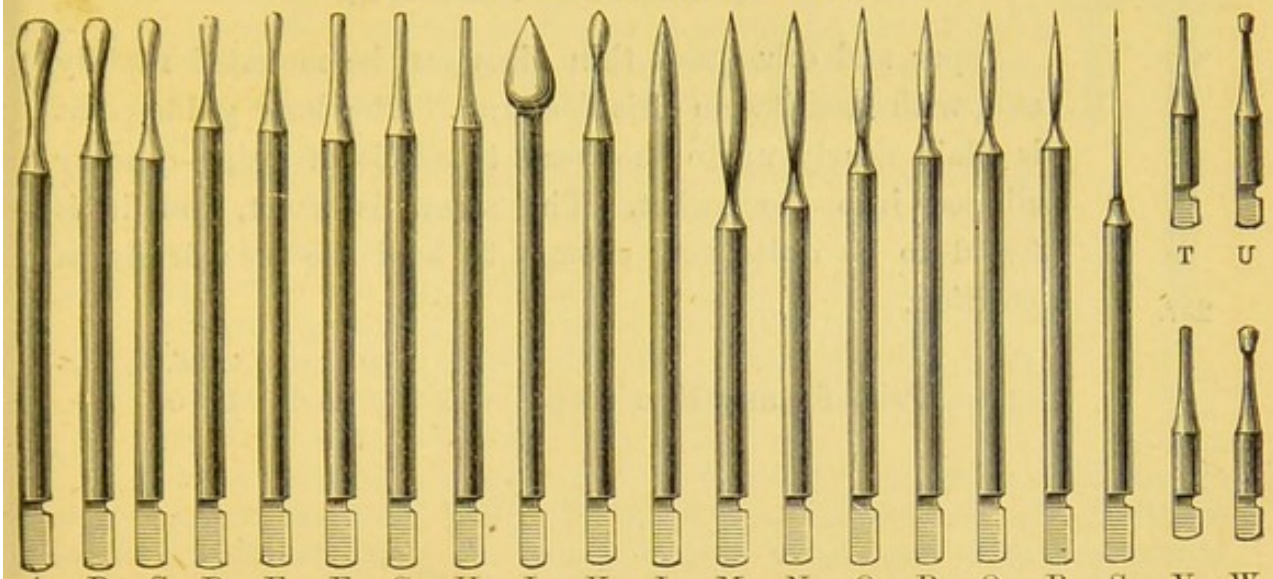
205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226.

For any Handpiece or Attachment:

			s.	d.
Burnishers, with Corrugated Heads ..	(Figs. 205–225)	each	1	2
„ „ Smooth „ ..	(„ „)	„	1	0

Circular Saws: large size, 2*s.* 6*d.*; medium, 2*s.* 3*d.*; small, 1*s.* 9*d.*

HERBST'S GOLD-FILLING INSTRUMENTS,
OR,
SMOOTH-HEADED BURNISHERS.



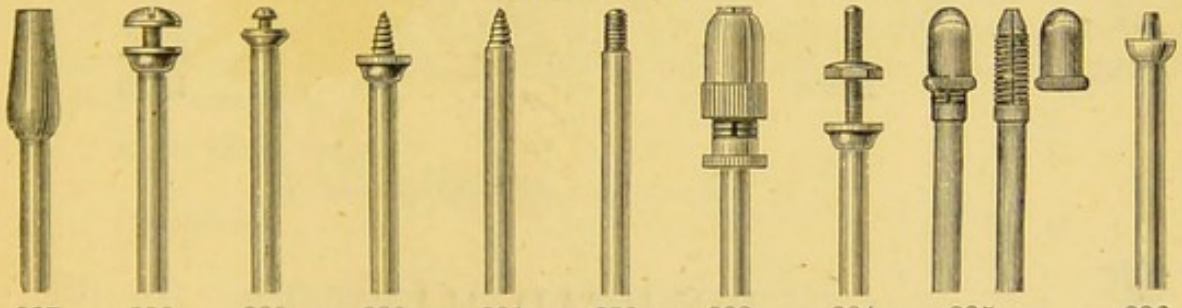
A. B. C. D. E. F. G. H. I. K. L. M. N. O. P. Q. R. S. V. W.

Made from patterns submitted to us by Dr. Herbst.

Prices for any Handpiece or Attachment:

		s.	d.
Herbst's Gold-Filling Instruments .. .. .. (Forms A–W)	each	1	0
„ Blood-Stone Points .. .. .. (Forms D, F, H, K, L)	„	2	6

MANDRELS, PORTE-POLISHERS AND NEEDLE CHUCK.



227. 228. 229. 230. 231. 232. 233. 234. 235. 236.

Prices of above for any Handpiece or Attachment:

		s.	d.
Plain Porte-Polisher .. .. (Fig. 227)	each	1	0
Huey's Mandrel .. .. („ 228)	„	1	0
Disc-Carrier Mandrel .. .. („ 229)	„	1	0
Screw Mandrel with Shoulder .. .. .. („ 230)	„	0	9
„ „ without „ .. .. .. („ 231)	„	0	4
Stem with Screw end .. .. („ 232)	„	0	3
Screw Porte-Polisher .. .. („ 233)	„	1	6
Parting-nut Mandrel .. .. („ 234)	„	1	0
Needle Chuck .. .. („ 235)	„	3	0
Shouldered Mandrel with Plain end .. .. („ 236)	„	0	9

The Needle Chuck is designed to carry very fine retaining pit drills made from sewing needles. It will grasp and hold firmly any size not larger than No. 8 (English) and No. 5 (American). Chucks to take larger sizes made to order.

MANDREL WITH GUIDE POINT.

(Dr. St. George Elliott's.)

237.

Paper and other soft thin discs can be mounted rapidly and with facility on this Mandrel. The long guide-point is plain nearly up to the head to admit of being quickly slipped into the socket. The screw is short, but it is found to be quite long enough to hold the disc firmly in position.

		s.	d.
Price for any Handpiece ..	each	1	0

SPLIT PORTE-POLISHER.

238.

This simple and effective appliance will securely hold any of the various points made, viz.: Wood, Corundum, Hard Rubber, &c.

It is practically self-adapting and considerably less bulky than the Porte-Polisher with Screw Clamp.

	s.	d.
Price	1	0

239.

PIN-HEAD MANDREL,

FOR CARRYING PAPER AND OTHER DISCS.

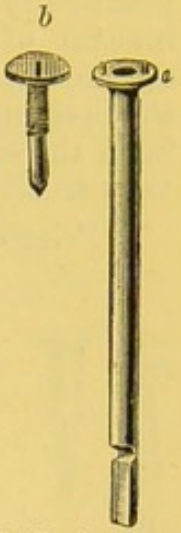
The pin on the head of this Mandrel holds a disc of soft material so securely that it cannot slip however much pressure is brought to bear upon it. The screw is nice and long and furnished with guide point to admit of the head being quickly slipped into the socket and screwed up.

	s.	d.
Price	1	3

SCREW MANDREL,

FOR PAPER AND CORUNDUM DISCS.

(Dr. V. Vajna's.)



The following advantages are claimed for this Mandrel:—

1. The screw *b* is milled on the head so that it can be held with the thumb while it is being tightened or released. This does away with the necessity of using a screw driver.
2. The screw *b* is also furnished with a guide pin, which permits of its being readily and rapidly inserted in the top of the Mandrel.
3. A paper disc can easily be fixed on or taken off the screw *b* without removing the Mandrel from the handpiece.
4. The two points at *a* on the shoulder of the Mandrel hold the disc so securely in position that it cannot become loose if the engine be run backwards.

To mount a disc slip the point of the screw *b* through the hole in the centre, insert the guide pin in the top of the Mandrel, which should be in the handpiece ready for use, hold the milled head with the thumb, and give the driving-wheel of the engine a few turns to screw it firmly in position.

	s.	d.
Price of Mandrel	1	6

PAPER-DISC, &c., MANDRELS.

(American.)

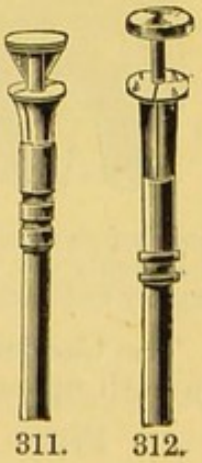
No. 310 with Adjusting Handle.—For mounting and carrying flexible discs. The disc is held by barbed spurs sufficiently firm to be curved upon posterior approximal surfaces, with but little danger of becoming detached.

	s.	d.
Price of Mandrel	2	0
„ Adjusting Handle	1	3
Complete	3	3

Fig. 311.—A feathered pin passes through the paper disc, centreing it so that no time is lost in adjustment, and is clamped firmly in the split head of the Mandrel by the slide-ring.

Fig. 312.—This Mandrel, invented by the late Dr. J. W. Smith, has on the face of its split head four spurs, which penetrate the disc when the recessed cap-pin is pushed against it, firmly clamping it in the Mandrel by the slide-ring. Paper, felt, or rubber discs may be quickly attached to or detached from it.

	s.	d.
Price .. (Figs. 311, 312) each	2	0

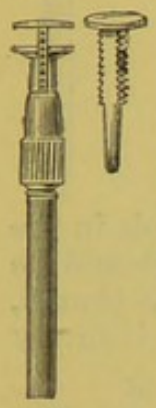


311. 312.

AMERICAN MANDRELS—*continued.*

Nos. 313 and 314, suggested by Dr. S. G. Perry. No. 313 is practically the same as Huey's Mandrel, shown on page 219, but instead of the screw having a slotted head, it is drilled out in the centre and squared, so as to admit the point of a screw-driver which fits the opening closely and prevents the loss of the screw. No. 314 works upon the same principle, but is much smaller, and designed for carrying very small discs.

		s.	d.
Price of Mandrels, Nos. 313 and 314	each	1	3
„ Screw-drivers	„	1	0



315.

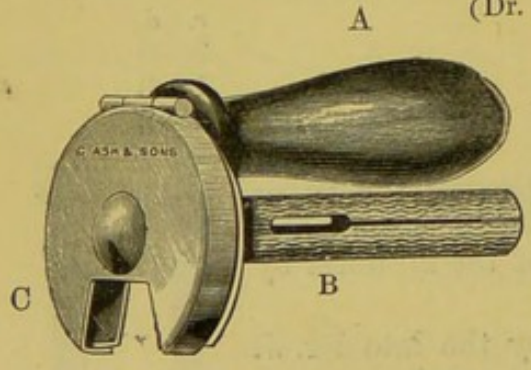
Fig. 315. This Mandrel, invented by Dr. H. C. Register, has a feathered pin which passes through the paper disc, enters the slotted head of the Mandrel, and by means of the screw-thread on the edges of the feather is engaged with the threaded sleeve which draws the head of the pin toward the head of the Mandrel, and firmly clamps the disc between them. It will run in either direction, and no manner of use will dislodge the disc without destroying it. The disc is easily and quickly removed by extending the thumb and finger of the hand which holds the Handpiece and grasping the milled sleeve while the Mandrel is revolving to the right. The thickest or thinnest disc will be securely held.

		s.	d.
Price	(Fig. 315)	2	0

When ordering any of the above Mandrels, please state for which Handpiece they are required.

IMPROVED DISC CARRIER.

(Dr. Andrieu's.)



A. Water bulb for keeping the disc wet during use.

B. Tube which fits over the nose of the Handpiece when the mandrel on which the disc is mounted is attached to the Handpiece.

C. Hinged guard for protecting the cheeks and lips while working.

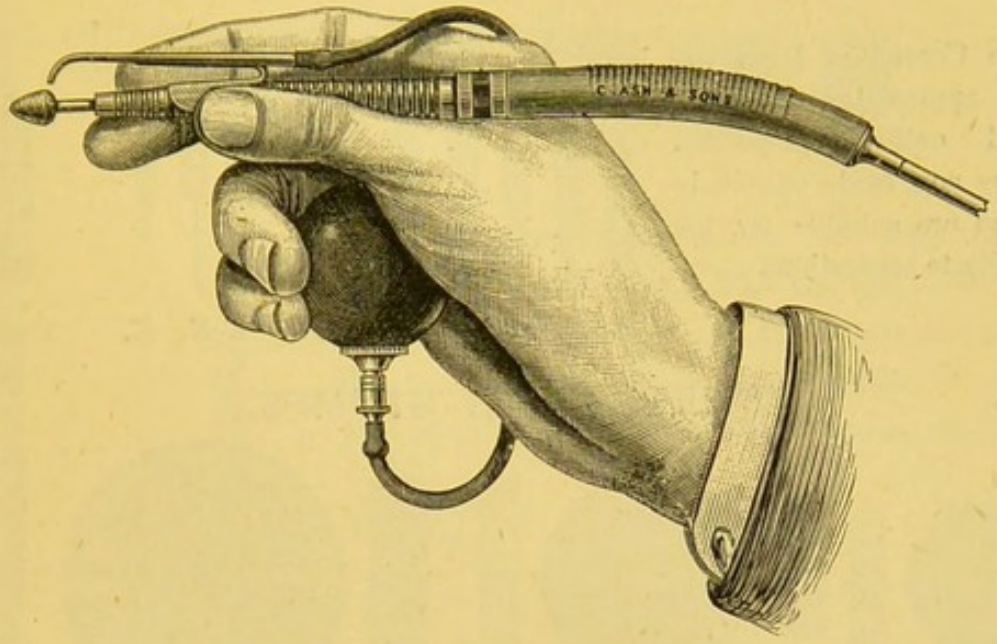
To apply a mounted corundum disc, open the hinged guard C, introduce the mandrel into the tube B, and close the guard over the disc. If the water bulb A be filled each time before use, occasional gentle pressure will be sufficient to keep the disc cool and thoroughly wet, and under such conditions the Operator can do the necessary work rapidly and with little discomfort to the patient.

The Carrier can be had to fit any Handpiece, and is adapted for use on both upper and lower teeth.

	s.	d.
Price	6	0

IMPROVED ENGINE SYRINGE.

(Introduced by Dr. C. H. Stokes.)



This Syringe is intended for wetting the corundum discs and points which are used in the Handpiece of the Dental Engine. The half-ounce bulb with which it is supplied has a slip-off mount so that it can be quickly refilled when the water is exhausted. To admit of the nozzle being adapted for large or small discs and points the metal to which it is attached is soft and easily bent to the required position.

Directions for Use.

Slip the metal clip to which the nozzle is joined on the case of the Handpiece, as far as is necessary, then pass the India-rubber tubing over the back of the hand to keep it from kinking, and place the bulb between the palm and two last fingers, as shown in the engraving.

To make the clip smaller press the sides a little closer to each other.

A duplicate of the above, employed as an Air Syringe, will be found useful for blowing cuttings and dust out of the cavity while the bur is actually at work.

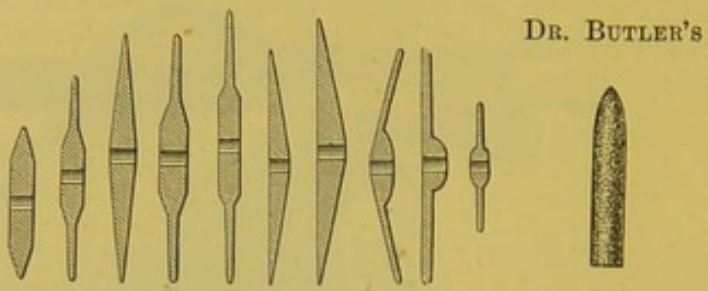
	s.	*d.*
Engine Syringe, as illustrated, in card box	5	6

CORUNDUM DISCS AND POINTS.

DISCS

(Dr. Arthur's Patterns).

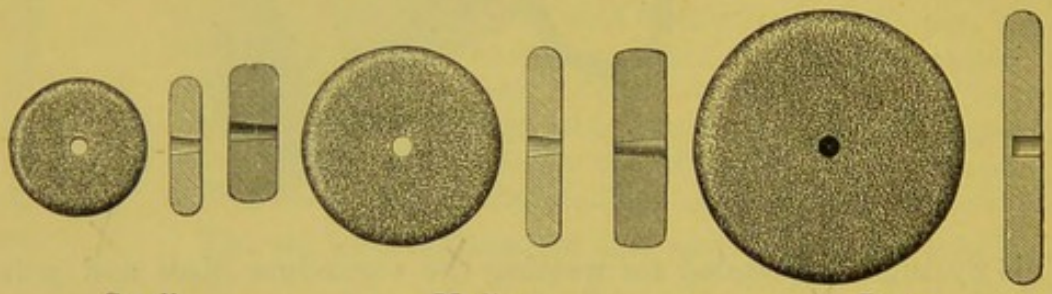
These Corundum Discs are greatly appreciated for their splendid cutting properties. They are now made extremely thin, and are suitable for the most delicate separations.



A. B. C. D. F. G. H. I. N. K.

Dr. Butler's Point.

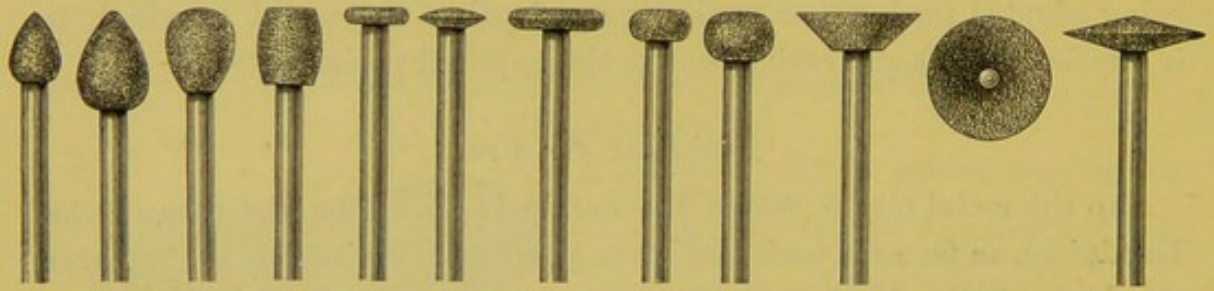
WHEELS FOR STUMPS.



Small. Medium. Large.

POINTS

(Dr. Northrop's Patterns).



1. 2. 3. 5. 6. 7. 8. 9. 10. 11. 12.

Prices:

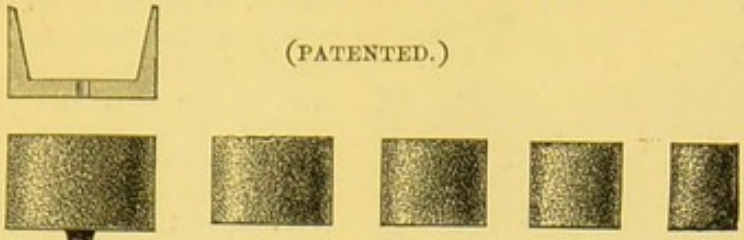
					s.	d.
Discs (Dr. Arthur's).	Size A	unmounted	..	per doz.	1	8
„ „	All other sizes	„	..	„	3	0
Wheel for stumps, small, medium, and large		„	..	„	3	0
Points (Dr. Northrop's), Figs. 1–12		„	..	„	1	8
„ (Dr. Butler's), for Porte-Polisher		„	..	„	1	8

Corundum Discs, Wheels and Points, as above, mounted, extra per doz. 4*s*.

Supplied in two grits, known as fine and coarse. When ordering mounted Corundum Discs and Points, please state for which Handpiece they are required.

COMER'S CORUNDUM CONING CUPS.

(PATENTED.)



4. 3. 2. 1.

5.

The Illustrations show the full outside diameter of each cup. The section over Fig. 5 shows the thickness of the Corundum and the manner in which the inside is coned. The respective measurements are as under:

Diameter.		Inside.		Outside.
No. 5	..	11 mm.	..	13 mm.
„ 4	..	10 „	..	12 „
„ 3	..	9 „	..	11 „
„ 2	..	7 „	..	9 „
„ 1	..	5 „	..	6 „

For coning roots of natural teeth. They cut rapidly if kept well wetted during use, and Dr. Comer says that he can shape a root so accurately with them in a few minutes that a collar crown of suitable size will fit perfectly. He finds that they are better adapted for the purpose than anything else with which he is acquainted.

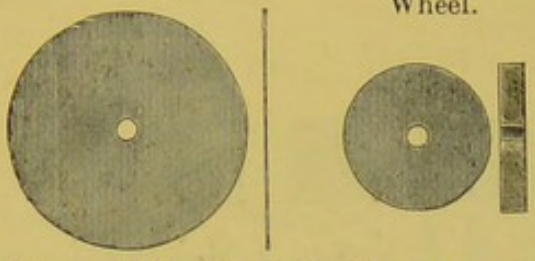
Prices:

		s.	*d.*
Corundum Cups, any size, or assorted ..	per doz.	3	6
„ „ „	each	0	4
Mandrels for any Handpiece	„	1	3
Screw Drivers for mounting the Cups ..	„	0	9

When ordering Mandrels specify for which Handpiece they are required.

Shellac for Mounting Corundum Discs and Points, see page 233.

DIAMOND DISCS AND WHEELS.



The S. S. White D. M. Company say:—

"In using Diamond Discs, two rules should be strictly adhered to. They must not be run dry, and they must not be pushed. If kept wet when in use, they will cut faster and last longer. If too much pressure is applied they will chatter, or jerk, or refuse their office. They should simply be held to their work, and allowed to feed themselves.

Diamond Wheels and Points work most satisfactorily when kept wet and not forced."

Prices:		*s.*	*d.*
Diamond Discs for Separating	each	7	8
(Made in two sizes, $\frac{3}{4}$ and $\frac{7}{8}$ inch diameter.)			
Safe-Side Diamond Discs, $\frac{3}{4}$ and $\frac{7}{8}$ inch diameter	,,	5	2
Diamond Fissure Discs $\frac{5}{16}$ and $\frac{3}{16}$ inch diameter	,,	3	2
,, Wheels, for Stumps as illustrated ..	,,	6	3
,, ,, ,, with knife edge ..	,,	6	3

All the Discs and Wheels can be mounted on Mandrels 228 or 229, shown on page 219.

DIAMOND POINTS,

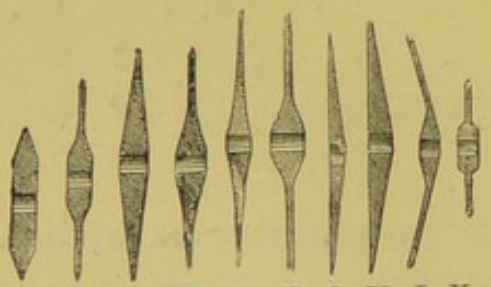
FOR CROWN, BRIDGE, AND INLAY WORK.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

Used in Screw Porte-Polisher (Fig. 233, page 219). Charged all over.

		s.	*d.*
Figs. 1, 2, 3, 4, 6, 7	each	2	1
,, 5, 8, 9	,,	3	2
,, 10	,,	4	2

RUBBER AND CORUNDUM DISCS.



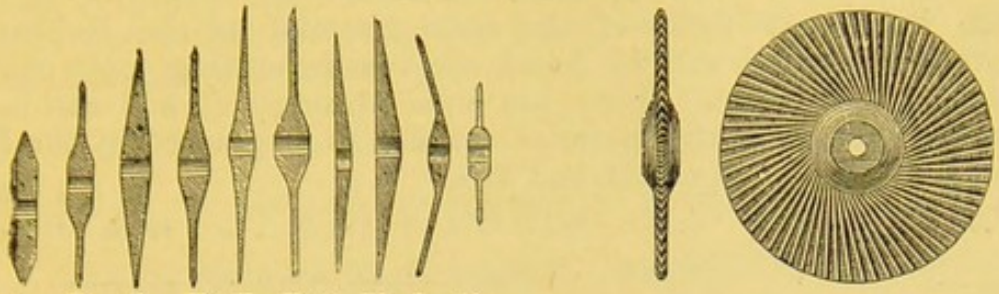
A. B. C. D. E. F. G. H. I. K.

These Discs will be found excellent for separating teeth, because of their extreme thinness. They have all the strength necessary for the purpose. Made of vulcanized rubber and the sharpest selected disc corundum, the latter being thoroughly incorporated with the former. They can be mounted on Mandrel 228.

		s.	*d.*
Price, all sizes	each	0	5

POLISHING DISCS AND POINTS.

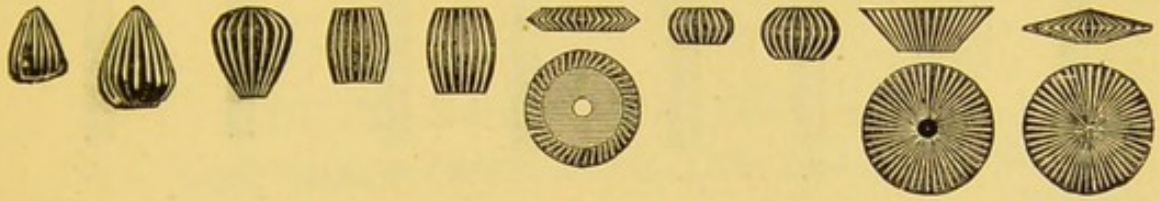
CORRUGATED SOFT RUBBER DISCS.



A. B. C. D. E. F. G. H. I. K.

		s.	d.
Price, all sizes	per doz.	2	6
" "	each	0	3

CORRUGATED SOFT RUBBER POINTS.



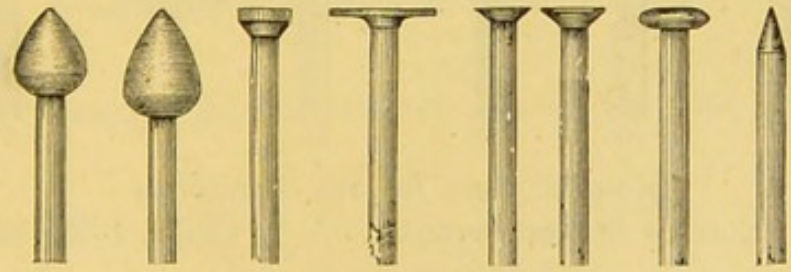
1. 2. 3. 4. 5. 8. 9. 10. 11. 12.

		s.	d.
Price, all sizes	per doz.	1	9
" "	each	0	2

These Discs and Points of Soft Rubber, with **corrugated** surfaces, suggested by Dr. C. E. Francis, are pronounced much superior to those with plain surfaces. They are used for carrying powders, either for polishing the natural teeth or for finishing fillings. They are generally used with Huey's Screw-head Mandrel, shown on page 219.

WOOD POLISHING POINTS

(Dr. SOUTHWOOD'S).



1. 2. 3. 4. 5. 6. 7. 8.

Porte-Polishers 227, 233, and 238, on pages 219 and 220, will carry these.

	s.	d.
Wood Polishing Points, assorted .. .. .. (Figs. 1–8) per box of 100	4	0

Separately:—Nos.	1.	2.	3.	4.	5.	6.	7.	8.
Per 100 ..	4/2	5/2	3/2	5/2	3/2	3/2	4/2	2/1

RUBBER AND CORUNDUM POINTS.

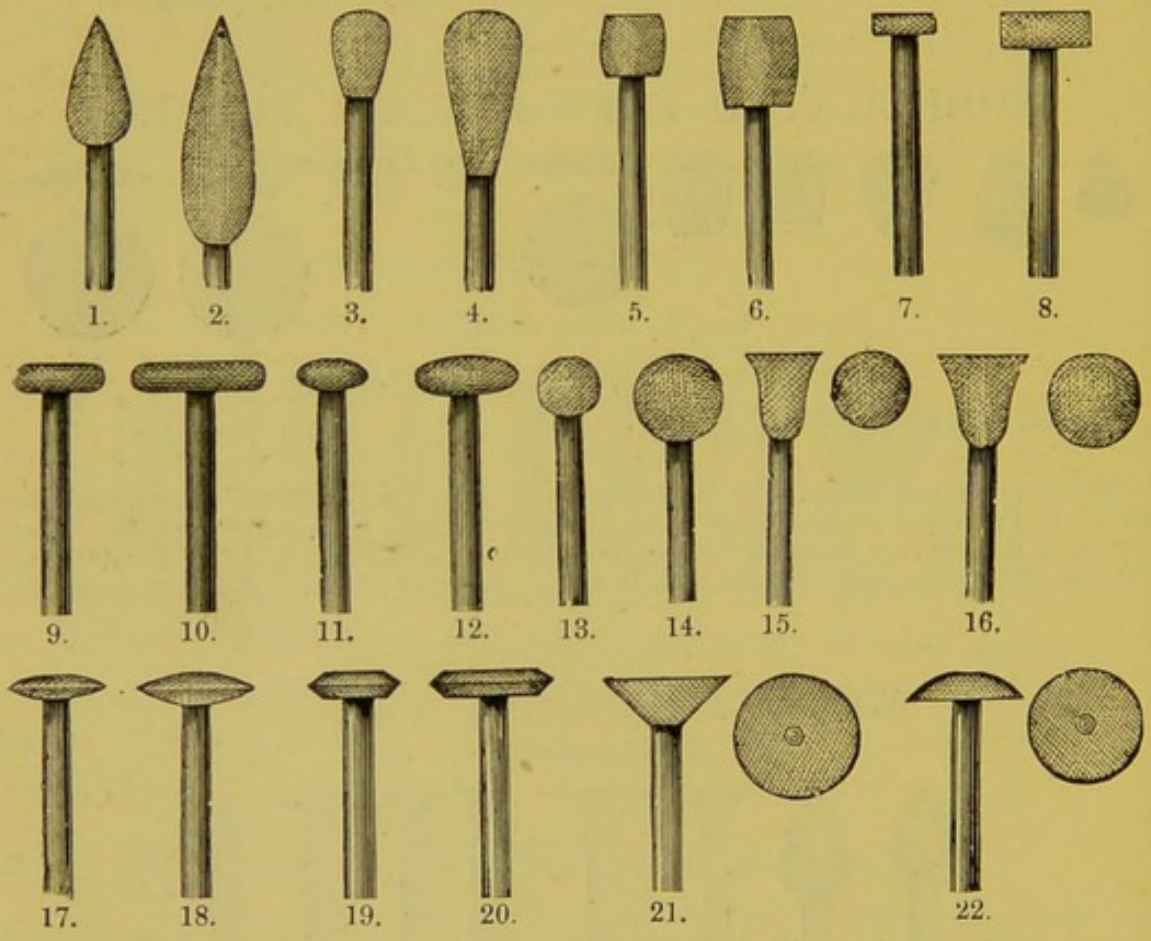
Same shapes as the Wood Points illustrated on p. 227.

These Points are made of the same material as the Rubber and Corundum Discs, and will be found effective in cutting tooth material or dressing off fillings. They are solid throughout and can be used as long as enough of the material remains to be grasped by the Porte-Polishers, shown on pages 219 and 220.

		s.	d.
Price, any shape	each	0	3

POLISHING STONES.

ARKANSAS, HINDOSTAN, AND WATER OF AYR.



Prices of above for any Handpiece:

		s.	d.
American Arkansas Stones, mounted ..	(Figs. 1–22) each	4	0
Hindostan ,, ,, ..	(,, ,,) ,,	1	6
Water of Ayr (Scotch) ,, ,, ..	(,, ,,) ,,	0	9
,, ,, ,, unmounted ..	(,, ,,) ,,	0	4

It is sometimes difficult to obtain the above Polishing Stones exactly like the illustrations. When unable to do so the nearest in stock are usually sent. The Arkansas and Hindostan Stones are not kept unmounted.

ENGINE POLISHING DISCS.

These Polishing Discs are made from the best materials; they are carefully cut, retain their rigidity for a considerable time in use, and the shellac with which they are coated does not crack when they are bent.

EMERY-PAPER DISCS,

WITH SHELLACKED BACKS. ASSORTED GRADES.

Made in three sizes, as follows, and assorted in Coarse, Medium, and Fine:—

$\frac{7}{8}$ inch diameter; $\frac{3}{4}$ inch diameter; $\frac{5}{8}$ inch diameter.

Emery.

	s.	d.
Price, any size .. .. per box	0	6

CUTTLE-FISH PAPER DISCS,

WITH SHELLACKED BACKS. ASSORTED GRADES.

Made in three sizes, as follows, and assorted in Coarse and Fine:—

$\frac{7}{8}$ inch diameter; $\frac{3}{4}$ inch diameter; $\frac{5}{8}$ inch diameter.

Cuttle-fish.

	s.	d.
Price, any size .. .. per box	0	6

SAND-PAPER DISCS,

WITH SHELLACKED BACKS. ASSORTED GRADES.

Made in three sizes, as follows, and assorted in Coarse and Fine:—

$\frac{7}{8}$ inch diameter; $\frac{3}{4}$ inch diameter; $\frac{5}{8}$ inch diameter.

Sand-paper.

	s.	d.
Price, any size .. .. per box	0	6

GRANITE-PAPER DISCS,

WITH SHELLACKED BACKS. ASSORTED GRADES.

	s.	d.
Made in three sizes, as above; any size .. .. .. per box	0	6

ENGINE POLISHING DISCS.

THE 300 BOX OF ASSORTED PAPER DISCS, with Shellacked Backs, contains a most useful selection of **Emery Paper, Cuttle-fish, Granite,** and **Sand Paper,** as mentioned on the previous page.

In assorted Grades and Diameters as under:—

Grades—Coarse, Medium, and Fine.

Diameters—$\frac{7}{8}$ inch, $\frac{3}{4}$ inch, and $\frac{5}{8}$ inch.

	s.	d.
Price, per box of 300 Discs	1	6

EMERY CLOTH DISCS,

WITH SHELLACKED BACKS. ASSORTED GRADES.

Emery Cloth.

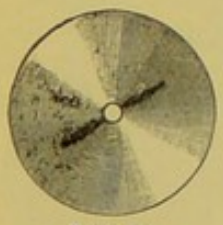
Made in three sizes, as follows, and assorted in Coarse, Medium, and Fine:—

$\frac{7}{8}$ inch diameter.
$\frac{3}{4}$ " "
$\frac{5}{8}$ " "

	s.	d.
Price, any size .. .. per box	1	3

STEEL METAL SHIELDS.

(Suggested by Mr. W. H. DOLAMORE, of London.)



$\frac{3}{4}$-inch

For use with paper polishing discs. They are made quite flat, from exceedingly thin steel, are almost as flexible as paper, and will not break or buckle up when subjected to pressure. In polishing rounded surfaces they lend great support to the disc, and will therefore be found very useful.

Made in two sizes, $\frac{7}{8}$ and $\frac{3}{4}$ of an inch in diameter, and supplied in boxes of half-a-dozen, as under:

	s.	d.
Price, either size or assorted .. .. per box	1	0

BRIGHT-METAL SHIELDS FOR PAPER DISCS.

Made in two sizes, viz.: No. 1, $\frac{7}{8}$ in. diameter; No. 2, $\frac{3}{4}$ in. diameter.

	s.	d.
Price .. .. per doz.	2	6

DISCS, VARIOUS, FOR POLISHING, &c.

(AMERICAN.)

Celluloid Discs—Dr. Buchanan's. These plain white celluloid discs are thin, tough and flexible. They are made in one size, $\frac{3}{4}$ in. diameter, and can be mounted on either Elliott's or Huey's Mandrels, shown on pages 219 and 220.

Instructions for Use.—Dip the disc in water and apply any of the polishing or cutting powders.

		s.	d.
Price	per box of 100	1	8
Washers for do.	per box	0	10

Chamois Discs—Dr. Custer's. These are thin, stiff, soft, waterproof discs, and can be used either wet or dry. Made in three sizes, $\frac{1}{2}$, $\frac{3}{4}$, and $\frac{7}{8}$ in., and put up in boxes of 25. Can be mounted on Huey's Mandrel.

		s.	d.
Price, any one size	per box	1	0

Felt Discs—Dr. W. W. Smith's. Made of thin stiff felt, $\frac{7}{8}$ in. diameter. They are useful for carrying polishing powders. Can be mounted on Huey's Mandrel.

		s.	d.
Price	each	0	5

Minim Discs, suggested by Dr. S. G. Perry. Made of sand-paper, emery-paper, cuttle-fish paper and emery cloth, $\frac{1}{4}$ in. diameter. Can be mounted on Mandrel 314, mentioned on page 222.

Put up in boxes of 100 at the following prices :—

		s.	d.
Sand-Paper	per box	0	6
Emery-Paper	,,	0	6
Cuttle-Fish Paper	,,	0	6
Emery-Cloth	,,	1	3

Paper and Cloth Discs. In boxes containing 525 discs, namely : 150 each emery-paper, sand-paper, cuttle-fish paper, and 75 emery cloth discs. Assorted diameters, $\frac{5}{8}$, $\frac{3}{4}$ and $\frac{7}{8}$ of an inch.

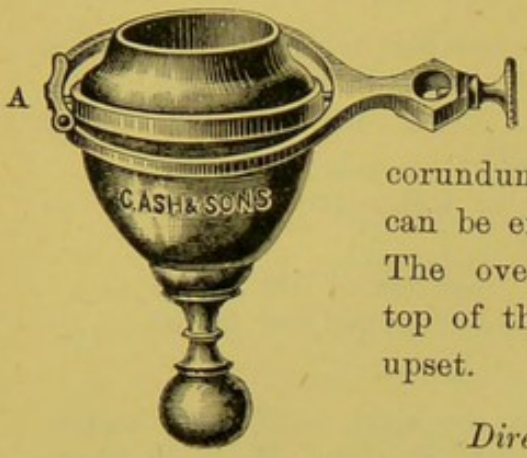
		s.	d.
Price	per box	3	0

Thickened-Rim Sand-Paper Discs. These can be mounted on any of the paper-disc mandrels. Supplied in two sizes, $\frac{5}{8}$ and $\frac{7}{8}$ of an inch in diameter.

Put up in boxes containing 400 discs, assorted grits.

		s.	d.
Price, either size	per box	4	0

WATER CUP.



For fixing on the upright standard of the dental engine.

It holds sufficient water for wetting corundum discs, &c., during an operation, and can be emptied and re-filled in a few moments. The overhanging rim round the inside of the top of the Cup prevents the water being readily upset.

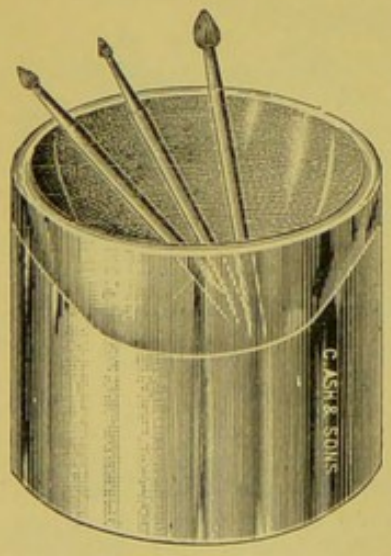
Directions for Use.

To empty the Cup, draw aside the spring A on the ring in which it is fixed, lift it out and discharge the contents. Before refilling it, replace and fasten in position by pushing back the spring.

	s.	*d.*
Price, Nickel-plated	5	0

BUR CUP.

(Suggested by Mr. Moon.)



This cup is designed to hold the burs required for each operation. Mr. Moon finds it useful and very convenient. He says that the burs can be seen at a glance in the Cup, and that, being ready to the hand of the operator, much time is saved in changing one for another in the Handpiece.

It is made in Metal, nickel-plated, also in Glass as here illustrated. The Glass Cup forms a useful Mortar for amalgams; the base is very thick and can be gripped and held firmly in the hand.

	s.	*d.*
Price, in Metal, nickel-plated	2	9
„ in Glass	0	9

DARBY'S HARD BUFF POLISHERS,

KNOWN ALSO AS

MOOSE-HIDE POINTS AND LEATHER POLISHING WHEELS.

These polishers are made of a material which possesses peculiar qualities for carrying pumice and other powders, and "taking hold" of discoloured enamel. They will not abrade the gums, and can be run with perfect safety round the necks of teeth. When wet the surface becomes pliable, and adjusts itself to all inequalities. The simplest and quickest carrier for them is the shouldered screw mandrel. A fresh polisher should be used for each case.

Directions for Use.

Mount the polisher on the mandrel by giving the latter a few turns in the engine, then wet the surface of the polisher by running it under water and holding it against the side of the vessel. Now dip it in the polishing powder, apply to the teeth, and continue to take up more powder as the case requires.

Some operators prefer using powder mixed with water to the above method. When this mixture is employed, give the polisher a few turns in it, and, while doing so, hold the surface against the vessel containing the mixture.

By either method the result will be the most perfect polish that can be obtained in any way in the same length of time. The polishers impart a beautiful finish to gold and amalgam fillings.

If a dead finish is desired on gold, use but little water, and run the engine very slowly.

Put up in Boxes containing 100 Assorted Sizes.

		s.	*d.*
Price	per box	1	8

PURE SHELLAC,

FOR MOUNTING CORUNDUM DISC AND POINTS.

		s.	*d.*
In Powder	per box	0	6
„ Sticks	per doz.	2	6

These Sticks are very useful for repairing broken articles, etc., if employed according to the following

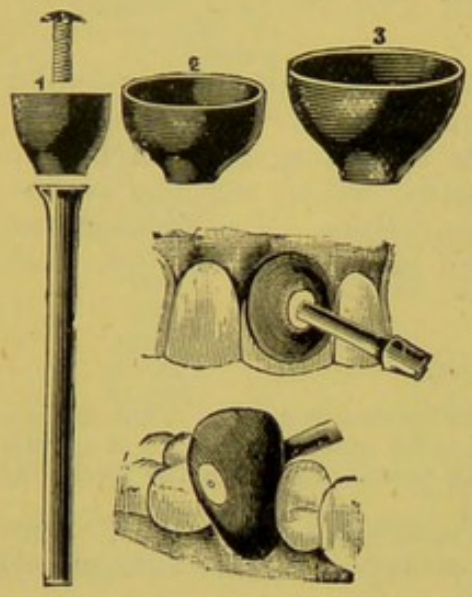
Directions for Use.

1.—Heat the pieces of the article to be mended, next melt the Shellac at a flame after the manner of sealing wax, without allowing it to burn, smear thinly the parts to be joined, then hold both pieces to the flame until the Shellac is quite melted, and finally press them together; or

2.—Break the Shellac into small pieces and put into a bottle with about twice its own bulk of spirits of wine. The spirits will dissolve the Shellac and form with it an exceedingly strong liquid glue, which may be applied with a brush, without the aid of heat. It is always ready for use, and is superior to the strongest glue, in that water does not affect it.

SOFT RUBBER POLISHING CUPS.

(Dr. J. B. Wood's.)



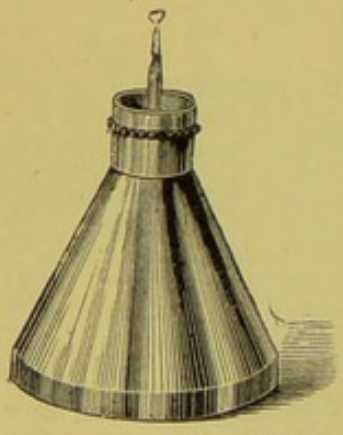
These little cups of soft rubber will be found among the most useful appliances for cleansing and polishing the natural teeth. Under slight pressure the cup adapts itself to the shape of the tooth, carrying the polishing powder to every portion of the surface without discomfort to the patient. The lingual and palatal surfaces are as readily operated on as the labial and buccal faces.

Made in three sizes—No. 1, Small; No. 2, Medium; No. 3, Large.

		s.	d.
Price, any size or assorted	per doz.	2	6
Mandrels for carrying them	each	1	0

ENGINE BIT OILER.

(Dr. Holmes'.)



To keep the inner part of a Handpiece quite free from rust, each instrument that is employed in it should be oiled every time before it is used, and Dr. Holmes' Engine Bit Oiler serves the purpose admirably.

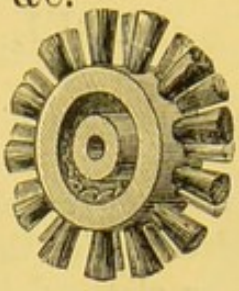
The base is weighted to keep it firm and steady in use. The milled top part, which unscrews to admit the oil, is provided with a leather washer, that has a small slit in it, through which the instrument passes, and when it is withdrawn the washer removes the surplus oil.

	s.	d.
Price, Nickel-plated	2	0

POLISHING BRUSHES, &c.

Cup-shape.

Straight.



Steel Wire.

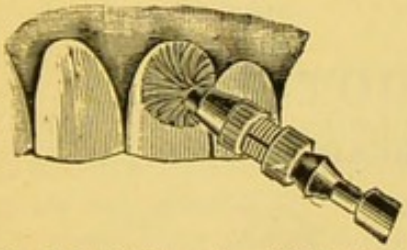
The cup-shape and straight are for polishing teeth, the steel wire brush for cleaning burs.

The straight brush without stem and the steel wire brush are mounted on the Parting-Nut Mandrel, and the cup-shape and straight, with bone centres, as illustrated, are used with the Screw-Porte Polisher. See page 219.

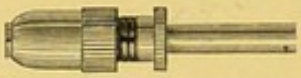
Prices:

		s.	d.
Cup-shape Polishing Brushes, Bone centre, with Stem	each	0	9
Straight „ „ „ „ without „	„	0	6
„ „ „ „ „ with „	„	0	9
Steel Wire Brushes for cleaning Burs	„	1	3

TOOTH POLISHING BRUSH.



Brush.



Porte-Polisher.

The Metal Stem in which the bristles of the brush are fixed is made to fit the Screw-Clamp Porte-Polisher here illustrated.

		s.	d.
Price, with stiff or medium bristles	per doz.	1	6
Screw-Clamp Porte-Polisher for any Handpiece	each	1	6

POLISHING POWDERS.

		s.	d.
Corundum Flour	per box	0	6
Pumice, superfine	„ lb.	0	6
Rouge	„ box	0	7

RUBBER RIMS.

(Dr. Wardwell's.)

		s.	d.
No. 3. For Engines with 9 in. Driving Wheels	each	1	8
„ 4. „ „ 10¼ „ „	„	1	8
„ 0. „ Engine Pulleys	„	0	8

Rubber Rims, for Driving Wheels of Lathes, &c., supplied to order.

STEEL WIRE BRUSH WITH HUB

(FOR SHAW'S ENGINE),

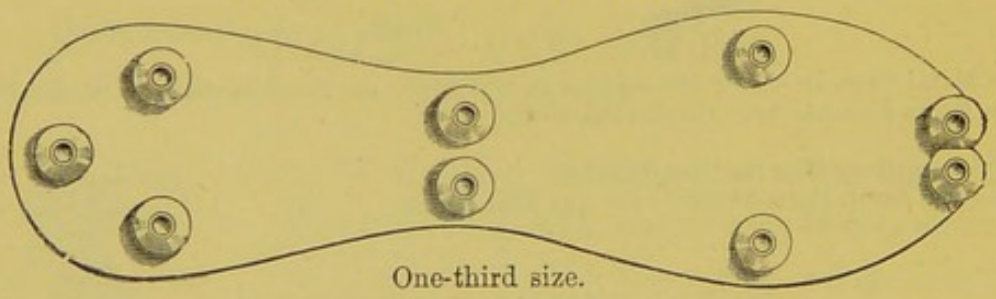
FOR CLEANING BURS.

The Hub on which this Brush is mounted fits on the projecting end of mandrel outside the pulley wheel on Shaw's Engine arm. The Bur should be cleansed *before* being put in the handpiece, otherwise the acute bend to which the springs are subjected is liable to break them. A few light touches will be found sufficient to remove all *débris* without damaging the Bur.

		s.	*d.*
Brush and Hub complete		3	0
Separately { Brush		2	0
Separately { Hub		1	0
Steel Wire Brush, with metal Hub, for mounting on the end of mandrel outside the pulley wheel on White's Engine, complete		4	0
Separately { Brush		3	0
Separately { Mandrel		1	0

INDIA-RUBBER FOOT-PAD,

FOR SHAW'S ENGINE TREADLE.



One-third size.

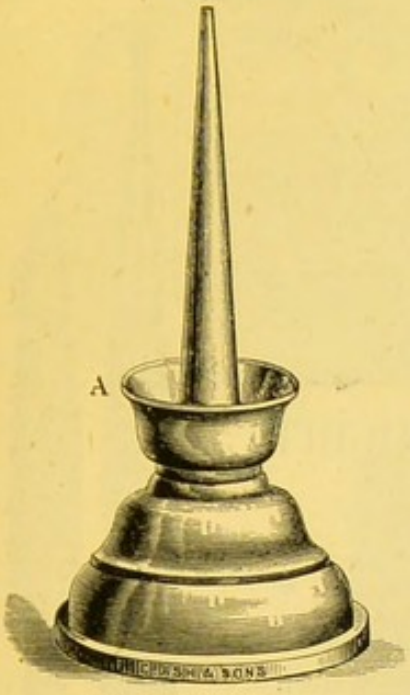
We can strongly recommend this Foot-Pad for the Treadle of Shaw's Dental Engine. **It affords great ease and comfort to the foot of the Operator when a treadle has become smooth and slippery through long-continued use.** The illustration shows the underneath side of the Pad, with the studs which secure it to the treadle. It can be put on without any trouble. The top side of the Pad is ribbed, to give the foot a secure hold when driving the engine.

	s.	*d.*
Price	4	0
India-Rubber Foot-Pad, for White's old style Engine	4	2

OIL CANS.

FIG. 1.—DR. BONWILL'S PATTERN.

Fig. 1.

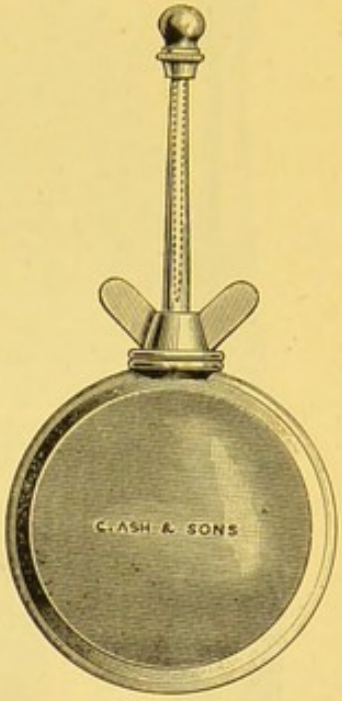


3¼ inches high.
1½ „ diameter.

This Oil Can meets a want long felt by the Dental Surgeon. It is small and neat in appearance, cleanly and economical in use, and eminently suited for the Operating Room. It is so constructed that the oil which remains on the end of the nozzle, when the can is laid down after being used, is caught in the cup A, shown in the illustration. There is an undercut in the bottom of the cup in which the oil lodges each time the Can is used. This keeps the lower part always clean and effectually prevents oil stains and soiled fingers.

When there is too much oil in the cup unscrew the nozzle, and the oil will run into the Can.

Fig. 2.



3¾ inches high.
1⅞ „ diameter.

FIG. 2.—FLAT OIL CAN, WITH SCREW-CAPPED NOZZLE.

This Oil Can is suitable for carrying in Visiting Bags, or keeping in the drawers of Cabinets, Bracket Tables, &c. The pin attached to the screw-cap shown by the dotted lines in the illustration is very useful for conveying an extremely small quantity of oil to Handpieces, Lock-Bit Attachments, and other delicate pieces of mechanism, and keeps the nozzle of the can always clear.

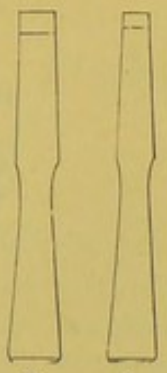
		s.	d.
Price, Nickel-plated	(Fig. 1)	2	0
Flat Oil Can, Nickel-plated	(„ 2)	1	0

ENGINE OIL.

This is the finest white transparent oil that can be obtained. It is eminently suited for the delicate mechanism of the dental Engine, &c., will not gum or become sticky, and is quite free from smell.

Prices:

	s.	d.
Two-ounce Bottle	0	6
Six-ounce „	1	6



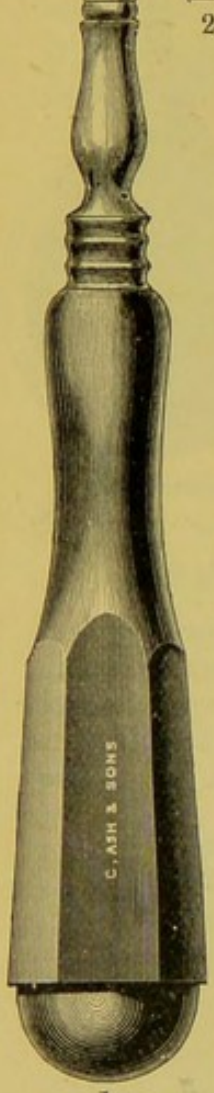
2. 3.

SMALL SCREW DRIVERS,

FOR THE OPERATING ROOM.

Made in three widths, as illustrated, carefully tempered, and set in fancy ebony handles.

		s.	d.
Price ..	per set of 3	7	0
„	any size (Figs. 1, 2, 3) each	2	6



1.

THE KÆBER ENGINE-BIT HOLDER.

A convenient appliance when it is desirable to use an engine-bit as a hand instrument. A slit-coned clamp, which grasps the shank of the instrument firmly, working in a coned socket, is controlled by a screw-collar, as shown in the cut. The coned bearing and the substantial quality of the workmanship make this a valuable addition to the operating-room. It is handsomely finished, and may be had to carry either style of bur shown on page 206.

When ordering, please specify for which it is wanted.

Prices:

	s.	d.
In Knurled Handle, Nickel-plated .. (Fig. 1)	5	0
Revolving-Head Socket Handle for holding Engine Burs, &c.	3	0

This will also carry either style of bur shown on page 206. When ordering, please state for which it is required.

1.

STANDS FOR ENGINE-BITS.

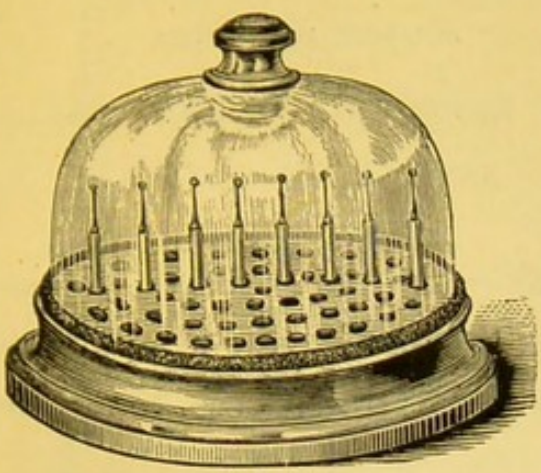


Fig. 2.

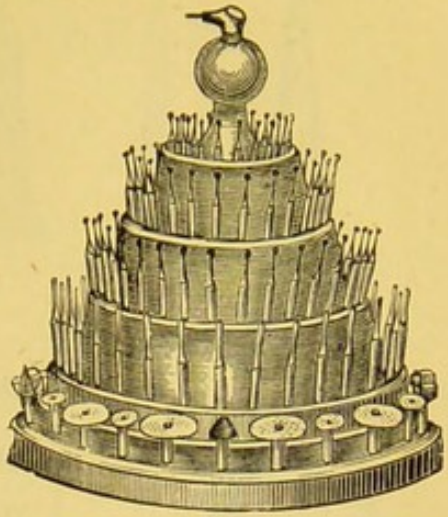


Fig. 5.

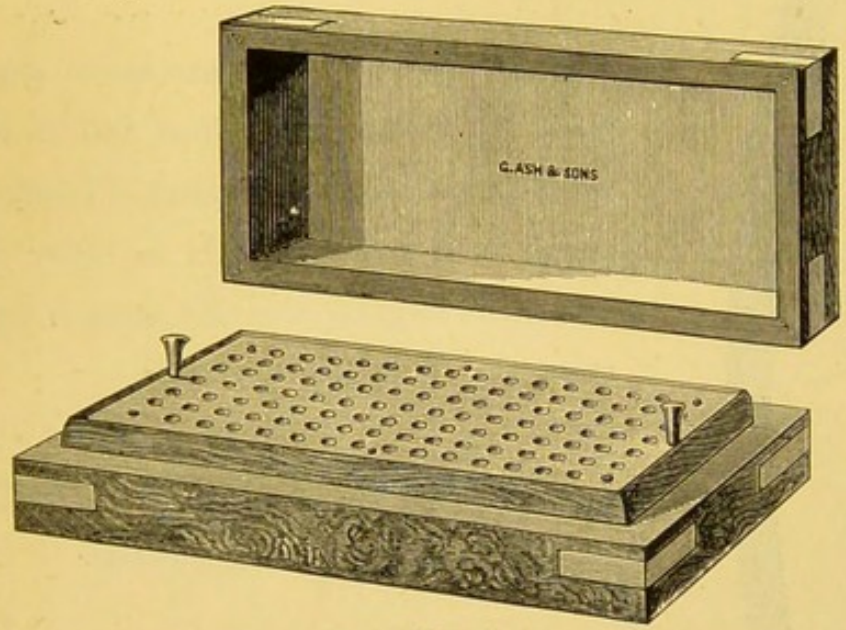


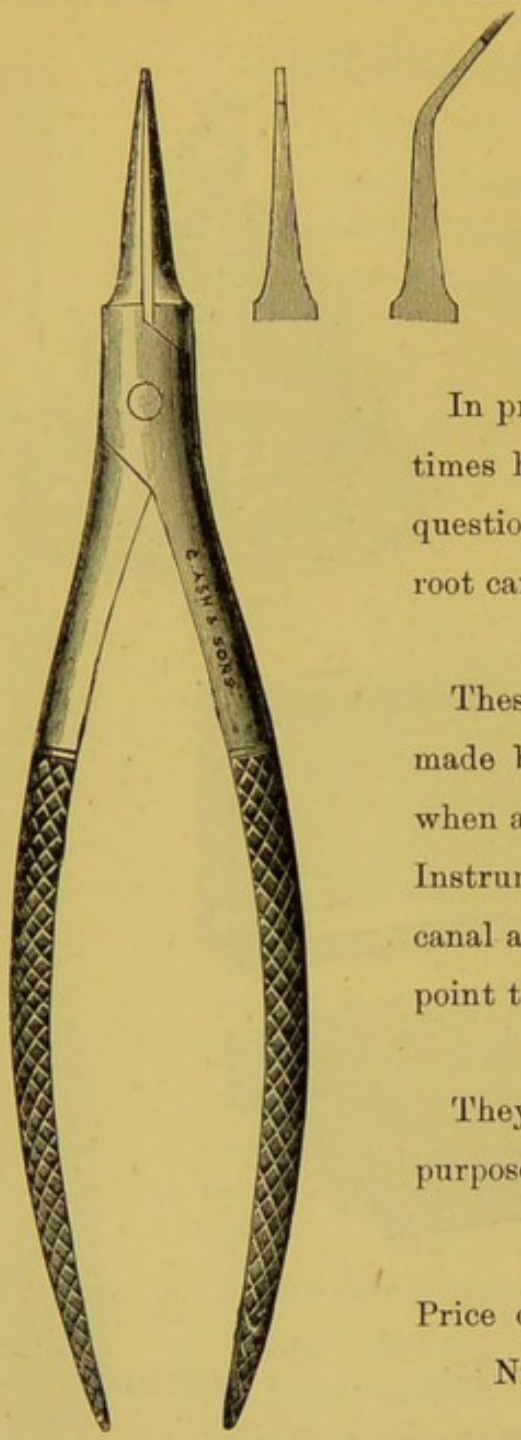
Fig. 6.

Prices :

			s.	d.
In polished maple or ebonized wood, containing 60 holes ..	(Fig. 2)	each	5	0
The same, minus glass cover			3	0
In polished maple or ebonized wood, with revolving stand and 120 holes	(Fig. 5)		12	0
Stands in ebonized wood, with glass cover, with 73 holes		„	10	6
„ „ without „ „ 73 „		„	7	0

BUR BOXES.

			s.	d.
In polished walnut, to hold 108 points	(Fig. 6)	each	9	6
In „ „ „ „ for Straight Handpiece and Lock-bit Attachments, with nickelled metal plate and layer of leather for keeping the instruments oiled	(Fig. 6)	„	17	6



Full Size.

NERVE CANAL PLIERS,

STRAIGHT AND CURVED,

FOR REMOVING BROKEN DRILLS FROM ROOT CANALS.

In preparing root canals for filling it sometimes happens that a drill is broken, and the question then arises how the piece left in the root can best be extracted.

These Pliers are the outcome of suggestions made by Messrs. T. G. Read and G. Seymour, when at the Dental Hospital of London, for an Instrument fine enough to enter the root canal and to grasp the thin stem of the broken point that is lodged within it.

They will also be found useful for other purposes in the Operating Room.

	s.	d.
Price of Pliers, Straight or Curved, Nickel-plated .. .. each	5	6

PLIERS FOR THE OPERATING ROOM.

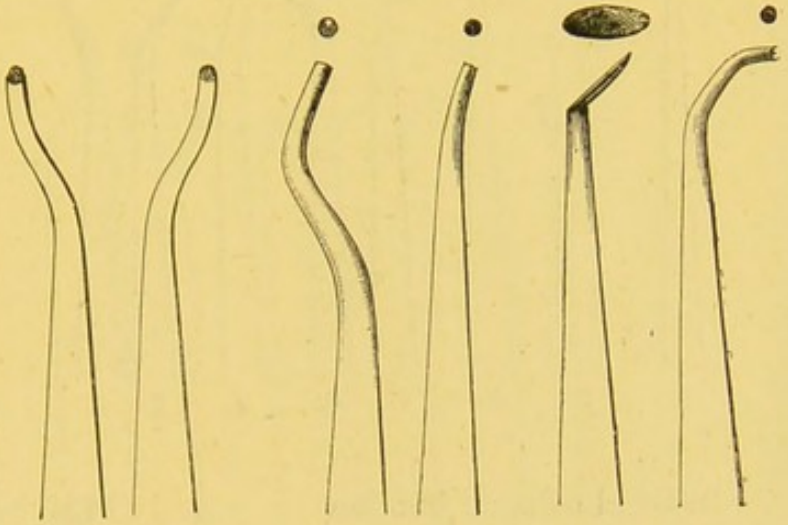
With flat tapered beaks, 5½-in. long. In bright steel, highly finished, and Nickel-plated.

	s.	d.
Price	4	3

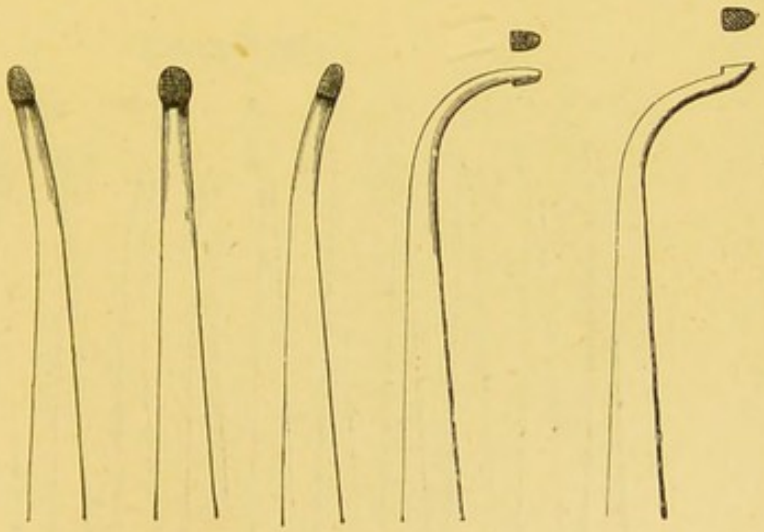
HAND STOPPERS.

(Set A.)

1.
(Full Size).



2. 3. 4. 5. 6. 7.



8. 9. 10. 11. 12.

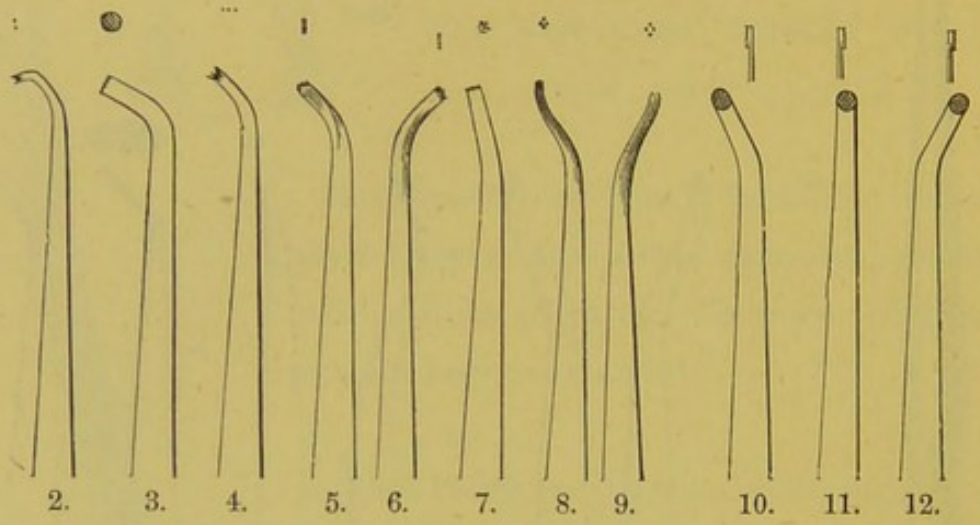
Prices:

				s.	d.
In Steel octagon handles ..	(Figs. 1–12)	each		1	2
„ „ Nickel-plated	(„ 1–12)	„		1	6

HAND STOPPERS—*continued.*

(Set B.)

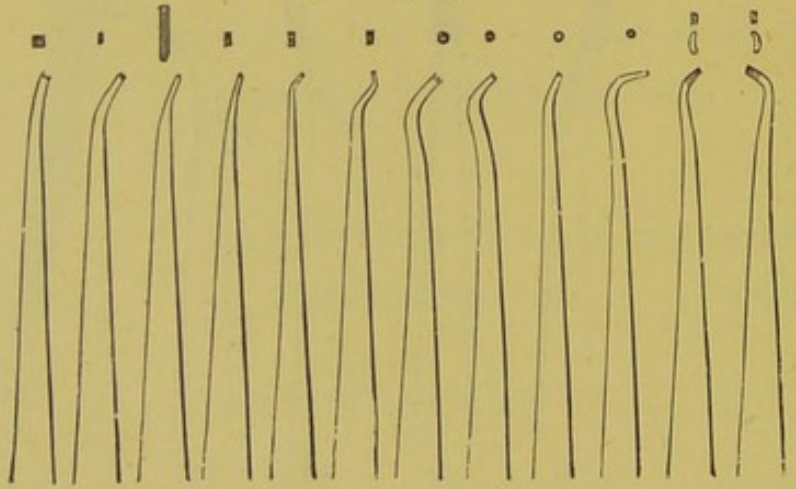
1.



2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.

				s.	d.
In Steel octagon handles	..	(Figs. 1–12)	each	1	2
„ „ Nickel-plated		(„ „)	„	1	6
In Ebony handles like Fig. 1	..	(„ „)	„	3	0

(Dr. Ellis's.)



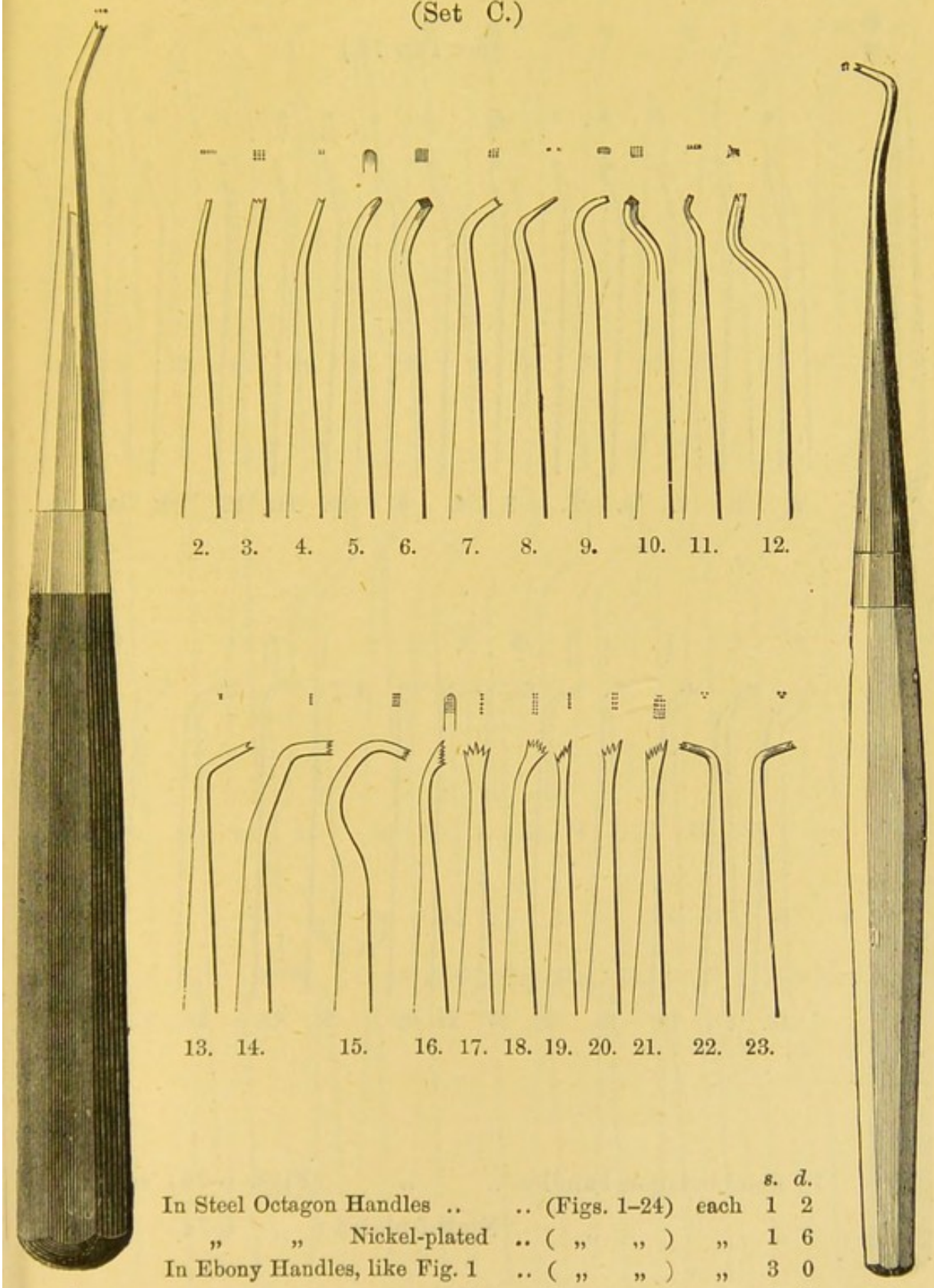
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.

Specially adapted for use with Plastic or Sponge Gold.

				s.	d.
In Steel octagon handles	..	(Figs. 1–12)	each	1	2
„ „ Nickel-plated		(„ „)	„	1	6

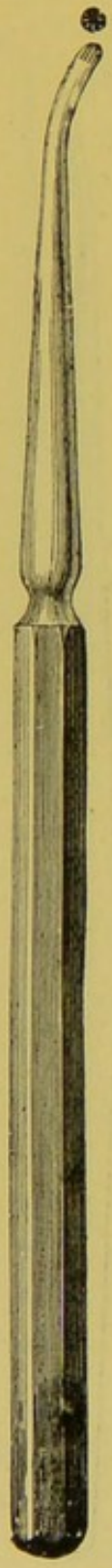
HAND STOPPERS—*continued.*

(Set C.)



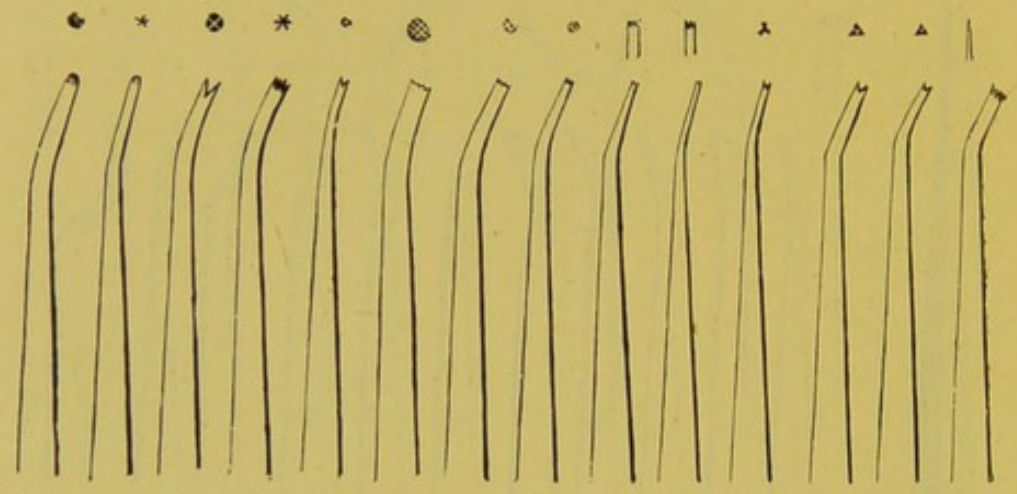
			s.	d.
In Steel Octagon Handles ..	.. (Figs. 1–24)	each	1	2
„ „ Nickel-plated	.. („ „)	„	1	6
In Ebony Handles, like Fig. 1	.. („ „)	„	3	0
„ „ „ 24	.. („ „)	„	3	0

HAND STOPPERS—*continued.*

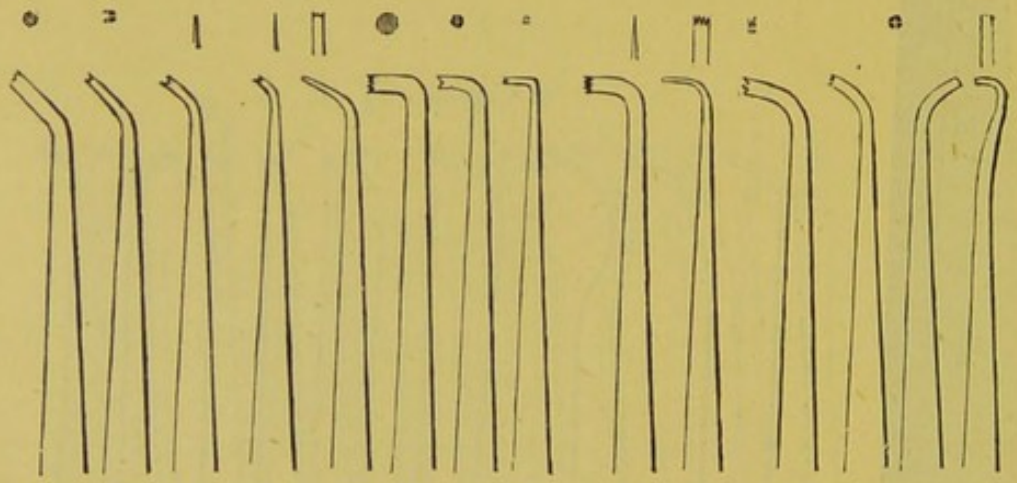


1.

(Set 1 to 74.)



2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15.

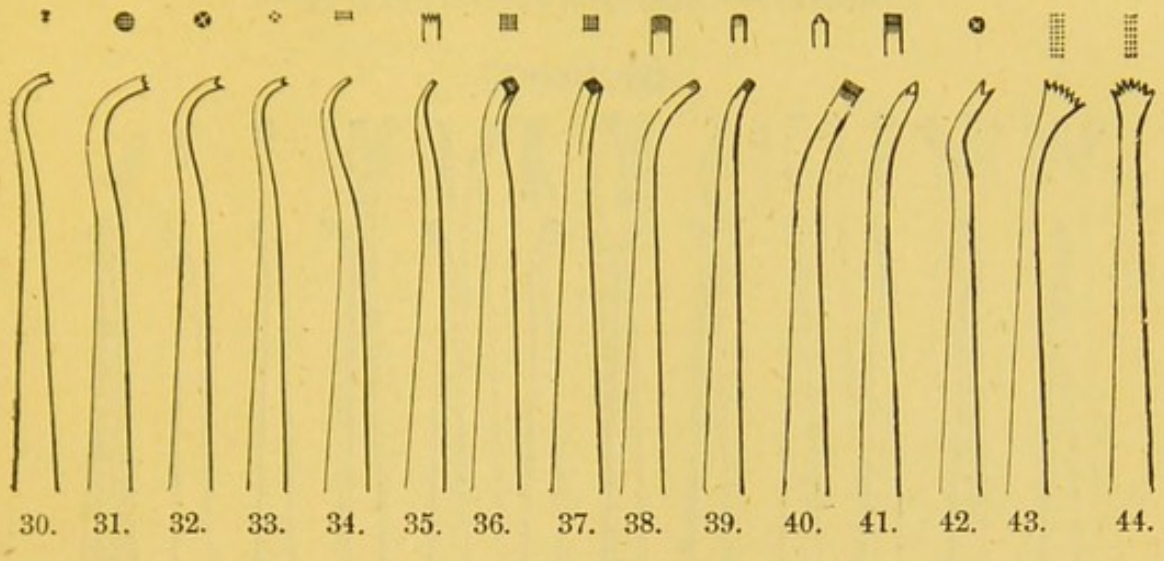


16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29.

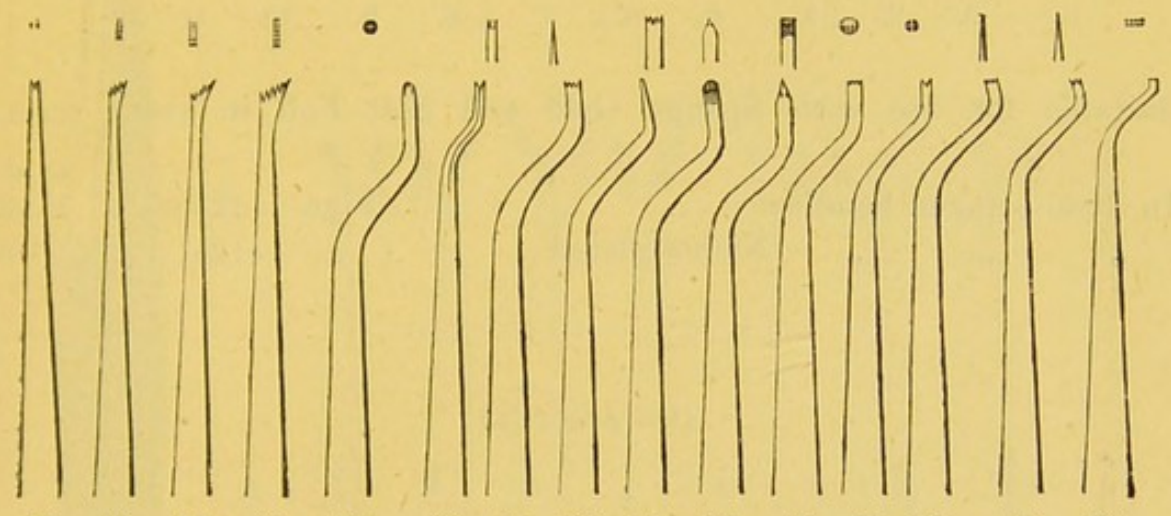
				s	d.
In Steel octagon handles		(Figs. 1–74)	each	1	2
„ „	Nickel-plated	(„ 1–74)	„	1	6

Stoppers re-pointed at moderate charges.

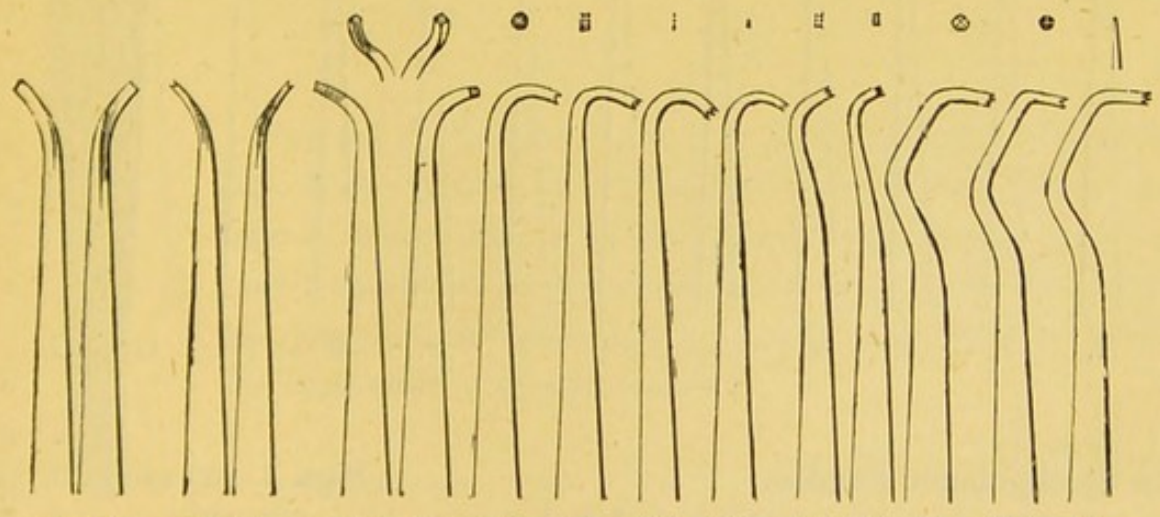
HAND STOPPERS—*continued.*



30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44.



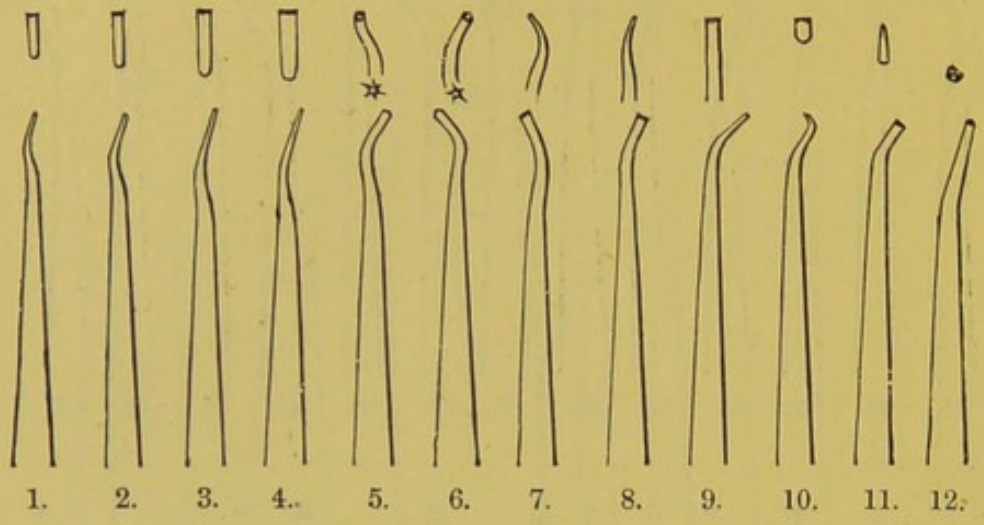
45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59.



60. 61. 62. 63. 64. 65. 66. 67 68. 69. 70. 71. 72. 73. 74.

HAND STOPPERS—*continued.*

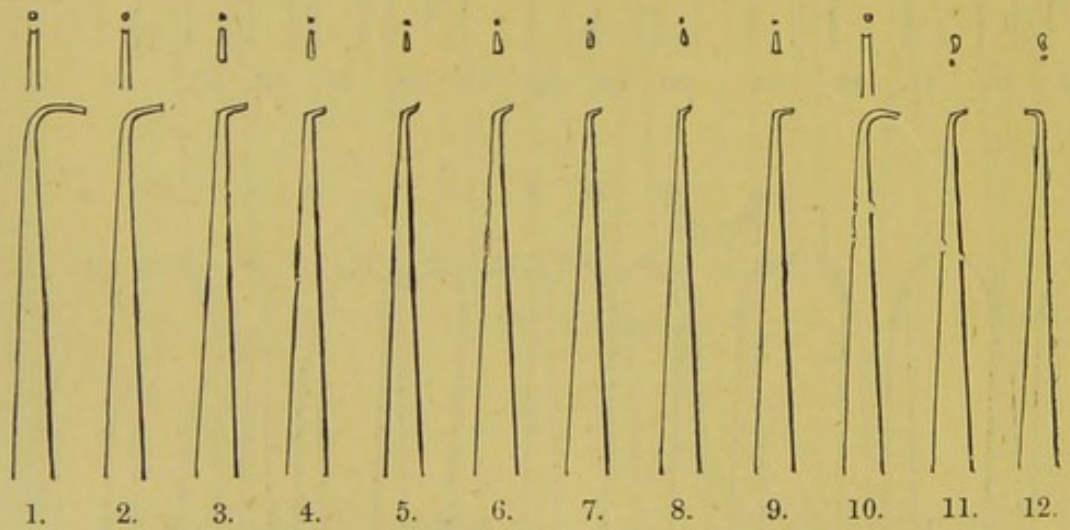
(Dr. Head's.)



Suitable for use with Sponge Gold and Soft Foil in every form.

			s.	d.
In Steel octagon handles	(Figs. 1–12) each		1	2
„ „ „ Nickel-plated ..	(„ 1–12) „		1	6

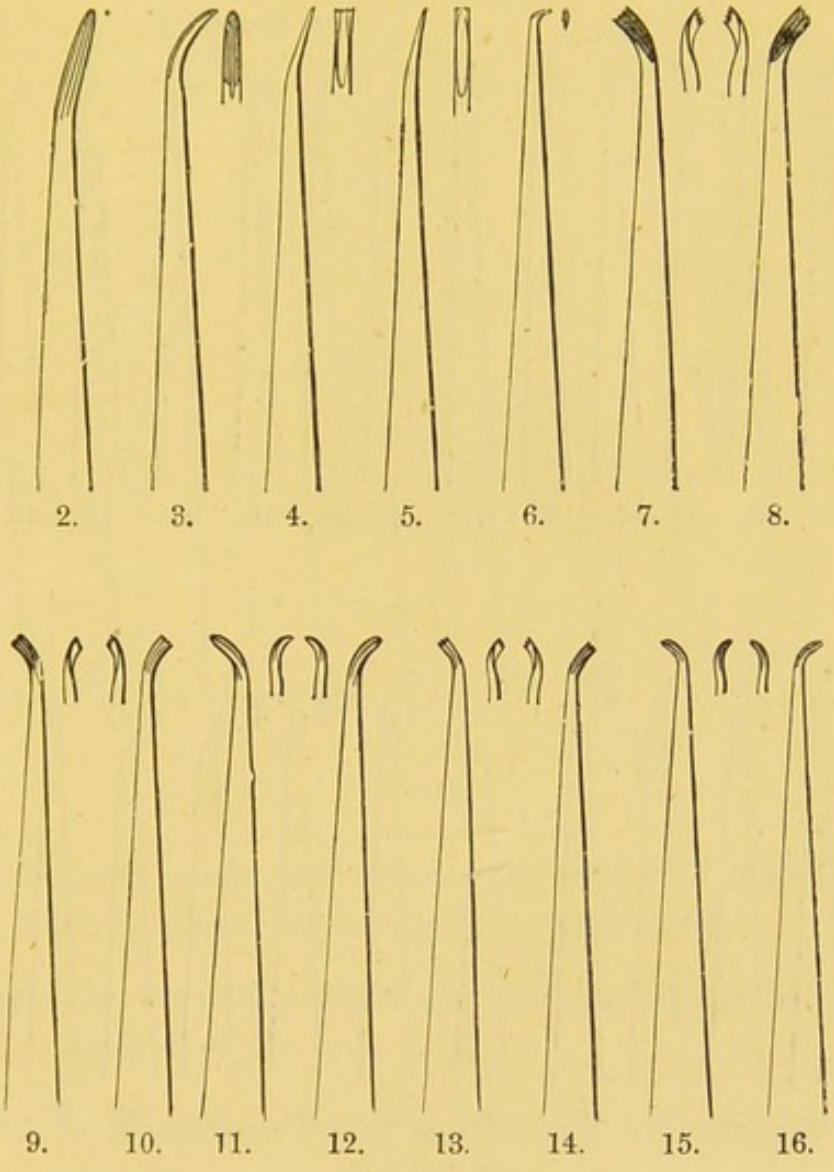
(Dr. Abbott's.)



		s.	d.
In Steel octagon handles	(Figs. 1–12) each	1	2
„ „ „ Nickel-plated ..	(„ 1–12) „	1	6

HAND STOPPERS—*continued.*

(Dr. Bing's.)



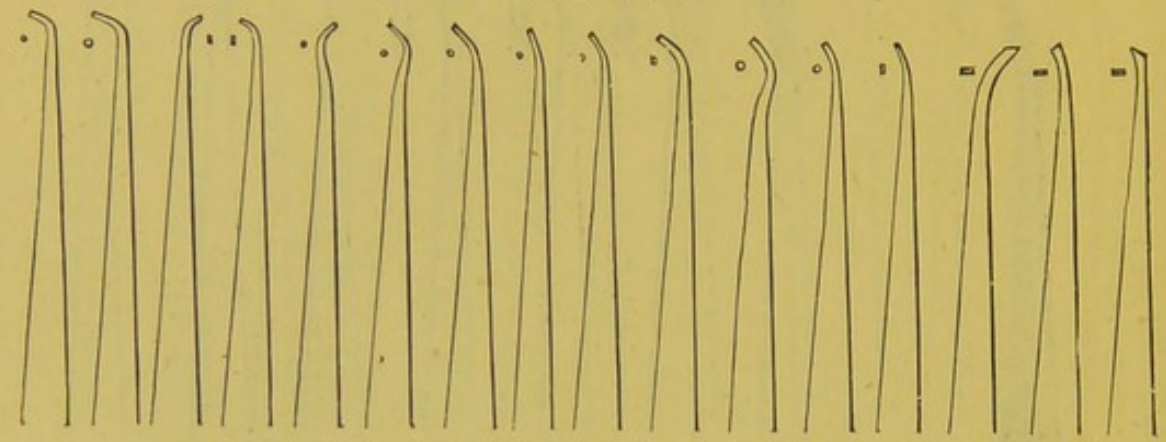
This set of Pluggers is used on the wedging principle, with Nos. 4 and 5, Soft or Non-cohesive Gold Foil folded in the form of tape. When either Pellets or Cylinders of gold are used they should be forced into the cavity with the ordinary foot pluggers, and then keyed up with gold tape by means of the Instruments here illustrated.

	Set of 16.		Each.	
	s.	*d.*	*s.*	*d.*
1 In Ebony handles with German Silver Ferrules	45	0	3	0

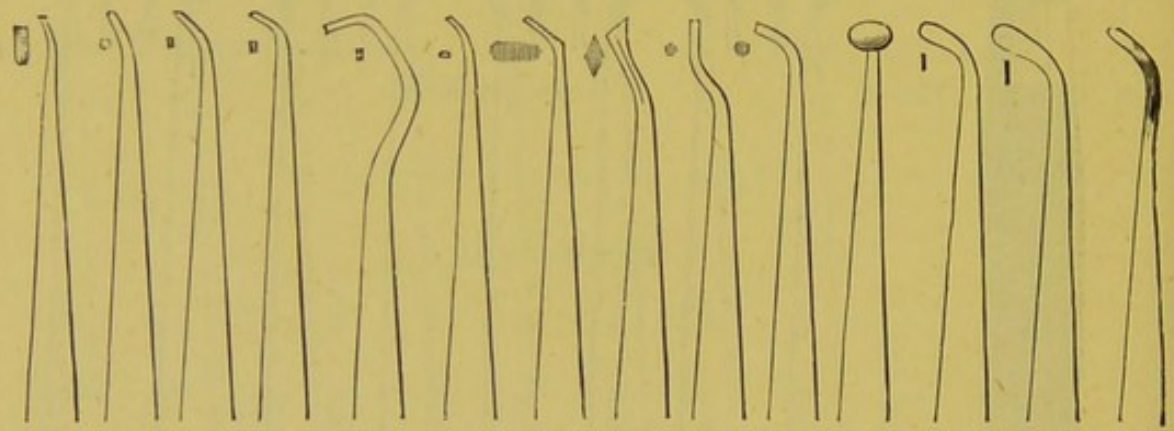
HAND STOPPERS—*continued.*

(Dr. Darby's.)

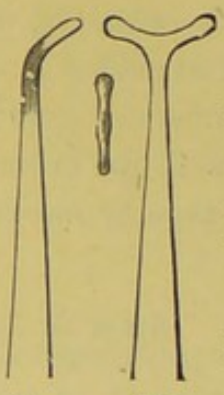
1.



2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17.



18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31.



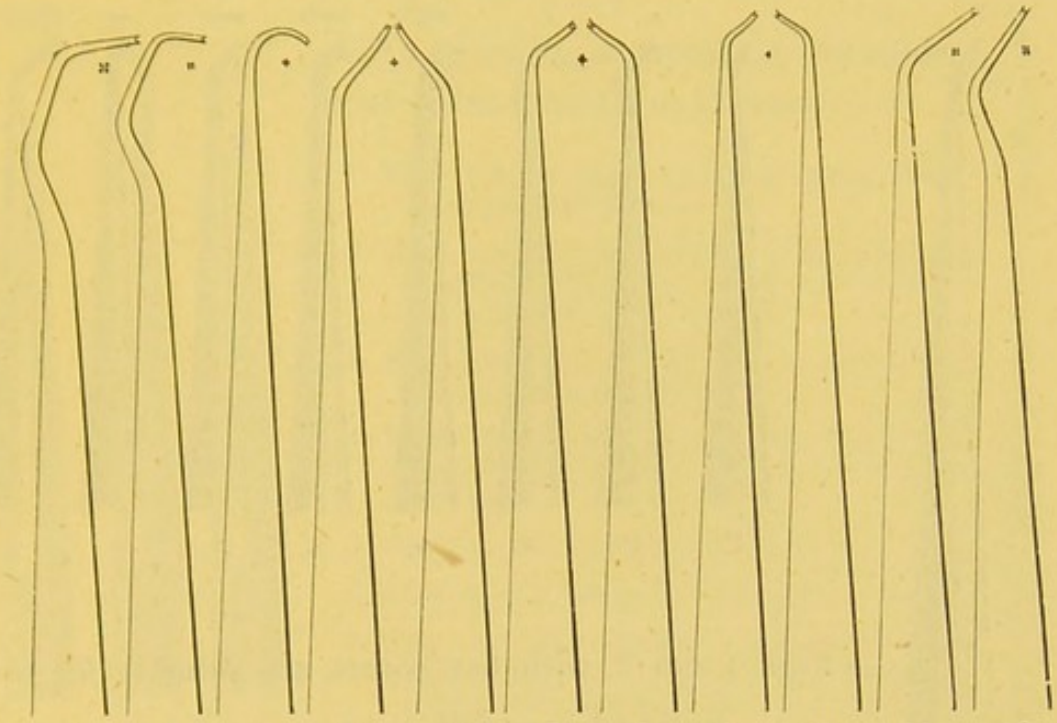
32. 33.

Consisting of 27 Stoppers and 6 Burnishers, which form a very useful and complete set of Instruments.

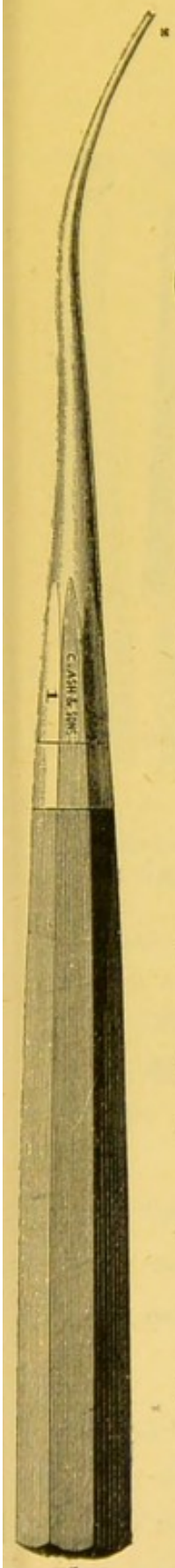
			s.	d.
In Steel file-cut handles	(Fig. 1)	each	2	0
„ „ „ Nickel-plated	(„ 1)	„	2	4
In Steel octagon handles		„	1	2
„ „ „ Nickel-plated ..		„	1	6

HAND STOPPERS—*continued.*

(Mr. R. H. Woodhouse's.)



2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.



1.

These Stoppers can be used either with Gold or Tin Foils; the Gold being employed cohesively or non-cohesively.

They are also especially useful for making fillings partly of Tin and partly of Gold.

Fig. 1 will be found most useful in reaching the distal walls of cavities far back in the mouth.

Figs. 3, 4, 5, 6, 9, 10, 12 are very suitable for interstitial cavities in front teeth, when operating by reflection in the mouth mirror.

Figs. 2, 7, 8, 11 can be used with equal facility for filling undercuts either with Gold or Tin Foil.

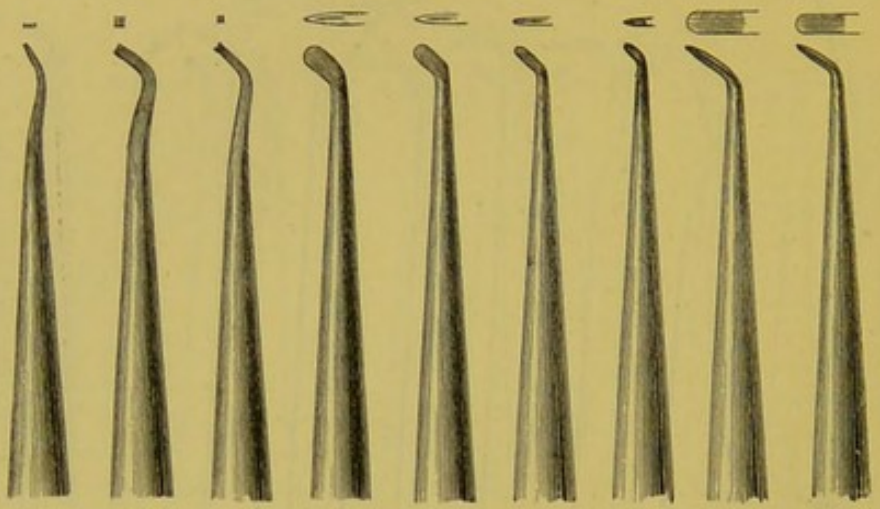
Prices:

		s.	d.
In Ebony handles	(Figs. 1–12) each	3	0

HAND STOPPERS—*continued.*

(HOSPITAL PATTERNS.)

1



2. 3. 4. 5. 6. 7. 8. 9. 10.

Figs. 1 and 2, with flat points, are suitable for use with cohesive foil.

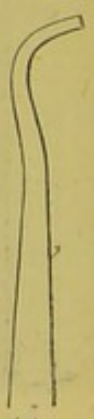
Figs. 3 and 4, with square points, are used as condensers in crown cavities.

Figs. 5, 6, 7, 8, serrated both sides, and wedge shape, are useful in all fairly superficial cavities with non-cohesive foil.

11

Figs. 9 and 10, serrated top and bottom, are designed for introducing non-cohesive foil in interstitial cavities of Bicuspids and Molars; also in large crown cavities.

Figs. 11 and 12 are Upper and Lower Condensers.



12.

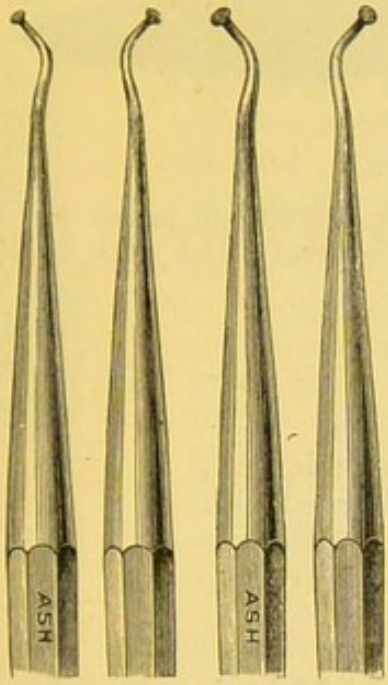
		s.	d.
In Ebony handles ..	(Figs. 1–12) each	3	0

EGG-SHAPED HAND PLUGGERS,

Plugging Assistant.

FOR USE WITH COHESIVE GOLD.

(Mr. J. E. Husband's.)



1. 2. 3. 4.

The following are some of the advantages claimed for these Pluggers:—

1. They can be employed in any cavity where hand-pressure is used.
2. They are very useful in interstitial cavities, especially where the teeth are crowded and irregular, and
3. For filling distal and labial cavities in molars and bicuspids.
4. Being finely serrated all over, they work equally well with a pushing or pulling motion.
5. They do not cause the gold to "ball."
6. They do not "chop up" the gold.
7. They are most effective when used with a slight lateral or rocking motion, and owing to the nicety of the curve will reach any part of the cavity.
8. Rapid work can be done with them, and they are specially adapted for condensing gold about the margins of cavities.

Made in rights and lefts as illustrated, with highly finished stoned serrations, and steel handles with blued centres and polished ends, like Butler's Mallet Pluggers shown on page 260. Although made in these handles, they are not suitable for use with the Mallet.

		s.	d.
Price	(Figs. 1–4) each	4	0
In Ebony handles like Bing's on page 247	(„ 1–4) „	4	6

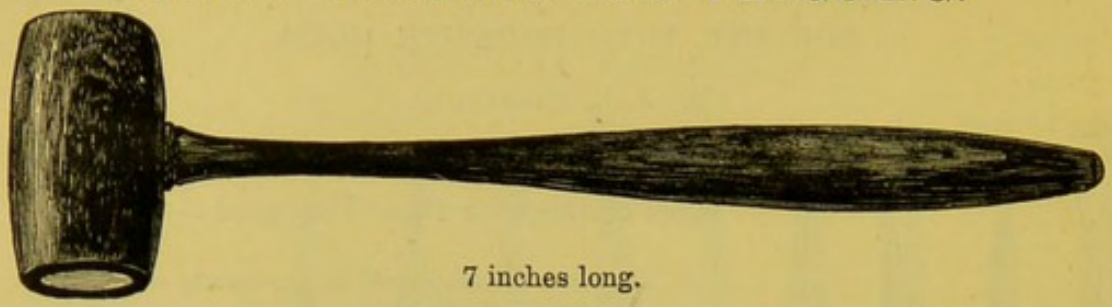
PLUGGING ASSISTANT.

(Dr. Weston's.)

Used with the left hand for holding the filling material in the cavity until the Stopper is applied. It will also be found very useful as a Probe.

	s.	d.
In blued handle	1	6

HAND MALLETS FOR PLUGGING.



7 inches long.

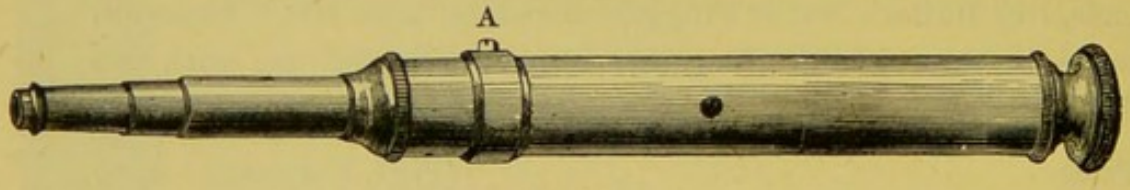
Hand Mallet used with Plugging Instruments, shown on pages 257–261. The head of this Mallet is made of tough wood filled with lead, $1\frac{3}{4}$ inches long and $\frac{7}{8}$ inch in diameter.

		s.	d.
Price, as illustrated, with Wood handle	each	3	3
Hand Mallet, with Tin head, in Wood handle	„	2	6
Hand Mallet, size of Head: diameter, $\frac{3}{4}$ of an inch; length, 1 inch. It is made of Nickel-plated brass charged with lead. The full length of the Mallet is $6\frac{5}{8}$ inches, the total weight, including handle, being a little over $3\frac{1}{2}$ ounces	„	3	6

Hand Mallets of other descriptions made or obtained to order.

AUTOMATIC MALLETS.

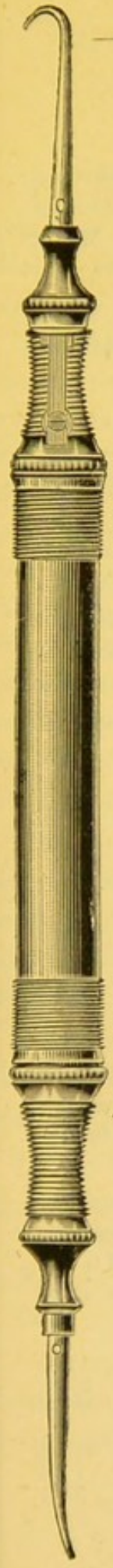
(Snow and Lewis's.)



$5\frac{1}{2}$ inches long.

Automatic Mallet, Improved, giving light and heavy blows, regulated by means of the ring at the socket end of case. The point can be fixed by means of the ring A when the Mallet is required for hand-pressure plugging, or for enamel cutting.

		s.	d.
In German Silver, Nickel-plated, with screw socket ..	each	30	0
Mallet Points as illustrated on page 262, with screw ends ..	„	1	6
Leather Case, $6\frac{1}{2}$ in. by 3 in., and 1 in. deep, to hold Mallet and 24 Points, lined with Silk Velvet	„	8	0
Automatic Mallet (American make) as above	„	30	0



AUTOMATIC MALLET.

(Dr. ABBOTT'S.)

PATENTED IN ENGLAND AND AMERICA.

Two of the most valuable features of the Abbott Mallet are: 1. The blow is always uniformly dead. 2. The force necessary to produce the blow is very little. Consequently the strength and time of the operator are conserved by its use.

It was designed especiaHy to avoid the defects of other appliances of its class. It is simple in construction, and combines with the usual direct blow, a back-action movement, actuated by the same mechanism, so that with it gold can be packed into cavities in almost any position in the mouth.

The working parts—pivotal latch, tripping mechanism, hammer, and spring—are entirely free from the case, being carried upon a spindle which passes centrally through it. This plan of construction avoids friction. Each end of the spindle is socketed for the reception of the plugger points, one end giving the direct push or thrust-blow, the other the pull or back-blow.

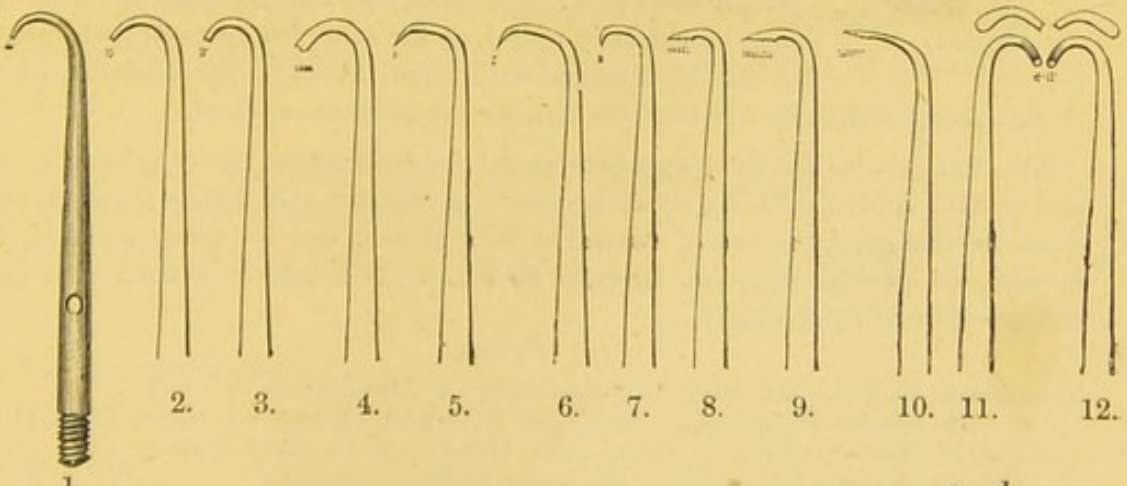
The Mallet combines simplicity of construction with easy, effective operation.

All the parts liable to wear are made of hardened steel, and the instrument throughout is constructed in the best manner.

For the direct blow the Cone-socket or Snow & Lewis' points, either of which will fit the socket, may be used. For the back-action blow, Dr. Abbott has devised the set of points shown herewith. It is believed they will cover all requirements.

	s.	*d.*
Price of Mallet	34	0

BACK-ACTION MALLET POINTS.



	s.	*d.*
Price, with screw ends .. .. (Figs. 1–12) each	1	6

PNEUMATIC MALLETS.

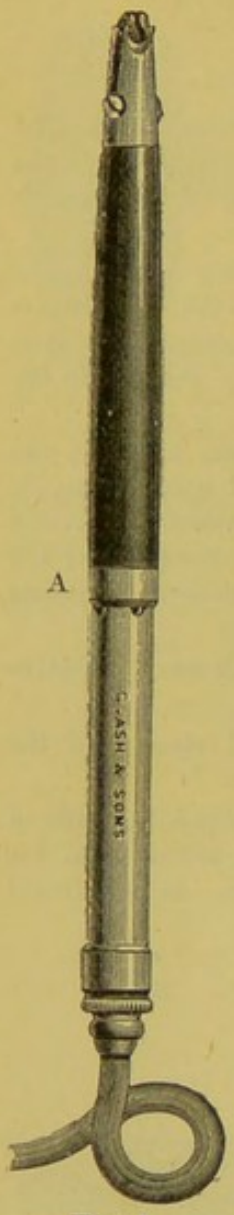


Fig. 1.

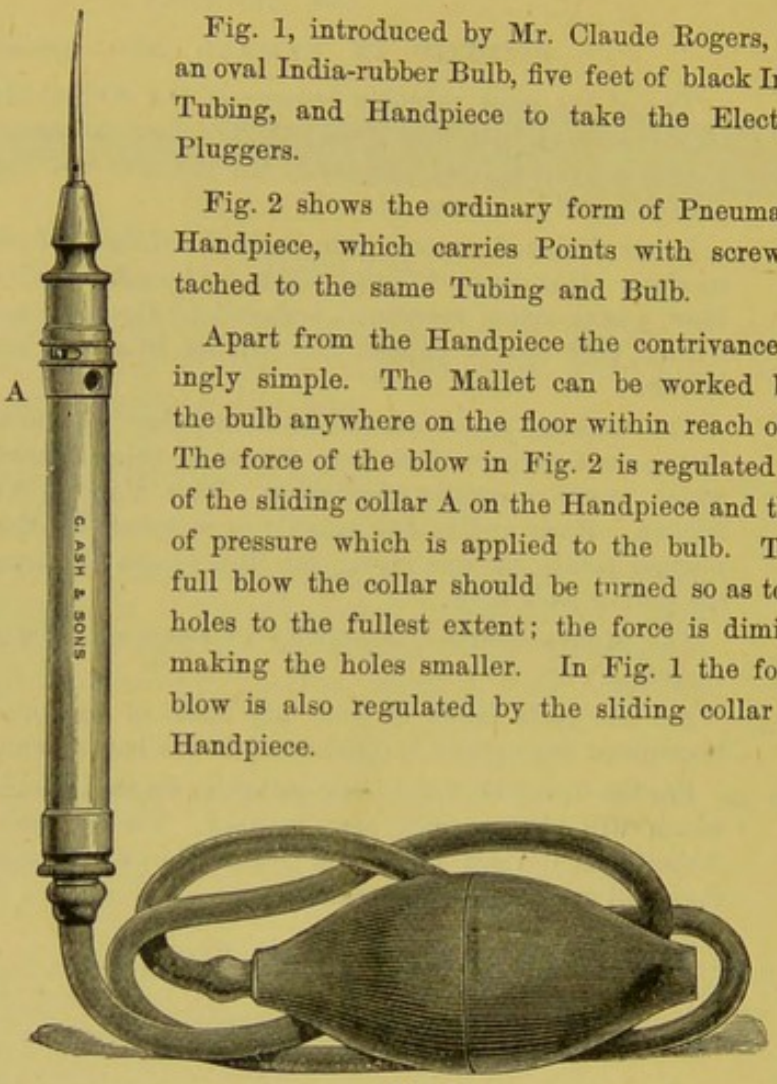


Fig. 2.

Fig. 1, introduced by Mr. Claude Rogers, consists of an oval India-rubber Bulb, five feet of black India-rubber Tubing, and Handpiece to take the Electric Mallet Pluggers.

Fig. 2 shows the ordinary form of Pneumatic Mallet Handpiece, which carries Points with screw ends, attached to the same Tubing and Bulb.

Apart from the Handpiece the contrivance is exceedingly simple. The Mallet can be worked by placing the bulb anywhere on the floor within reach of the foot. The force of the blow in Fig. 2 is regulated by means of the sliding collar A on the Handpiece and the amount of pressure which is applied to the bulb. To obtain a full blow the collar should be turned so as to open the holes to the fullest extent; the force is diminished by making the holes smaller. In Fig. 1 the force of the blow is also regulated by the sliding collar A on the Handpiece.

Mr. Rogers says: "For those who use the Bonwill Electric Mallet this is particularly useful, as the same Pluggers fit both instruments and can be changed with equal facility; the air-ball and tubing, though small and light, are large enough for the purpose required.

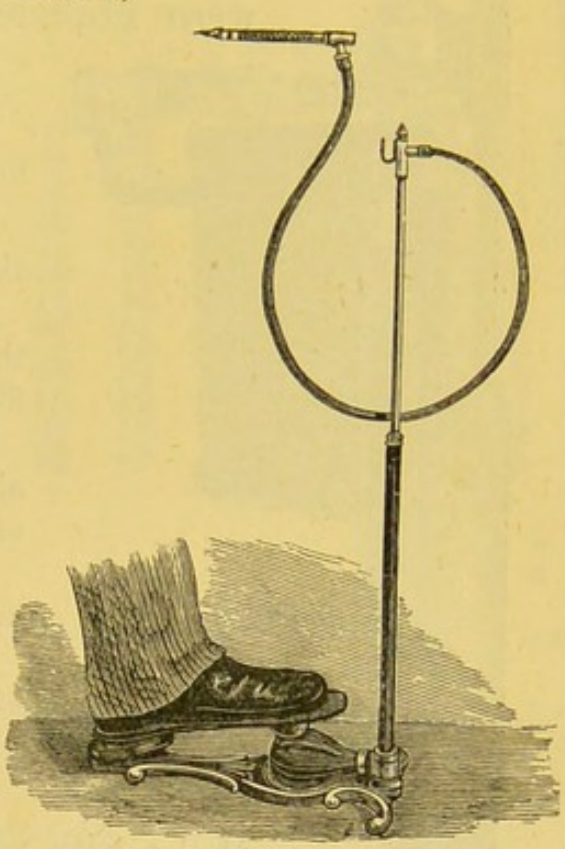
The Pneumatic Mallet is specially useful for condensing heavy cylinders, either of soft or hard gold; for filling retaining points in cohesive gold fillings; also for chipping down overhanging portions of enamel with a chisel; and for many patients it is less jarring and painful than the Electric Mallet, while it can be worked with an equal amount of delicacy of touch."

Prices:

		s.	d.
Pneumatic Mallet (Mr. Rogers'), consisting of Handpiece to carry Electric Mallet Pluggers, India-rubber Bulb and Tubing, complete	(Fig. 1)	35	0
Pneumatic Mallet, ordinary form, with Handpiece to carry Points with screw ends, India-rubber Bulb and Tubing, complete ..	(„ 2)	30	0
Extra Bulbs	each	1	6
India-Rubber Tubing	per foot	0	4

IMPROVED PNEUMATIC MALLET.

(Mr. S. A. Kirby's.)



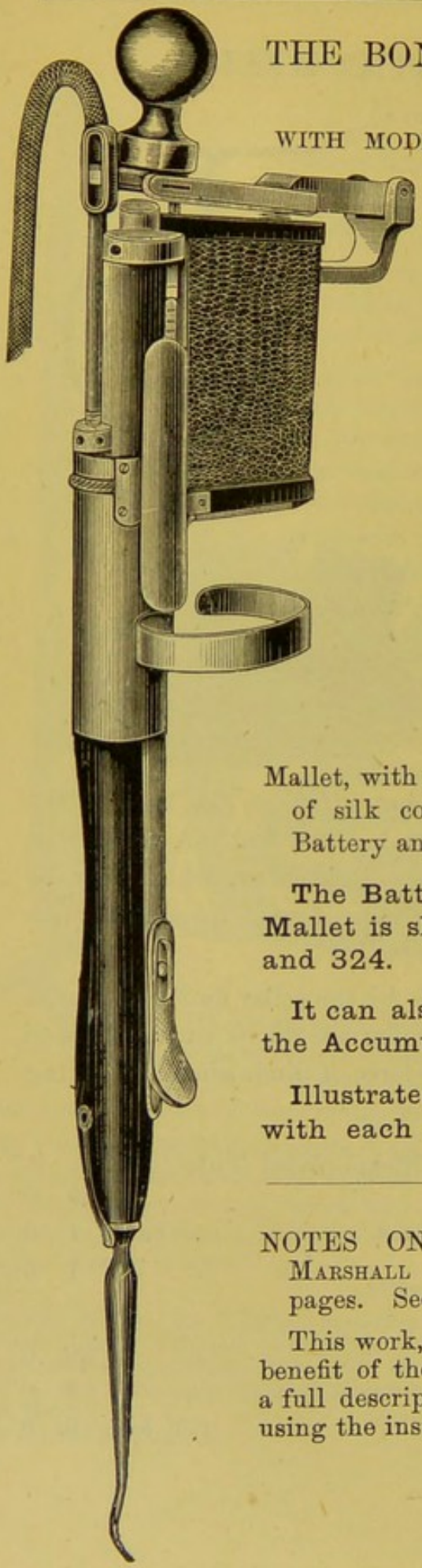
This Instrument answers all the purposes of an ordinary Hand Mallet without the aid of an assistant.

Each blow is given with the exact force and at the precise moment desired by the Operator, and power enough may be obtained, if required, for welding unannealed, non-cohesive gold with the smallest possible amount of concussion or jarring to the tooth. Several blows may be given in rapid succession, but the Instrument is intended to produce a decided effect on the exact spot required, rather than to afford a number of rapid blows.

The heel should be placed firmly, but not stiffly, on the back of the pedal, so that it carries the weight of the leg and foot. A very slight movement of the toe will then produce a light blow, which may be increased to any desired extent by using more force. No considerable motion of the foot is at any time necessary.

The force of the blow is also regulated by the collar on the improved Handpiece. To obtain a full blow the collar should be turned so as to open the holes to the fullest extent; the force is diminished by making the holes smaller.

			s.	d.
Mallet, with Ornamented Iron Stand, Nickel-plated Tube and Improved Handpiece, complete			80	0
Points for ditto, with Screw Ends, all forms	each		1	6
Cover			1	6
Extra parts separately :				
Improved Handpiece			30	0
India-rubber Bulb			3	6
„ Tubing	per foot		0	6



THE BONWILL ELECTRO-MAGNETIC MALLET,

WITH MODIFICATIONS AND IMPROVEMENTS BY MARSHALL H. WEBB.

The following advantages are claimed for this mallet:

1. The force of the blow is under the control of the Operator.
2. It condenses the gold evenly and thoroughly throughout the entire filling.
3. Gold may be impacted with ease against thin frail walls without risk of fracturing them.
4. It saves the Operator much time and labour.
5. When properly understood it is easily kept in order.

Prices:

	s.	d.
Mallet, with connecting-posts and seven feet of silk cord, ready for attaching to the Battery and one Plugger, in Leather Case	140	0

The Battery recommended for working this Mallet is shown and described on pages 323 and 324.

It can also be worked from two or three of the Accumulators shown on page 191.

Illustrated Pamphlet of Instructions sent with each Mallet.

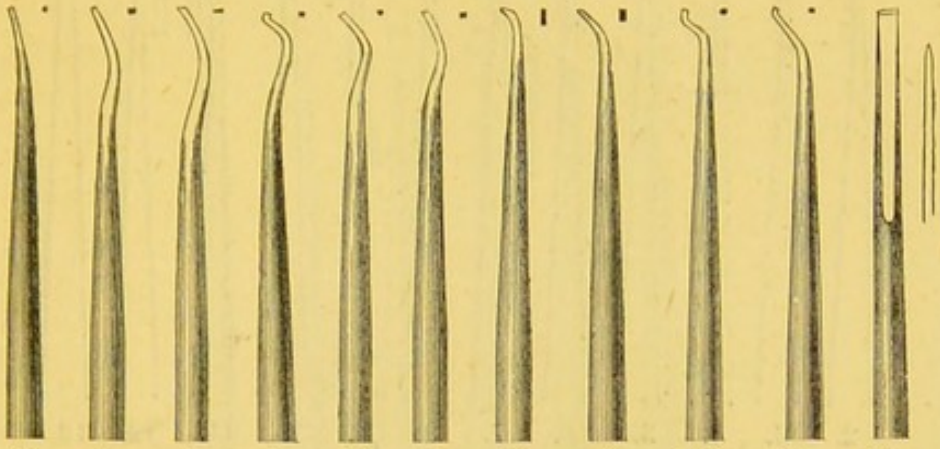
NOTES ON OPERATIVE DENTISTRY. — By Marshall H. Webb, D.D.S. In 8vo. cloth, 175 pages. Second Edition. Net, 9*s*.

This work, the profits on which are devoted to the benefit of the late Dr. Webb's family, also contains a full description of the Mallet, and the manner of using the instruments.

MALLET PLUGGERS,

FOR THE ELECTRIC MALLET.

(Dr. Marshall H. Webb's.)



2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.

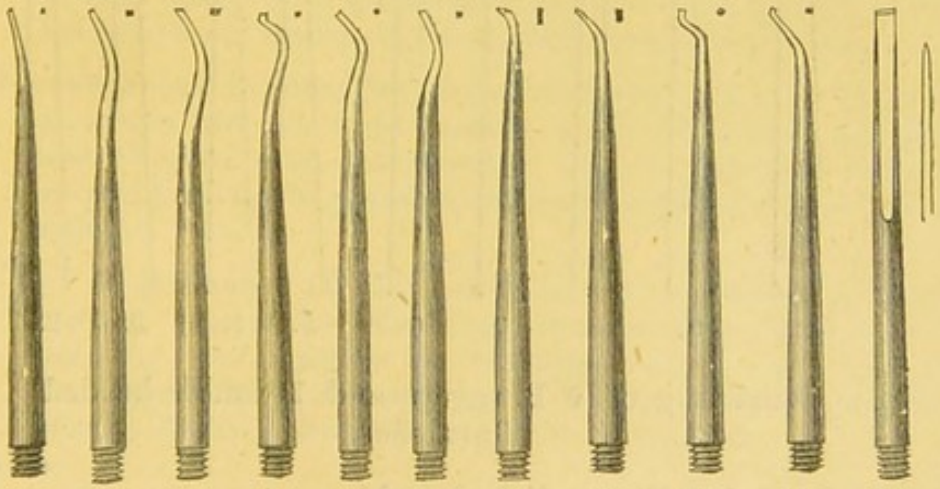
		s.	d.
Set of 12 as illustrated	each	4	0

All forms of Pluggers for the Electro-Magnetic Mallet made or obtained to order.

The Mallet is also supplied to order with Socket Handle to hold Points such as are used with existing Automatic Mallets, but only those points with very fine and shallow serrations should be employed, because the coarser kinds are liable to chop up the gold.

MALLET POINTS.

(Dr. Marshall H. Webb's.)



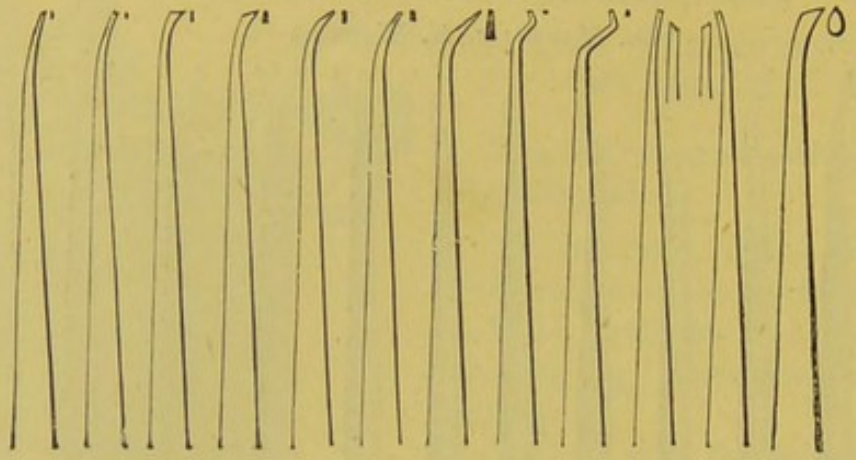
2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.

		s.	d.
Mallet Points with screw ends, to fit Socket Handle	(Figs. 1–12) each	1	6
Socket Handle to hold screw points		3	0

1.

MALLET PLUGGERS—*continued.*

(Dr. VARNEY'S.)

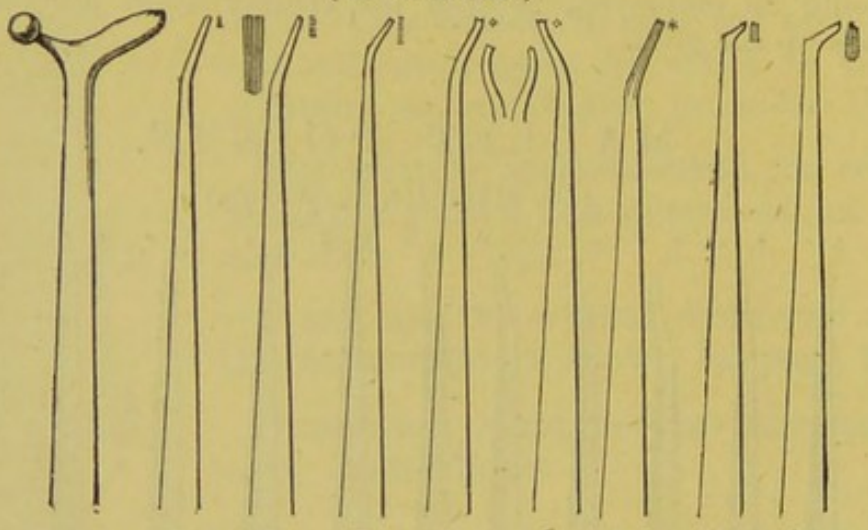


2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13.

Consisting of 12 Pluggers and 1 Burnisher.

	s.	d.
In Steel handles, polished ends (Figs. 1–13) per set	48	0
" " " " (" 1–13) each	4	0

(Mr. STEVENS'.)



10. 9. 8. 7. 6. 5. 4. 3. 2.

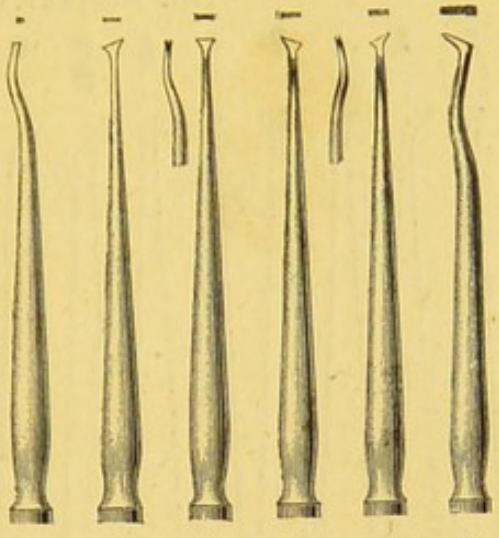
Consisting of 9 Pluggers and 1 double-headed Burnisher.

	s.	d.
In Steel handles, polished ends (Figs. 1–10) per set	22	0
" " " " (" 1–10) each	2	3
" " Nickel-plated .. extra "	0	4

1. 1.

MALLET PLUGGERS—*continued.*

(Dr. W. Finley Thompson's.)



2. 3. 4. 5. 6. 7.

In his third lecture on "Operative Dental Surgery and Therapeutics," delivered at the National Dental Hospital, 1879, Dr. Thompson said: "These instruments fulfil the requirements of all my ordinary work, and much that is more difficult."

He thus describes them:—

"Fig. 1, round pointed and bayonet shaped, gives an unobstructed view while working, and is used as an anchorage instrument.

,, 2, similar in all respects, but that its point is square, permits it to come in close contact with flat surfaces, and is used in connection with the foot-shaped instruments in approximal and crown cavities.

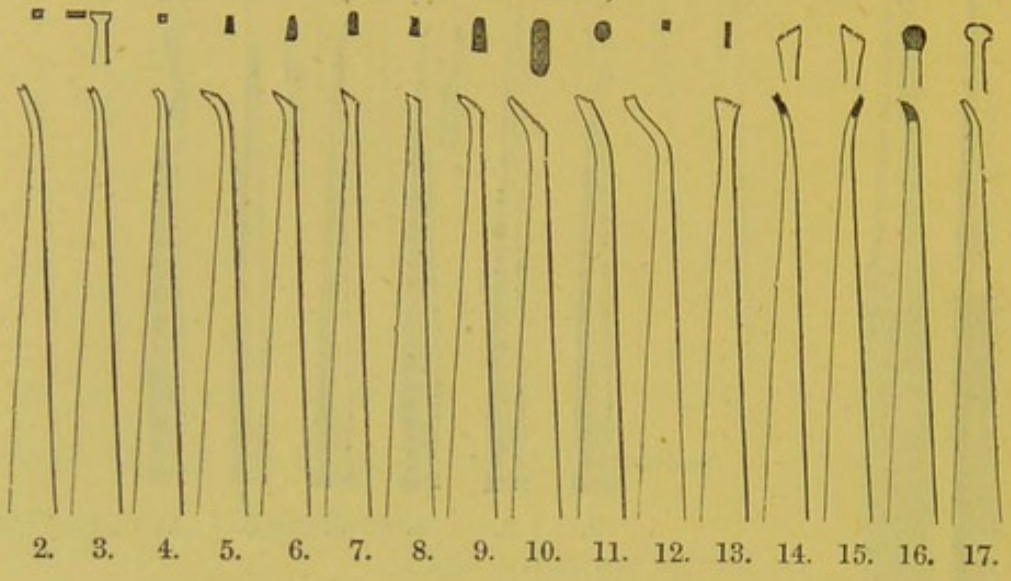
,, 3 is well adapted for filling fine fissures which, occurring in the bicuspids, sometimes unite the caries existing in the ante-medial and post-medial regions of the crown surface. It is an instrument also well adapted to filling the crucial fissures on the grinding surface of lower molars.

,, 4 to 7 are well suited for filling cavities on the approximal and labial surfaces. The angle of the foot-shaped instruments, Figs. 5, 6, 7, keeps the serrated portion in a horizontal position, and at the same time throws the handle quite out of the line of sight."—See *The Monthly Review of Dental Surgery*, January 15, 1880.

		s.	d.
In tapered Steel handles	(Figs. 1–7) each	4	0
,, ,, like Fig. 1, page 257,			
1. for use with the Electric Mallet ..	(,, 1–7) ,,	4	0

MALLET PLUGGERS—*continued.*

(Dr. Butler's.)



2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17.

Consisting of 16 Pluggers and 1 Burnisher.

		s.	*d.*
In Steel handles with polished ends	(Figs. 1–17) each	3	0
„ „ Nickel-plated ..	(„ 1–17) „	3	4

OTTOLENGUI'S METHODS OF FILLING TEETH.

An Exposition of Practical Methods which will enable the Student and Practitioner of Dentistry successfully to prepare and fill all cavities in human teeth.

BY

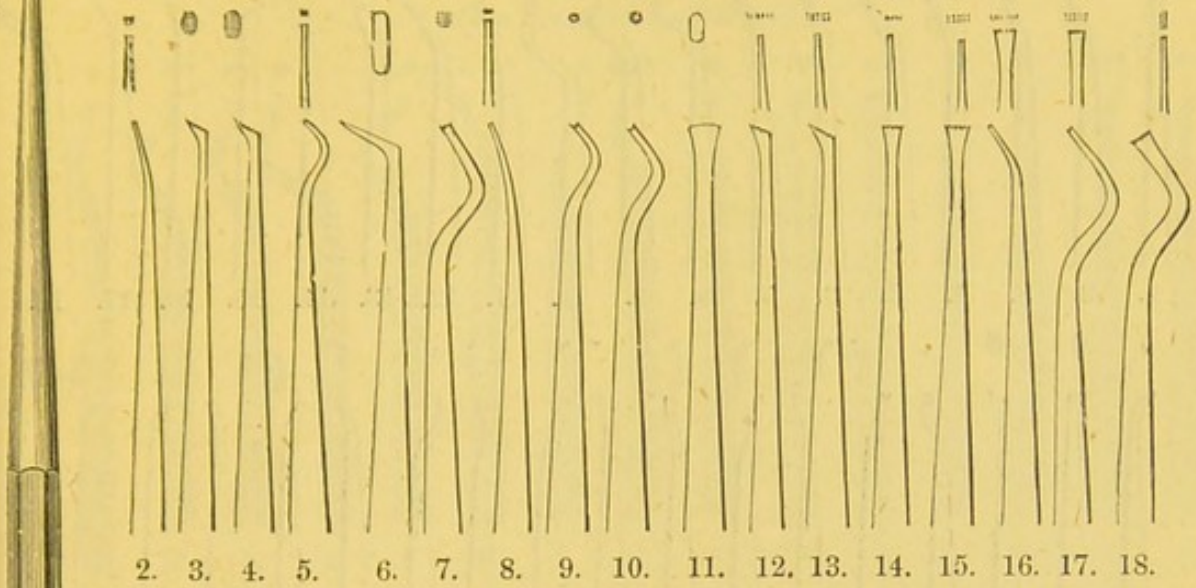
RODRIGUES OTTOLENGUI, M.D.S.

With two hundred and thirty-six illustrations, giving exact representations of all classes of cavities and their management.

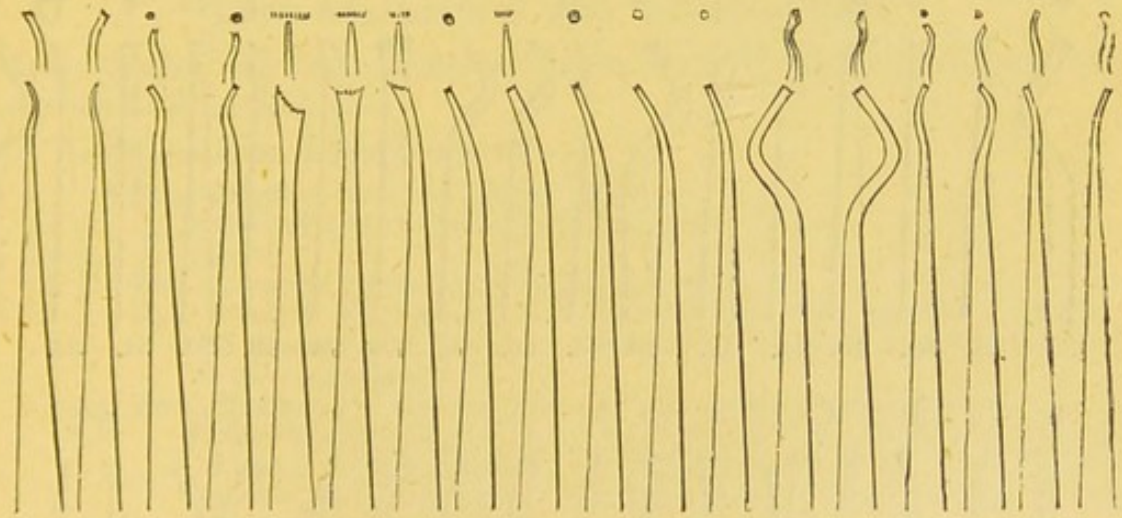
	s.	*d.*
196 pp. and Index, cloth, 8vo.	10	6

MALLET PLUGGERS—*continued.*

(Dr. ABBOTT'S.)



2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18.



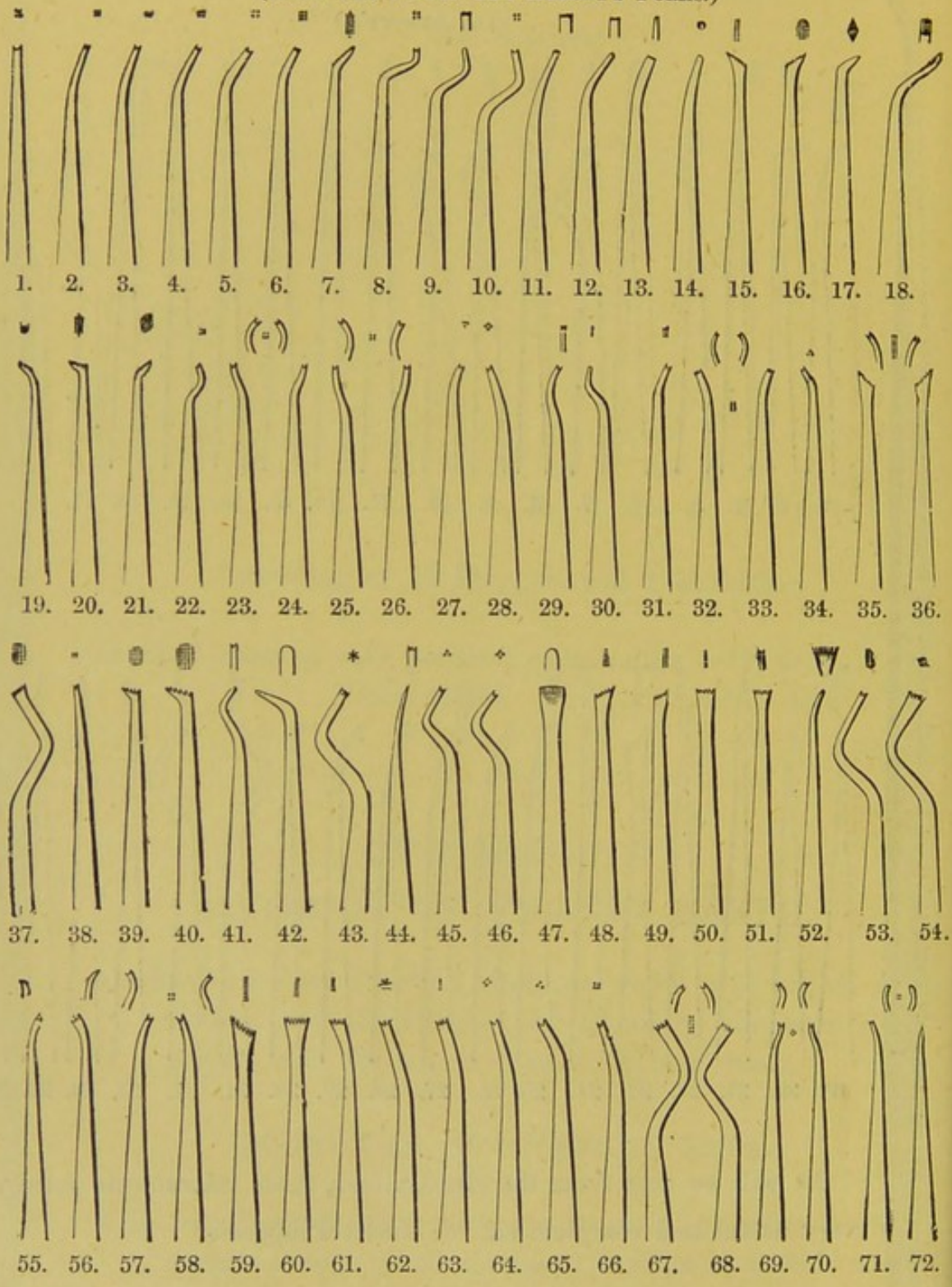
19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36.

As will be seen from the illustrations, these instruments form a very useful and complete set of Mallet Pluggers.

			s.	d.
In Steel handles with polished ends ..	(Figs. 1–36)	each	1	8
„ „ Nickel-plated	(„ 1–36)	„	2	0

POINTS FOR AUTOMATIC MALLETS.

(Snow and Lewis' and Abbott's Forms.)



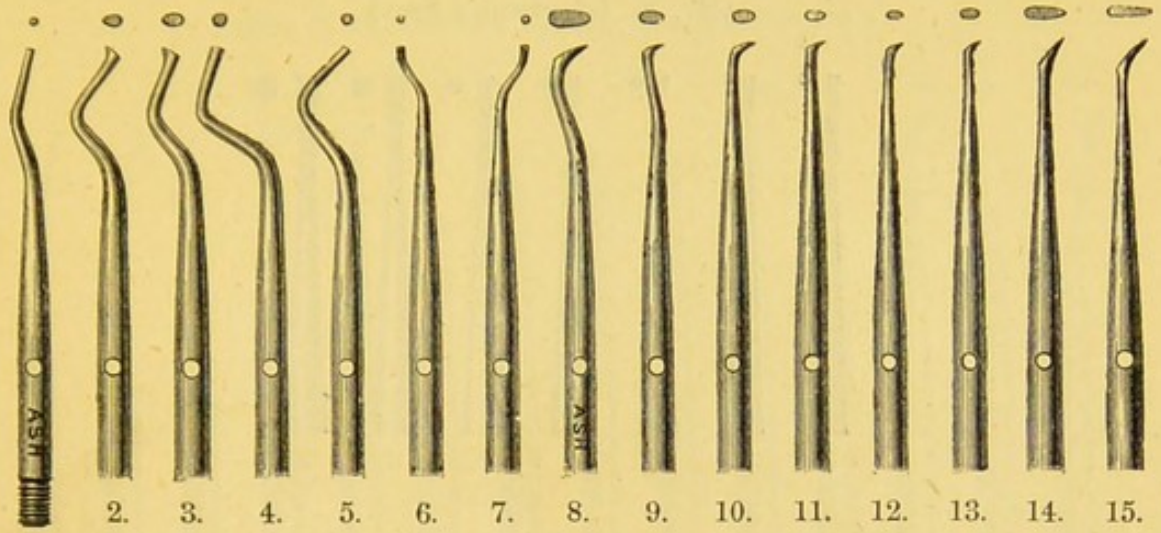
	s.	d.
Mallet Points, finely serrated, with screw ends (Figs. 1–72) each	1	6

All other forms of Mallet Points made or obtained to order.

MALLET POINTS,

WITH CONVEX STONED FACES.

(Dr. PROSPER LADMORE'S.)



1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15.

These Pluggers are very finely serrated, and carefully made to patterns approved by Dr. Prosper Ladmore, and it gives us much pleasure to state that he says of their manufacture:—

"They are perfect and without fault."

Much praise has been bestowed upon them by those Operators who have seen and used them.

Dr. Ladmore thus describes them:—

Fig. 1. "For retaining points and all fine work.
„ 2 & 5. „ lower cavities at the back of the mouth.
„ 3 & 4. „ upper „ „ „
„ 6 & 7. Fine corkscrew twists for interstitial cavities.
„ 8. Foot Plugger, with large flat surface for condensing approximal fillings. This instrument is thinner than usual, to permit its use where there is only a slight space.
„ 9 to 13. Foot Pluggers of different sizes, the convexed surfaces of which will be found to adapt themselves more readily to the cervical margins than ordinary flat-faced points would do; also they get over the work quicker, and counteract the tendency of the gold to 'ball up,' driving it toward the cavity walls.
„ 14 & 15. Are Foot Pluggers of an obtuse angle, for condensing interstitial fillings. These are also serrated at the points, thus enabling the Operator to use them on the foot surface or at the point, to save time in changing instruments."

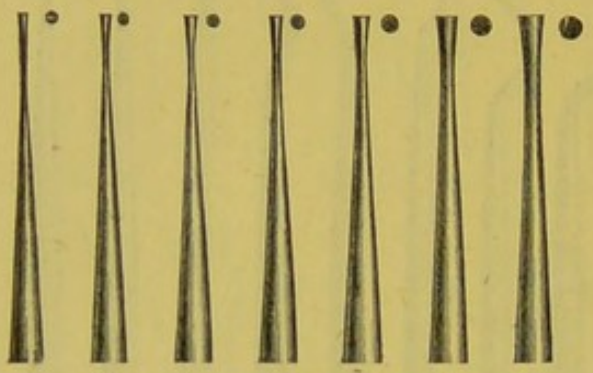
Prices:

			s.	d.
Ladmore's Convex Stoned Pluggers, with screw ends, like Fig. 1, for Engine, Automatic and Pneumatic Mallets ..	(Figs. 1—15)	each	2	0
Socket Handle, Knurled, for holding Points with screw ends		„	1	0
Mallet Pluggers in long tapered steel handles, with blued centres, for use with the Hand Mallet	(Figs. 1—15)	„	4	0
Mallet Pluggers in steel handles to fit Bonwill's Electric and Rogers' Pneumatic Mallets	(Figs. 1—15)	„	4	0

MALLET POINTS,

FOR ENGINE AND AUTOMATIC MALLETS.

(Mr. E. Lechmere's Set.)



1. 2. 3. 4. 5. 6. 7.

These seven Pluggers correspond in size to the seven inverted-cone fissure burs shown on page 209. They will be found much more suitable for filling cavities shaped by these burs than any other forms of pluggers.

Mr. Lechmere states:—"My idea in designing them was to have an instrument, with which to consolidate the gold, of precisely the same size as the bur used for shaping the cavity; thus cavities may be shaped by means of the inverted-cone fissure burs, and the gold introduced and consolidated by the inverted-cone pluggers.

Their chief advantages are:—

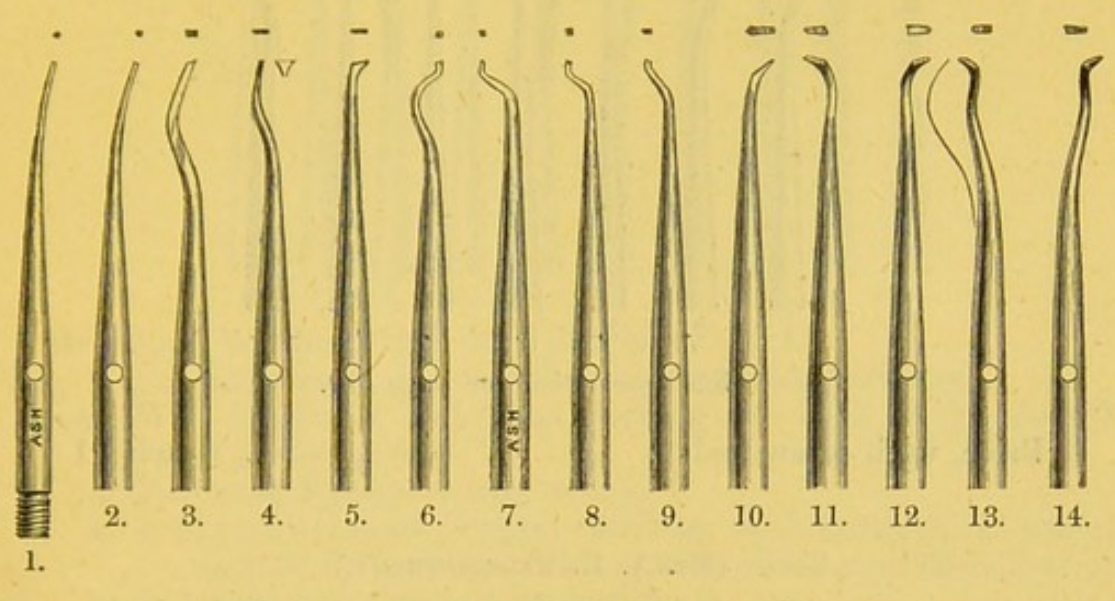
1. Being the same shape as the bur used, they readily touch every portion of the cavity.
2. When employed in the Electric Mallet, the adjusting of the position of the plugger with the thumb is not necessary, as the point of each is circular. This greatly relieves the thumb.
3. They offer a much larger condensing surface than other shapes, and consequently enable the Operator to work more quickly."

		s.	*d.*
Price, with screw ends	(Figs. 1–7) each	1	6

MALLET POINTS,

FOR FINE COHESIVE GOLD WORK.

(Set of 14, selected by Mr. CLAUDE ROGERS.)



Mr. Rogers finds these instruments so useful in practice that we have obtained his permission to offer them to the profession as a set selected by him. Several have been modified to his directions, and all of them as now illustrated meet with his approval.

They are made with highly finished stoned serrations.

Mr. Rogers thus describes them :—

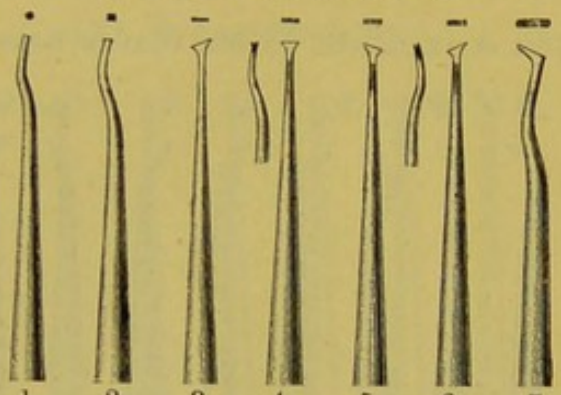
Figs. 1 and 2.	For retaining points.
„ 3, 4, 5.	Are suitable for filling and trimming over cervical edges. (Fig. 4 is also useful for quickly massing in centres of fillings.) (Fig. 5 is also useful for filling fissures.)
„ 6, 7, 8, 9.	Various forms of bayonet patterns, specially useful in filling approximal cavities in front teeth, as they reach over the adjoining tooth and thereby enable the operator to fill into undercuts and awkward places.
„ 10.	Long foot plugger for contouring and surface work.
„ 11, 12, 13, 14.	Small and large pair of cowhorn foot pluggers, most useful in filling between bicuspids and molars.

		s.	d.
Price, with screw ends	(Figs. 1–14) each	1	6

MALLET POINTS,

FOR ENGINE AND AUTOMATIC MALLETS.

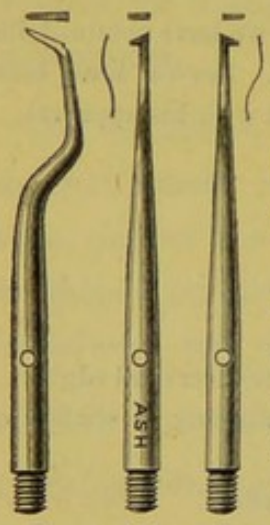
(Dr. F. Thompson's Set.)



For description see page 259.

		s.	d.
Price, with screw ends	each	1	6

(Mr. A. H. Farebrother's.)



Mr. Farebrother has introduced these three Pluggers as suitable for cohesive gold filling.

Fig. 1 is intended, when working in the mirror, for building up the lingual and mesial surfaces of approximal cavities in the upper front teeth.

The special advantage of this Plugger is claimed to be in the shape of the bend, as it will be found to clear the adjoining tooth, and also the separator (Perry's, when used). The serrated part of the Plugger being in a straight line with the shaft, a direct blow is obtained on the filling.

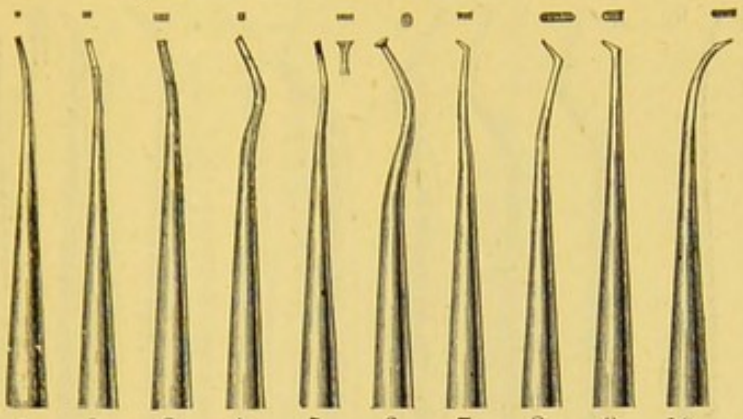
Figs. 2 and 3, right and left, will be found useful for building up interstitial cavities in molars and bicuspids, and in distal cavities in canines, in either the upper or lower jaw. It will be seen from the shape of the foot that it is inclined at an angle suitable for these cavities.

			s.	d.
Price, with screw ends	(Fig. 1)	each	2	0
„ „ „	(Figs. 2, 3)	„	1	6
The same, with long handles, for the Electric Mallet	(Figs. 1, 2, 3)	„	4	0

MALLET POINTS,

FOR ENGINE AND AUTOMATIC MALLETS.

(Mr. E. Lloyd Williams' Set.)



1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

Mr. Lloyd Williams thus describes them :—

Fig. 1. For anchorage, and working in very small cavities.

„ 2. Will be found useful for packing the bulk of simple fillings of ordinary size.

„ 3. For large fillings of easy access.

„ 4. A bayonet-shaped plugger reaching well forward, for use at the back of the mouth and in cavities which are difficult of access.

„ 5. Is for fissures and narrow cavities.

„ 6. Is useful in condensing the gold well under the overhanging edges of crown cavities.

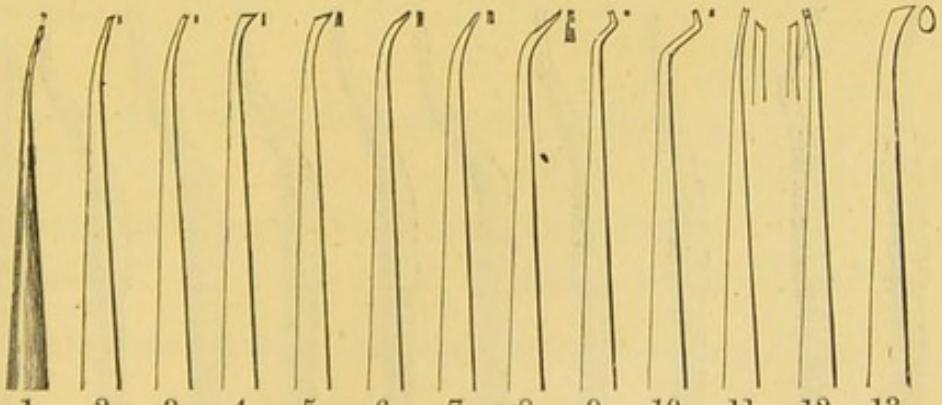
„ 7. This is a *very fine* half-bayonet foot plugger, especially useful in *wiping over* contours in interstitial fillings.

„ 8 and 9. Are well-known patterns, being however rather thinner in the neck than usually made.

„ 10. A long, lean foot plugger, made as fine as is possible consistent with working strength ; will be found useful for difficult lingual surfaces.

		s.	d.
Price, with screw ends	(Figs. 1–10) each	1	6

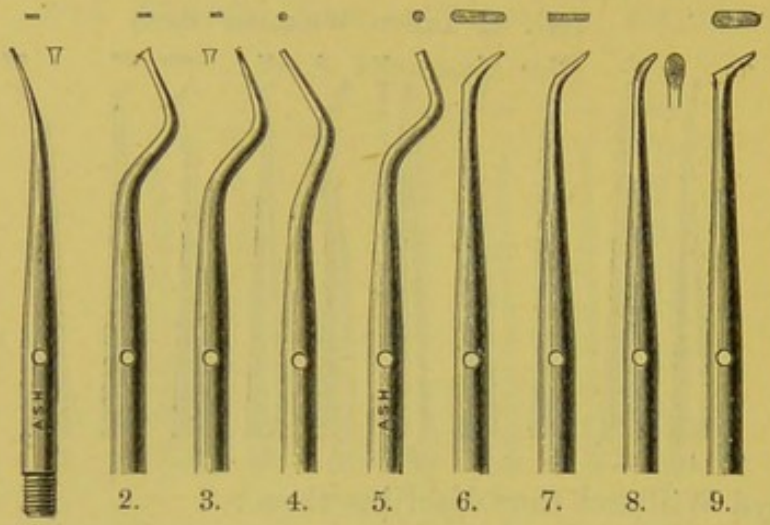
(Dr. Varney's Set.)



1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13.

		s.	d.
Price	(Figs. 1–13) each	1	6

"SPECIAL" FORMS OF MALLET POINTS.

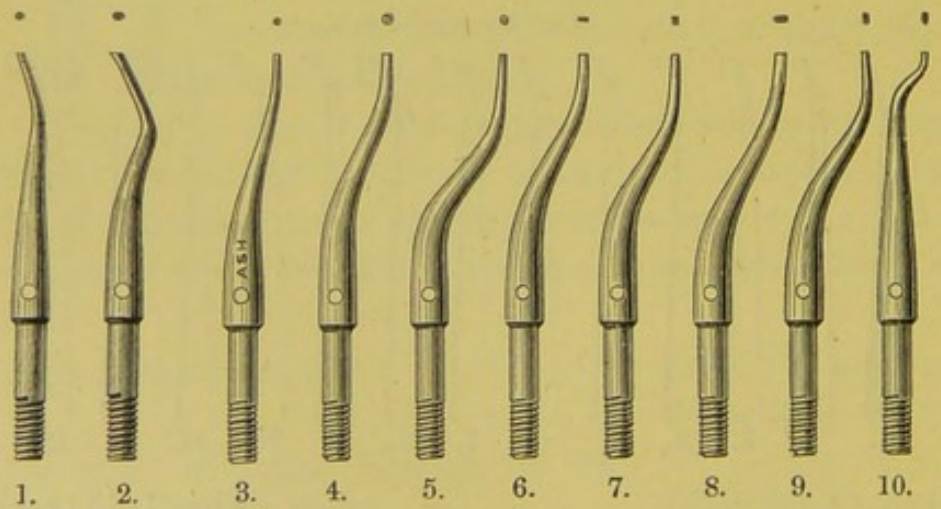


These "Special" Mallet Points have been suggested from time to time by various Operators, for whom we have made them, and, as they have met with much favour, we have decided to make them known to the Profession at large by illustrating them. Figs. 6 and 8 have convex surfaces, and all the others have flat surfaces.

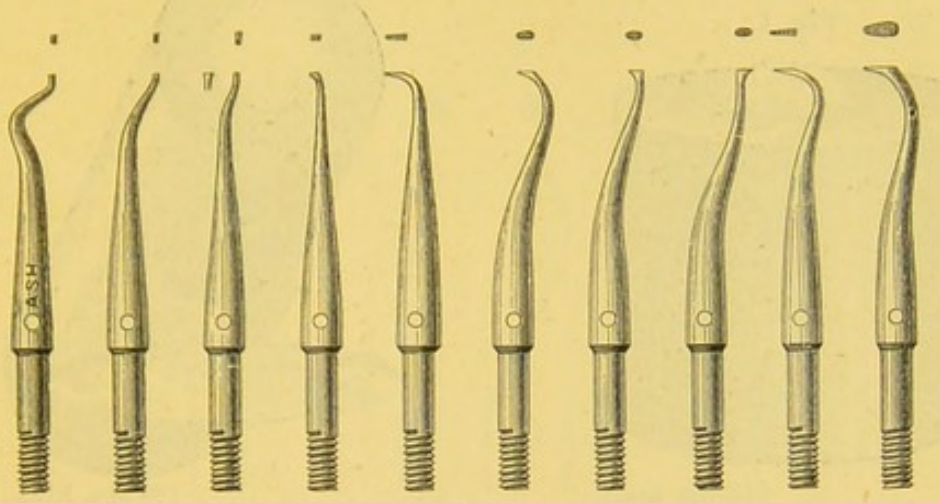
				s.	*d.*
Price, with Screw Ends	(Figs. 1–5)	each		1	6
" " "	(" 6–9)	"		2	0

MALLET POINTS—"1892" PATTERN.

(Mr. J. LEON WILLIAMS' SET OF 20.)



WILLIAMS' MALLET POINTS—*continued.*



11. 12. 13. 14. 15. 16. 17. 18. 19. 20.

The set of instruments herewith illustrated are presented as the first attempt to construct Mallet Pluggers on purely scientific mechanical principles. Mr. Williams claims * that "the faces of all Mallet Pluggers should be made exactly at a right angle to the shaft, and all instruments are faulty just to the extent of their departure from this principle. In the use of Mallet Pluggers force can only be applied in a straight line along the shaft of the instrument. If, therefore, the face of the plugger be not formed at a right angle to the shaft, the tendency in using it must inevitably be to draw the gold away from the walls of the cavity at some point." Mr. Williams further says, in explanation of the use of his pluggers, "Nos. 1 and 2, and also the pair 17 and 18, are chiefly used in approximal cavities of bicuspids and molars. Nos. 3 to 9, inclusive, in crown cavities of bicuspids and molars. Nos. 10-12 and 13 in approximal cavities of incisors. The last two numbers mentioned I find particularly valuable for this purpose; 14 and 16 are universal foot instruments, 15–19 and 12 for final surface condensation of gold, especially the semi-cohesive gold which I use at the cervical margins of all approximal cavities. These points will be found to have a greater 'reach,' thus penetrating more readily and effectively between crowded teeth, than any heretofore made."

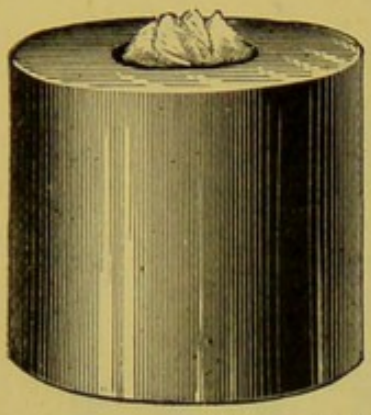
			s.	*d.*
Points with Screw-ends for Automatic or Engine Mallets	(Figs. 1–20)	each	1	9
Points with Screw-ends as shown for Cone-Socket Handles	(Figs. 1–20)	,,	1	9

When ordering state which style of screw-end is wanted.

* See Article in Ash's Quarterly Circular for September, 1892.

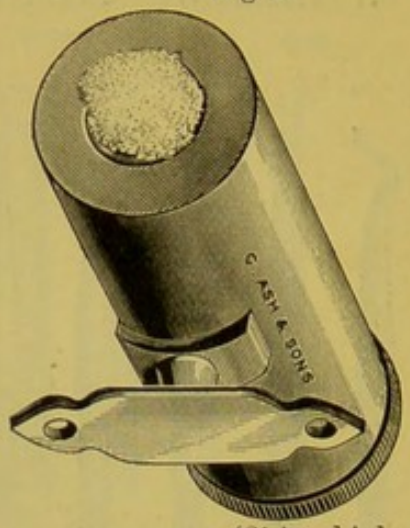
WOOL-HOLDERS.

Fig. 1.



Outside measurement: $\begin{cases} 1\frac{3}{4} \text{ ins. high.} \\ 2 \text{ ins. in diameter.} \end{cases}$

Fig. 2.



Outside measurement: $\begin{cases} 2\frac{5}{8} \text{ ins. high.} \\ 1\frac{1}{4} \text{ ins. in diameter.} \end{cases}$

There is no trouble in charging or re-charging these Holders; the wool is kept clean and is always within easy reach of the dressing-tweezers.

Fig. 1 is very convenient for use on the Operating-table or Instrument-stand; Fig. 2 can be screwed on to the side of the Table or fixed in any other convenient place.

To re-charge Fig. 1, depress that side of the spring-plate, near the two pins underneath the bottom, sufficiently for the opposite side to come over the single pin; put a good supply of wool in the chamber, and replace the plate. Fig. 2 can be re-charged by simply unscrewing the base.

			s.	*d.*
Made of stout Brass, heavily Nickel-plated	(Fig. 1)	each	3	6
„ „ „ „ „	(„ 2)	„	5	0

WASTE DRESSING HOLDERS.

Fig. 1.

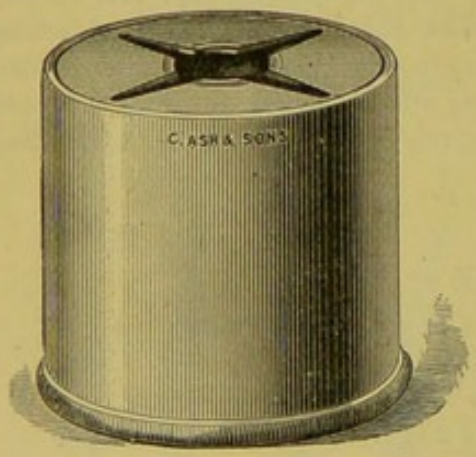
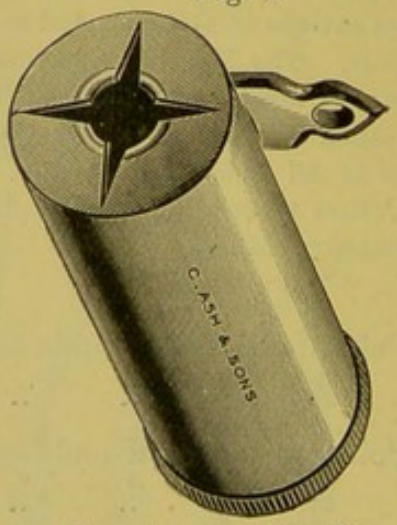


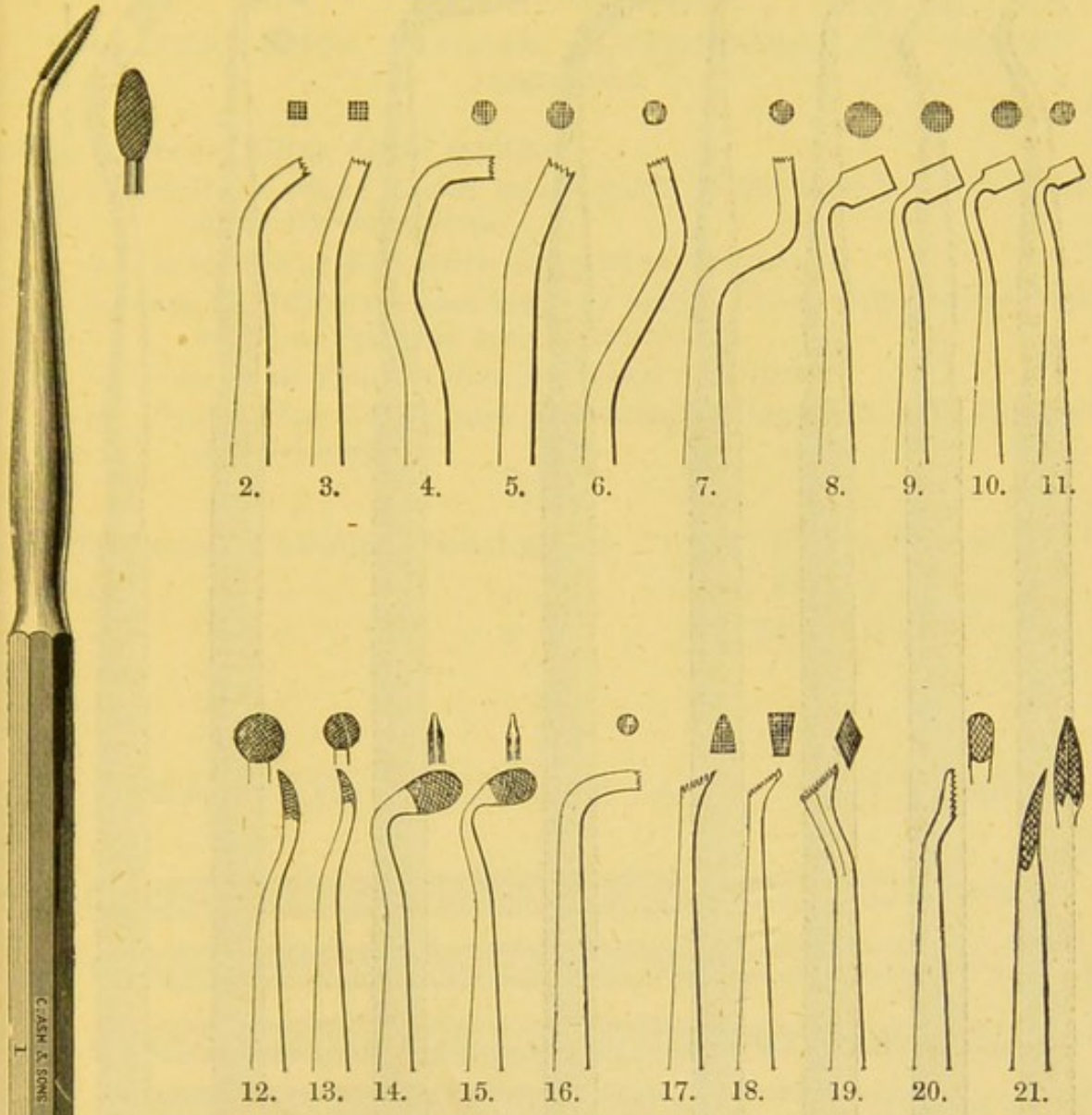
Fig. 2.



For holding used absorbents, removed dressings, and waste materials of various kinds. The points of the dressing-tweezers, &c., can be disengaged from any sticky substance by an upward scraping motion on the sides or at the end of one or other of the four slits on the top. They are of the same dimensions as the Wool-holders.

			s.	*d.*
Made of stout Brass, heavily Nickel-plated	(Fig. 1)	each	3	6
„ „ „ „	(„ 2)	„	5	0

AMALGAM STOPPERS.

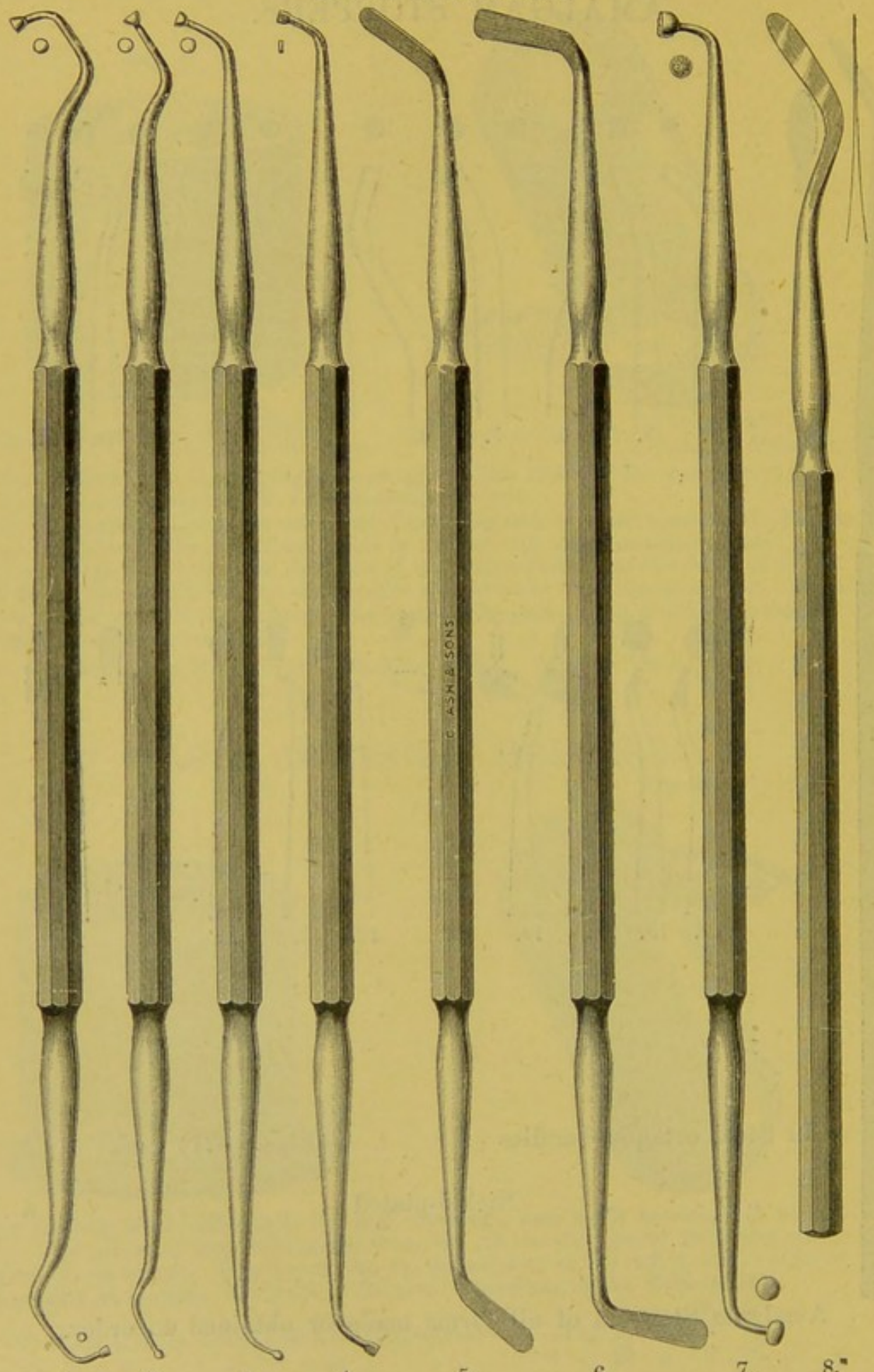


			s.	d
In Steel octagon handles	(Figs. 1–21)	each	1	2
„ „ Nickel-plated	(„ „)	„	1	6

1. Amalgam Stoppers of all forms made or obtained to order.

PLASTIC FILLING INSTRUMENTS.

(Mr. E. J. Ladmore's.)



1. 2. 3. 4. 5. 6. 7. 8.

PLASTIC FILLING INSTRUMENTS—*continued.*

(Mr. E. J. Ladmore's.)

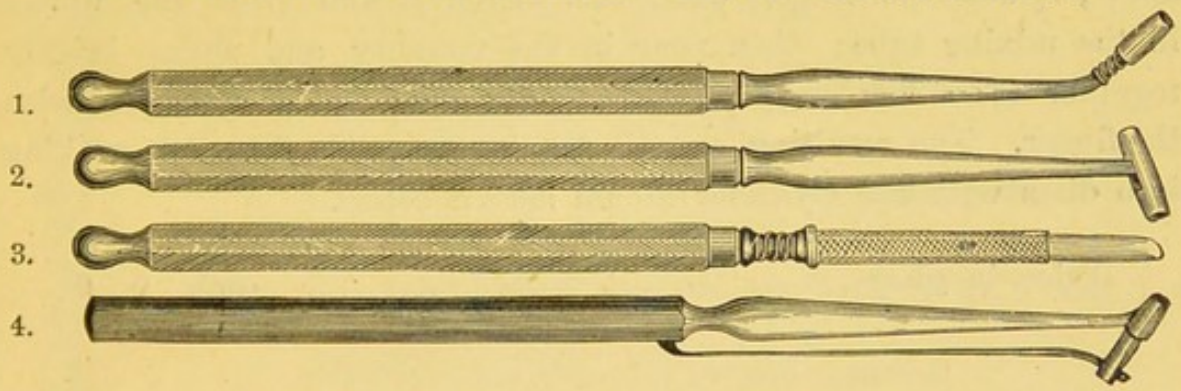
FOR INTRODUCING AMALGAM, GUTTA-PERCHA AND CEMENT STOPPINGS.

Fig. 1 is for filling distal cavities.
„ 2, 3 will be found useful in all parts of the mouth. The shapes speak for themselves.
„ 4 is for filling fissures in any part of the mouth.
„ 5, 6 are for filling cavities between teeth. They will also be found useful as Spatulas and Trimmers.
„ 7 Loadstone Plugger and Burnisher combined.
„ 8 Spatula for mixing and smoothing fillings. It will also serve as a Trimmer.

Prices:

			s.	d.
In Steel octagon handles, Nickel-plated ..	(Figs. 1–7)	each	2	3
„ „ „ ..	(Fig. 8)	„	1	6
„ „ „ ..	(per set of 8)	„	15	0

AMALGAM CARRIERS AND STOPPERS.



Directions for Use.

Place the Amalgam in the tube which covers the point of each instrument, and force it into the cavity by a pushing motion in Figs. 1, 2, 3; press it in by means of the spring connected with the plunger in Fig. 4. The plunger in Fig. 2 is so arranged that the Amalgam can be put in either end. The first three illustrations show file-cut instruments, but they are only kept in steel octagon, Nickel-plated.

			s.	d.
In Steel octagon handles, Nickel-plated ..	(Figs. 1 and 2)	each	4	3
„ „ „ „ ..	(„ 3 and 4)	„	5	0

AMALGAM BALANCE.

(Mr. FLETCHER'S.)

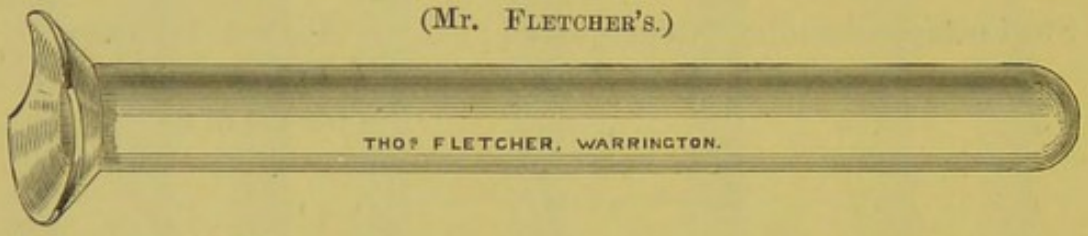
With a little practice this apparatus can be used with facility. It is designed to yield uniform results in mixing and working amalgam stoppings.

The filings are placed in cup No. 1, and the mercury in cup No. 2 or 3, according to the quantity required.

	s.	d.
Price, Nickel-plated	2	6

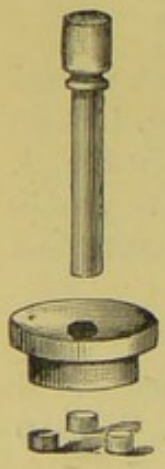
MIXING TUBE FOR AMALGAM.

(Mr. FLETCHER'S.)



After weighing the filings and mercury, in the balance shown above, place the finger over the mercury and pour the filings in the mixing tube; then pour in the mercury and shake briskly together for a few seconds, covering the open end of the tube with the finger. The resulting mass is the best possible form for working into discs with the Cylinder Mould shown below.

		s.	d.
Price, in glass	each	0	6



CYLINDER MOULD.

(Mr. FLETCHER'S.)

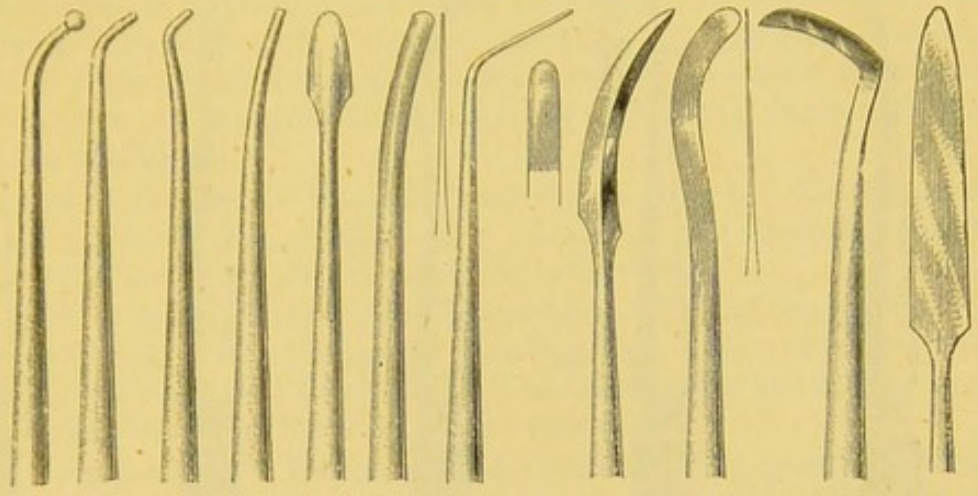
For moulding amalgam into discs, consisting of a Mortar $\frac{7}{8}$ inch in diameter, with hole in the centre into which the amalgam is pressed and forced through by means of a plunger.

		s.	d.
Complete in Walnut	each	0	9

1.

PLASTIC FILLING INSTRUMENTS.

(Dr. Foster Flagg's.)



2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.

In Article X. of his work on "Plastics and Plastic Filling," Dr. Flagg gives a full account of the shapes and uses of these instruments. He says that "numbers 1, 2, 3, 4, 5, 6, 7, 8, 10, and 11 are especially adapted to Amalgam work: and 2, 3, 5, 6, 7, 8, 9, 10 are subservient to incidental and special requirements in plastic filling." He divides and names them thus:

Figs.	1 to 5.	Round ends.
„	6, 7, 8.	Flat „
„	9, 10, 11.	Trimmers or Separators.
„	12.	Spatula.

Figs. 1 to 5 are used for crushing and packing the Amalgam in cavities of nearly every description.

Figs. 6, 7, 8 for fillings between the teeth (Figs. 7 and 8 are also used as Trimmers).

„ 9 is useful for removing surplus material.

„ 10 and 11 are intended for making very thin separations between the teeth.

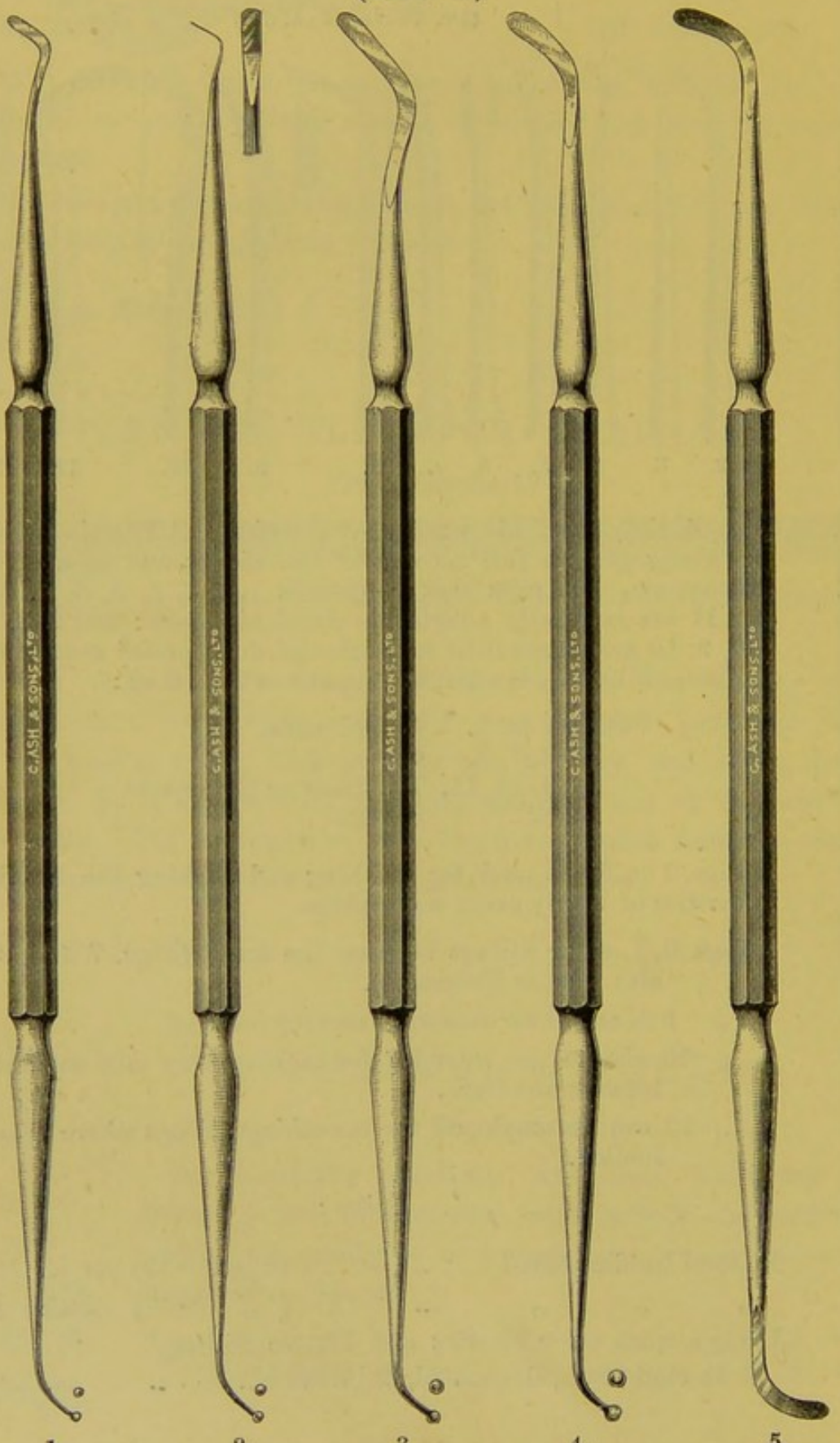
„ 12 can be employed for smoothing fillings where space is limited.

Prices:

		s.	d.
In Steel handles blued	(Figs. 1–12) per set	14	0
„ „ „	(„ 1–12) each	1	3
Flagg's work on "Plastics and Plastic Filling," in cloth, 8vo., illustrated, 3rd edition	net	13	6

"SPECIAL" PLASTIC FILLING INSTRUMENTS.

(Set of 5.)



1. 2. 3. 4. 5.

"SPECIAL" PLASTIC FILLING INSTRUMENTS—

continued.

These instruments are modifications of well-known shapes which we have made from time to time for various operators, and from the reports we have had of their general usefulness, we have every reason to believe that they will form an acceptable addition to the many favourite sets now before the profession.

Figs. 1 and 2 are small Spatulas and Burnishers for filling small cavities in all parts of the mouth. The blades of the Spatulas are so thin that they can easily be inserted between the teeth.

Figs. 3 and 4 are Spatulas and Burnishers. These are useful for general plastic filling. The blades of the Spatulas are much liked on account of their thinness and flexibility. The Burnishers are larger than Figs. 1 and 2, the four thus forming a convenient set.

Fig. 5 is a right and left Packer and Trimmer. The peculiar curve of the blades renders this instrument particularly useful for filling distal cavities in bicuspids and molars. It will also be found to adapt itself readily to many cavities difficult of access with the ordinary flat-bladed instrument.

Prices :			s.	d.
In blued steel octagon handles ..	(Figs. 1–5)	per set	8	0
,, ,, ,, ..	(,, 1–5)	each	1	9

AMALGAM CARRIER.

(Mr. R. S. Parris's.)

Carrier two-thirds size; tubes in outline full size.

This instrument is made with knurled centre and soft wire ends, with two sizes of cylindrical tubes.

The wire can be bent at any angle, so that cavities that are difficult of access can be reached without trouble with either end of the instrument.

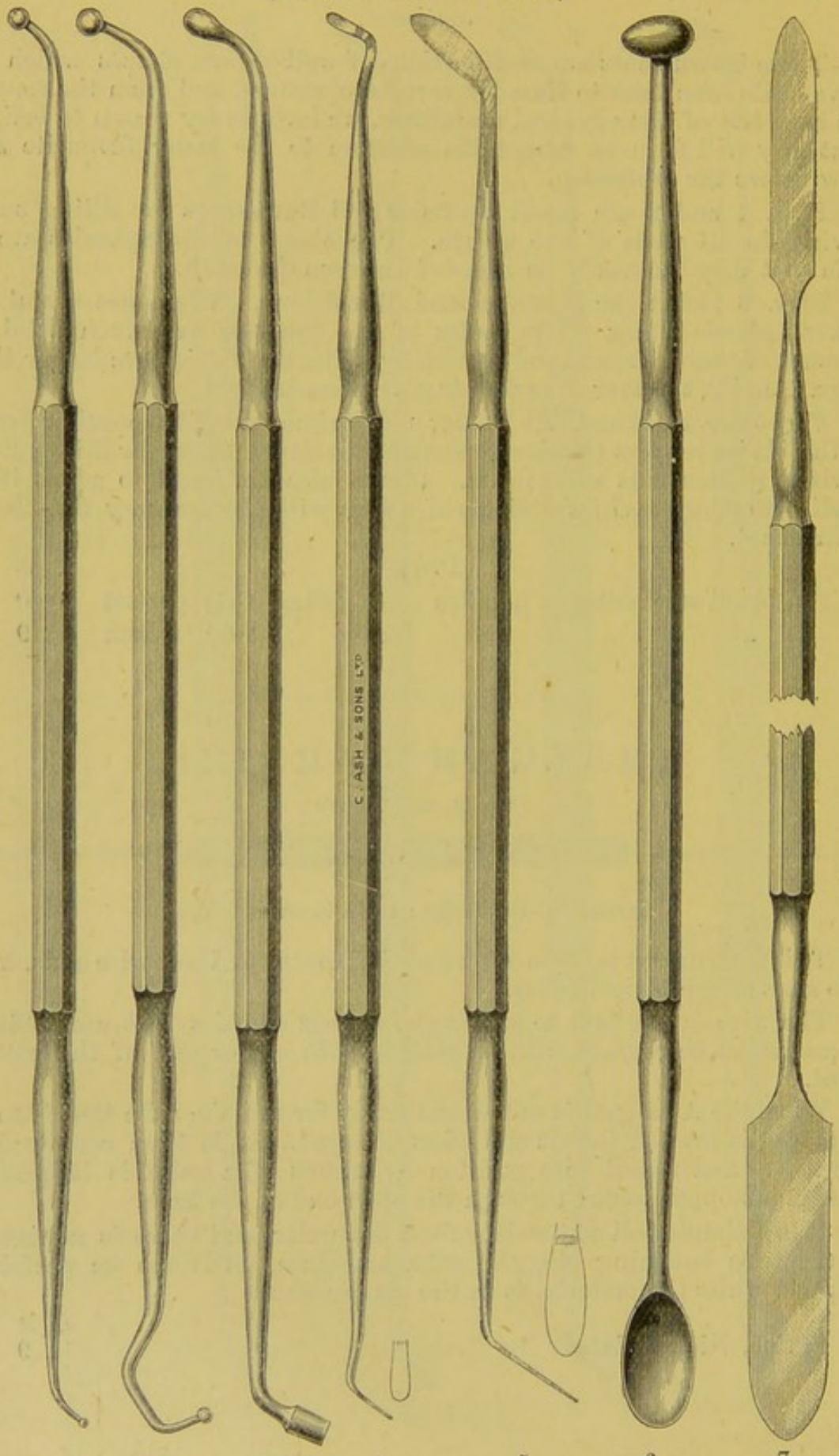
When the Amalgam is mixed and ready for use, the tube that is to be employed is pressed into it and thus charged. It is then conveyed to the cavity and forced into position by means of a suitable ball-ended amalgam stopper passed through the open end of the tube.

It is a simple and convenient form of carrier, and there is no danger of the tube becoming clogged with amalgam, as it can be perfectly emptied while the material is in the plastic state.

	s.	d.
Price, Nickel-plated	1	9

PLASTIC FILLING INSTRUMENTS.

(Mr. C. J. Boyd Wallis's.)



1. 2. 3. 4. 5. 6. 7.

PLASTIC FILLING INSTRUMENTS.

(Mr. C. J. Boyd Wallis's.)

Mr. Boyd Wallis says: "I do not know that the illustrations need much description. There is little that is strictly original in them. I have had single-ended instruments of a like character in use for some fifteen or twenty years, and a long experience has led me to pronounce them the most convenient and useful forms for cement or amalgam filling. Of the scores of instruments of different forms which I have employed for plastic filling, I find that I use these, here illustrated, a hundred times more often than those of any other form, in fact of late years I have entirely discarded the use of other forms.

Figs. 1, 2, and 3 are different forms of Amalgam Pluggers or Burnishers.

Figs. 4 and 5 are Finishers or Burnishers, flat-ended.

Fig. 6 has at one end a Finisher or Burnisher which may also be used as a pestle for breaking up and preparing copper amalgams; and at the other end a ladle for heating copper amalgams or for conveying amalgam to the cavity, and recovering pieces of waste amalgam from the mouth.

Fig. 7 is a double-ended Spatula suitable for mixing cement fillings, or for waxing-up cases."

Prices:

		s.	*d.*
Plastic Filling Instruments, Nickel-plated	(Figs. 1–5, 7) each	2	3
" " " " ..	(Fig. 6) "	3	0
" " " " ..	(Figs. 1–7) per set	15	0

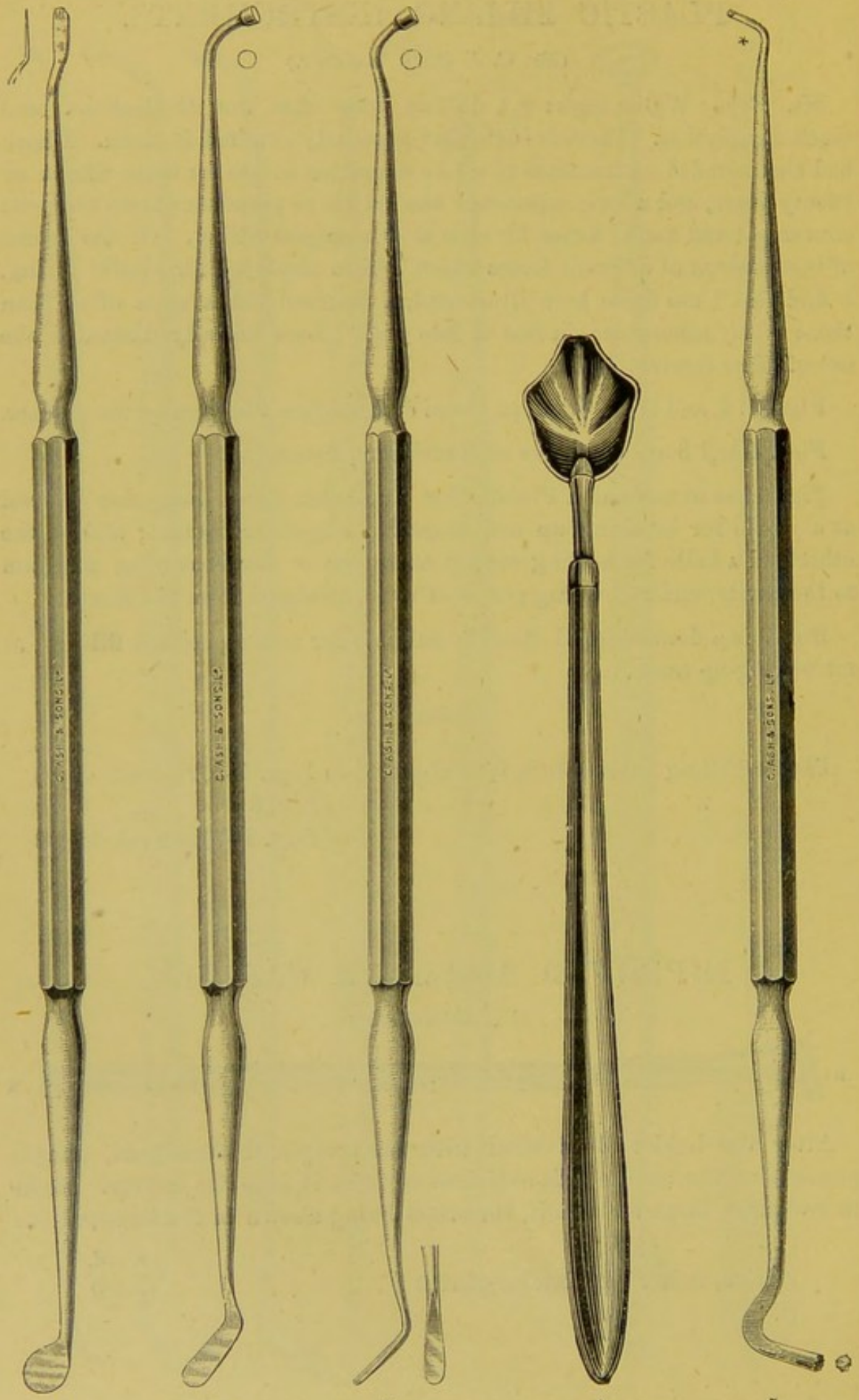
IMPROVED AMALGAM CARRIER.

(Dr. Albrecht's.)

After the holder B is filled with the prepared Amalgam, simple pressure on the handle A is sufficient to force it into the cavity. Made in two sizes, large and small, the small being shown in the illustration.

	s.	*d.*
Price, either size, Nickel-plated	5	0

AMALGAM AND GUTTA-PERCHA STOPPERS, &c.



1. 2. 3. 4. 5.

AMALGAM AND GUTTA-PERCHA STOPPERS, &c.

STOPPERS (Dr. Woodson's), double-ended, for use with Amalgam or Gutta-Percha.

		s.	d.
In steel octagon handles, nickel-plated (Figs. 1, 2, 3)	each	3	0

AMALGAM SPOON (Dr. Mullett's), for conveying amalgams to the cavity. It is held in the left hand, and enables the operator to fill a tooth without handling the material.

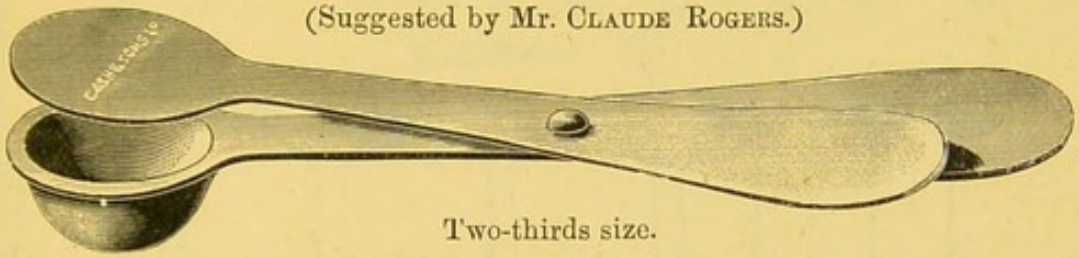
		s.	d.
In wooden handle, spoon nickel-plated (Fig. 4)	each	3	3

LOADSTONE AMALGAM CARRIER AND STOPPER.—The large end of this instrument is so arranged that it attracts the Amalgam and carries it to the cavity; the small end is the stopper.

		s.	d.
In steel octagon handle, nickel-plated .. (Fig. 5)	each	3	3

AMALGAM SPOON.

(Suggested by Mr. CLAUDE ROGERS.)



Two-thirds size.

Mr. Rogers finds the Spoon, with sliding cover, here illustrated, very useful for heating Copper Amalgam.

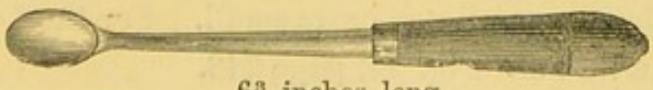
If the Amalgam be placed in the Spoon, held over the flame of a spirit lamp, until beads of mercury appear, and then removed, the heating can be completed by sliding the cover over it and shaking briskly for a few moments in the hot Spoon.

By adopting this method the danger of overheating or burning the Amalgam is avoided.

	s.	d.
Spoon, with sliding cover, Nickel-plated	3	9
The same with Glass in Cover, suggested by Mr. W. Dall, of Glasgow	5	6

AMALGAM SPOON,

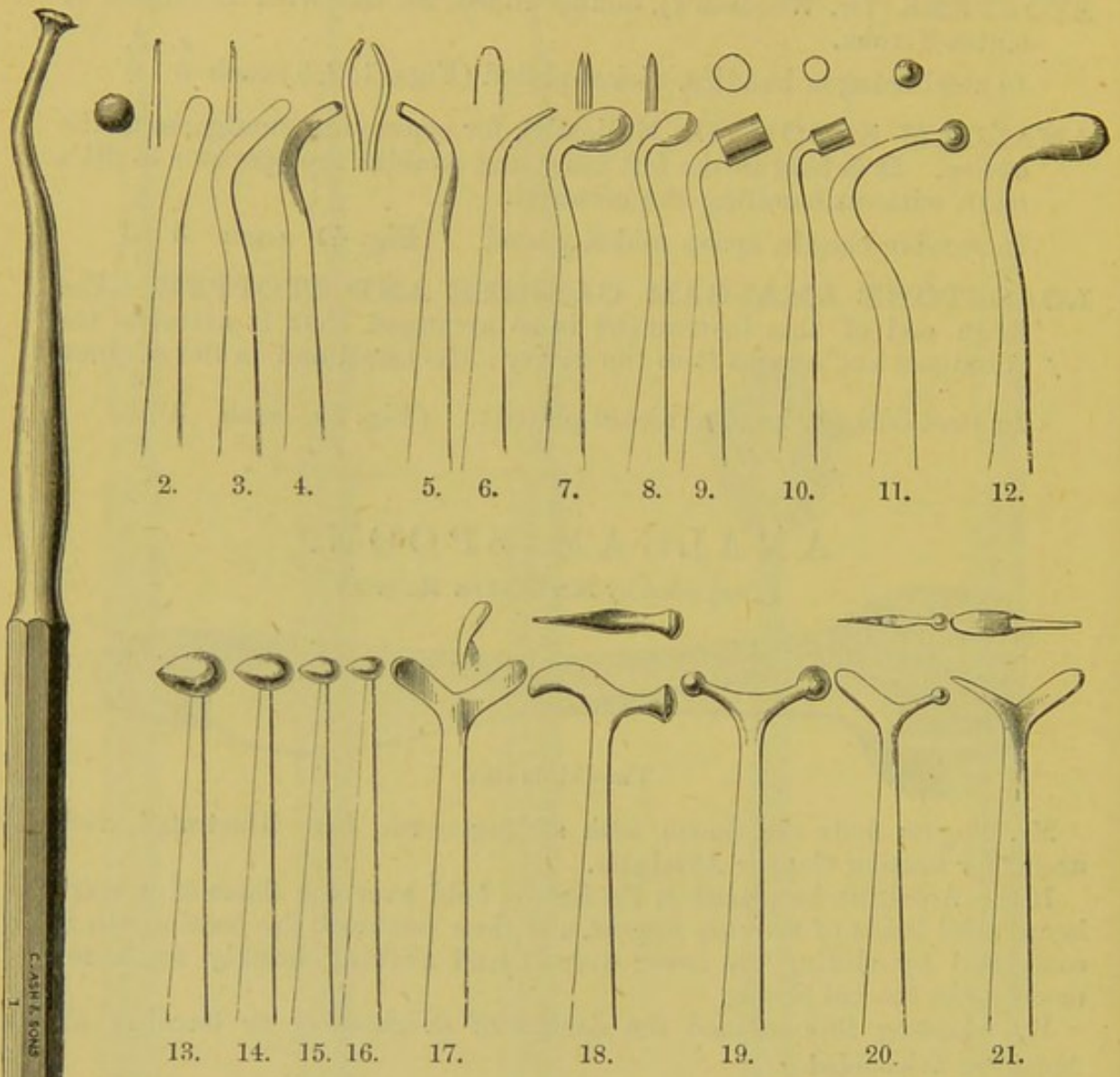
FOR HEATING COPPER AMALGAMS.



6¾ inches long.

	s.	d.
In wooden handle	2	9

BURNISHERS.



1.

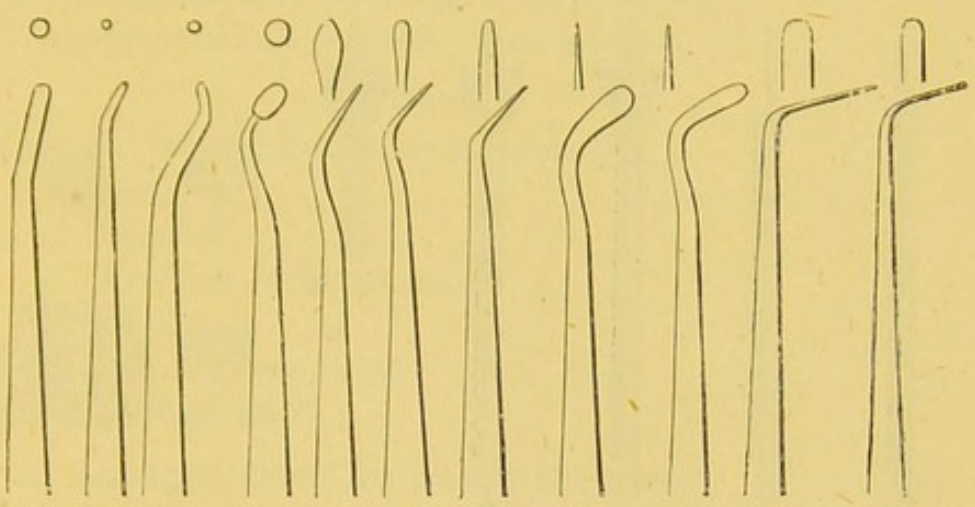
			s.	d.
In Steel octagon handles	(Figs. 1–16)	each	1	2
„ „	(„ 17–21)	„	1	5
The same, Nickel-plated	extra	„	0	4
In Ebony handles, tapered, to order ..	(Figs. 1-21)	„	3	0

Fig. 20 Burnisher is also made in two sizes smaller than illustrated, known as small and extra small. For the form of the Ebony tapered handles, see Fig. 24, page 243.

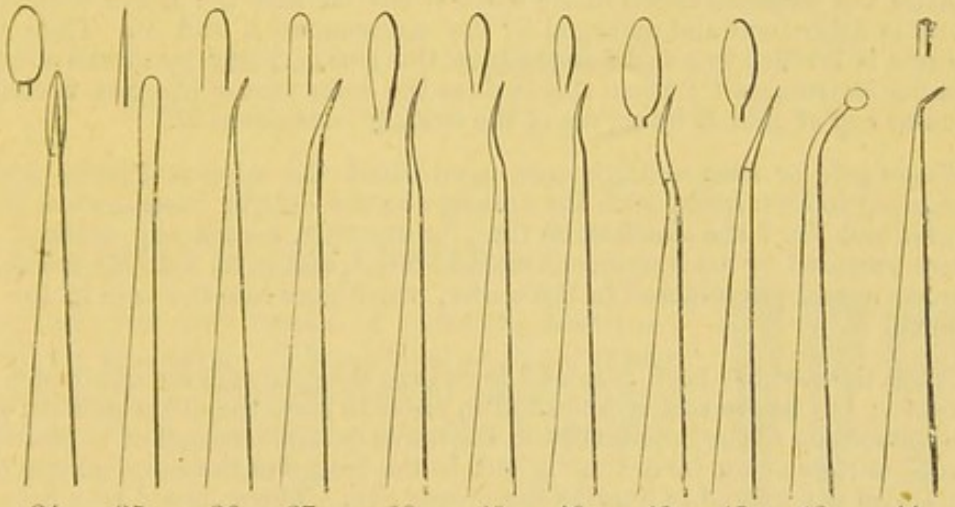
Other kinds of Burnishers made or obtained to order.

BURNISHERS—*continued.*

With round and slightly-rounded surfaces, highly polished.



23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33.



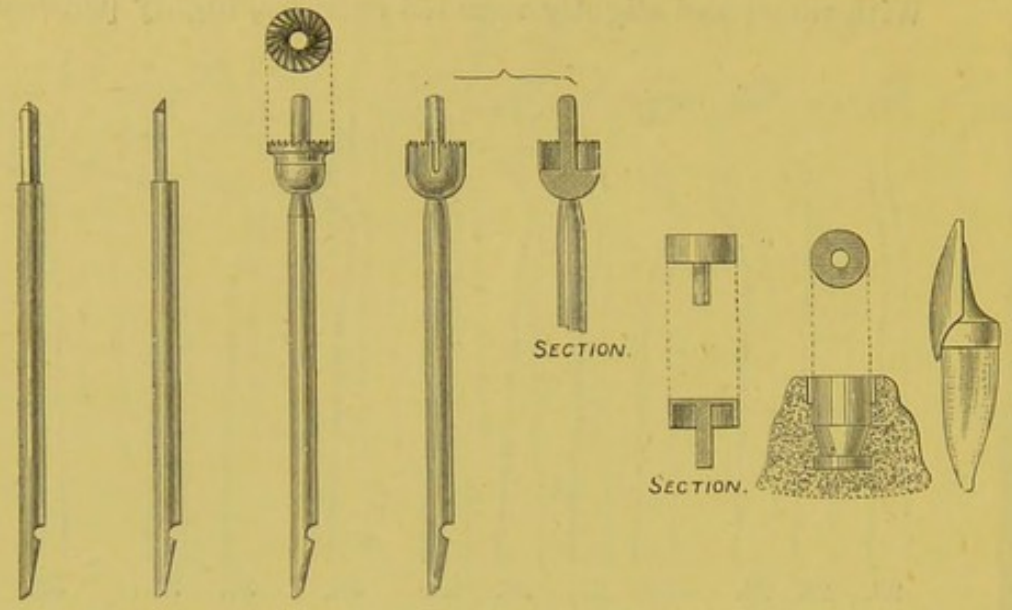
34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44.

				s.	d.
In Steel octagon handles	(Figs. 22–44)	each		1	0
„ „ Nickel-plated	(„ 22–44)	„		1	4

22. Burnishers of other forms made or obtained to order.

BÜTTNER'S PIVOTING INSTRUMENTS.

(PATENTED.)



A. B. C. D. E. F. G.

Dr. Büttner's method of pivoting consists of the use of circular metallic caps of various sizes, upon which the mineral crowns are mounted, and of rotating instruments, which shape the roots so as to exactly fit these caps.

After the decayed crown of the tooth is cut off and the nerve destroyed, the nerve cavity is drilled out and enlarged by the instruments A and B. Then the surface of the root is levelled to a right angle with the nerve cavity by means of the cutting or planing instrument C; when this is done the outer part of the root is shaped to fit the circular cap of gold E by means of the cutting instrument D.

These gold or other metallic caps upon which the mineral crowns are mounted are numbered to correspond with the numbers on the cutting instruments, No. 1 being the largest and No. 7 the smallest, so that, for example, a gold cap marked No. 1 will fit a root prepared by the instrument marked No. 1, and so on with all the numbers. Each cap has a gold pin soldered in the centre, which goes into the hole in the root made by the drill A.

After the root has been prepared to receive the gold cap, an impression of the mouth is taken; but before this is done, and in order to show the exact position of the root and the inclination of the hole drilled in the nerve cavity, one end of a piece of wire about three-quarters of an inch long is put in the root, and the remainder is left projecting. This wire is prepared in lengths the proper size. There should be a hole in the floor of the impression-tray that is used for the projecting part of the wire to pass through.

That portion of the wire occupying the root will come away with the impression, and be found standing out of the material when it is removed from the mouth, in the form of a pin. Upon this pin a brass artificial root, Fig. F, is placed, corresponding in number with the instrument used in shaping the natural root, and when the plaster is poured into the impression, the brass root will unmistakably be fixed in precisely the same position as the natural root in the mouth which it represents.

Fig. F shows the brass root embedded in plaster, reduced at the lower end to secure a firm hold.

BÜTTNER'S PIVOTING INSTRUMENTS—*continued.*

A gold or other cap is then placed upon the brass root, just to see that it is the right size, the crown is mounted on the top of the cap in the usual manner, which, when placed over the natural root in the mouth, will be found perfect as to fit and position. The mounted crown is then secured to the root by means of a little thin Osteoplastic stopping put into the cup around the upper part of the pin in Fig. E.

Fig. G shows a natural root with an artificial crown fixed to it.

Prices:

Büttner's set of Pivoting Instruments, consisting of:—

2 Drills	Fig.	A.
2 Broaches	„	B.
7 Levelling Instruments	„	C.
7 Shaping „	„	D.
7 Pairs of Brass Roots	„	F.
14 Pieces of Wire.		

	s.	d.
Complete in Leather Case for any Handpiece ..	55	0

GOLD CAPS—Fig. E.

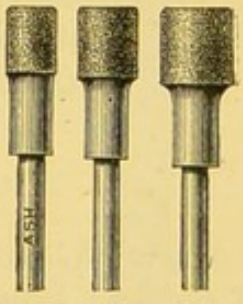
These are made with *long* and with *short* pins, in seven different sizes, to fit exactly the natural roots prepared by the above instruments.

	Set of 7. s.	Set of 7. d.	Each. s.	Each. d.
Price of Caps with long pins, any size or assorted ..	20	0	3	0
„ „ short „ „ „ ..	16	0	2	4

DIAMOND REAMERS.

For hollowing out the backs of mineral teeth so that they will fit the caps. These Reamers are made in three sizes to suit the various sizes of caps. They are designed for use on the engine or lathe, turpentine being recommended as a lubricant.

		s.	d.
Diamond Reamers for any Handpiece, large, medium, or small	each	3	0
Do. do. to fit Lathe Chucks, do.	„	3	0



S. M. L.

When ordering Büttner's Instruments, or Diamond Reamers for Engine, say for which Handpiece they are required, and when ordering Diamond Reamers for Lathe Chucks say for which Lathe they are wanted.

PIVOTING INSTRUMENTS.

(Mr. Balkwill's.)

Mr. Balkwill's method of pivoting teeth consists of screwing a metal tube into the stump, and fixing the artificial crown on to a split pin. It is fully described in Chapter VI. of his book on "Mechanical Dentistry," from which he has kindly given us permission to take the directions for use.

The instruments illustrated are made from patterns which Mr. Balkwill submitted to us thirteen years ago. They are supplied in two sizes, large and small. The small, shown in the engraving, are intended for use on laterals and bicuspids, and the large for use on centrals and canines.

Pins and Tubes adapted for the instruments are also supplied in large and small sizes. The Pins are made of platinum, and the Tubes with platinum stem and gold shoulder.

When ordering either the Instruments or extra Pins and Tubes, please be careful to state which size is required.

Description.

Fig. 1. Twist Drill for enlarging the nerve cavity.

This can be had for use with the Dental Engine if desired.

„ 2. Square Screw Tap for forming the screw socket in the nerve cavity.

„ 3. Mitred Screw Tap for completing the thread.

„ 4. Key for screwing the platinum tube into the root.

„ 5. Fine-pointed Excavator for inserting pellet of wool to guard the canal, and for removing the same after the platinum tube is screwed in position.

„ 6. Socket Handle for holding the pin while bending it to the required angle. A tube and split pin are shown over the top of Fig. 6.

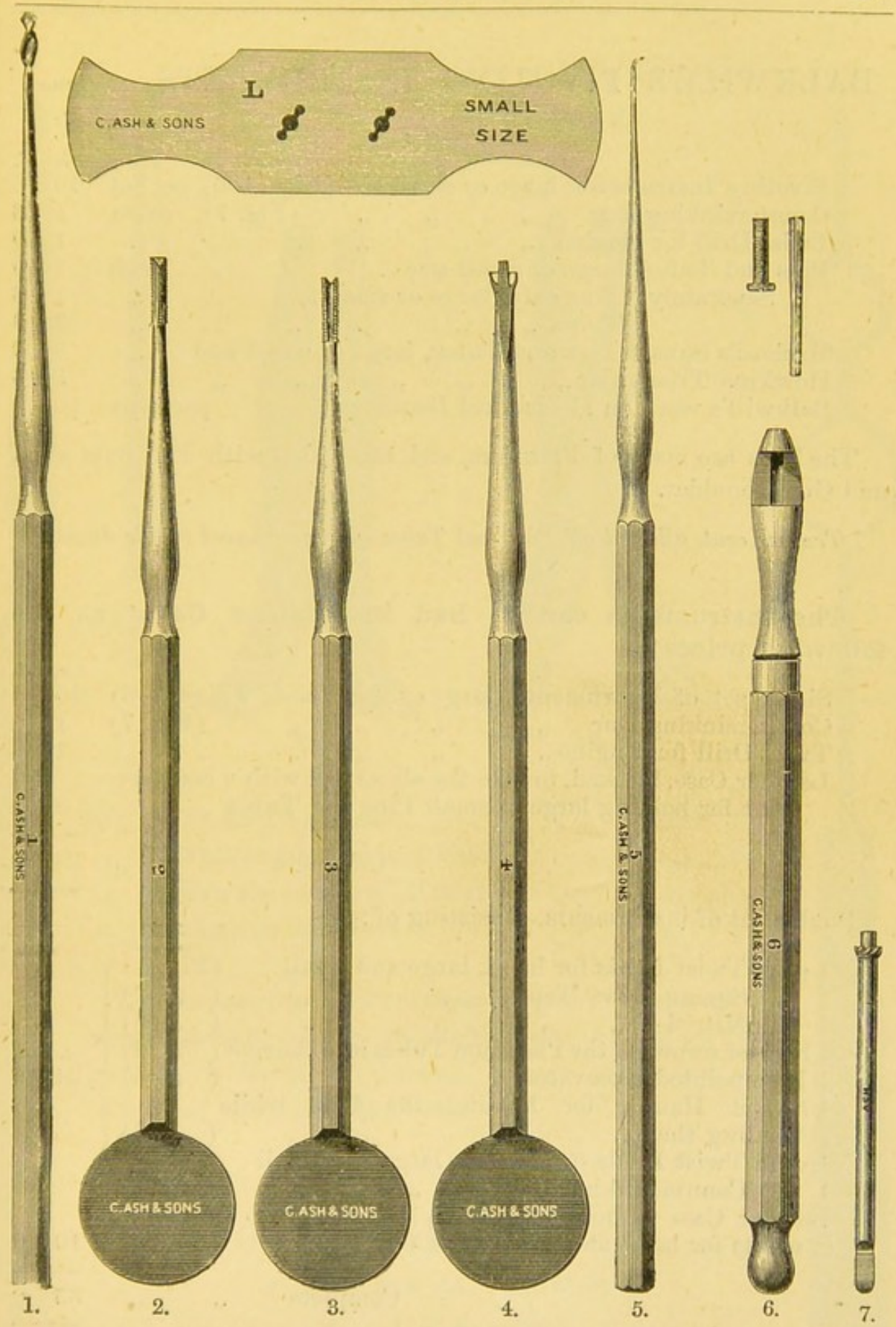
„ 7. Countersinking Bur for forming a shoulder in the root to receive the head of the tube, so that when it is screwed into position the head will be level with the top of the root.

SCREW PLATE.

A screw-plate for making the tubes (or, if necessary, reducing the size of those we supply) is given with each set of instruments.

Caution.—Before screwing the tube into the root, see that it will pass through the hole marked L on the screw-plate.

If the tube requires reducing in size, it should always be passed through the hole L before any attempt is made to put it through the other hole, which is smaller than L.



1. 2. 3. 4. 5. 6. 7.

Directions for use sent with each Set.

For prices see next page.

BALKWILL'S PIVOTING INSTRUMENTS—*continued.*

Prices :

	s.	d.
Pivoting Instruments, large or small size (Figs. 1–6), per set	10	6
Countersinking Bur „ „ „ (Fig. 7), extra	1	6
Twist Drill for Engine „ „ „ .. .. „	1	0
Pins and Tubes, large or small size .. .. .. each	4	0
Separately : Pins only, large or small size .. „	1	6
Tubes „ „ „ „ .. „	2	9
Macleod's Square Pins and Tubes, large or small size „	5	6
Howkins' Triangular „ „ „ „ „ „	5	6
Balkwill's work on Mechanical Dentistry per copy	10	0

The Pins are made of Platinum, and the Tubes with Platinum stem and Gold shoulder.

Ten per cent. allowed off Pins and Tubes when purchased by the dozen.

The Instruments can be had in Leather Cases at the following prices :—

	s.	d.
Single set of Instruments, large or small size (Figs. 1–6)	10	6
Countersinking Bur „ „ „ „ (Fig. 7)	1	6
Twist Drill for Engine „ „ „ „	1	0
Leather Case, blocked, to take the above and with a compartment for holding large or small Pins and Tubes	8	0
Complete	21	0

Double set of instruments, consisting of :—

		s.	d.
1 each Twist Drills for hand, large and small	(Fig. 1)	24	6
1 „ Square Screw Taps „ „	„ 2)		
1 „ Mitred „ „ „ „	„ 3)		
1 Key for screwing the Platinum Tubes into the root	„ 4)		
1 Fine pointed Excavator	„ 5)		
1 Socket Handle for holding the Pins while bending them	„ 6)		
1 each Twist Drills for Engine, large and small			
1 „ Countersinking Burs „ „	„ 7)		
Leather Case to hold the above, and with two compartments for large and small Pins and Tubes		10	6
Complete		35	0

Circulars containing full directions for using the instruments sent on application.

INSTRUMENTS AND TOOLS,

FOR CROWN WORK.

(Dr. W. Mitchell's.)

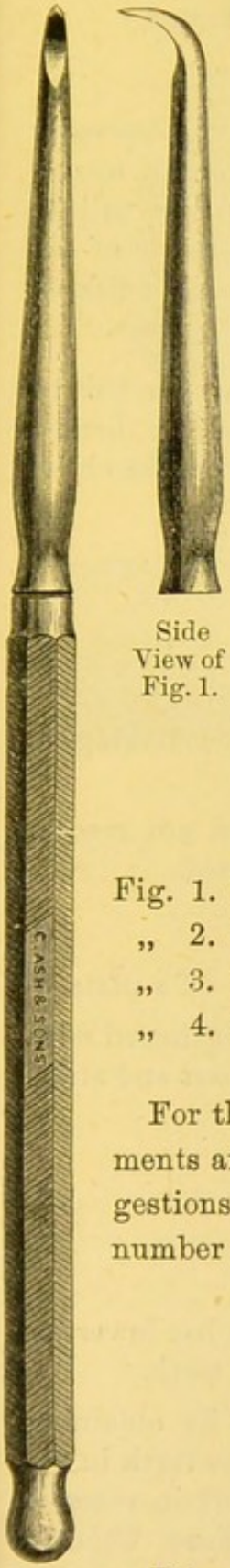


Fig. 1.

Side View of Fig. 1.

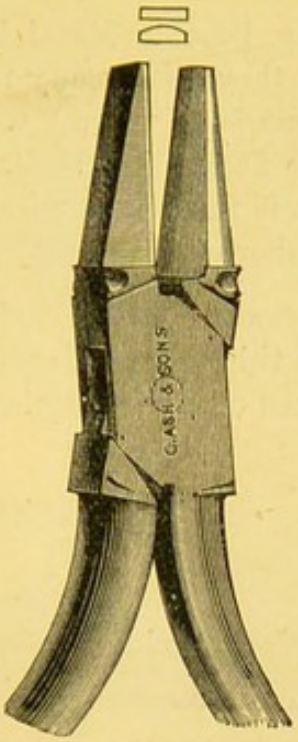


Fig. 2.

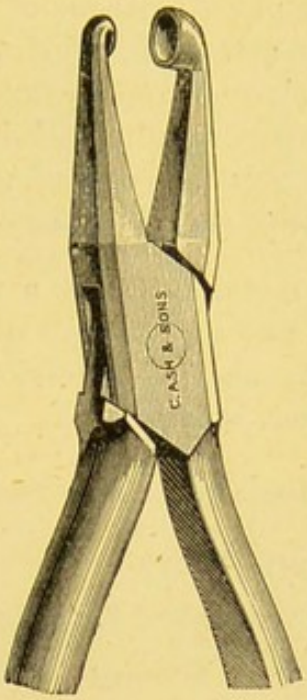


Fig. 4.

			s.	d.
Fig. 1.	Enamel Trimmer	each	1	9
„ 2.	Flat and half-round Pliers ..	„	1	3
„ 3.	Ferrule and Band Holder ..	„	0	9
„ 4.	Contouring Pliers	„	6	0

For the manner in which these several tools and instruments are used see Dr. Mitchell's paper on "Some Suggestions on Metal Cap Crowns," page 5 of the Jan. 1889 number of the *Quarterly Circular*.

CONTOURING PLIERS,

FOR METAL CAP CROWNS.

(Dr. J. J. R. Patrick's.)

		s.	d.
Price		6	0

Fig. 3.

FUSIBLE METAL OUTFIT,

FOR CROWN WORK AND VARIOUS OTHER PURPOSES.

(Mr. R. P. Lennox's.)

Mr. Lennox's novel methods of using Fusible Metal have deservedly attracted much attention, offering as they do a ready means of accomplishing in a simple manner many kinds of dental work, as will be seen from the paper published in the December, 1892, number of our Quarterly Circular, a copy of which is furnished with each outfit, or may be had free of charge by any member of the dental profession.

The fusible metal melts at a temperature rather below the boiling point of water, and expands about one thirty-second on cooling, thereby affording a very sharp impression, even of fine scratches on the object from which a cast is taken.

Mr. Lennox finds the metal useful—

In Crown Work—

1. For making a mandrel for shaping the ferrule.
2. As a setting for a natural tooth to be used as a die for striking up crowns.
3. As a means of obtaining an extremely well defined and not readily damaged cast of the mouth when a tooth is to be pivoted.

In Vulcanite Work—

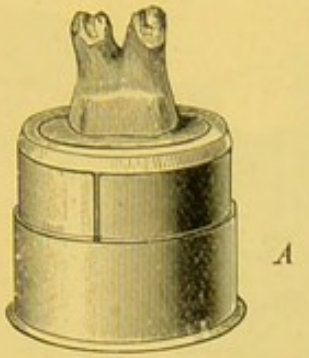
4. For temporarily replacing a tooth that has been broken off a plate.
5. When a vulcanite plate is cracked and needs to be strengthened with a small gold plate, for taking a cast and its counterpart and striking up the gold plate between them.
6. As a base or trying-in plate, etc., etc.

For various other purposes—

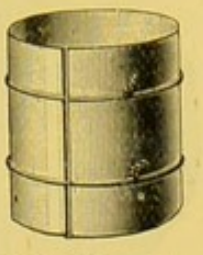
7. For making an articulator of his own design.
8. For filling up interstices between tube teeth in a gold bar lower for the purpose of preventing accumulations between the teeth.
9. For making a cast to correct a plate accidentally bent; for obtaining the articulation when setting up teeth where all the teeth in the other jaw are still standing; and for making a splint in cases of fractured jaw, as was successfully done by Mr. Fenn Cole, of Ipswich.

LENNOX'S FUSIBLE METAL OUTFIT—

continued.

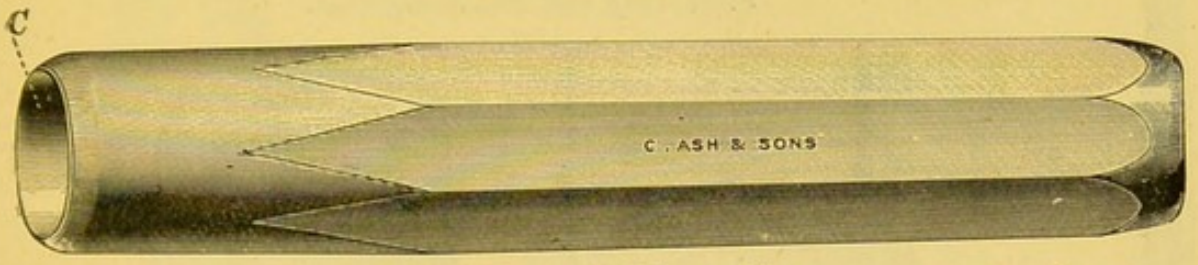


Mould.

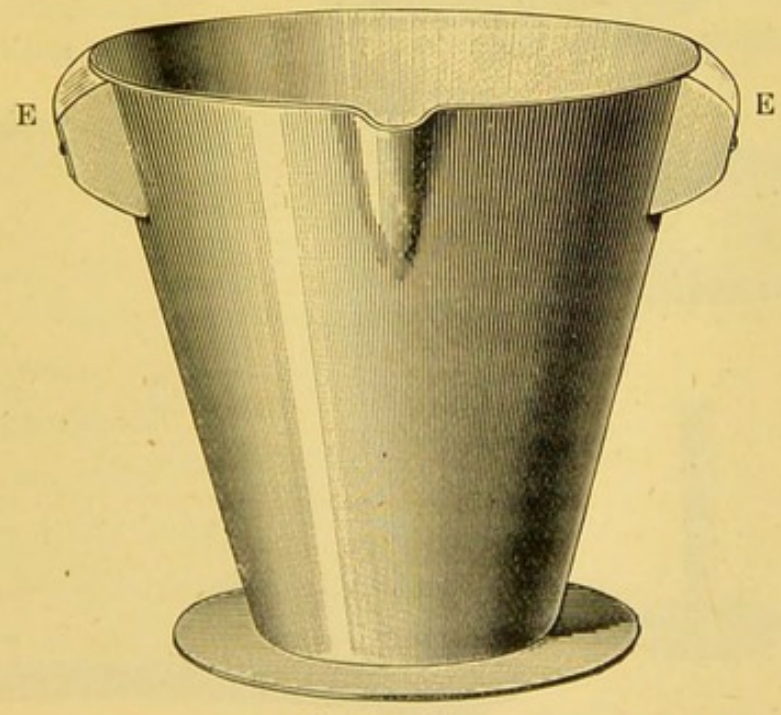


Split Ferrule.

Crown Die.



Steel Punch for Crown Dies.

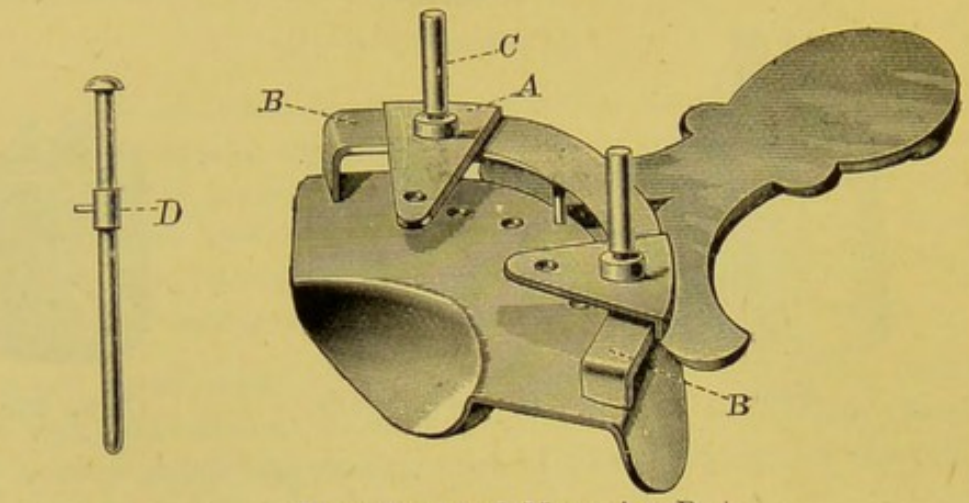


Pouring Cup.

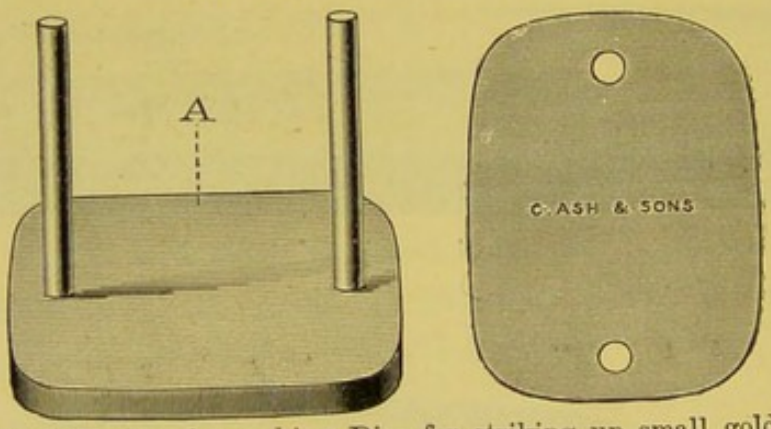
LENNOX'S FUSIBLE METAL OUTFIT—

continued.

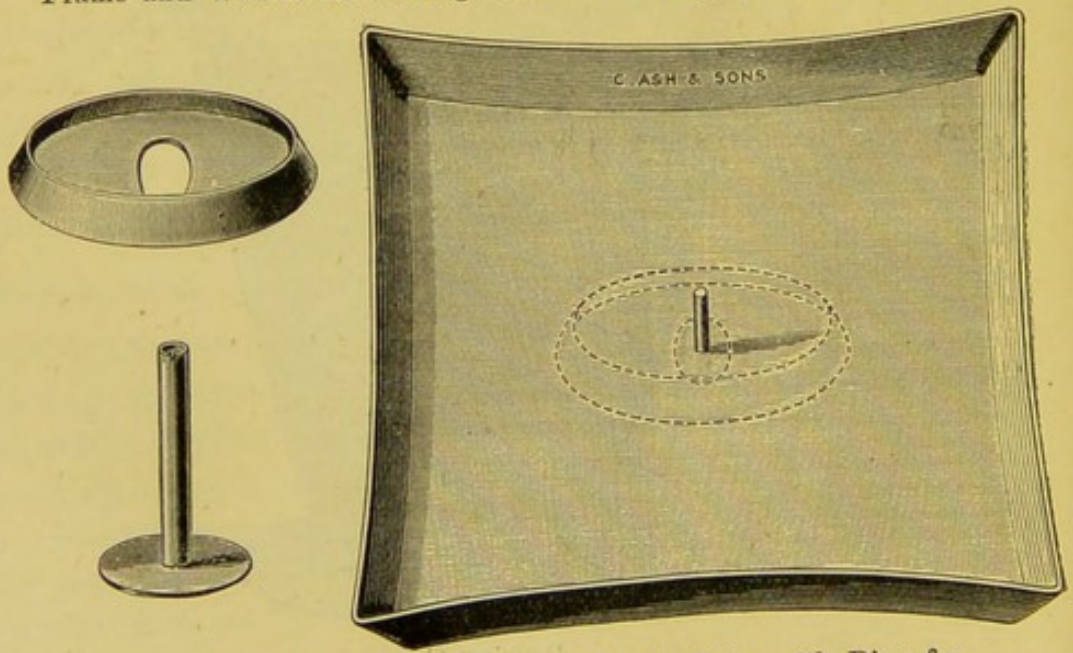
Spade shaped Excavator.



Pivot Tray and Measuring Post.



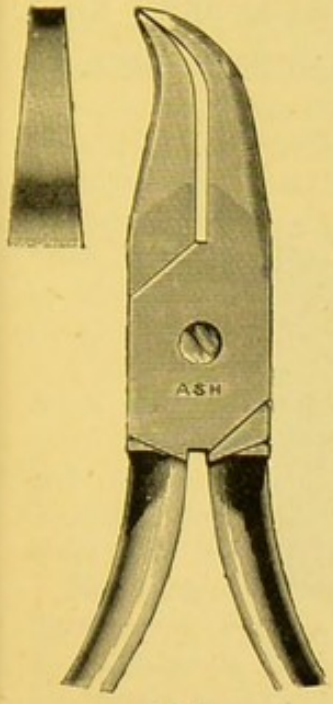
Frame and Washer for making Dies for striking up small gold plates.



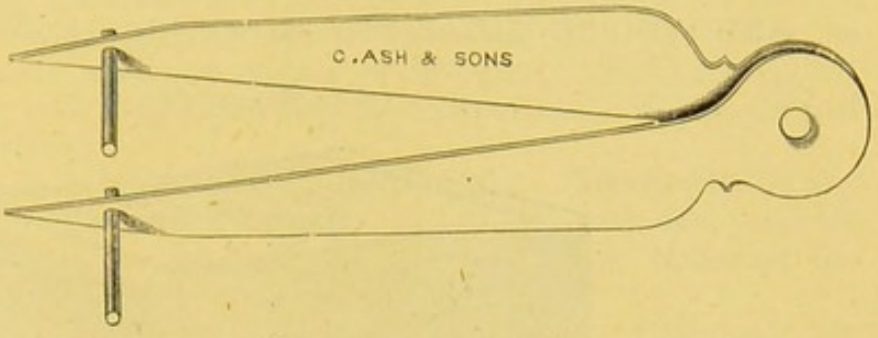
Large Tray, small Oval Tray, and Split Tube with Disc, for making an Articulator.

LENNOX'S FUSIBLE METAL OUTFIT—

continued.



Pliers.



Compasses for measuring the distance between two root-canals.

The pliers with curved chops is employed for grasping the copper strip, shown in Mr. Lennox's paper, about a molar root.

Prices:

		s.	d.
Outfit, consisting of Mould, Split Ferrule, Steel Punch, Pouring Cup, Pivot Tray, Die Frame, Articulator Tray, Excavator, Pliers and Compasses, complete as illustrated, with two strips of celluloid, a supply of sheet copper, and directions for use		24	0
King's Modelling Composition, in ½-lb. boxes	per lb.	5	0
Fusible Metal, in 1-lb. bars	per bar	8	0

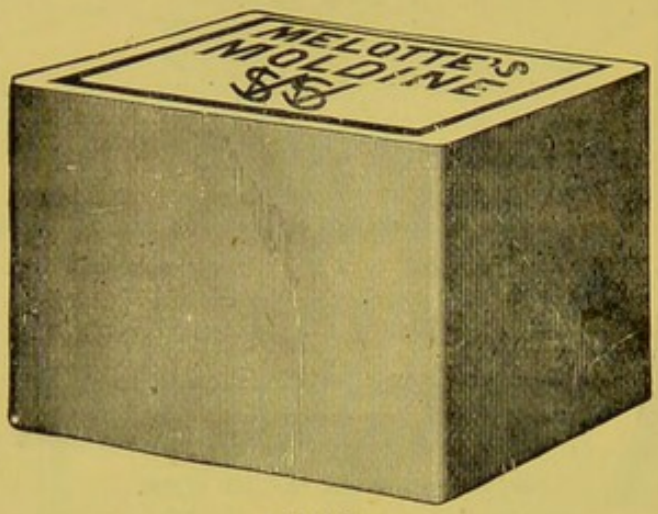
Parts separately:—

	s.	d.
Mould, consisting of Brass Cup and two split Ferrules ..	1	3
Steel Punch for holding Crown Dies	2	9
Pouring Cup	2	9
Pivot Tray and Post	6	0
Die Frame and Washer	2	0
Articulator Tray, complete as shown	5	6
Excavator	0	9
Pliers with curved chops	2	3
Compasses	0	9

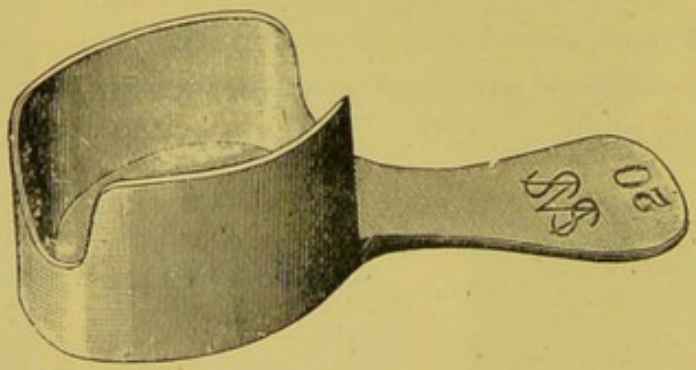
MOLDINE OUTFIT,

CONSISTING OF MOLDINE, IMPRESSION CUP, INDIA-RUBBER RING, AND FUSIBLE METAL FOR CROWN DIES AND COUNTER DIES.

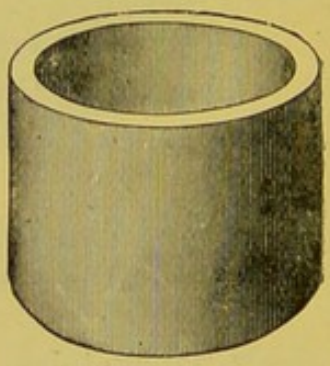
(Dr. MELOTTE'S.)



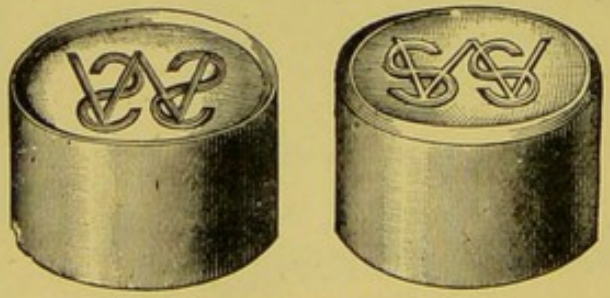
Moldine.



Impression Cup.



Rubber Ring.



Fusible Metal Ingots.

MELOTTE'S MOLDINE OUTFIT.

Directions for Use.

Success in forming and fitting gold crowns and bridge-work to natural teeth and roots depends largely on the models obtained. These can be quickly and accurately made by means of Moldine, which retains its plasticity for months and is always ready for instant use. The method of manipulation is as follows:—

Dry the teeth or roots to be copied and keep them dry. Nearly fill the cup with Moldine; dust over it some soapstone powder, and with firm pressure secure an exact impression of the teeth, using great care in removing the cup.

Trim off the surplus Moldine and stretch the rubber ring over the edge of the cup. Melt some fusible metal in a ladle or large iron spoon over the flame of a spirit-lamp, and pour it over the Moldine to fill that half of the ring. So soon as the metal hardens, withdraw the cup and Moldine from the ring, and make the die (still enclosed by the ring) cold with ice-water.

Melt some more of the fusible metal, and with something like a spoon-handle stir it until it is cooled to near the point of stiffening; then pour and scrape it into the ring over the die to form the counter-die, and immediately cool by pouring on cold water.

Remove the rubber ring, when with a few taps the die will separate from its counter. If it sticks it is because the die was not cold, or the last metal was poured hot instead of when partly cooled. A film of glycerine on the die will also prevent sticking.

A little practice will enable one to thus produce a die and its counter-die in less than five minutes after taking the impression.

Devices for regulating teeth and for other purposes may be immediately struck up by these means.

When soldering a gold cap to a collar, it may first be filled with Moldine, which will prevent the solder from flowing on the inside of either the collar or cap.

Moldine will serve as an investient for the impromptu soldering of an additional tooth to a metal plate, or for any other emergency of repair.

By merely indenting Moldine, an ingot mould of the desired size and shape for any melted metal may at once be made.

MOLDINE STIFFENS BY USE—MOISTEN IT WITH GLYCERINE.

Prices:			*s.*	*d*
Moldine Outfit complete, consisting of Moldine, Impression Cup, Rubber Ring, and Two Ingots of Fusible Metal	.. ..		6	0
Extra Moldine in ½ lb. packets	.. .. ..	.. per pkt.	2	1
„ Impression Cups	.. ..	.. each	1	0
„ Rubber Rings	.. ..	.. „	0	3
„ Fusible Metal Ingots	.. ..	„	1	7

IMPROVED GOLD CROWN DIES.

(Dr. G. W. Melotte's.)

The notable points claimed by Dr. Melotte for his set of Improved Crown Dies are convenience and compactness. The set consists of sixteen dies and a handle or holder. The die-heads are provided with a shank to fit the socket in the holder, in which it is held securely by a spring. The die heads are of bronze, the handle of steel.

The set is put up in a neat case, 6 by $3\frac{1}{4}$ by $1\frac{3}{8}$ inches.

		s.	d.
Price	per set	25	0
Crown-Die Plate (American), latest form		12	6
Hub Mould „		4	2

Directions for use are supplied with these. Illustration sent on application.

DOUBLE-ANGLE TRIMMERS AND SCALERS,

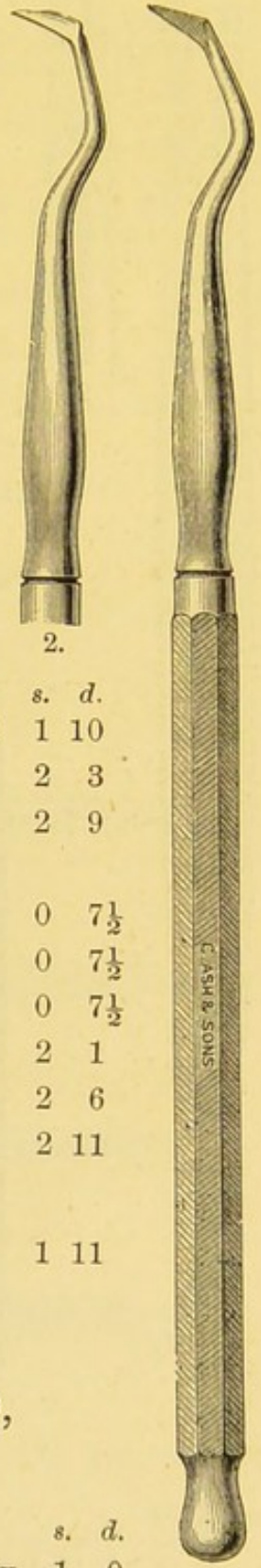
FOR CROWN WORK, &c.

These are tempered hard like Enamel Chisels, and are especially useful for trimming molar and bicuspid roots before fitting crowns.

They can also be used as universal scalers and for trimming osteos.

Fig. 1 cuts with a pushing motion; and
„ 2 „ pulling „

			s.	d.
Price in file-cut handles	each		1	9



2.

HOW'S SCREW POSTS.

		s.	d.
Gold, 14 carat, size A A small, $\frac{7}{8}$-inch long ..	each	1	10
„ „ A medium „ ..	„	2	3
„ „ B large „ ..	„	2	9
Bright Metal (Dental Alloy):—			
Size A A small, $\frac{7}{8}$-inch long	„	0	$7\frac{1}{2}$
„ A medium „	„	0	$7\frac{1}{2}$
„ B large „	„	0	$7\frac{1}{2}$
Crown Metal, size A A small, $\frac{5}{8}$-inch long ..	„	2	1
„ „ A medium „ ..	„	2	6
„ „ B large „ ..	„	2	11

[The composition of Crown Metal is not given by the manufacturers of these posts.—C. A. & S.]

Pins, for setting Logan's Crowns, made of platinum	„	1	11

COMPRESSED HICKORY WOOD,

FOR PIVOTING, &c.

		s.	d.
In Sticks, drawn to a convenient size, supplied in boxes containing 18 Sticks	per box	1	0

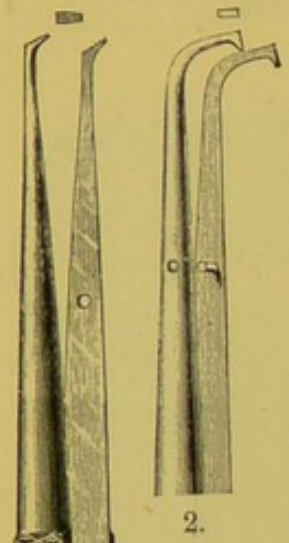
PLUGGING TWEEZERS,

WITH FOOT-SHAPED POINTS.

Fig. 1 is suitable for all cavities in the upper jaw. It is shown full size.

„ 2 is particularly useful for placing cylinders against the cervical walls of distal cavities.

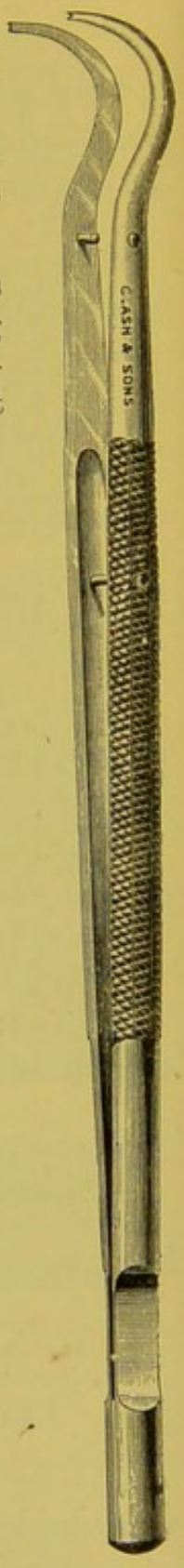
Tweezers for distal cavities with points curved in the form of a sickle, for filling roots and deep cavities in molars and bicuspids. The illustration shows the instrument full size.



1.

2.

For Distal Cavities.



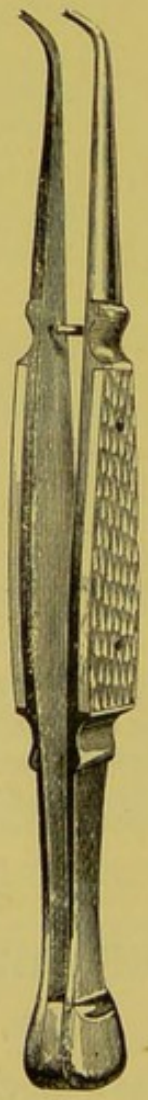
Connor's.

Rich's.

Fig. 11.

Length, 7¾ ins.

6 ins.



5½ ins.

PLUGGING TWEEZERS—*continued.*

(THE POINTS OF ALL THESE ARE SERRATED.)

Prices:	each s.	d.
Plugging Tweezers, with foot-shaped Points, in Steel octagon handles (Figs. 1,2)	7	6
„ „ „ „ „ Nickel-plated („ 1,2)	8	6
„ (Dr. Rich's), with holes in handles to make them light	6	6
„ „ „ „ Nickel-plated	7	6
„ in Steel octagon handles, points set at various angles.. (Fig. 11)	6	6
„ „ „ Nickel-plated „ „ („ 11)	7	6
„ (Dr. Connor's), made with large rounded Steel ends to prevent the pressure hurting the hand. In Steel handles with checkered Ivory centres..	9	0
„ „ „ „ „ Nickel-plated	10	0
„ for distal cavities, in Steel octagon handles	6	6
„ „ „ „ Nickel-plated	7	6
„ Mr. E. J. Ladmore's, in Steel octagon handles, with points set at the same angle as the top end of instrument Fig. 1 on page 272, for filling distal cavities, Nickel-plated	7	6

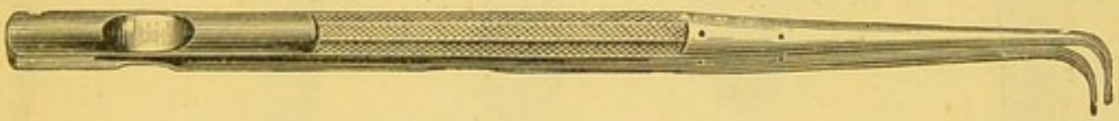
Other forms of Plugging Tweezers made to order.

DRESSING TWEEZERS.

(Dr. WITZEL'S.)

1.

2.



3.

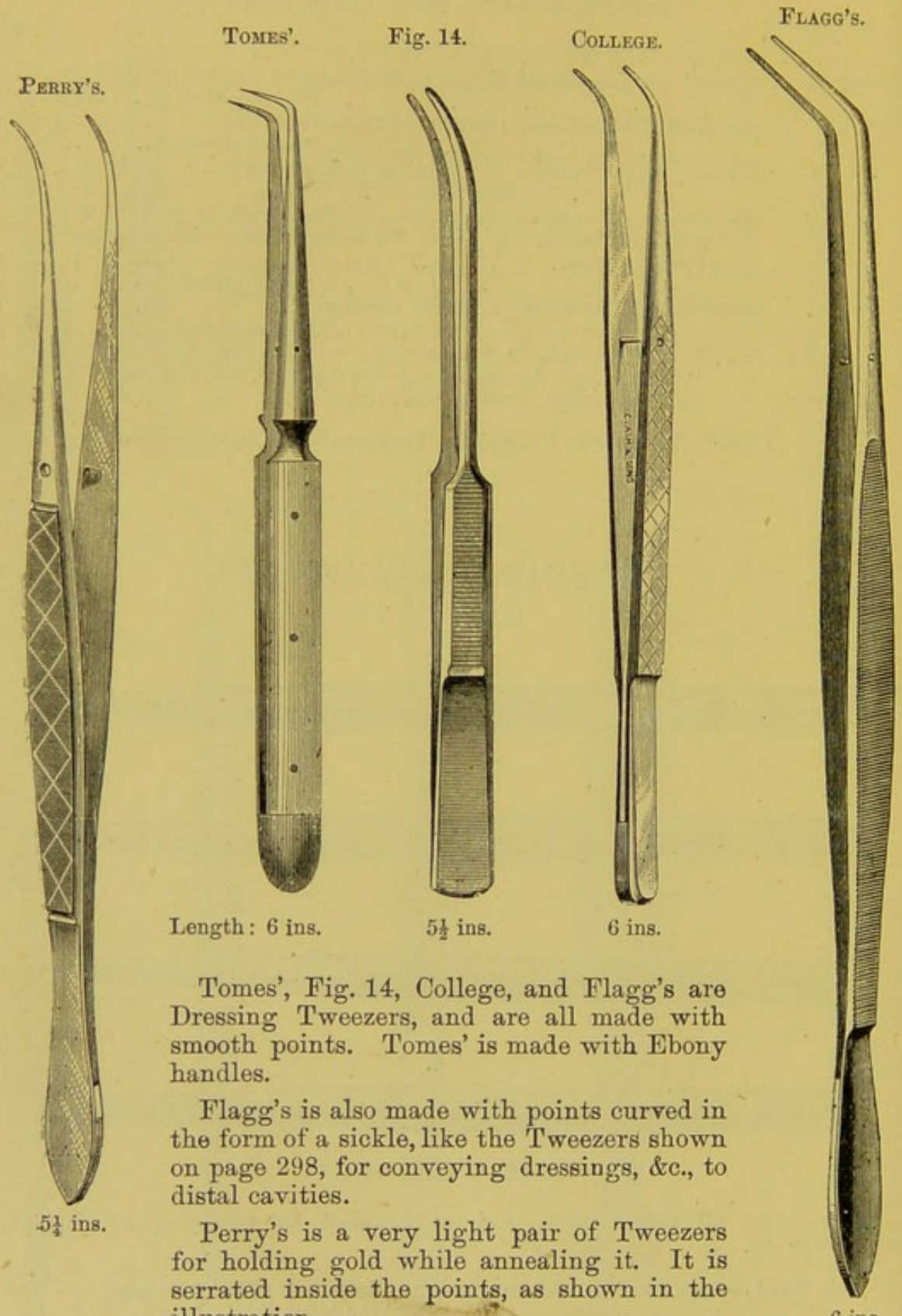
4.

Length of each 6 inches.

These have all smooth points, and are intended for conveying and applying dressings, &c.

	s.	d.
In Steel octagon handles, various angles, as illustrated (Figs. 1–4) each	6	6
„ „ „ Nickel-plated („ 1–4) „	7	6

DRESSING AND ANNEALING TWEEZERS.



Tomes', Fig. 14, College, and Flagg's are Dressing Tweezers, and are all made with smooth points. Tomes' is made with Ebony handles.

Flagg's is also made with points curved in the form of a sickle, like the Tweezers shown on page 298, for conveying dressings, &c., to distal cavities.

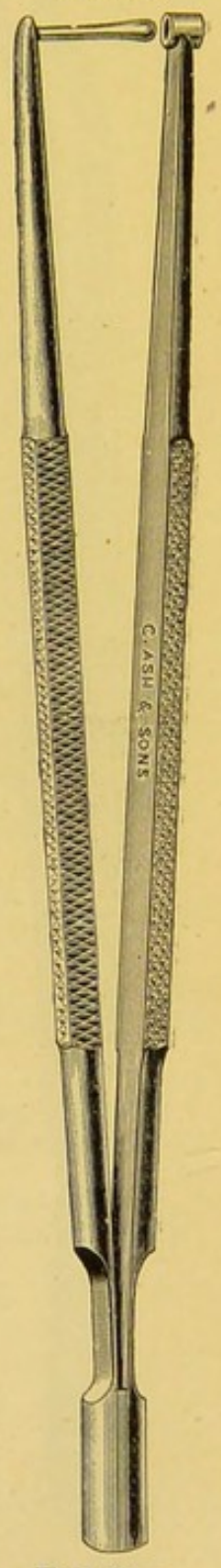
Perry's is a very light pair of Tweezers for holding gold while annealing it. It is serrated inside the points, as shown in the illustration.

DRESSING AND ANNEALING TWEEZERS—*continued.*

Prices:

		s.	d.
Dressing Tweezers (Sir John Tomes'), Plain ..	each	5	0
„ „ „ Nickel-plated	„	6	0
„ „ all Steel .. (Fig. 14)	„	2	3
„ „ „ Nickel-plated	„	3	3
„ „ College „	„	4	0
„ „ (Dr. Flagg's) „	„	5	0
„ „ „ for distal cavities	„	5	0
Annealing Tweezers (Dr. Perry's), Nickel-plated	„	4	0

PARRIS'S.



Full Size.

PLATINUM-POINTED DRESSING TWEEZERS.

For conveying dressings saturated with acids that are destructive to steel. They are pointed with hard platinum for about three quarters of an inch of their length, and are very durable.

Supplied to Order.

AMALGAM TWEEZERS AND STOPPER COMBINED.

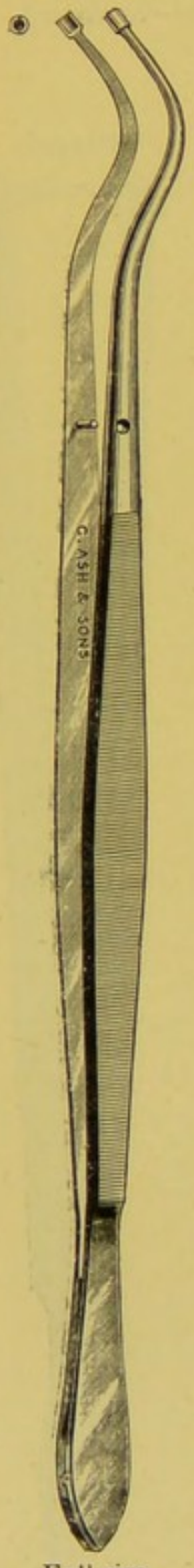
(Mr. R. S. PARRIS'S.)

By means of this appliance Amalgam can be carried to a cavity, discharged and packed, without the necessity of employing a second instrument.

When the Amalgam is mixed ready for use the tube shown in the illustration is pressed into it and thus charged. The material is then conveyed to the cavity and forced into position with the ball-ended stopper.

To prevent the tube becoming clogged with Amalgam it should be thoroughly cleared each time immediately after use.

	s.	d.
Price, Nickel-plated	7	6



Full size.

AMALGAM TWEEZERS.

(Mr. Kendrick's.)

The accompanying engraving so clearly shows how this instrument is to be employed that, as Mr. Kendrick observes: "I do not know that any special directions are required to use such a simple instrument. I just take up a piece of amalgam in the carrier, place it in the cavity, press it home, and then follow on with a blunt amalgam packer that you made for me."

	s.	d.
Price, Nickel-plated	7	6

AMALGAM TWEEZERS, STOPPERS AND BURNISHERS COMBINED.

(Suggested by Mr. W. H. Hope.)

Fig. 1

Fig. 2

These have handles rather stronger than Mr. Kendrick's, but the points of each shape are solid, and form a combined Stopper and Burnisher when they are brought together after the amalgam has been conveyed to the cavity. Mr. Hope finds them very useful in practice.

	s.	d.
Price, Nickel-plated, either shape (Figs. 1, 2) each	7	6

PLATINUM CAVITY CAPS,

FOR PROTECTING EXPOSED PULPS, &c.

(Dr. WITZEL'S.)

1. 2. 3. 4. 5. 6. 7. 8. 9.

10. 11. 12. 13. 14. 15. 16.

The following description of these caps, which are made in platinum, but which can, of course, be made also in gold, dental alloy, or other suitable metal, is translated from the German edition of Dr. Witzel's Compendium :—No. 1 is used for capping the pulps of incisors; No. 10 is used for capping the pulps of bicuspids; Nos. 2 and 6 are for exposed pulps in side cavities of molars.

The larger caps are used for covering pulps in cavities that are filled with cement, viz.:—Nos. 11 and 12 in bicuspids; Nos. 13 and 14 in the sides of molars; Nos. 7, 8, 9, 15, and 16 are for covering pulps in the crown cavities of molars.

For capping exposed pulps, the *concave* side of the cap is charged with cement paste and placed over the pulp; for capping filled pulp cavities the *convex* side of the cap is placed downwards with the rim resting on the edges of the pulp cavity. To make the cap adhere to the sides of the tooth, the rim should be painted or smeared with rather thick cement paste. In cases where the pulp cavity is not filled, but treated with sublimate lotion or other disinfectant, the cap should be covered with a thin layer of chlora-percha. It is important that, when the cavity is prepared, the cap should fit well, or it may be forced into the pulp cavity while the tooth is being stopped. To avoid this, a bur of the right size for the cap should be employed, with which the approach to the pulp canal should be shaped somewhat cup form.

		s.	*d.*
Price, in Platinum, assorted	per box of 25	2	0

STEEL CAVITY CAPS FOR TEMPORARY USE.

(Introduced by Mr. SHEFFORD, of London.)

Same forms as Figs. 1 to 9 shown above. They are made from telephone plate or thin steel, and are intended for covering nerve-destroying pastes, and for protecting the pulp under dressings and temporary stoppings.

For conveying a cap to the cavity Mr. Shefford uses a magnetised carrier, from which he disengages the cap, when it is placed in position, by means of a fine-pointed instrument.

Supplied in boxes containing 25 assorted sizes.

		s.	*d.*
Price	per box	1	0
Magnetised Carrier for conveying them		2	0

TELEPHONE PLATE,

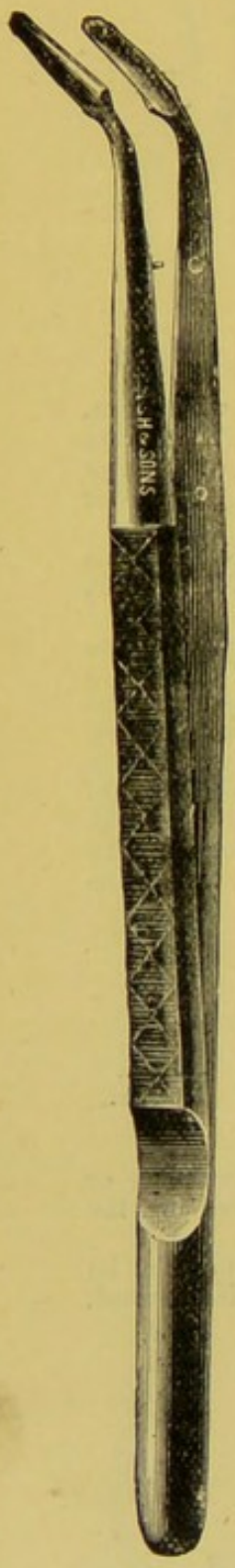
FOR CAPPING EXPOSED PULPS AND FOR MATRICES.

Supplied in pieces, for cutting up as required, 5 by 4½ inches.

		s.	*d.*
Price	per piece	0	4

DERENBERG'S TWEEZERS,

FOR REMOVING LOOSE AND TEMPORARY TEETH, DRESSINGS, &c.



Full size.

The accompanying engraving shows an extremely solid and strong pair of Tweezers, which is said to be useful for removing pieces of fractured teeth, loose temporary teeth, pivots, dressings, &c. It is also claimed that the appearance of the instrument serves to disarm the fears of the patient.

To ensure a firm grip being obtained, the beaks are made hollow and serrated inside.

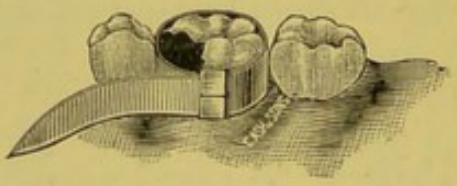
In reality it is a combination of the usual extracting Forceps and existing forms of Tweezers, the latter of which are essentially so light that they are made with points much too fine and small to possess the needful strength to do the work for which this instrument is intended.

Mr. Derenberg says it is very serviceable for removing temporary teeth and stumps from the mouths of children.

	s.	d.
Price, Nickel-plated	8	6

MATRICES.

(Dr. LEVETT'S.)



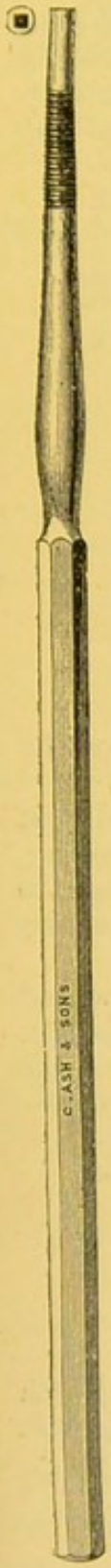
4 mm. 6 mm. 8 mm.

The advantages of this very simple matrix are briefly these:—Ease of application to and removal from the tooth under operation. It consists of a pliable band of soft metal with one end shaped to form a loop. As shown in the engraving, it can be drawn tightly round a tooth of any size, by passing the pointed end of the band through the loop, and it is firmly secured in position by bending back the free end over the loop.

	s.	d.
It is made in three depths as illustrated, per doz.	2	0

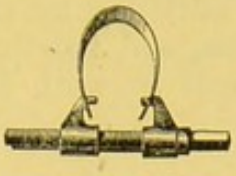
The LADMORE-BRUNTON CLAMPS and MATRICES,

WITH FLEXIBLE KEY.

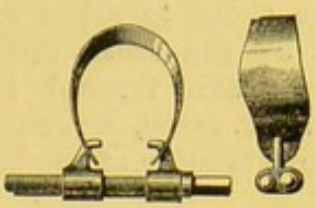


1.

2.



3.



4.

Fig. 1. Key for adjusting, with steel spiral spring between the upper end and the handle. The Spring admits of the Key being turned when the handle is at right angles to it almost as easily as when it is straight.

„ 2. Clamp with sliding bar parallel with the Screw. As will be seen from the illustration it forms a miniature parallel vice, the hooks representing the jaws of the vice.

In Figs. 3 and 4 a Clamp is shown in which the sliding bar is placed at right angles to the hooks. This was introduced with the idea of making the clamp lie closer to the tooth, and it is difficult to say which is the better of the two, as they both have points to recommend them.

Either is equally efficient with molar or bicuspid teeth, and each has been used for both gold and amalgam fillings with satisfactory results. The sections on the right hand side of Fig. 2 and Fig. 4 give a clear idea of the position of the sliding bar in the two forms.

„ 3. Shows a Matrix for bicuspids attached to the Clamp.

„ 4. Shows a Matrix for molars attached to the Clamp. The depth of this Matrix is given in the section.

Directions for Use.

Measure the tooth requiring a matrix by passing a silk thread round it. For bicuspids cut the thread an eighth of an inch shorter than the circumference of the tooth, and for molars a quarter of an inch shorter. Then select a matrix the nearest in size, from hole to hole, to the length of the thread, bend it to the shape of the tooth with a pair of pliers, slip the hooks of the clamp into the holes, and place the matrix over the tooth, taking care to get it below the cervical margin. (The margins of the cavity should be strong and square to prevent the enamel being fractured.) Key up tight. Where practicable a thin wooden wedge, dipped in mastic cement, should be inserted to keep the matrix in position, otherwise it may spring from the cervical margin during the packing of gold or tin.

The LADMORE-BRUNTON CLAMPS and MATRICES —*continued.*

In order to allow amalgam fillings to set hard, the matrix may be left on the tooth until the next day by removing the clamp, threading copper wire through the holes, and twisting the ends securely together. In such cases, however, it will be well, before filling, to see that the matrix is clear of the bite.

Prices:

			s.	d.
One Clamp, either style, nine Matrices and one flexible Key for adjusting, complete			10	6
Separately	Clamps, either style	each	6	0
	Matrices, any size ..	per doz.	4	6

SPRING MATRICES.

(Dr. Herbst's.)

1. 2. 3. 4. 5.

These Matrices were first brought to the notice of the Profession by Dr. Herbst previous to April, 1885.

They are intended for use between the Canines, Bicuspids and first and second Molars when filling approximal cavities. Should the spring, in any one of them which may be employed, not be strong enough to keep the Matrix firmly in position, it can be thoroughly secured by means of a wooden wedge or thin strip of india-rubber.

It may be well to repeat that the chief point in the Herbst method of filling is to convert all complicated cavities into simple ones, and Dr. Herbst claims that the Matrices shown in the illustration are the simplest and most suitable that can be employed for this purpose between the teeth in the back of the mouth.

			s.	d.
Matrices made of Spring Steel, Nickel-plated	(Figs. 1–5)	each	1	0

VERY THIN STEEL TAPE.

For Matrices, smoothing fillings, &c. In two widths—narrow, $\frac{1}{4}$ inch wide; broad, $\frac{3}{8}$ inch wide. When ordering please state which is required.

		s.	d.
Supplied in one foot lengths	per foot	0	4

GERMAN SILVER STRIPS.

		s.	d.
For Matrices, &c.	per dozen	1	0

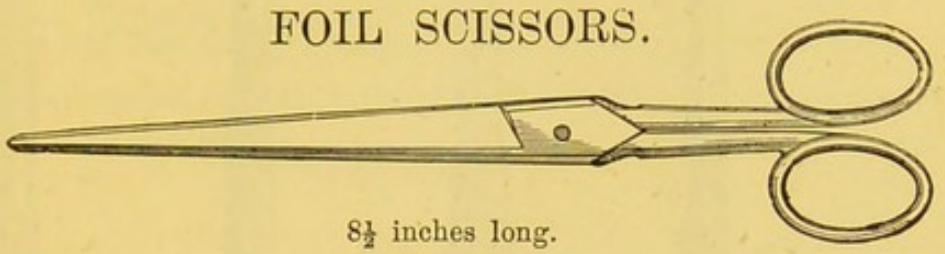
FOIL MANIPULATORS.

10½ inches long.

For folding and pressing Foils ready for Stoppings.

	s.	d.
With long Steel blade, Nickel-plated, and checkered Ebony handle .. .. each	3	0

FOIL SCISSORS.



8½ inches long.

With long blades for dividing the leaf at one cut.

	s.	d.
In Steel, highly polished .. .. each	4	6
„ Nickel-plated .. .. „	6	0

GOLD FOIL CASE.

In Leather, with spring snap. The inside of the Case consists of a pocket, large enough to take a book of foil, and a chamois leather pad for holding the pieces which are in use.

	s.	d.
Size, outside measurement, $5\frac{1}{8} \times 5\frac{1}{8} \times 1\frac{1}{8}$ inches, each	3	6

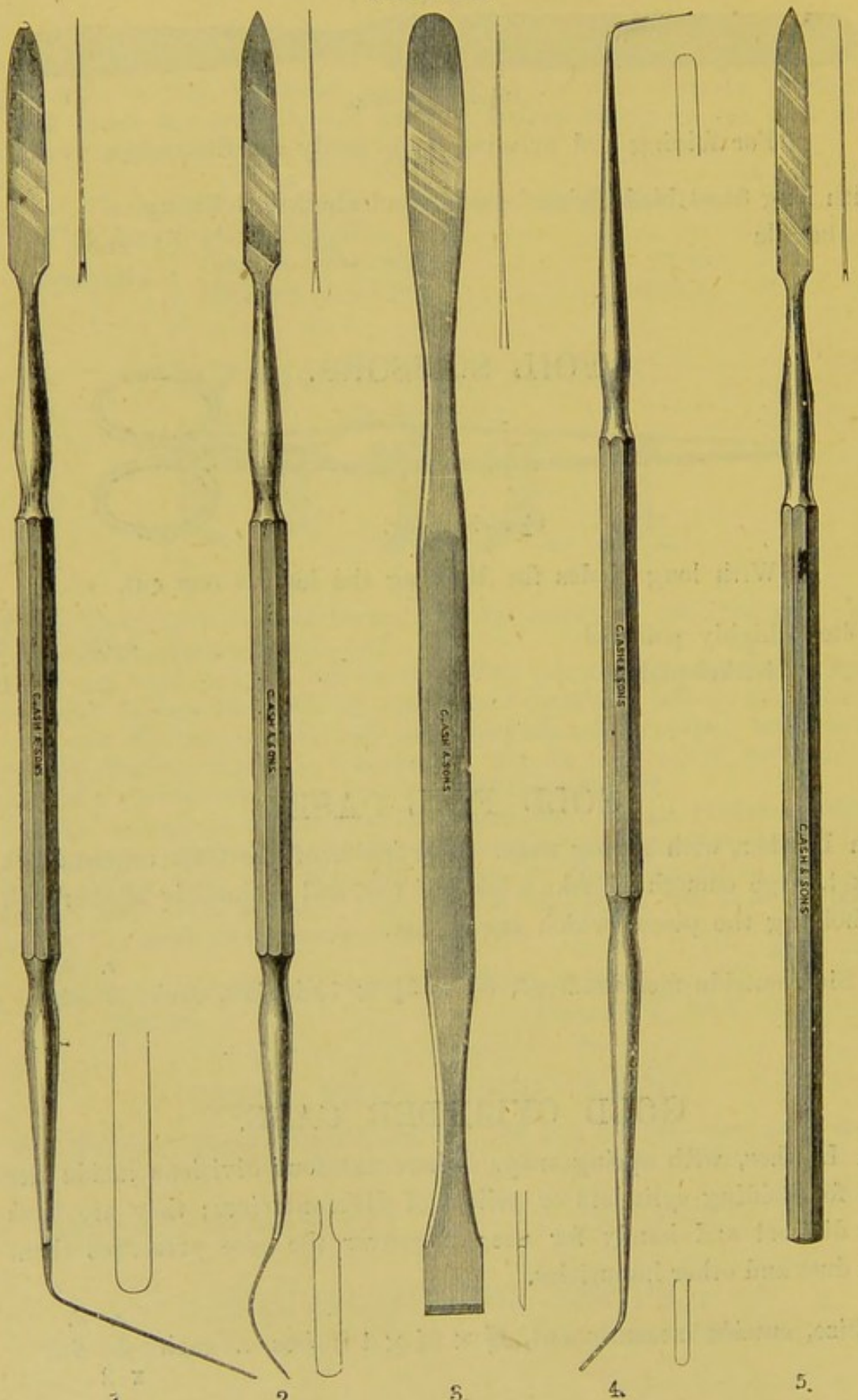
GOLD CYLINDER CASE.

In Leather, with spring snap. There are four divisions inside the Case for holding cylinders or pellets of different sizes; they are thus kept distinct and handy for use; moreover the case preserves them from dust and other impurities.

	s.	d.
Size, outside measurement, $4\frac{3}{4} \times 3\frac{7}{8} \times 1$ inches .. each	3	6

SPATULAS.

(FULL SIZE.)



1. 2 3. 4. 5.

SPATULAS—*continued.*

		s.	d.
Fig. 1. (Dr. Houghton's) suitable for mixing Oxychloride Cements.			
In Steel Octagon handle	each	1	9
„ „ „ Nickel-plated	„	2	1
Figs. 2 and 4 (Mr. Rowney's) suitable for Oxychloride Cements.			
In Steel octagon handles	„	1	9
„ „ „ Nickel-plated	„	2	1
Fig. 3 (Dr. Weston's) designed for mixing Oxyphosphate Cements. The chisel end of this Spatula is intended for cleaning the mixing slab.			
In flat Steel handle	each	1	9
„ „ Nickel-plated	„	2	1
Spatula (Dr. Weston's), 7¾ inches long, extra strong, with blades like Fig. 3, and Steel Octagon centre. Nickel-plated	„	3	0
Fig. 5. Single-ended, suitable for Oxychloride Cements.			
In Steel octagon handle	„	1	0
„ „ „ Nickel-plated	„	1	4

BONE SPATULA,

FOR MIXING CEMENT STOPPINGS.

	s.	d.
Price	0	4

SPATULA AND MIXING BLOCK,

FOR RETARDING THE SETTING OF CEMENT STOPPINGS

(Mr. W. R. Humby's.)

Mr. Humby claims that by using a Copper and Nickel Mixing Block and a pure Nickel Spatula a cement, such as Caulk's for example, which appears to freeze or harden considerably upon the slab in a few minutes, yet proves, upon being taken up and kneaded, to be sufficiently plastic to be inserted in the cavity. He has even found it soft, he says, after it has been on the slab for an hour.

He thus describes them and the action of the mixing block:—

"The Mixing Block is composed on its working surface of a thin plate of pure nickel attached, by means of tin solder, to a thick base of copper. This metal substance does not affect the quality of any cement that may be mixed upon it, *but by absorbing the heat generated during the combination of the liquid and powder* affords ample time to mix and introduce to the cavity."

The Spatula is made of pure nickel, as the ordinary plated ones lose the thin layer at their edges, and may sometimes be seen to be lined on such bald parts with red rust, thus introducing an undesirable addition to the cement.

Prices:	s.	d.
Spatula, made of Pure Nickel	3	6
Copper Mixing Block, round or square, with both surfaces covered with a thin plate of Pure Nickel	5	0

SPATULAS—*continued.*

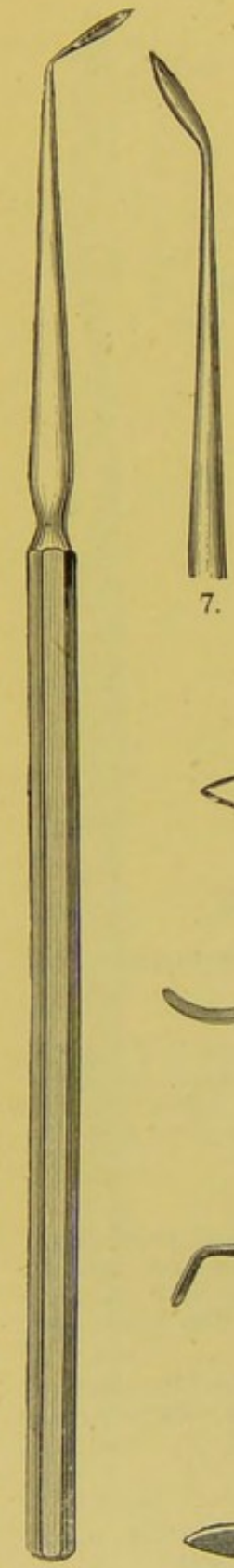


Fig. 6.

7.

Fig. 8.—6 inches long.

Fig. 10.—Full size.

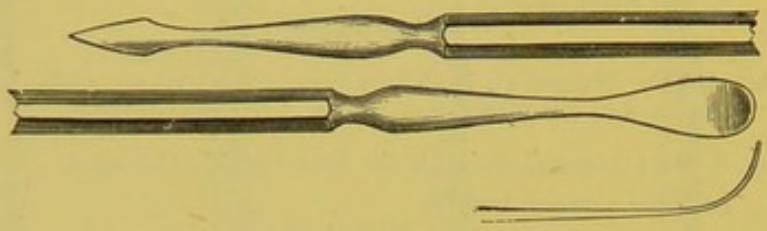


Fig. 11.—Half size.

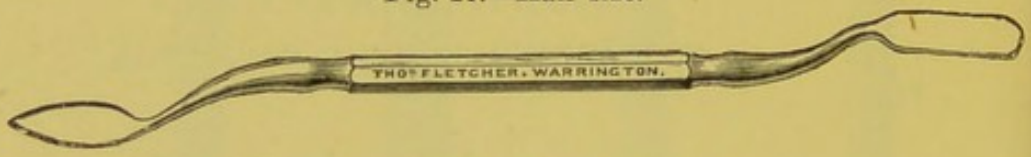


Fig. 12.—6¾ inches long.

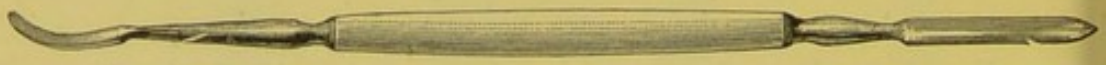


Fig. 13.—6¾ inches long.

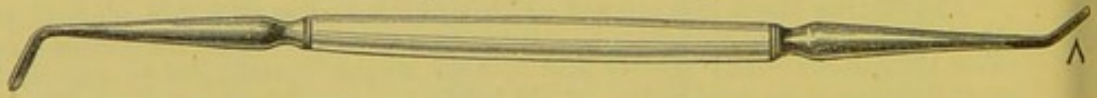
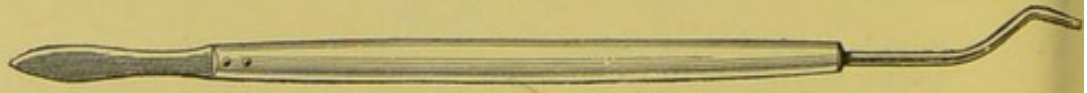


Fig. 14.—6¾ inches long.



SPATULAS—*continued.*

Figs. 6 and 7 (Dr. Witzel's) are suitable for cement filling. They form a useful pair for upper and lower cavities. Fig. 6 is shown full size.

		s.	d.
In Steel octagon handles	(Figs. 6 and 7) each	1	0
„ „ Nickel-plated	(„ „) „	1	4

Fig. 8 (double-ended) is suitable for mixing and working Poulson's Mineral Plombe, or any of the Amalgam Stoppings.

		s.	d.
In Steel, with Ivory centres	(Fig. 8) each	3	0
In plain Steel handle	(„) „	1	9
„ „ Nickel-plated ..	(„) „	2	1

Fig. 10 (Dr. Taylor's), for mixing and working Oxychloride Cement fillings.

		s.	d.
In Steel octagon handles	(Fig. 10) each	1	9
„ „ Nickel-plated ..	(„) „	2	1

Fig. 11 (Mr. T. Fletcher's), very stiff, intended for use with his Porcelain and all kinds of Oxyphosphate Cements. To ensure success with this class of Stoppings it is very necessary to mix them thoroughly, and this can only be effectually done with a stiff Spatula.

		s.	d.
In Steel octagon handle, Nickel-plated	(Fig. 11) each	3	0

Figs. 12 and 13 (Mr. Rowney's), for mixing and applying Oxychloride Cement fillings.

		s.	d.
In Ivory handles	(Figs. 12 and 13) each	3	3

PLATINUM SPATULAS.

Fig. 14 (Mr. McAdam's), Stopper and Spatula combined for working Oxychloride Cement fillings.

In hard Platinum, with Ivory handle .. (Fig. 14) } *made to*
„ „ „ without the Stopper („ „) } *order.*

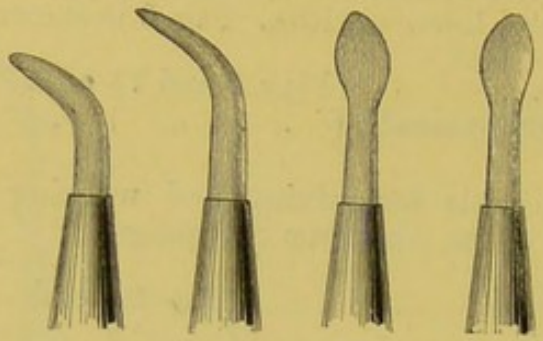
Poulson's, 6½ inches long, with Platinum Spoon one end for dissolving the crystals of his Mineral Plombe, and stiff blade the other end for mixing the cement and cleaning the slab.

In Steel octagon handle, Nickel-plated .. *made to order.*

Spatulas of other forms made or obtained to order.

1.

AGATE BURNISHERS.



2. 3. 4. 5.

For polishing stoppings. The set consists of five forms—Figs. 1–5, carefully selected, and designed to meet all requirements. They are made with Ebony handles like Fig. 1.

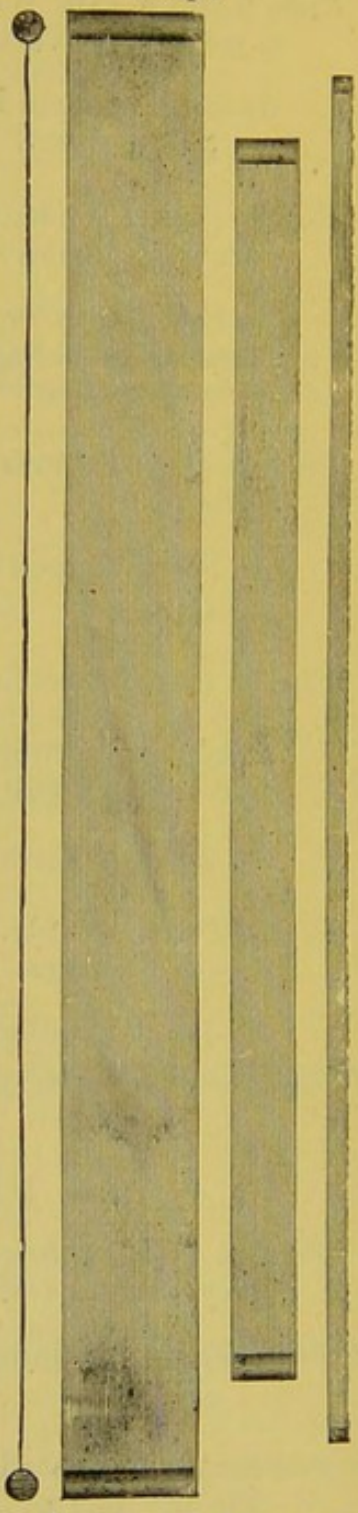
			s.	d.
Price	.. (Figs. 1–5)	each	2	9

RIBBON SAWS.

For separating and smoothing approximal fillings. They are sufficiently flexible to admit of being used at any angle.

			s.	d.
Price	.. ..	per doz.	4	0

Composition Silver Strips.



COMPOSITION SILVER STRIPS.

(Dr. E. Parmly Brown's.)

For Denfists' use in polishing between the teeth and dressing off approximal Gold Fillings. To be used with wet pulverized Pumice or other suitable powder.

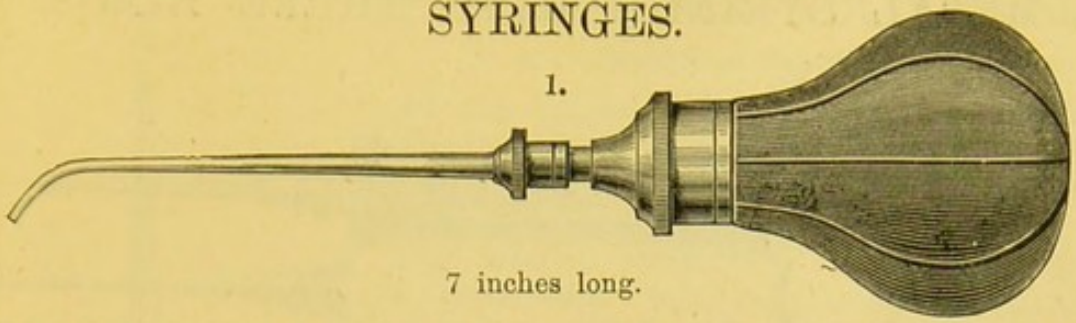
They can be smoothed out after being used, by drawing between a towel or over the edge of a table.

Supplied in a variety of sizes, one dozen in a packet.

			s.	d.
Price	.. ..	per packet	2	1

SYRINGES.

1.



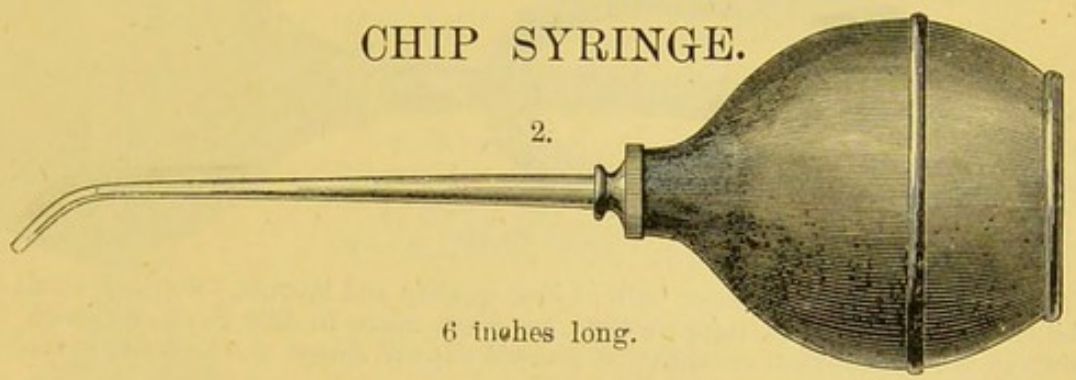
7 inches long.

With India-rubber bulbs and Nickel-plated mounts and nozzle. Made in four sizes, with nozzles to **screw off** or **slip off.** In ordering state which kind is required.

	Size of bulb:	½ oz.		1 oz.		2 oz.		3 oz.	
		s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
Syringes ..	(Fig. 1) each	5	6	7	0	8	0	9	0
Extra bulbs ..	.. „	0	9	1	0	1	3	1	6

CHIP SYRINGE.

2.



6 inches long.

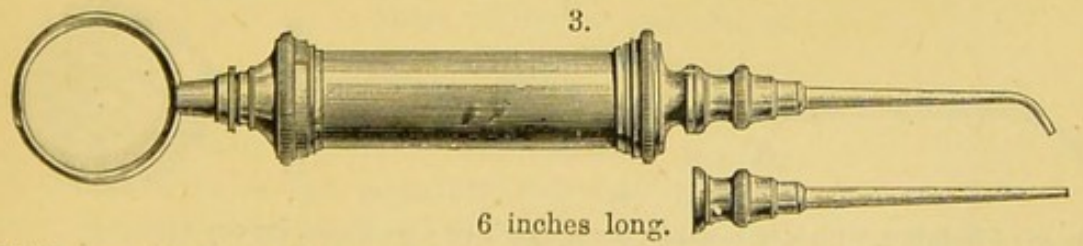
For blowing cuttings and dust out of cavities, &c.

With 2 oz. bulb and Nickel-plated nozzle.

	s.	*d.*
Price	3	0
Extra Bulbs .. .. each	1	3

METAL SYRINGE.

3.



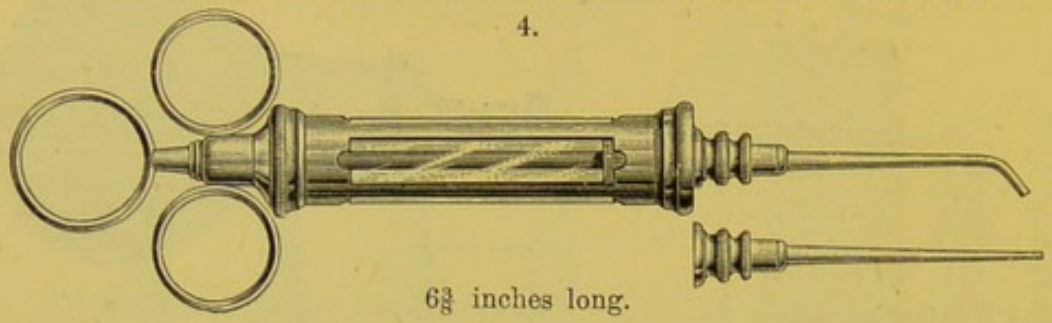
6 inches long.

		s.	*d.*
With straight and curved nozzles, Nickel-plated throughout, and enclosed in leather case ..	(Fig. 3) each	9	0
Cheaper kind with one nozzle only, in card box ..	(„) „	5	0

For Hunt's Metal Syringe—see page 319.

METAL SYRINGE WITH THREE RINGS.

4.

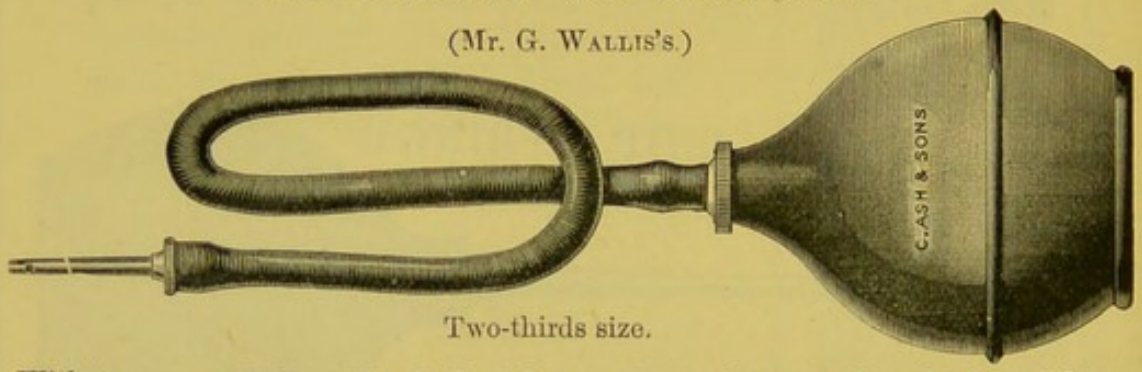


6⅜ inches long.

With straight and curved nozzles, Nickel-plated throughout, and enclosed in leather case .. .. (Fig. 4) each — s. 13 d. 6

ANTRUM SYRINGE.

(Mr. G. Wallis's.)



Two-thirds size.

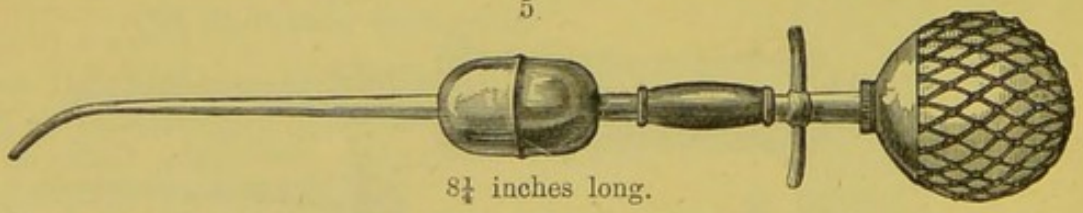
With two-ounce India-rubber bulb of best quality and mounts, length of small black tubing and nozzle. An improvement has been made in this Syringe, which is not shown in the illustration, consisting of a small slip-off mount to which the India-rubber tubing is attached.

Directions for Charging.—To charge the bulb with the medicament, slip off the mount to which the tubing is attached, and replace it when the bulb is filled.

		s.	d.
Price, complete		5	6
Extra Bulbs	each	1	3

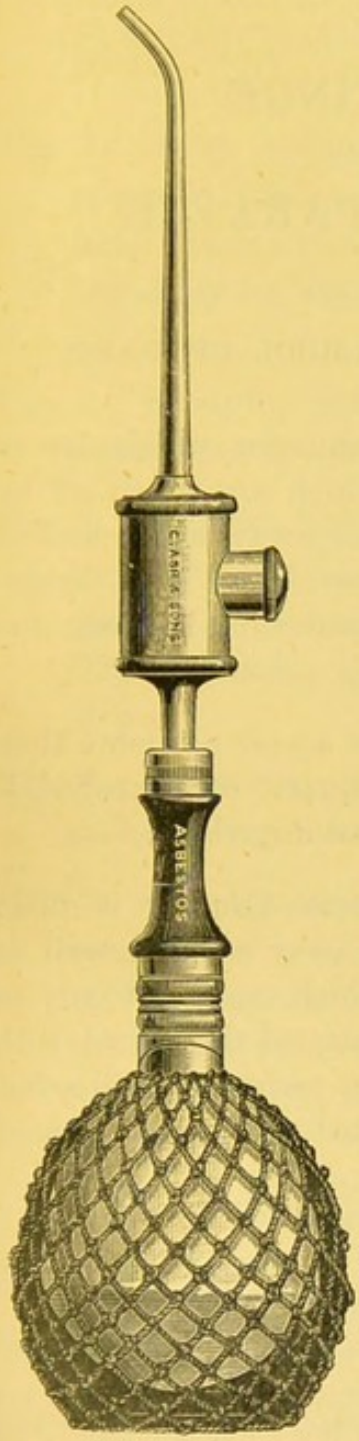
MOFFATT'S HOT-AIR SYRINGE.

5.



8¼ inches long.

		s.	d.
With Air Chamber, which is heated over a Spirit or Gas flame, for drying cavities previous to Stopping. Made of German Silver, Nickel-plated, with India-rubber Bulb and Wood Insulator .. .. (Fig. 5)	each	12	6
Tooth Syringe (Dr. Moffatt's) minus Air Chamber and Insulator, with straight and curved nozzles	„	8	0
Extra bulbs with net	„	1	6
„ without net	„	1	0



9 inches long.

IMPROVED HOT-AIR SYRINGE.

(American Pattern.)

At the suggestion of Mr. A. Kendrick, of Taunton, this Syringe is made with a patented asbestos connection which is marked in the accompanying engraving.

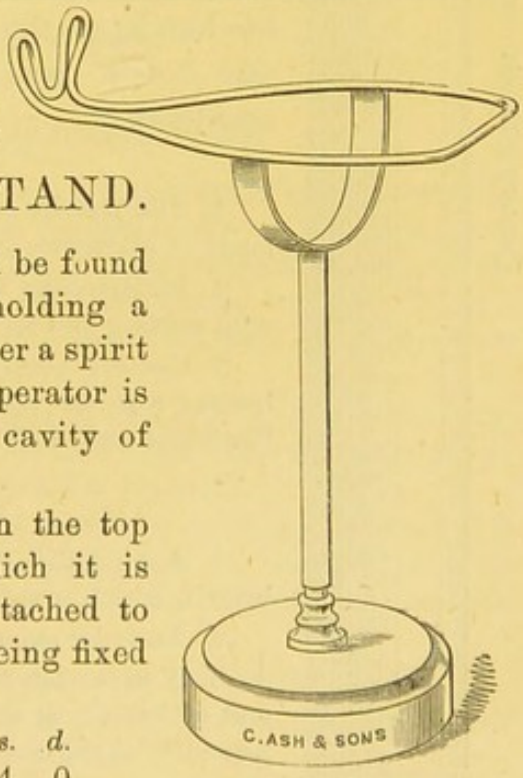
The wooden connection which the asbestos has superseded was soon burned, when the Syringe was used, and after a short time the hole became so much enlarged in size that it would not hold the nozzle properly. The Syringe thus became a source of trouble and annoyance to the operator.

The substitution of asbestos for wood has completely remedied this defect, and makes the Syringe perfect for its purpose.

Prices:

		s.	d.
Hot-Air Syringe, with patented asbestos connection, metal parts Nickel-plated, and bulb covered with silk netting as illustrated		14	0
Patented asbestos connection fitted to Syringes now in use ..	each	2	3
Extra Bulbs without net	„	1	3

HOT-AIR SYRINGE STAND.

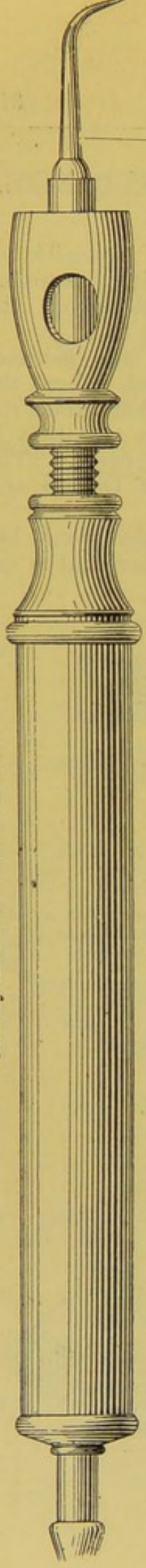


Half-size.

This stand will be found convenient for holding a hot-air syringe over a spirit flame while the operator is at work on the cavity of the tooth.

The syringe bulb rests in the frame on the top of the stand, and the metal tube to which it is secured slides up and down the pillar attached to the base, to permit of the heat chamber being fixed at any point above the flame of the lamp.

	s.	d.
Price of Stand, Nickel-plated ..	4	0



Cautery mounted—shown full size.

HOT-AIR SYRINGE

AND

CAUTERIZING APPARATUS.

(PAULME'S.)

AS USED AT THE DENTAL SCHOOL OF PARIS.

With this new Cautery acid vapours, which are so destructive to instruments, and which are given off by batteries and accumulators, are done away with; and as there is no zinc used, nor any contact, there is no oxidation, and hence no trouble or expense in keeping the apparatus in order.

In using it several times a day for a year not more than a litre (about seven-eighths of a quart) of Benzoline is consumed, which is procurable almost anywhere.

Its advantage over the old Thermo-Cautery is this: The double-rubber tubing is done away with as well as the bottle containing the liquid, which were not only in the way of the Operator, but necessitated the use of both his hands, or the employment of an assistant; moreover, the bottle was sometimes knocked over and caused accidents.

THIS APPARATUS CONSISTS OF:

1. The Handle or Carburetter in which the various Cautery points, made of platinum, and the hot-air nozzle are screwed.

2. India-rubber bellows with two bulbs, one of which is covered with netting and serves as the air reservoir.

3. Cautery points of four different kinds, hot-air nozzle, a neat leather case for taking the above, containing also a holder for the Benzoline and an alcohol lamp which cannot be upset.

THE CARBURETTER COMPRISES:

1. A nickelled cylinder inside which there is a syphon surrounded by felt, which is saturated with the Benzoline.

2. An ivory stopper which screws on the cylinder.

3. A dryer filled with cotton-wool which is fixed under the stopper, and which can be changed at will. The object of this is to absorb the humidity of the carburetted air.

4. An isolater of ivory for protecting the lips and the tongue.

CAUTERY POINTS AND HOT-AIR NOZZLE.

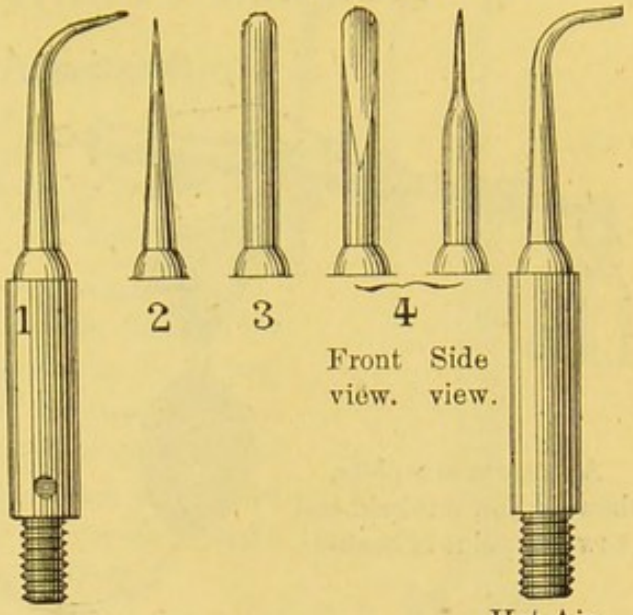


Fig. 1. Bent, pointed — most generally used. The posterior portion of the mouth can easily be reached with it.

Fig. 2. Straight, pointed, for punctures," fire-points,"etc.

Fig. 3. Straight, bowl-shaped, for piercing abscesses. It makes a large opening and thus facilitates the escape of pus.

Fig. 4. Illustrated front view and side view, knife-shaped. Serves for cutting away the ragged edges of the gum, etc.

Fig. 5. Hot-Air Nozzle, superior to any other kind. When the air-reservoir is inflated it gives a continuous blast of air, heated to 150° Centigrade (302° Fahr.), for one minute, without the action of the blower being renewed. This heat is required for destroying all infectious germs in caries of the fourth degree.

Directions for getting the Apparatus ready.

Unscrew the stopper of the Carburetter, pour about a thimbleful of the Benzoline on the felt—not more, as an excess is fatal to successful manipulation,—replace the stopper, attach the Cautery Point to be used, being careful not to grasp the platinum end, which is very thin; fix the blower tubing to the handle, light the alcohol lamp, or a Bunsen gas-burner, heat the platinum point in the centre of the flame, **and keep it there until the point is red hot.**

If the desired heat is not obtained immediately, it is owing to the fact that a little moisture has become condensed in the point. To remove this, keep the point in the flame and gently work the blower until the obstruction is removed.

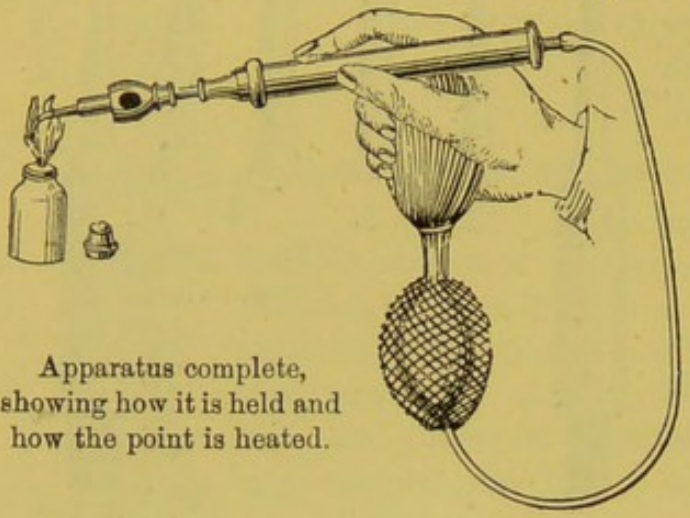
It is unnecessary to charge the Carburetter with Benzoline for each operation. If it be charged as described above, it can be worked for nearly an hour; and as there is no evaporation, it may even be worked after an interval of a month, supposing it has been so little used that the charge is not exhausted.

When the incandescence ceases in working, the apparatus requires re-charging.

The Benzoline should be kept in a tin, or, if that be not available, in a well-stoppered bottle, and kept in a dark place, as sunlight decomposes it.

HOT-AIR SYRINGE, &c.—*continued.*

Directions for Use.



Apparatus complete, showing how it is held and how the point is heated.

The apparatus is held like a penholder between the thumb and index finger of the right hand, the bulb of the blower being placed in the palm of the hand and compressed with the other three fingers. The left hand is thus entirely free for holding the head and keeping the lips of the patient apart, etc. It is unnecessary to make the points white hot—cherry red is sufficient for all operations. For cutting away portions of the gum which obstruct carious cavities, lengthened contact with the Cautery should be avoided. It is better to work with quick and repeated strokes. The operation is less painful than with the Bistoury, and there is no effusion of blood. In making "firepoints" in cases of periostitis, slightly touch a dozen places, following the course of the root belonging to the aching tooth. For arresting hœmorrhage, operate with a dark-red point, which is obtained by moderating the action of the blower. When an operation is completed, before the apparatus is put away, the blower should be used and a bright red produced on the point for the purpose of burning off the blood or detritus that may still be clinging to it. Then the tubing of the blower should be immediately separated from the handle of the Carburetter, while the point is red, to prevent the moisture becoming condensed in the point and the Benzoline deteriorating the India-rubber tubing by prolonged contact.

Prices:

	s.	*d.*
Cautery, complete with Case and one Point	48	0
When ordering state which point is required.		
The same without Case	40	0
Extra Points (any form) .. .. (Figs. 1–5) each	16	0
Blower and Tubing, if supplied separately	5	0

THE PYROPHORE:

A HOT-AIR SYRINGE FOR DENTAL OPERATIONS.

(Rowney's Patent, No. 11,200.)

Consisting of Hand Bellows, India-rubber Air Reservoir covered with silk netting, two feet of India-rubber Tubing, non-conducting Handle, Piston Valve, Cylinder of Pyrophore to which the flame of the Spirit Lamp is applied, Syringe Nozzle with adjusting screw, and Stand for holding the Apparatus while it is being heated.

	s.	*d.*
Price	35	0

MR. HUNT'S SYRINGE,

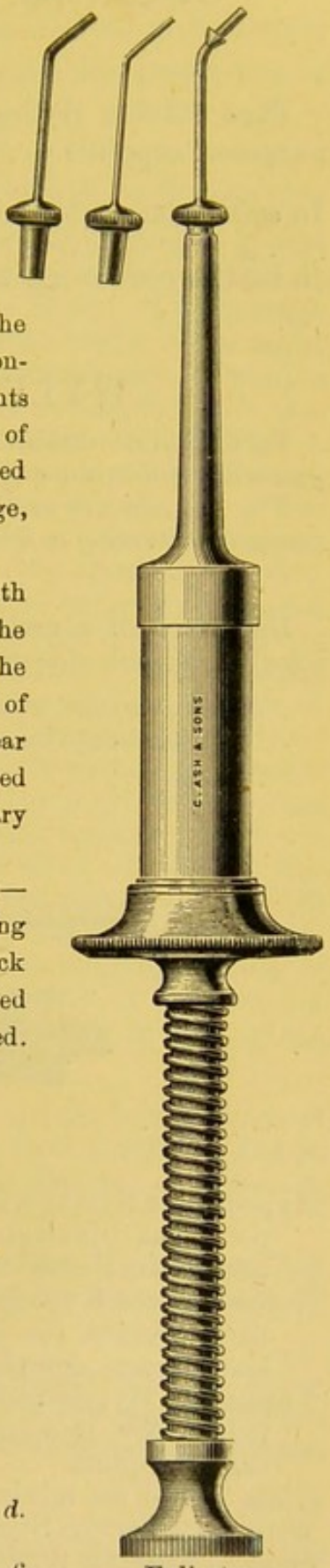
WITH DR. W. ST. GEORGE ELLIOTT'S IMPROVED NERVE-CANAL POINTS.

This Syringe, as employed by Dr. Elliott, is provided with three points which he designed for thoroughly washing out nerve-canals.

Water is first pumped backwards and forwards, through the largest point, until the canal is clear, the process being continued, if necessary, by attaching one of the smaller points and passing it further down the root in order to make sure of cleansing the whole of the cavity. Alcohol is then substituted for water, and this in turn is followed by the hot-air syringe, antiseptics, liquid gutta-percha or other root-filling.

To force medicines through the root-canal and fistula, with the syringe, Dr. Elliott fixes a plug of india-rubber on the bend of the point, large enough to close the entrance of the canal. This plug can be made by rolling a narrow strip of thick rubber-dam round the outside of the syringe point, near the end, and fastening it there with silk, or from vulcanized vela rubber. A small piece of wax will serve for temporary use.

The action of the syringe may be thus briefly described:—Each time the piston-rod is forced into the barrel the spring returns it quickly, drawing the fluid, through the point, back into the barrel. In this way the fluid can be rapidly pumped backwards and forwards until the canal is thoroughly cleansed.



Full size.

	s.	d.
Nerve-canal Syringe, as illustrated, made of German Silver, Nickel-plated, with steel spring on the piston-rod and three points— enclosed in neat leather case	14	0
Root Dressing Syringe, with Platinum nozzle and India-rubber bulb, 20 minim size	4	0

WATER SYRINGE.

(Mr. Hunt's.)

	s.	d.
Made of German Silver, Nickel-plated, with steel spring on the piston-rod and curved nozzle	7	6

COCAINE AND COCAINE SYRINGES.

COCAINE.

Pure Soluble Hydrochlorate of Cocaine, specially prepared for dental purposes, supplied as under:

		s.	d.
In small glass tubes containing one grain each ..	.. per doz.	3	0
" " " half a grain each	.. "	2	3
In bottles containing 15 grains	per bottle	1	9

WYLEY'S COCAINE PELLETS.

Each Pellet consists of ½ grain of pure hydrochlorate of cocaine, compressed without the addition of any other substance.

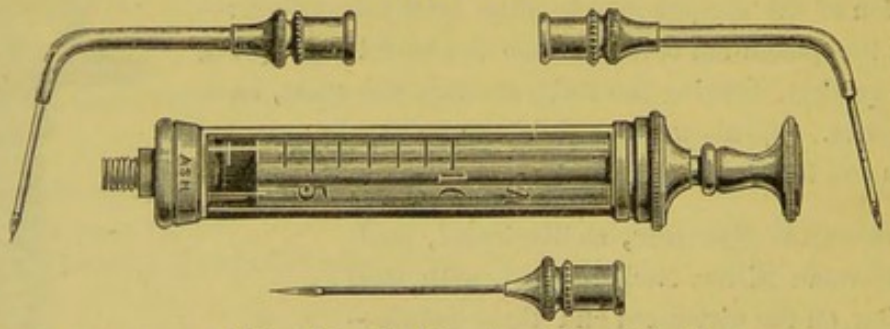
The Pellets are easily soluble in water, keep indefinitely, and *afford the means of obtaining a fresh solution of the alkaloid as required.*

Directions for Use.

Dissolve half a grain in 10 minims of warm water, and inject half the solution on each side of the gum.

		s.	d.
Price per tube, containing 12 Pellets	each	1	0
" in boxes containing 6 tubes	per box	5	6

SYRINGES.



		s.	d.
Hypodermic Syringe, Gilt (Mr. G. Brunton's), with three points, as illustrated, for injecting Cocaine, &c. In neat leather case complete	each	14	0
German-silver Hypodermic Syringe, Nickel-plated, with three points, for injecting Cocaine, &c. In neat leather case, complete	"	10	0
Vulcanite Hypodermic Syringe, with two straight points, for injecting Cocaine, &c. In neat leather case, complete	"	3	0
Glass Tubes, for mixing Cocaine ready for use	"	0	3
Wire, for clearing Nozzles	per bundle	0	2
Steel Needles for renewing	each	0	9

In the January and March, 1886, numbers of *The Journal of the British Dental Association*, Mr. W. A. HUNT, of Yeovil, gave his experience of **Cocaine used hypodermically.**

He thus describes his method of preparing the Cocaine for injection:—

"My hypodermic syringe has a capacity of nine minims, and is furnished with a steel needle, which is easily kept sharp with an oilstone, and is better than gold, which too easily becomes blunt. The syringe being filled with hot water, its contents are squirted into a small short test tube, at the bottom of which one grain of hydrochlorate of cocaine has been placed. If the salt shows no disposition to dissolve, you can heat the test tube gently over the spirit lamp until the solution is perfectly clear; then dip in your syringe and take up four minims, Puncture the gum first on the buccal aspect about the centre of the tooth you propose to extract, pressing the needle as vertically as you can, so that its point may reach nearly as far as the apex of the root. The pain of the puncture is usually very slight and is hardly regarded as the needle passes onwards. If the sloping surface of the point is turned towards the alveolus, there is less chance of the bone arresting the onward progress of the needle, and this is the chief difficulty in injecting. Having thrust the needle as far as needed, press the piston; often it will not yield, even with force, but if you wait patiently, keeping up firm pressure, and perhaps rotating the needle, or even withdrawing it a little, the solution will assuredly flow into the tissues. Keep the needle there half a minute to prevent the possibility of any of the solution escaping by the puncture. Then re-charge your syringe with the four or five minims of the solution still remaining in the test tube, and in a similar manner inject deeply the tissues on the lingual side of the tooth. It is remarkable how, when your patient is at the moment suffering from toothache, entire freedom from pain occurs in five or ten seconds after even the first injection.

You have now quickly and deeply injected a strong, hot solution of the agent; the conditions for rapid absorption are thus excellent, and in two minutes, or even less, you can operate with forceps, elevator, or splitting forceps, as may be required.

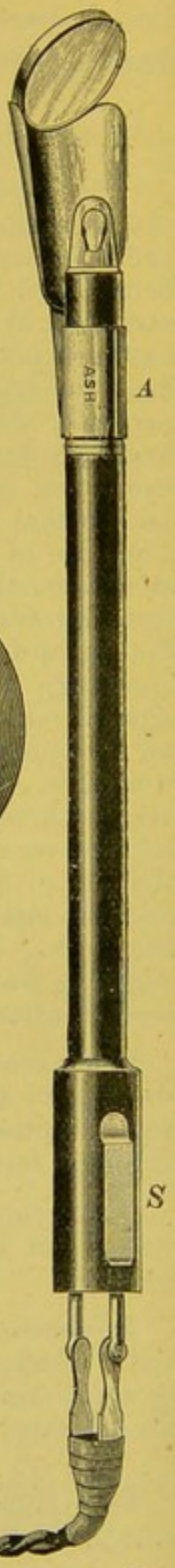
I have never injected less than a grain, but where the solution has flowed out through the puncture, of course there has been a waste of power.

As solutions of this agent do not keep, I have never used anything but a solution I have prepared myself immediately before the operation, as above described."—From *The Journal of the British Dental Association*, for January, 1886.

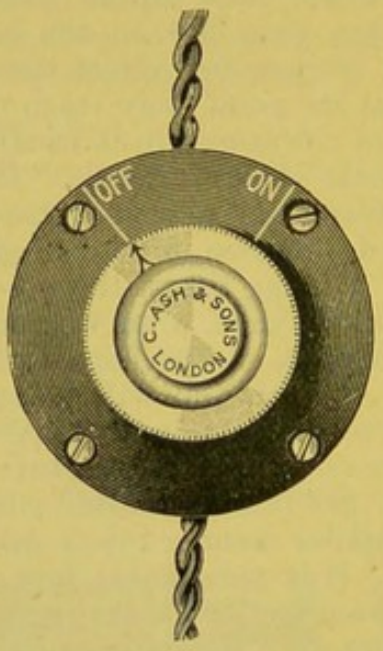
The dose now generally employed is half a grain in 10 minims of warm water.—C. A. & S.

IMPROVED ELECTRIC LAMP,

FOR EXAMINING THE MOUTH.



As now made, this appliance consists of Mirror and Shield, Electric Lamp, Handle with small Switch S, circular regulating Switch, and five-and-a-half feet of double wire with terminals for connecting to the Battery Switch shown on page 325, or any similar device. The Mirror and Shield can be detached by drawing upwards over the Lamp. The Lamp unscrews at A, can be removed in a few moments, and as quickly replaced by a new one when necessary. The Switch S on the lower part of the Handle admits the current when the upper end is drawn over the little stud which it covers in the engraving; by sliding it downwards the contact is broken. The circular regulating Switch is intended for preventing the sudden destruction of the Lamp when it is first brought into use, and for admitting more current as the battery power diminishes. It is employed in the following manner: The indicator is fixed at "off," and after the terminals have been connected to the Battery Switch the Switch S on the Lamp Handle is pushed on to the little stud already referred to, two cells of the Battery are switched on, and the indicator on the circular regulating Switch is turned to the left towards "on." The result may be that only a dull red light is produced or perhaps no light at all. If this be so, move the indicator back to "off," switch on another cell of the battery and gradually turn the indicator round again towards "on." Should three cells be insufficient, repeat the above procedure until the required degree of brilliancy appears in the lamp, and leave the indicator fixed at that point until the Lamp is either burnt out or the battery power becomes weaker. In the event of the Lamp being burnt out, replace by a new one, following the directions already given, starting entirely afresh. Should the Lamp, however, not be burnt out, but require more battery power to keep up its brilliance, turn the indicator further towards "on."

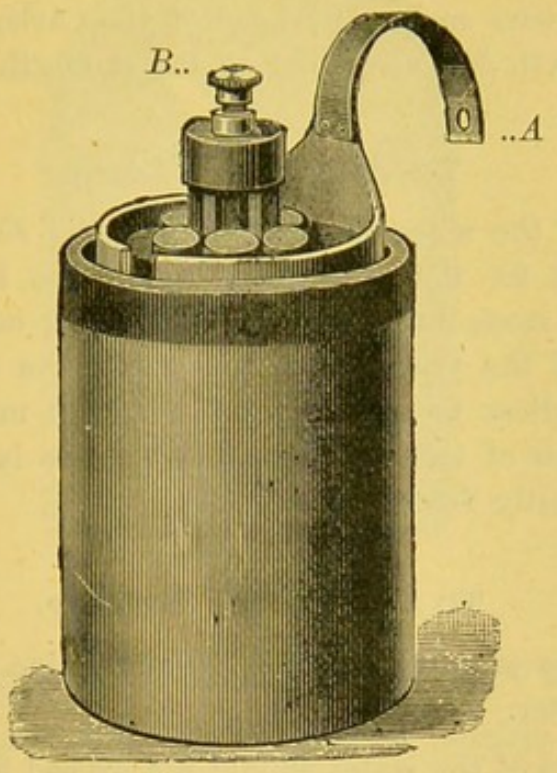


The circular regulating Switch can be fixed by means of two screws in any convenient position within easy reach of the Operator.

			s.	d.
Electric Lamp complete, as described above ..	..	each	52	0
Extra Lamps, fitted in Mounts, for renewing	..	„	9	0

IMPROVED SAL-AMMONIAC BATTERY.

For working the Examining Electric Mouth Lamp shown on the previous page, and Bonwill's Electro-Magnetic Mallet.



The illustration shows one cell, quarter size, of an improved Leclanche Low-tension Battery, which may be placed at any distance from the Operating Room, or where the Regulator is fixed. It requires very little attention, and will give a good working current for several months without requiring to be re-charged.

We recommend six cells for working the Electric Mallet and Lamp.

To Fit up the Battery.

Connect the Zinc A of one Jar with the Carbon B of the next until all the cells are united. Be careful to make the connections secure; when this is done, it will be found that the Zinc on what we will call the first Jar is left free at A for the reception of a terminal, which we supply for it.

IMPROVED SAL-AMMONIAC BATTERY—*continued.*

To Attach the Mallet.

Connect one of the wires of the Mallet to the above-mentioned free Zinc terminal at A on the first Jar, and complete the circuit by securely fixing the other wire under the head of the Carbon terminal B of the fourth, fifth, or sixth Jar, according to the strength of the current that may be required.

To Attach the Lamp.

Connect one of the wires of the Lamp to the Zinc terminal at A on the first Jar, and fix the other wire under the head of the Carbon terminal B on the same Jar, or, should a stronger current be necessary, under the head of the Carbon terminal B on the second or third Jar. It is perhaps needless to add that great caution must be exercised in applying the power of two or three cells to the lamp, as too strong a current will instantly destroy it.

To Charge the Battery.

Put eight ounces of pure crushed Sal-ammoniac in each Jar and fill up with warm water.

The temperature of the water should not exceed 90° Fahrenheit.

A dentist who first purchased six cells, in giving an order for another twelve, writes:—

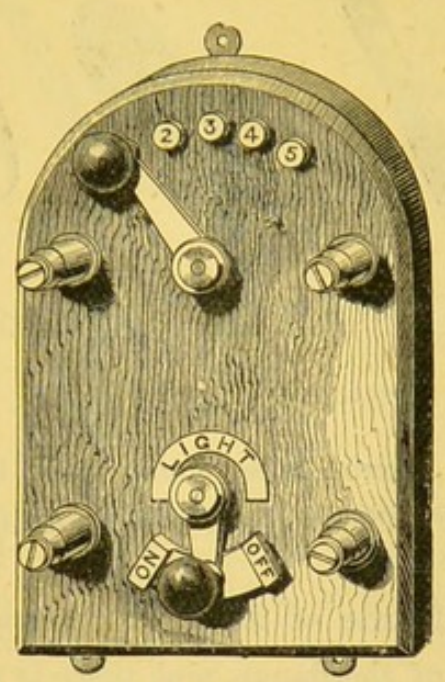
"I am pleased with these batteries, and want more, as they require very little attention, and are reliable."

Prices:

		s.	*d.*
Battery, any size to order	per cell	7	6
Terminal for Zinc A on the first Jar		1	0
Extra Jars	each	1	0
„ Carbons	„	1	6
„ Zincs	„	1	6
„ Sets of 6 Blocks	per set	4	0
Sal-ammoniac, specially prepared	per lb.	0	7
Gutta-Percha Covered Wire for Switch and Battery	per yard	0	4

SWITCH OR REGULATOR,

FOR ELECTRICAL APPARATUS.



One-third size.

This Switch or Regulator has been devised to meet the demand which has arisen for an arrangement to regulate the electric current from the Battery to the Lamp, Mallet, or other apparatus. It will do this effectively. For examination with the Electric Lamp it is invaluable, because it enables the Operator to regulate the strength of the current to the greatest nicety, and thus to avoid the danger which exists, of the carbon filament being consumed when a stronger current is employed than its electrical resistance can bear.

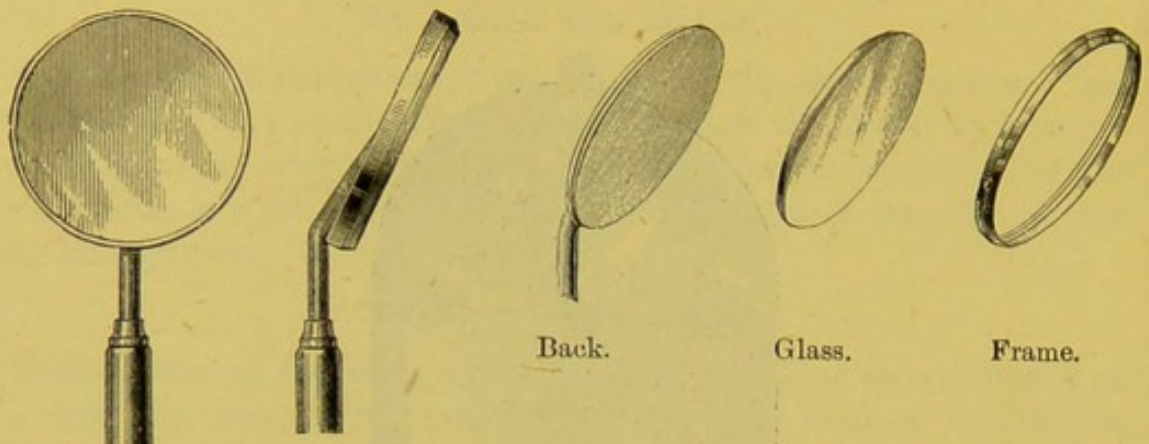
A separate lever is placed on the switch-board to supply or cut off the current from the battery to the lamp without interfering with the passage of the current to the mallet or other electrical appliance.

	s.	*d.*
Price complete, as illustrated, with Wires	22	6

For High Resistance Switch—see page 188.

MOUTH MIRROR,

WITH SCREW FRAME.



Back. Glass. Frame.

This Mirror is so constructed that the Operator can without difficulty fit a new glass in a few moments.

The **frame** of the Mirror has a thread turned on the **inside** of the flange, and there is a corresponding **thread** on the **edge** of the **back.**

It is made and finished in the best style, the joint being perfectly water-tight. It is supplied in two sizes. The diameter of the large size is $\frac{7}{8}$ of an inch, and of the small size $\frac{5}{8}$ of an inch. When ordering, please state which size is required.

Directions.

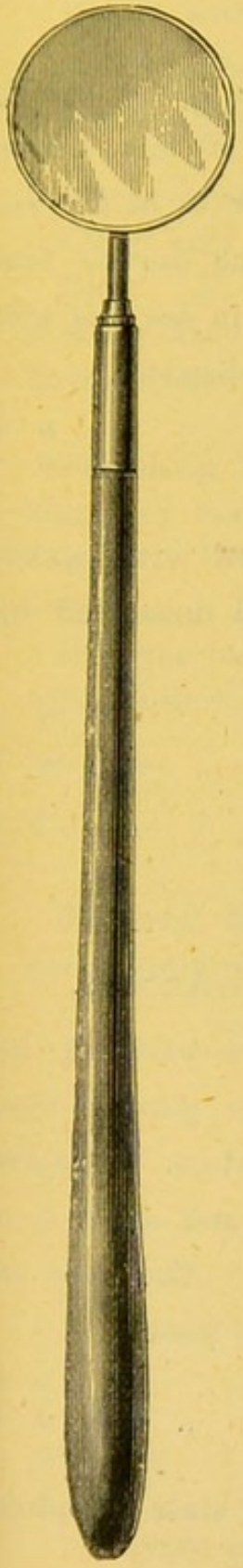
Unscrew the front part of the frame three full turns to the left and remove the useless glass, put in a new glass, and, when it is properly adjusted, screw carefully into position.

Prices :

		s.	*d.*
Screw Frame Mirror, in Ebony handle, large	..	9	0
,, ,, small	..	9	0
Extra glasses, large or small—see next page	each	1	3

MOUTH MIRROR,

WITH REVERSED SCREW FRAME.



MIRROR GLASSES.

Large.

Small.

As will be seen from the illustration showing the bend of the Mirror, the glass in the one on this page is on the reverse side of the stem to the glass in the Mirror on page 326.

The idea is not new, for it is many years since we first supplied Mirrors with double glasses—one on the back and the other on the front of the frame—but it is new so far as its application to the **Screw-frame** is concerned.

With these two Mirrors all the advantages of the ball and socket movement are secured, it being generally admitted that the angle at which the frame is bent is so useful that any part of the mouth can be examined without difficulty.

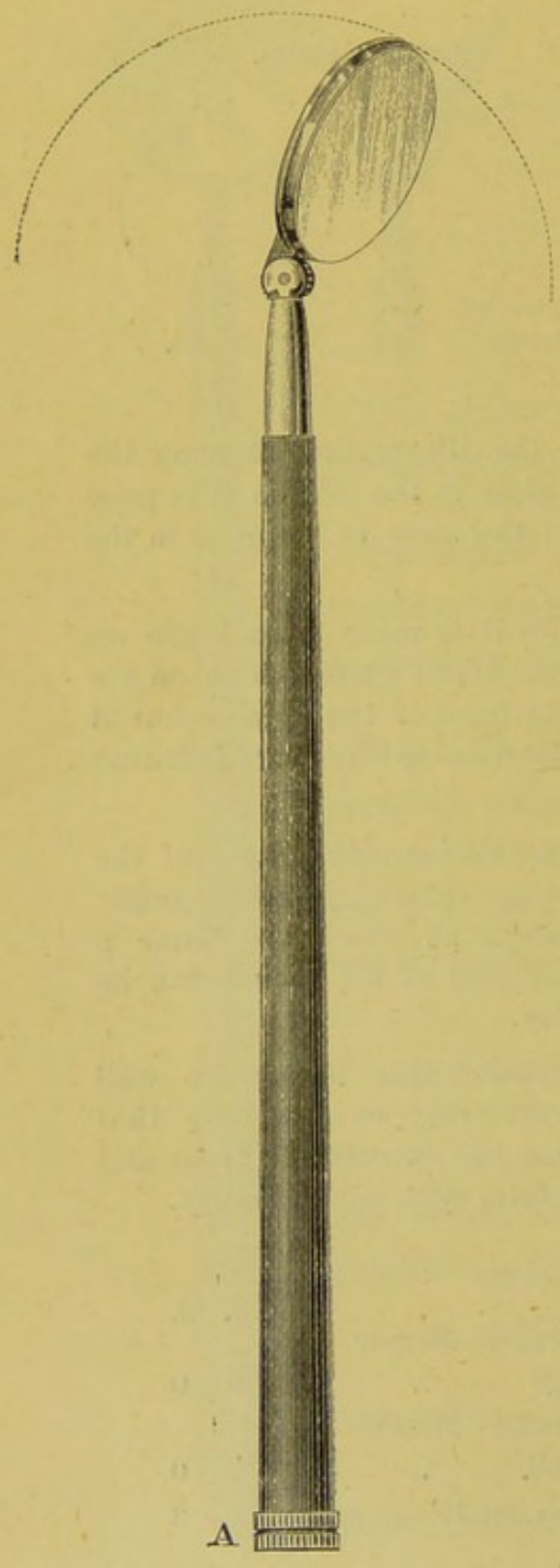
The value of the **Screw-frame** is now so well known that it is only necessary to state here that broken or defective glasses can be removed from, and new ones fitted to, either form with equal facility.

Prices :

		s.	*d.*
Reversed Screw Frame Mirror in Ebony handle, large	each	9	0
Reversed Screw Frame Mirror in Ebony handle, small	each	9	0
Extra glasses, large or small	each	1	3

ADJUSTABLE MOUTH MIRROR,

WITH ROUND GLASS.



The dotted lines in the engraving show the full range of this Mirror. By means of the screw A at the end of the handle the frame can be fixed at any angle. Made in one size with glass $\frac{7}{8}$ of an inch in diameter.

		s.	d.
In Ebony handle	each	9	6

Adjustable Mirror with screw frame as shown and described on page 326.

		s.	d.
In Metal handle	each	14	0
Extra glasses	„	1	3

MIRROR GLASSES.

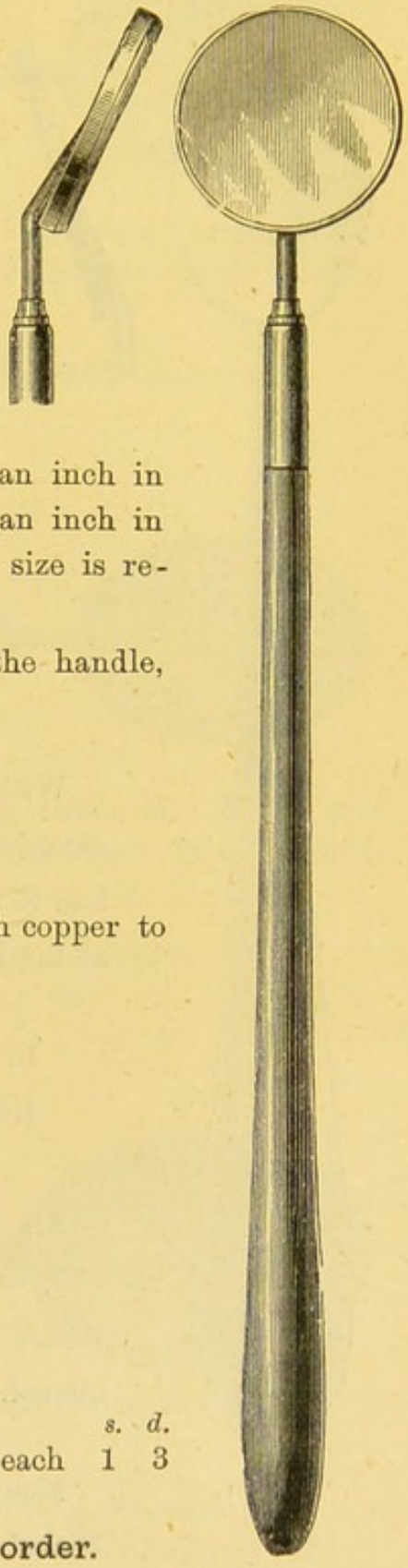
For **Round Mirrors** coated on the backs with copper to prevent them being injured by moisture. Supplied in two sizes, large $\frac{7}{8}$ and small $\frac{5}{8}$ of an inch in diameter. The sizes are shown on the previous page.

		s.	d.
Price, either size	each	1	3

Larger or smaller sizes supplied to order.

MOUTH MIRRORS—*continued.*

54.



Mirrors with round Magnifying Glasses, coated on the back with copper, and mounted in German Silver frame, Nickel-plated.

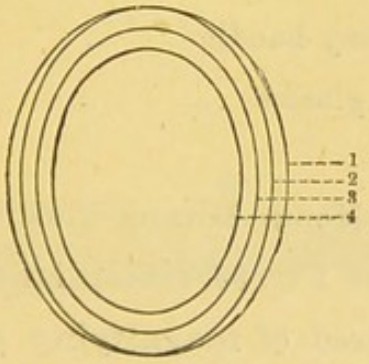
			s.	d.
In Ebony handles :—				
Cheap kind ..	(Fig. 54)	each	2	9
Best „ ..	(„ 54)	„	5	6
In Ivory handle ..	(„ 54)	„	7	0
Extra Glasses		„	1	3

The cheap kind is made with glass $\frac{7}{8}$ of an inch in diameter; the best with glasses $\frac{7}{8}$ and $\frac{5}{8}$ of an inch in diameter. When ordering please state which size is required.

Only the best quality has the ferrule on the handle, which is shown in the illustration.

MIRROR GLASSES.

For **Oval Mirrors** coated on the backs with copper to prevent injury by moisture.

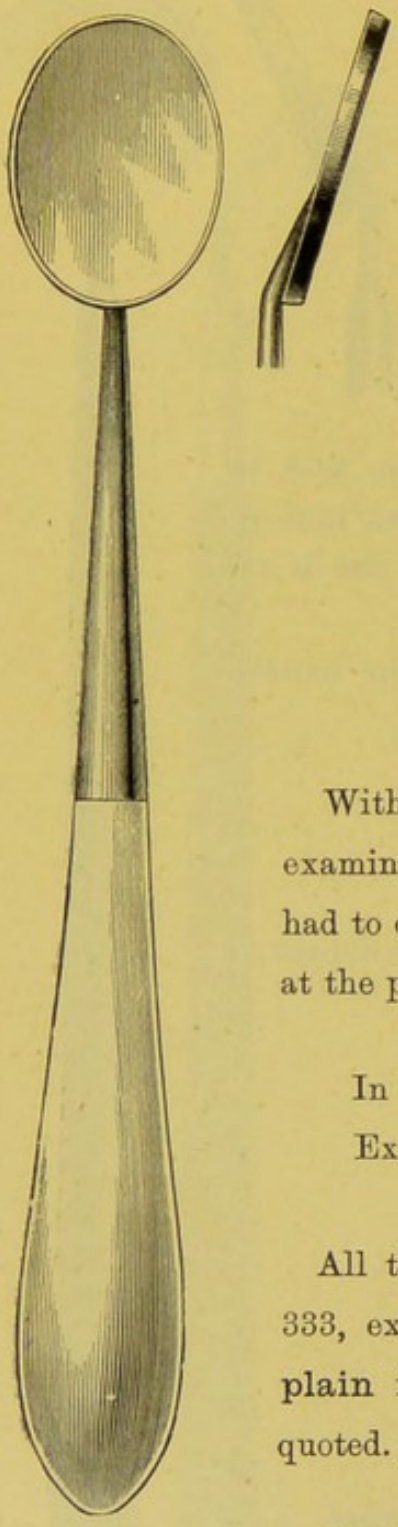


Sizes of Glasses without Frames.

			s.	d.
Any size		each	1	3

Larger or smaller sizes supplied to order.

MOUTH MIRRORS—*continued.*



55. Fig. 55 (Mr. Rogers'), made in four sizes, with oval Ivory handles and Magnifying Glasses, coated on the back with copper, mounted in German Silver frames Nickel-plated.

		s.	d.
Sizes 1–4	each	9	0
Extra glasses	,,	1	3

MOUTH MIRROR,

FOR EXAMINING THE MOUTH.

(EXTRA LARGE.)

With round glass 1½ inches in diameter, suitable for examining, made with magnifying glass. It may be had to order with **plain**, instead of magnifying, glass at the price quoted.

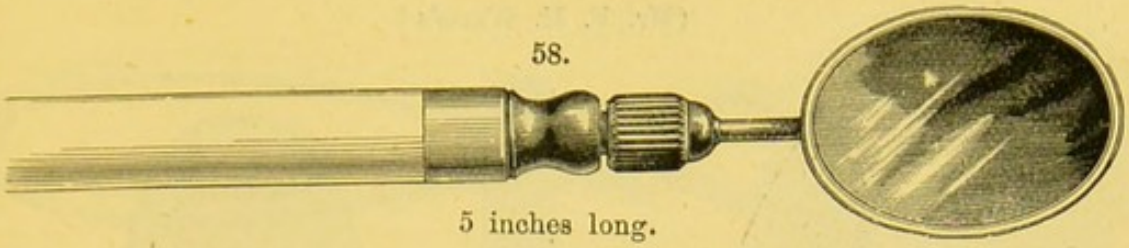
		s.	d.
In Ebony handle	each	10	0
Extra glasses	,,	4	0

All the Mouth Mirrors illustrated on pages 326 to 333, except Fig. 54 (cheap kind), may be had with **plain** instead of **magnifying** glasses at the prices quoted.

Mouth Mirrors of every description repaired and Nickel-plated at moderate charges.

MOUTH MIRRORS—*continued.*

58.

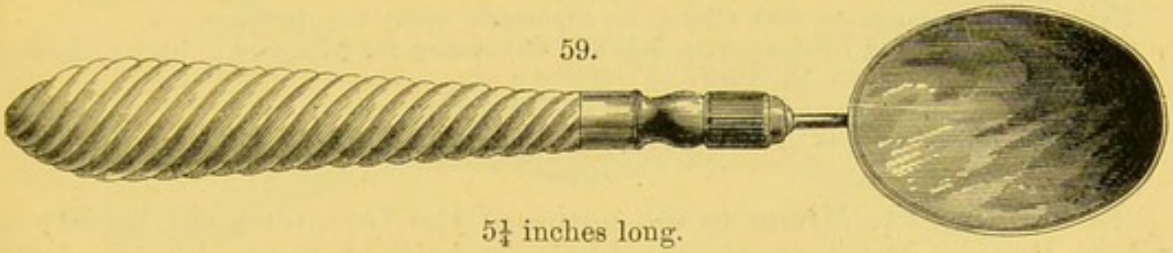


5 inches long.

Mirrors, Ball and Socket, with Magnifying Glass, and coated on the back with copper, Mounted in Ivory handles and German Silver frames, Nickel-plated.

			s.	d.
Made in sizes 1, 2, 3, 4	(Fig. 58)	each	9	0
Extra Cups for Ball and Socket Mirrors ..		„	0	4
Extra glasses, all sizes		„	1	3

59.

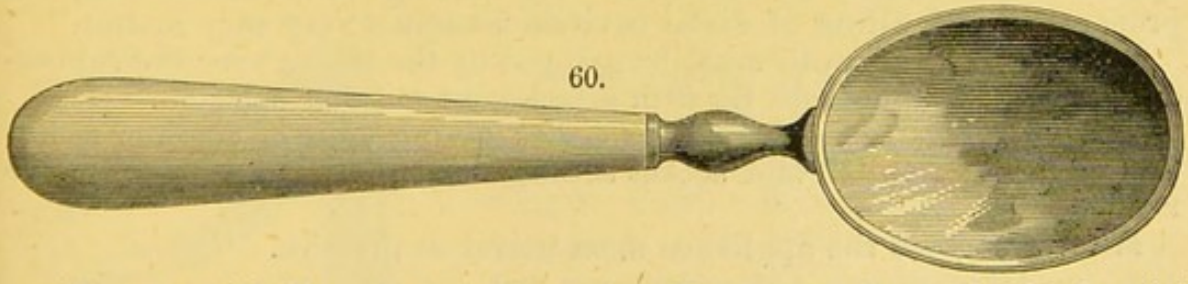


5¼ inches long.

Mirrors, Ball and Socket, with Magnifying Glass, size No. 3, and coated on the back with copper, mounted in German Silver frames, Nickel-plated.

			s.	d.
With Pearl handle	(Fig. 59)	each	13	0
With Ivory „	(„ 59)	„	12	0
Extra glasses		„	1	3

60.

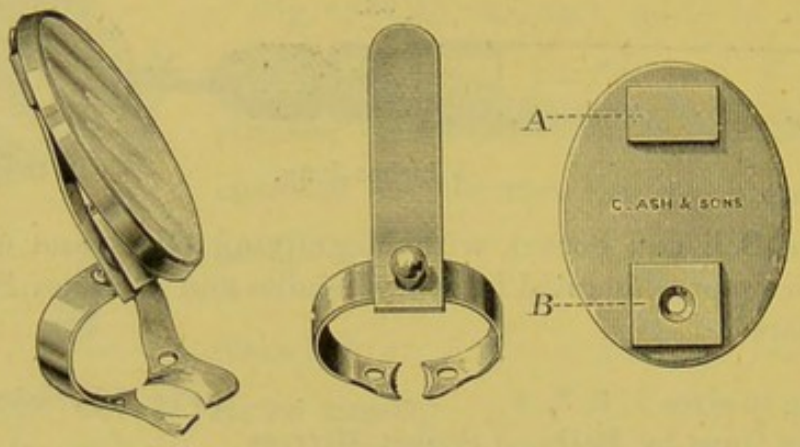


Mirrors, with Magnifying Glass, size No. 2, coated on the back with copper.

		s.	d.
In plain German Silver, with Ivory handle	(Fig. 60) each	5	6
Extra glasses	„	1	3

MOUTH MIRROR WITH CLAMPS.

(Mr. F. H. Weiss's.)



1. 2. 3.

Description:

Fig. 1. Mirror complete with Clamp for bicuspids, ready for applying.
„ 2. Clamp for front teeth with ball and flat spring for fixing on to back of Mirror.
„ 3. Back of Mirror, showing:—
A. Loop under which end of flat spring passes; and
B. Socket in which the ball of the Clamp fits.

In bringing the Mirror to the notice of the Odontological Society of Great Britain, at the usual monthly meeting held November 7th, 1892, Mr. Weiss "pointed out that the object of the contrivance was to obtain a view of the upper teeth, particularly the incisors, at the same time leaving both hands free, by having the Mirror attached on to the clamp on the lower teeth. Many similar mirrors had from time to time been introduced by the profession, but he claimed for this one a wider field of vision, and a satisfactory and simple means of attachment. It consisted of two parts—the mirror with ball and socket movement, and the clamp. The mirror and clamp could be detached, so that mirrors and clamps of various designs could be interchanged to serve the special requirements of the case. By leaving both hands free, the preparation and filling of distal cavities became a very easy matter."

In applying, the tooth must be gripped by the clamp over the rubber-dam, and a suitable tooth for firm attachment must be selected.

The Mirror can be adjusted for either giving view of tooth or reflection of light; the ball and socket arrangement gives it a very extensive range.

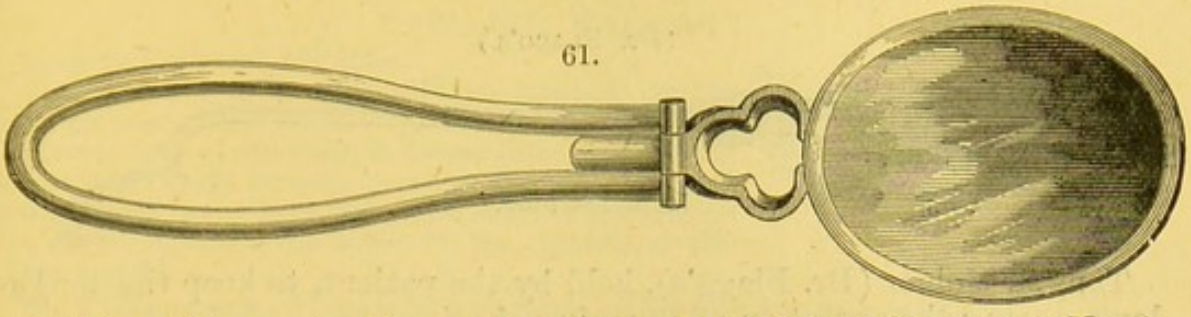
Mr. Weiss finds the appliance most useful in practice.

Prices:

	s.	*d.*
Clamp for front teeth, with ball and flat spring	3	0
„ for bicuspids „ „ „	3	0
Mirror with socket and loop on back	4	0

MOUTH MIRRORS—*continued.*

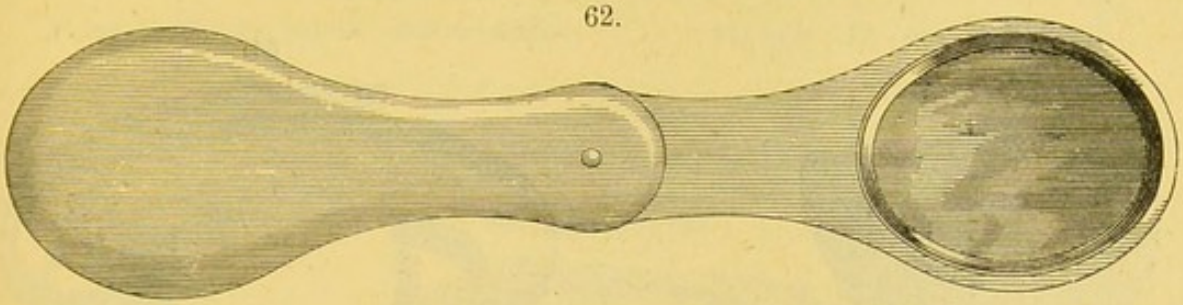
61.



Folding Mirrors for the pocket, with Magnifying Glass, size No. 2, coated on the back with copper.

		s.	d.
In German Silver, Wire handle, Nickel-plated (Fig 61) ..	each	8	6
Extra Glasses	,,	1	3

62.



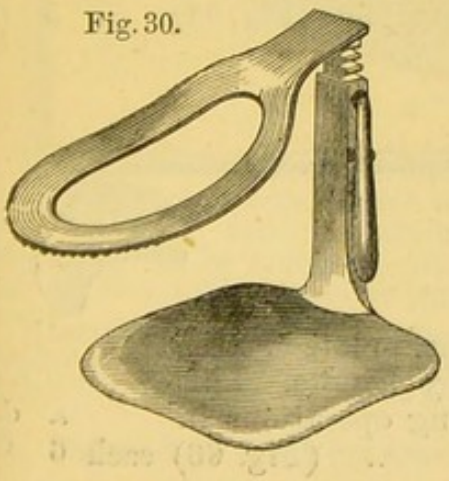
Folding Mirror for the pocket, with Magnifying Glass, size No. 3, coated on the back with copper.

			s.	d.
In Ivory frame	(Fig. 62)	each	6	0
Extra glasses		,,	1	3

Other Mirrors obtained to order.

For sizes of Mirror Glasses see pages 327, 329. Mirrors repaired at moderate charges.

Fig. 30.



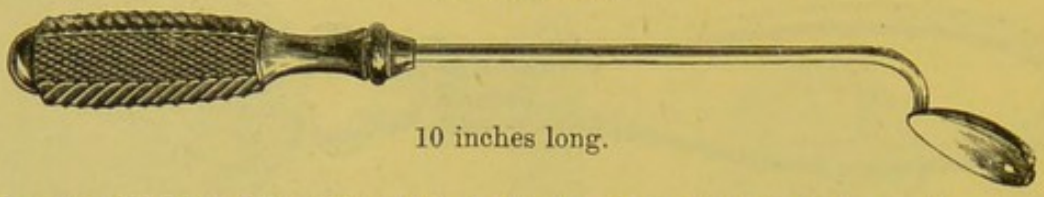
TONGUE COMPRESSOR.

Tongue Compressor, for holding the tongue down during the operation of plugging. It has a Spring Ratchet for regulating the height required, and a roughened tongue-plate to prevent slipping.

	s.	d.
In German Silver, Nickel-plated .. .. .. (Fig. 30)	9	0

TONGUE HOLDER.

(Dr. Flagg's.)

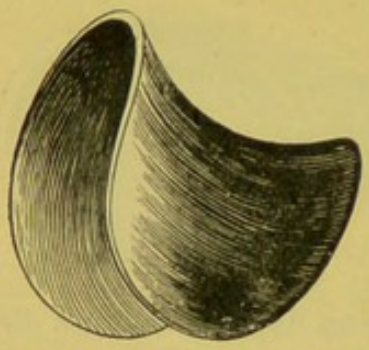


10 inches long.

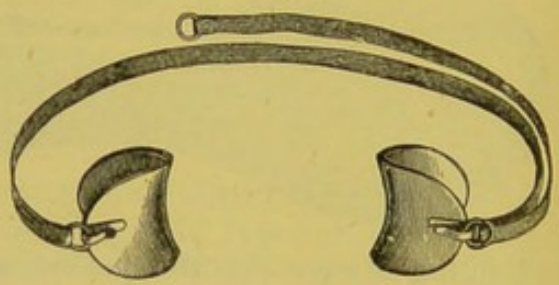
Tongue Holder (Dr. Flagg's), held by the patient, to keep the tongue down during the operation of Plugging, &c.

	s.	d.
In German Silver, Nickel-plated, with Ebony handle each	4	0

63. LIP PROTECTORS, &c.



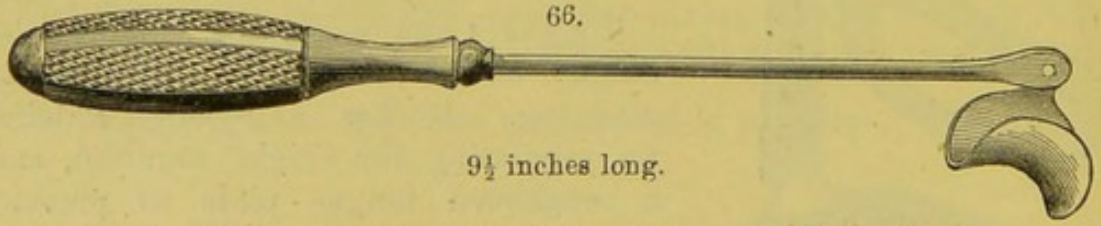
64.



Lip Protector, plated. This contrivance is useful in protecting the lips, when using files, drills, or other cutting instruments .. .. (Fig. 63) each 1 6

Lip Protector and Mouth Distender, for keeping the mouth distended during many operations upon the teeth. An elastic band is fastened to metal hooks and rings, and passing round the head keeps the parts distended without trouble to the Operator or patient. The pair of shields (size of Fig. 63), with hooks, &c., plated, complete (Fig. 64) ,, 5 0

66.

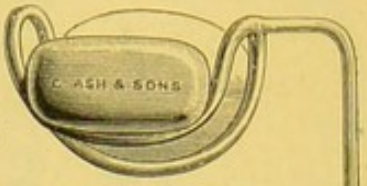


9½ inches long.

Lip Protector and Mouth Distender, plated; the shield the size of Fig. 63, with Ebony handle. This instrument is held by the patient during operations in the mouth .. .. (Fig. 66) each 6 0

NAPKIN HOLDERS, &c.

(Dr. J. L. Williams's.)



Made in right and left sides.

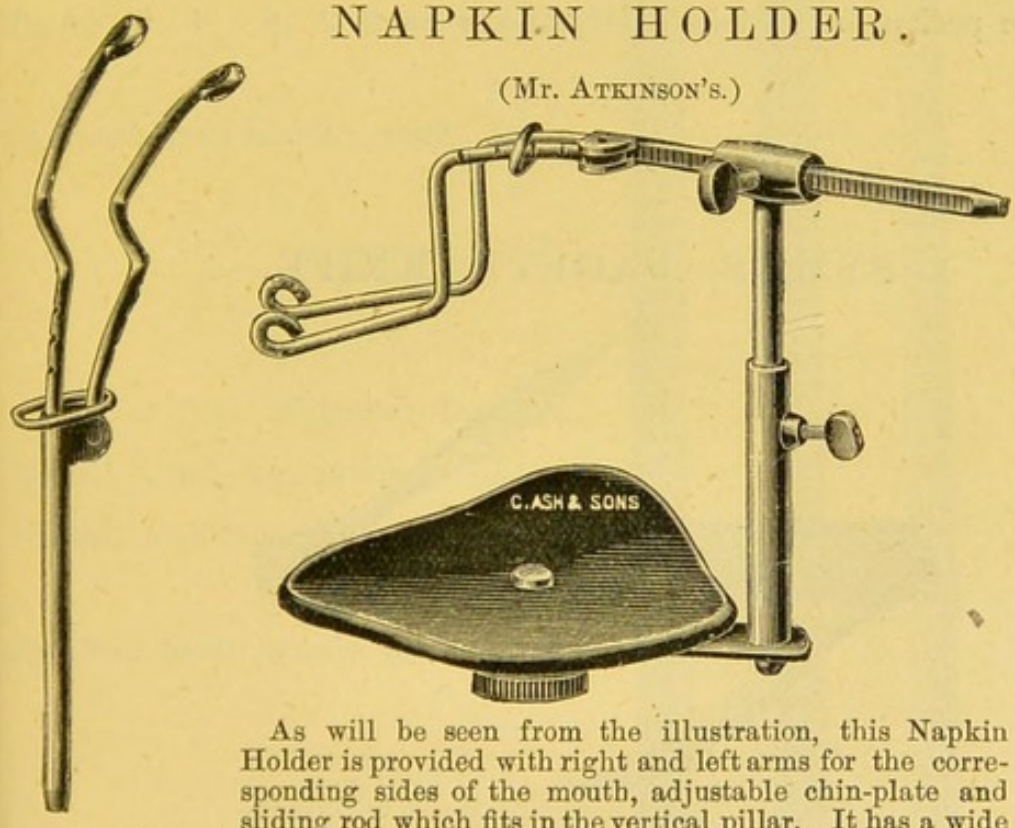
These differ from previous devices intended for the same purpose in this respect: The wire with guard for the lingual side of the teeth is deeper than that for the buccal side, as will be seen from the drawing, to permit of the napkin being kept well down beneath the tongue. The engraving shows the holder for the right-hand side of the mouth.

Dr. Williams says: "This is an instrument which I have had in use for several years, and have found it to render very valuable assistance in keeping the mouth dry during the insertion of fillings, or in setting crowns. If a strip of rubber-dam be folded inside the napkin used, it will be found to insure perfect dryness for a considerable time, even in a moist mouth. As shown by the illustration, it is a combined cheek, tongue, and napkin holder, and the shape is such as to give the most perfect facility for operating. It can be held in position by the patient, or by attaching a weight to the handle, thus leaving both hands of the operator free."

		s.	d.
Price, in Ebony handle, nickel-plated ..	per pair	12	0

NAPKIN HOLDER.

(Mr. Atkinson's.)



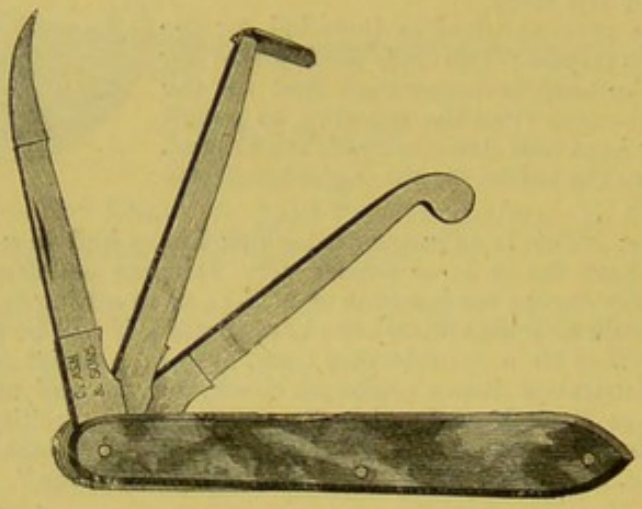
As will be seen from the illustration, this Napkin Holder is provided with right and left arms for the corresponding sides of the mouth, adjustable chin-plate and sliding rod which fits in the vertical pillar. It has a wide range, and can be employed with ease in every case that is suitable for the use of a napkin, bibulous paper in sheet, paper-fibre lint, or lintine.

When the napkin or other material is in position, the holder can be applied in a few moments, and securely holds it in place without the aid of either the patient or the fingers of the operator.

	s.	d.
Napkin Holder with two arms	15	0

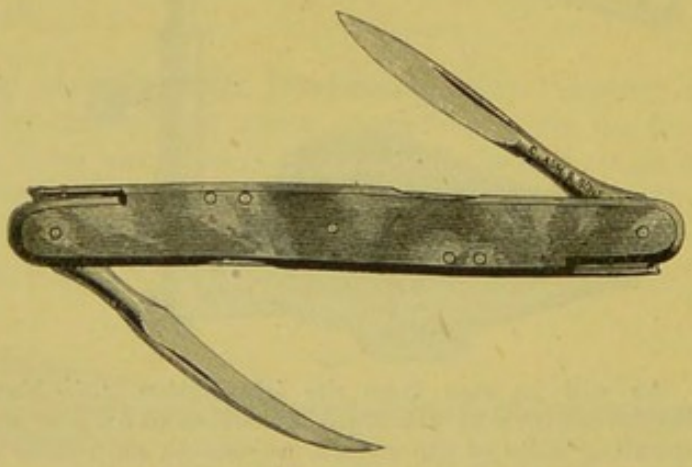
Half size.

LANCETS.



	Blades 1.		2.		3.	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*
Lancets for pocket, in Tortoise-shell handles each	2	6	4	0	5	6

SYME'S—PAGET'S KNIFE.



With two Blades and Spring Stops, best make.

		s.	*d.*
In Tortoise-shell handle	each	7	0

Other Lancets made or obtained to order.

LANCETS FOR ABSCESSES, &c.

Figs. 1 and 2 for opening abscesses, trimming and smoothing fillings, &c.

	s.	d.
In blued Steel handles each	1	0

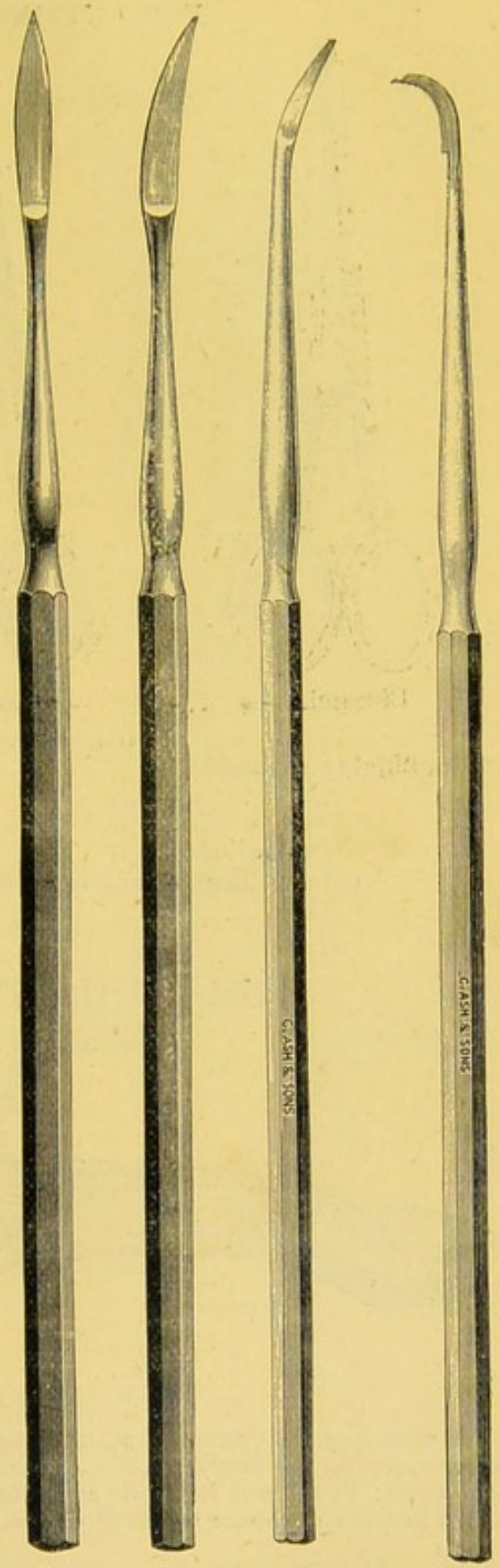
Fig. 3 (Dr. Dally's) for abscesses and for general use in the operating room.

	s.	d.
In blued Steel handle each	1	3

Fig. 4 (Dr. Witzel's), ligature knife. Used for cutting silk or thread, and for other purposes.

	s.	d.
In blued Steel handle each	1	2

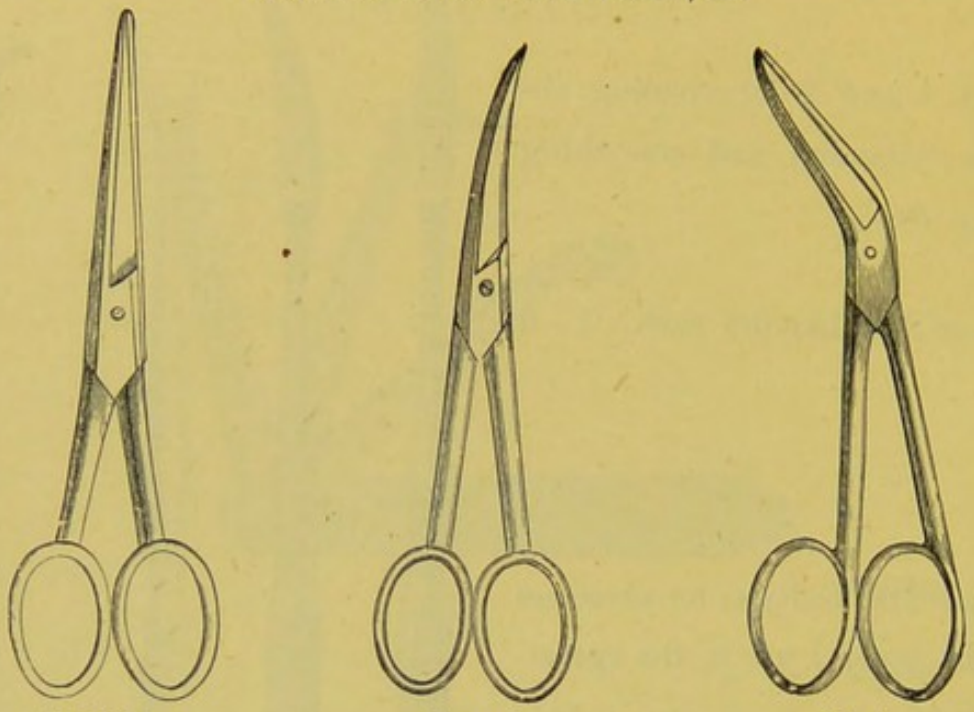
Other Lancets made or obtained to order.



1. 2. 3. 4.

SCISSORS,

FOR CUTTING THE GUMS, &c.



Straight. Curved. Bent.

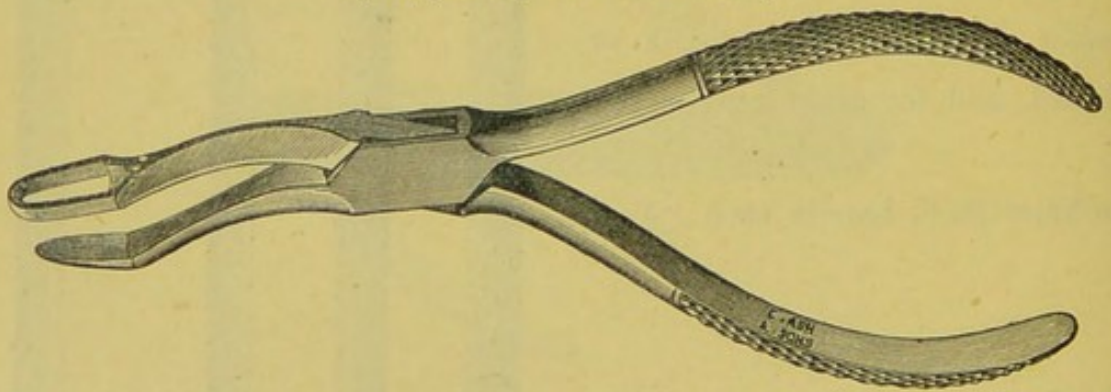
Full length of each 4½ inches.

		s.	d.
In Steel, highly polished	Straight each	1	9
„ „	Curved „	3	6
„ „	Bent „	2	6
„ Nickel-plated	.. extra „	0	9

Gum Scissors of any other form made or obtained to order.

GUM GUILLOTINE FORCEPS.

(Designed by Mr. WOODHOUSE.)

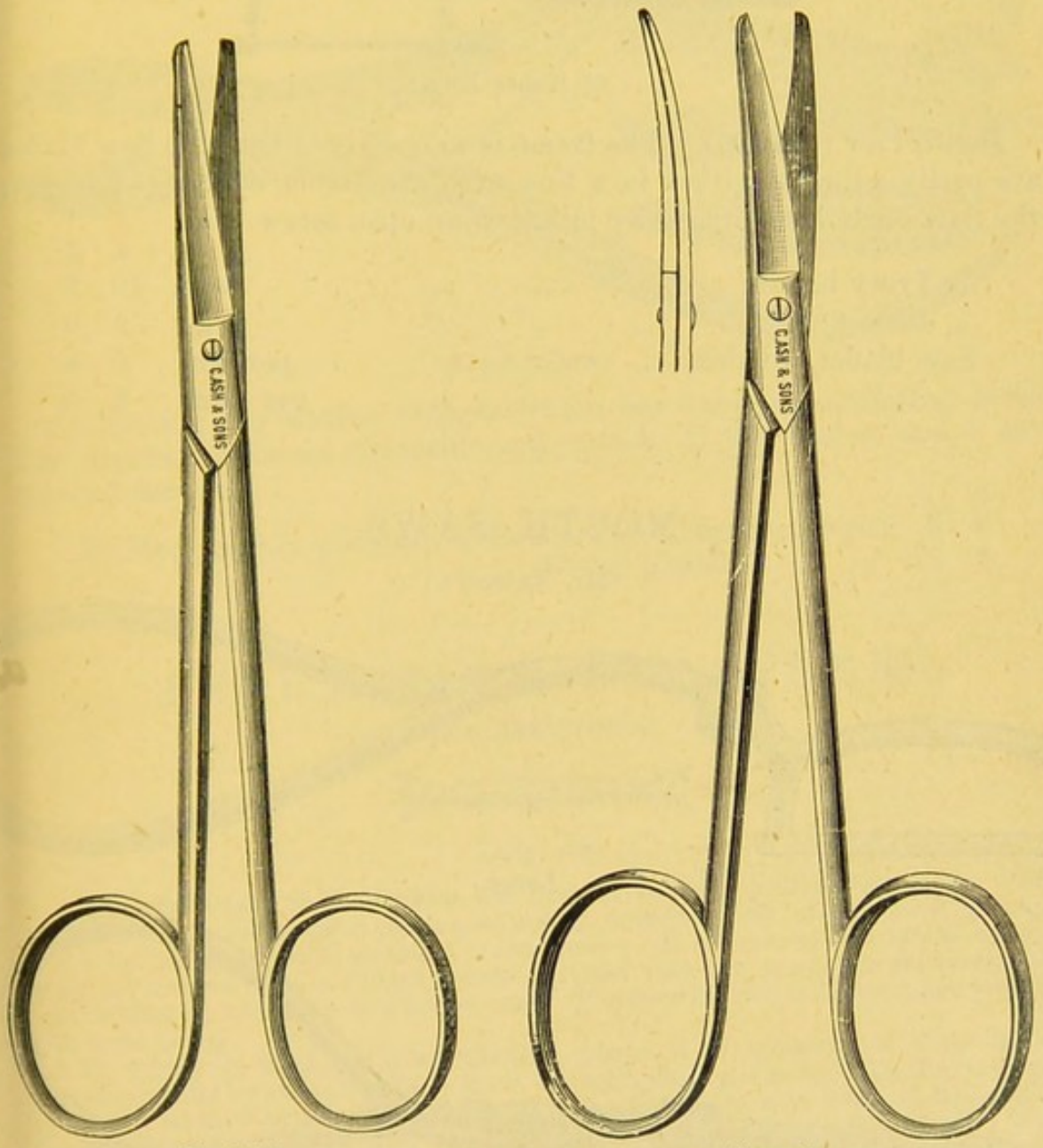


For removing gum from the masticating surfaces of partially erupted wisdom teeth. Before applying the Forceps, make an incision with a lancet along the anterior margin of the tooth; then insert the blade and remove the gum by firmly closing the handles. This instrument cannot be Nickel-plated without spoiling the cutting edges.

	s.	d.
Price, in polished Steel	9	6

SCISSORS,

FOR CUTTING GUM, LIGATURES, &c.



Straight. Curved.

The Scissors are illustrated full size.

Prices:

		s.	d.
Straight, in polished steel, best quality	each	3	0
Curved " " "	"	4	6

MOUTH SAW.

69.

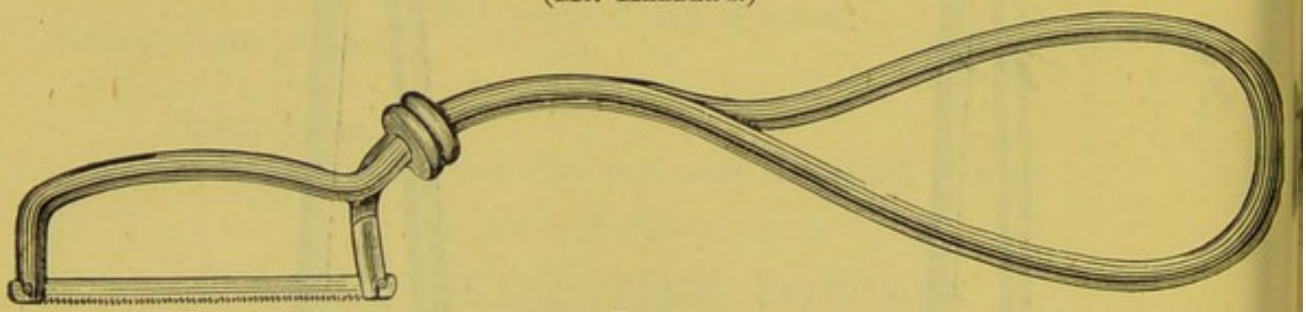
6¾ inches long.

Mouth Saw (Fig. 69). The frame is so contrived that the Saw blades are easily adjusted, either in a line with the frame, or at right angles; the Saw blade is tightened by means of an open screw loop.

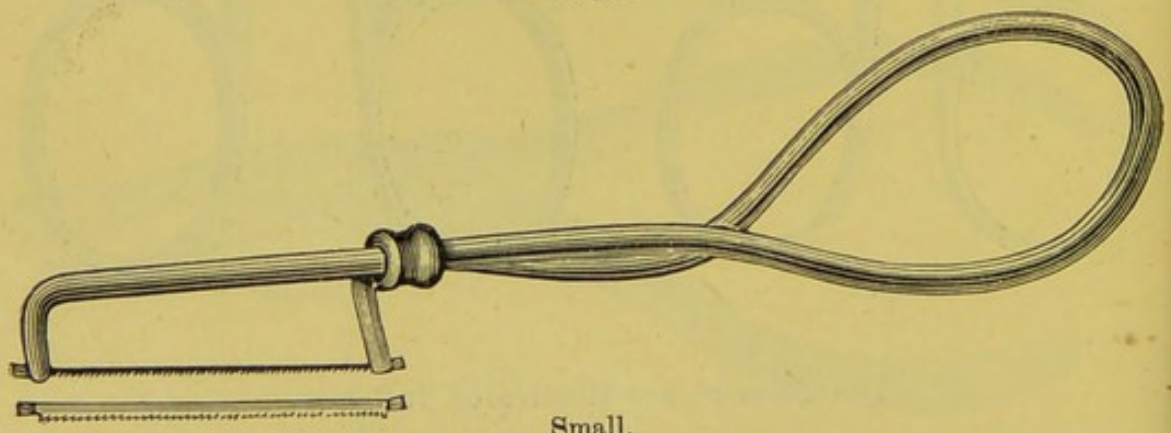
		s.	*d.*
In Ivory handle	each	10	6
„ Ebony „	„	9	0
Saw blades, all sizes	per doz.	0	4
„ „	per gross	3	0

MOUTH SAWS.

(Mr. Kaeber's.)



Large.

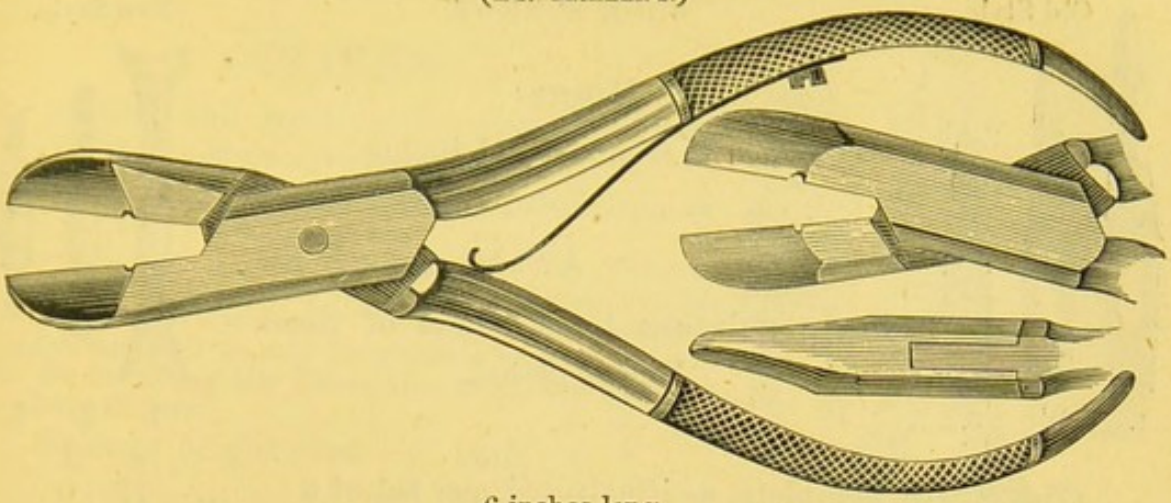


Small.

		s.	*d.*
Mouth Saws for finishing fillings, &c.:—			
Large size (Kaeber's), Nickel-plated	each	3	0
Small „ „ „	„	2	6
Saw blades for the above	per doz.	1	0

WEDGE CUTTERS.

(Dr. Miller's.)



6 inches long.

For cutting the wooden wedges which are used in regulating teeth. The illustration shows the inside and outside of the blades, and a side view of the same.

		s.	d.
In Steel, highly polished, with checkered handle ..	each	9	6
„ „ Nickel-plated ..	„	10	6

REGULATING EXPANDER.

(Mr. Robertson's.)

Large size.

"Mr. L. Robertson, of Cheltenham, has made a valuable modification of the **Jack Screw.** In his invention a continuous spring does the work of the screw, giving a decidedly less disagreeable sensation to the wearer. It consists of two movable heads which are screwed on to a central spindle, divided into two parts, one stationary, the other sliding up and down in a hollow case. The movable part is subject to the pressure of a spiral spring.

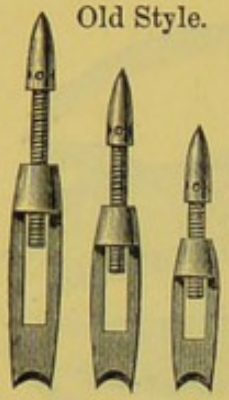
"**To apply it without a regulating plate,** it is necessary to draw in the movable spindle by means of a little knob, and with binding wire to fit it to the stationary spindle, to which is attached another knob. The heads are now removed, and tied to the teeth by means of fine wire or silk, to be followed by the central spindles being screwed into them. That being done, the wire, which caused the spring to be compressed, is cut, and the force is applied. When the teeth have been pushed to the limit of the spring the heads may be unscrewed. This will extend the length.

"**To apply it with a regulating plate,** insert the heads in the vulcanite, and cut the plate in half, so that when the central spindle works it moves the whole sides asunder. In this way the entire dental arch may be expanded."—*British Journal of Dental Science*, December, 1882.

Made of Steel, Nickel-plated, and supplied in two sizes:		s.	d.
Large	each	7	0
Small	„	7	0

REGULATING APPARATUS.

Old Style.



1. 2. 3.

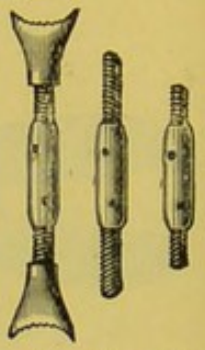
JACK SCREWS.

Ranges:

No. 1, from 1 to $1\frac{1}{2}$ inches.
„ 2, „ $\frac{7}{8}$ to $1\frac{3}{8}$ „
„ 3, „ $\frac{3}{4}$ to $1\frac{1}{4}$ „

For regulating teeth, made of Steel, Nickel-plated.

New Style.

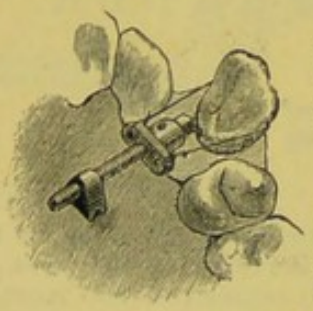


1. 2. 3.

		s.	d.
Old Style, complete, as illustrated, per set of 3 ..		12	0
New Style, „ „ „ ..		7	6
Extra Bars for the New Style, Nickel-plated ..	each	1	6

REGULATING SCREW AND PULL-BACK.

(Dr. Lee's.)



For drawing irregular teeth inwards.

The appliance consists of screw bar, regulating nut, attachment plate, pillar, and key. **It is made in two sizes—large and small,** the large size being illustrated.

The pillar is vulcanized in the rubber-plate, which is fitted in the mouth as shown in the illustration; then the screw bar is attached to it, a wire band is passed through the holes in the attachment plate, and the regulating nut is screwed up by means of the key.

	s.	d.
Price, either size, Nickel-plated, with key	5	6

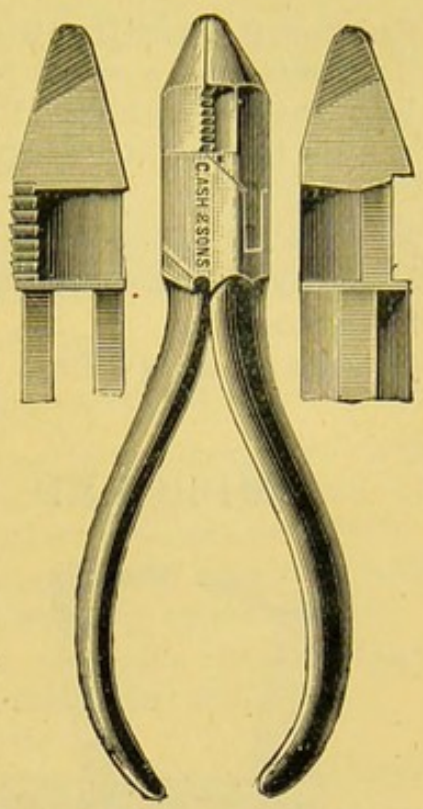
THE LEE-BENNETT JACK SCREW.

For pushing irregular teeth outwards. Made in two sizes—large and small. Applied and worked in the same manner as the above, and if desired, can be attached to the same vulcanite plate.

	s.	d.
Price, either size, Nickel-plated, with key	5	6

REGULATING APPARATUS.

PLIERS.



For cutting and bending the steel wire used in Dr. Coffin's system of regulating.

This illustration is taken from a copy furnished by Dr. McKellops, of St. Louis, Mo.

The pointed chops here shown are generally preferred by dentists in this country to the broad flat chops with which the tool is also made. We can supply either form to order, although we only keep this in stock.

In the engraving the Pliers are shown half-size and the Chops full size.

		s.	d.
Price in bright steel ..	each	4	0

STEEL WIRE,

FOR DR. COFFIN'S SYSTEM OF REGULATING.

Supplied in 6-inch lengths in four sizes, Nos. 13, 14, 17, 19. No. 19 is the largest and No. 13 the smallest. Made up in packets of one dozen lengths, any size.

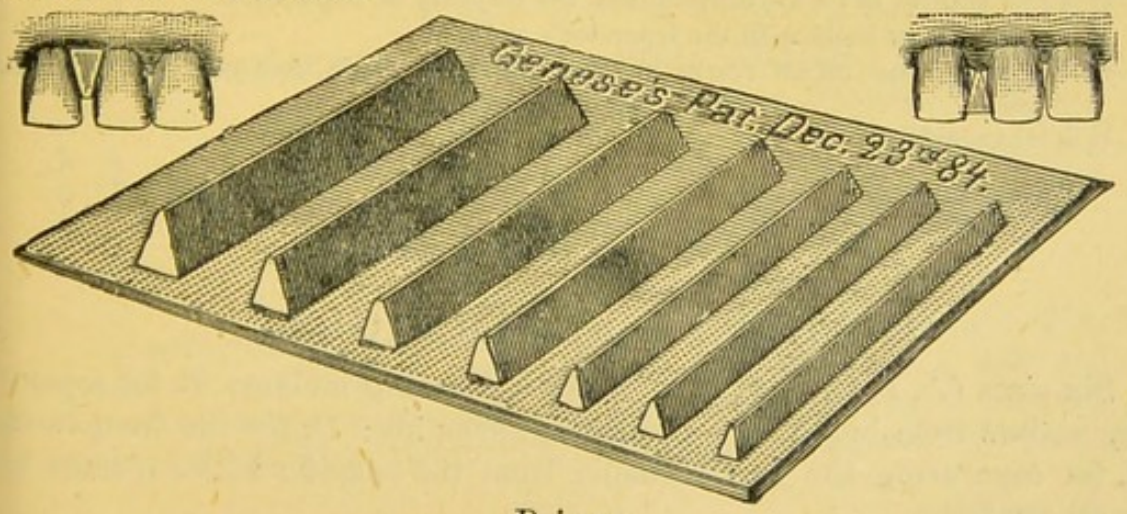
		s.	d.
Price	per packet	0	4

GRADUATED RUBBER WEDGES,

FOR SEPARATING TEETH.

(Dr. GENESE'S.)

Made in seven different sizes. The strips are two inches long, and are put up in boxes containing thirty assorted sizes. Made in two colours, black and white.



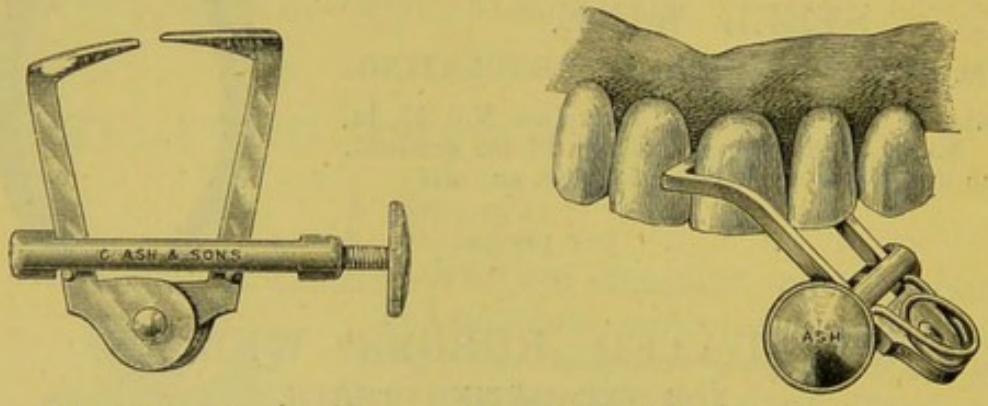
Prices:

		s.	d.
Black graduated Rubber Wedges	per box	2	0
White „ „ „	„	2	6

SEPARATING MATERIALS.

		s.	d.
Rubber Separating Strips (American), in boxes, containing assorted widths	per box	1	0
Regulating Rubber (Red), in sheet, best quality, for cutting up as required	per oz.	0	7½
" " " "	" lb.	9	6
Elastic Bands, assorted sizes, for regulating ..	" box	0	9
Hickory Wood for making wedges, in blocks ..	per block	0	6
Sycamore " " " " ..	"	0	6
Orange or Dog Wood " in sticks ..	per bundle	0	3

IMPROVED UNIVERSAL SEPARATOR.



The following advantages are claimed for this Separator:—

1. It will separate any two teeth, in either jaw, on either side.
2. It is extremely simple to manipulate, the regulating screw being always under the immediate control of the Operator.
3. It is less painful in its application than the majority of Separators.
4. It interferes very little with the Operator's work.
5. **It takes up no more room at the cervical edge** than an ordinary wooden wedge.
6. It is inexpensive.

		s.	d.
Price, Nickel-plated	each	7	0

PERRY'S SEPARATORS.

Six sizes (A, B, C, D, E, F). A, for separating molars; B, for separating molars from bicuspids; C, for the bicuspids; D, for the front teeth; E, for separating the first bicuspid from the cuspid; F, for incisors too small for D.

		s.	d.
Price	each	14	6
Key for applying	"	5	3

VELVET RUBBER-DAM.

Size of Tin Cylinder: 7⅞ inches long.

IN TWO THICKNESSES—MEDIUM AND THIN.

The Medium is supplied in rolls 15 feet or 7½ feet long by 6 inches wide, and the Thin in rolls 15 feet long by 6 inches wide, each kind being put up in air-tight enamelled tin cylinders as illustrated above.

It is made of pure Para Rubber of the highest grade, with the greatest care and in the best manner. We can most strongly recommend it.

We feel sure that operators will at once recognise the advantage of having— 1. The Rubber-dam in rolls 6 inches wide; and
2. An Air-tight Tin for holding it.

It is extremely strong and elastic, and, as its freshness may always be relied on, it cannot fail to give general satisfaction.

The rolls contain about the same quantity as the one-yard or half-yard packets.

Price:

							s.	d.
Medium, in lengths of 15 feet by 6 inches wide					..	per case	6	6
,,	,,	7½ ,,	,,	,,	..	,,	3	3
Thin	,,	15 ,,	,,	,,	..	,,	4	6

CLAUDIUS ASH AND SONS, Limited,
SOLE AGENTS FOR THE UNITED KINGDOM.

GLOBE COFFER-DAM RUBBER.

(Introduced by Mr. H. T. KIRBY.)

Of superior quality, not readily affected by the climate. This feature renders it particularly useful. The colour, which is a pale red, is preferred by many to the dark rubber-dam, because it is claimed that it adds to the light in the mouth. Supplied in yard and half-yard packets.

							s.	d.
Price	..	..	..	..	..	.. per yard	8	0

Other kinds of Coffer-dam Rubber supplied to order.

FLOSS SILK,

FOR LIGATURES, &c.

		s.	d.
Ash's plain, 12 yards on reel	per reel	0	4
„ „ „ „	„ doz.	3	0
„ waxed, „ „	„ reel	0	6
„ „ „ „	„ doz.	5	3
„ „ extra stout, 12 yards on reel	„ reel	0	8
„ „ „ „ „	„ doz.	7	0
American plain, 12 yards on reel	„ reel	0	4
„ „ „ „	„ doz.	3	0
„ waxed, „ „	„ reel	0	6
„ „ „ „	„ doz.	5	3
Silk Twist	„ reel	0	9
Floss Silk for wrapping round pivots, &c., supplied in fine, medium, and coarse	„ „	0	4

BEST ENGLISH GILLING THREAD,

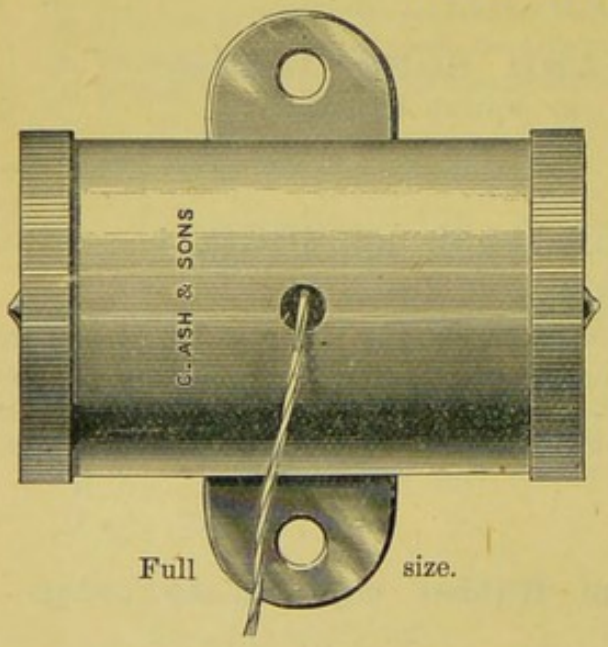
FOR LIGATURES, &c.

This is supplied on reels, containing one ounce each. It can thus be kept tidy, cannot very well become tangled, and as just the length required need only be cut off as it is wanted, there is no waste. It is extremely strong, and thin enough to be forced between the closest teeth.

		s.	d.
Price	per reel	0	5

For Witzel's Ligature Knife—see page 337.

SILK HOLDER.



Full size.

For attaching to the bracket table, or wall, or any available place within easy reach of the Operator.

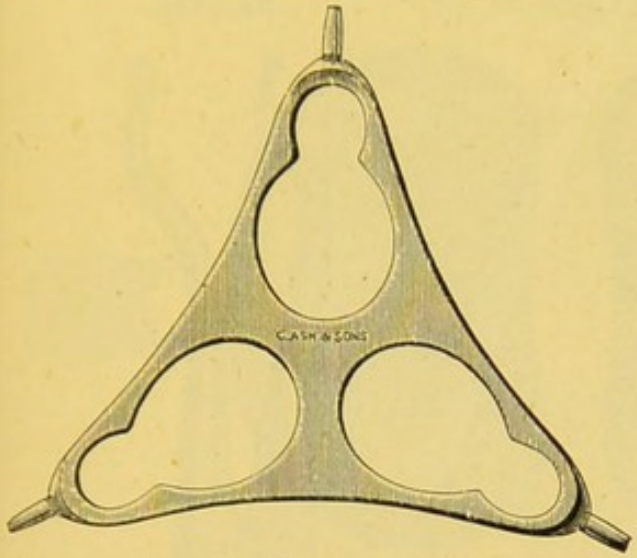
It will hold a reel of our plain or waxed floss silk, and can be charged or re-charged in a few moments.

To charge, unscrew the ends, slip the reel on the spindle inside the holder, and pass the end of the silk through the hole shown in the illustration.

	s.	d.
Price, Nickel-plated ..	2	9

RUBBER-DAM PUNCHES.

TRIPLEX.



Triplex Punch with three different cutters. The frame is made of Brass and the cutters of Steel.

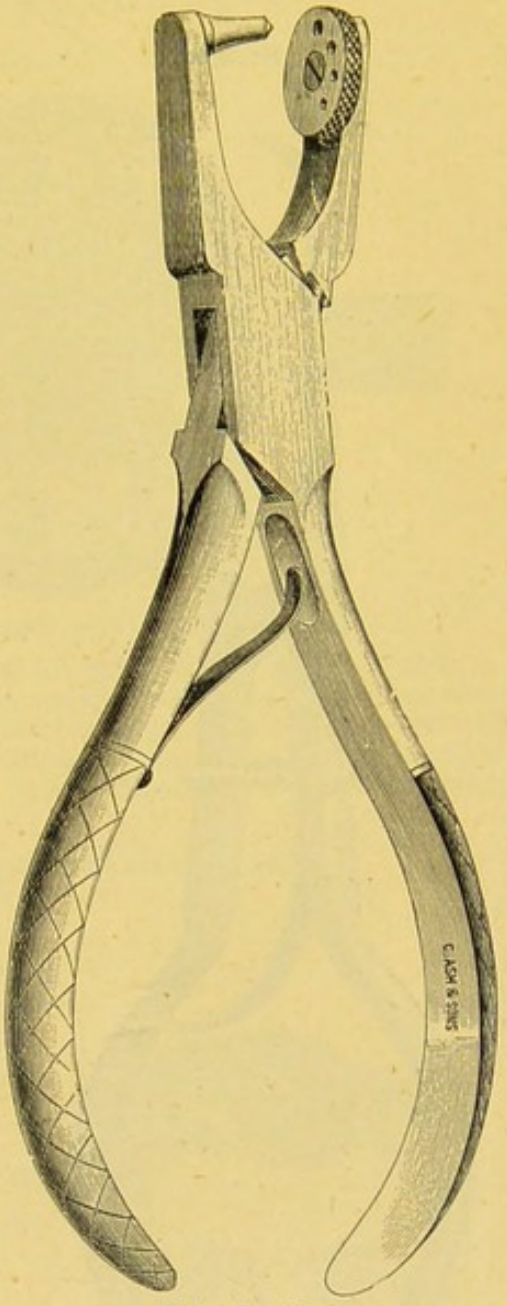
		s.	d.
Price, Nickel-plated		5	6
Extra cutters	each	1	0

Rubber-dam Punch, Dr. Ainsworth's, with circular plate containing five holes of various sizes.

	s.	d.
In Steel, Nickel-plated	12	6

Rubber-dam Punches of other forms made or obtained to order.

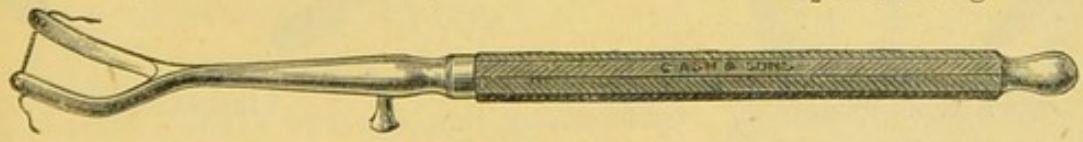
AINSWORTH'S.



6½ inches long.

RUBBER-DAM APPLIER.

(Mr. MARCUS DAVIS'S.)



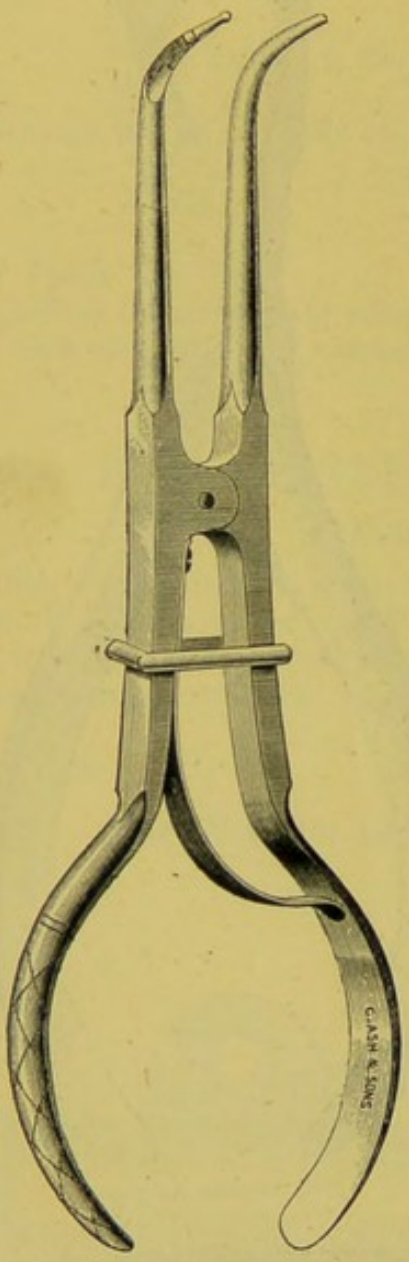
6¾ inches long.

This instrument is used with silk or thread, which is passed into the grooves of the fork, and tightened by wrapping it round the steel button at the back, carrying it down the handle, and wrapping it once or twice round the neck of the ball on the end.

		s.	d.
In File-cut handle, Nickel-plated	each	3	9

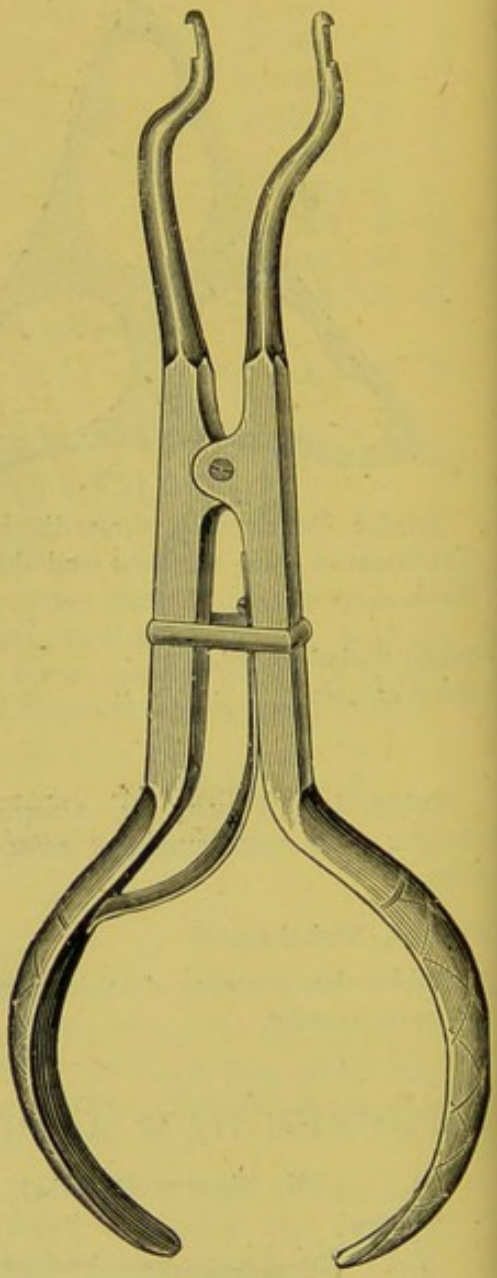
RUBBER-DAM CLAMP FORCEPS.

STOKES'.



7 inches long.

BAYONET.



7 inches long.

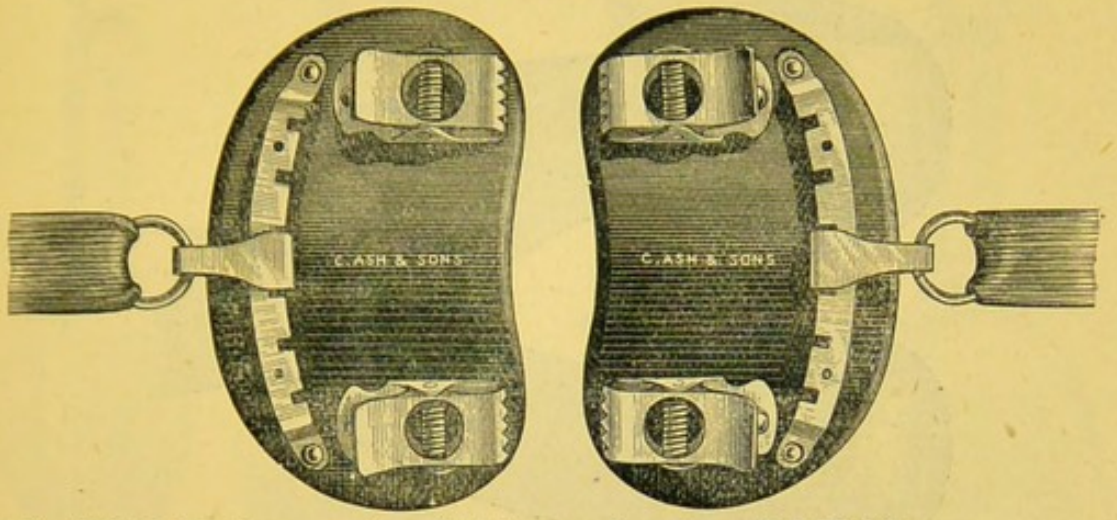
Forceps for applying Coffer-dam Clamps:—

		s.	d.
Stokes', Nickel-plated	each	10	0
Bayonet form „	„	10	0

RUBBER-DAM HOLDER,

WITH ADJUSTING RATCHETS.

(Dr. W. Mitchell's.)



Dr. Mitchell thus speaks of this novel and useful Holder :—

"The advantages of the Rubber-dam Holder are too apparent to need much description. Its capacity is that of both rubber-dam and napkin holder, and in many cases weights may be dispensed with. The adjusting ratchet is an important improvement over all other methods, enabling the operator to produce traction in any desired direction —something that has long been needed. To the practical dentist further description would be superfluous."

	s.	d.
Rubber-dam Holder, with vulcanite guards, elastic braid and nickel-plated clips and ratchets	8	6

RUBBER-DAM HOLDER.

(Dr. H. P. Fernald's.)

This useful little appliance is for keeping the Rubber-dam in position on the face, and is complete in itself.

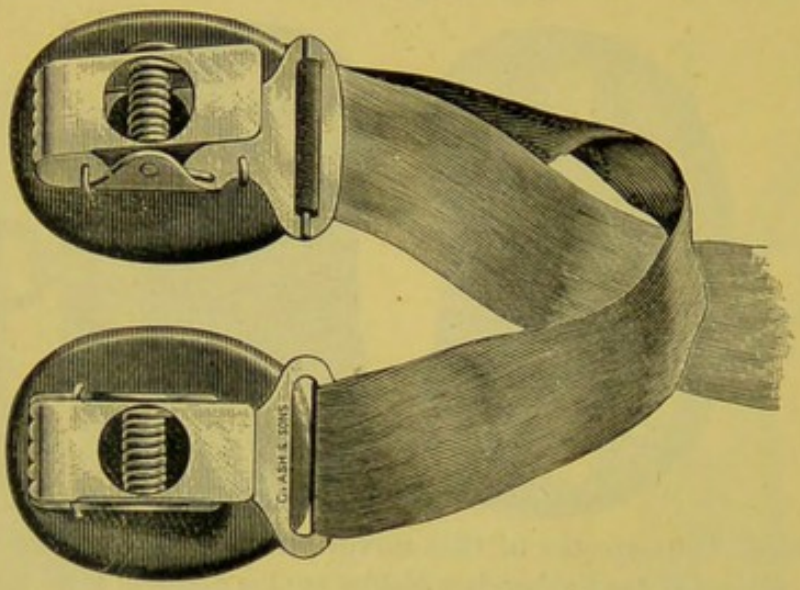
Directions for Applying :

Cut the Rubber-dam a trifle larger than the holder ; apply to teeth, and secure same by means of thread, silk or clamp—then stretch the free ends of rubber over the studs of holder, as shown in illustration.

	s.	d.
Price, Nickel-plated	4	3

RUBBER-DAM HOLDER.

HOSPITAL PATTERN.

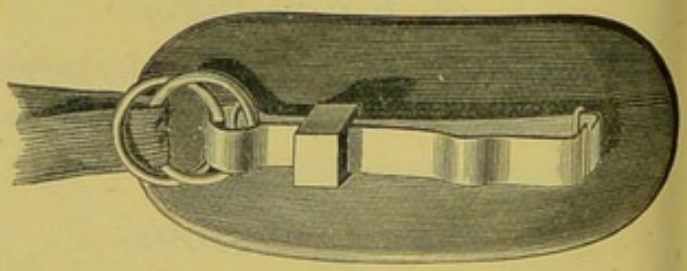


Consisting of two Nickel-plated spring clamps, Vulcanite guards and Silk braid.

	s.	d.
Price, complete with guards	3	6
„ without „	2	6

RUBBER-DAM HOLDER.

(Dr. COGSWELL'S.)

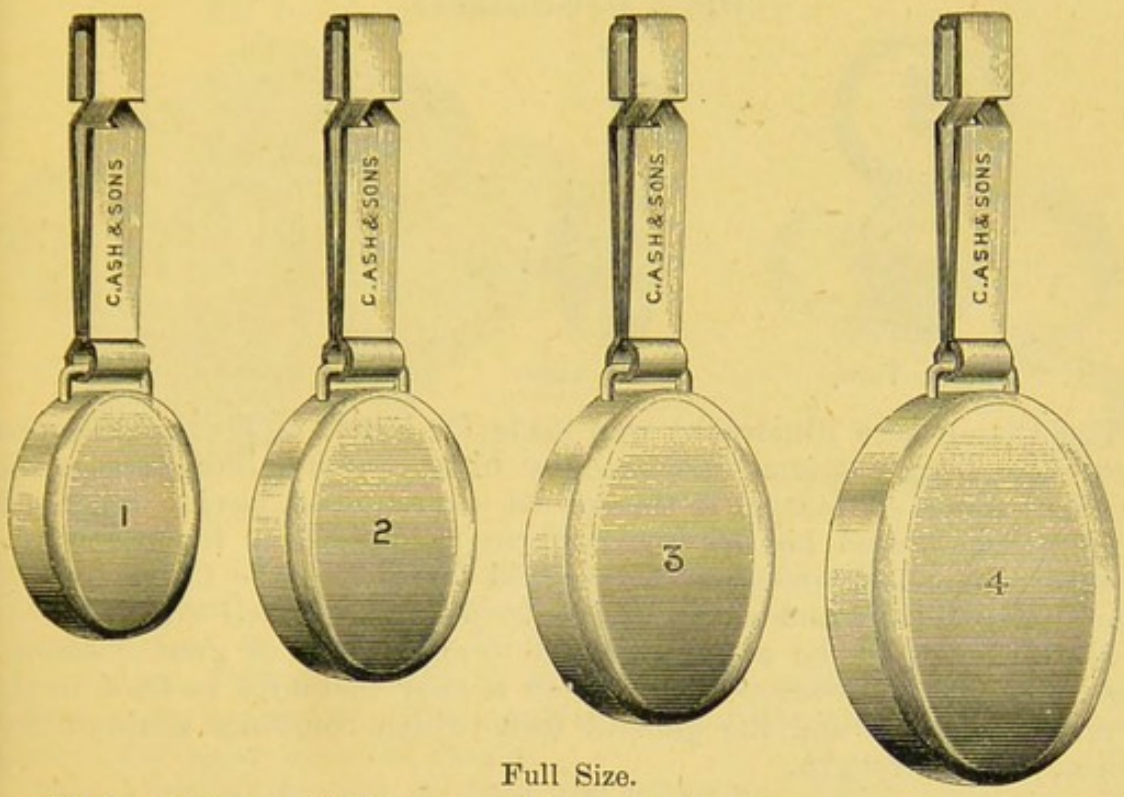


Consisting of two guards, Nickel-plated clamps, slides and rings, and Elastic Braid to pass round the head. The illustration on the left hand side shows the Holder in use, attached to the Rubber-dam, which has been forced over the teeth to be stopped.

	s.	d.
Complete, with Vulcanite guards ..	3	6

RUBBER-DAM WEIGHTS.

OVAL.

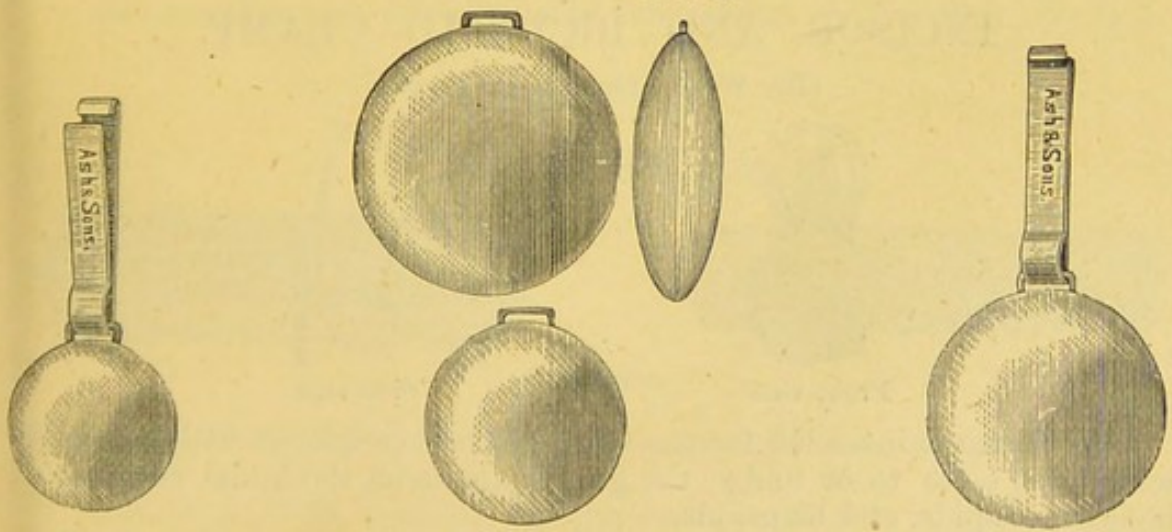


Full Size.

Made of Brass with German Silver Springs.
Nickel-plated throughout, sizes 1, 2, 3, 4 .. each 2 0

CIRCULAR.

No. 4. Section.



No. 1. No. 2. No. 3.

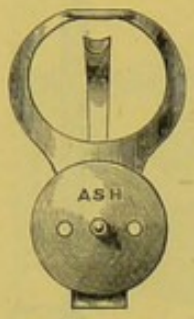
Two-thirds size.

Made of Brass with German Silver Springs.
Nickel-plated throughout, sizes 1, 2, 3, 4 .. each 2 0

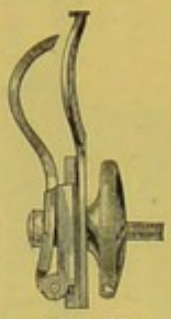
THE IDEAL CLAMP,

FOR LABIAL SURFACE CAVITIES ON THE SIXTEEN ANTERIOR TEETH.

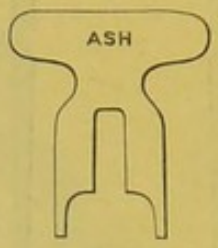
(Dr. J. L. Williams's.)



Front View.



Side View.



Spanner.

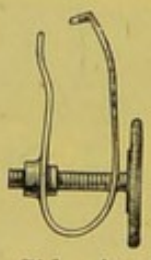
The Clamp here illustrated was made for Dr. J. L. Williams several years ago, from patterns furnished by him. Several imitations, much inferior in their adaptation to the special use required, having appeared, Dr. Williams placed his original patterns in our hands for the manufacture of the instrument. The special features of the Clamp are the combination hinge and sliding joint, by means of which the outer side of the Clamp may be easily adjusted to any degree of gum recession; the milled head set-screw with which it may instantly be fixed in the required position, and the general form which combines adaptability, delicacy, and strength.

	s.	*d.*
Price, with Spanner for tightening up and for releasing the Clamp	10	6
Spanner separately	0	6

INCISOR AND BICUSPID CLAMP.

(Dr. W. St. George Elliott's.)

Front view.



Side view.

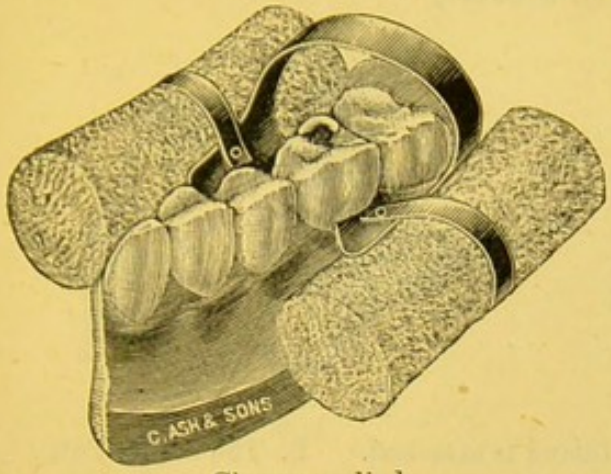
This Clamp is intended for use with the rubber-dam in filling cavities which are close to or under the gum margin on the labial surfaces of incisors, cuspids, and bicuspids.

It has holes in the face of the screw like the Ideal Clamp, shown above, and can be securely tightened in position by means of the Clamp forceps.

	s.	*d.*
Price	4	0

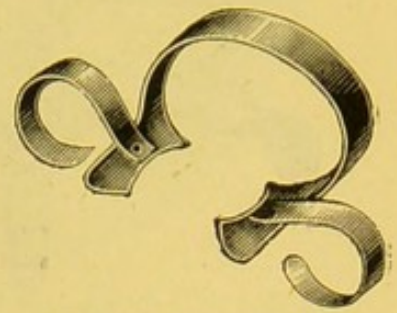
WOOL-ROLL CLAMPS.

Fig. 1. (Designed by Mr. F. Gross)



Clamp applied.

Fig. 2.



Clamp showing spring loops.

The spring loops on this clamp are admirably adapted for holding Wool Rolls or rolls of Bibulous Paper in those cases in which the operator does not desire, or is for any reason unable, to employ the rubber-dam. When the Clamp is applied, the rolls are held so snugly and securely against the gums and teeth that the saliva is kept under control and away from the cavity.

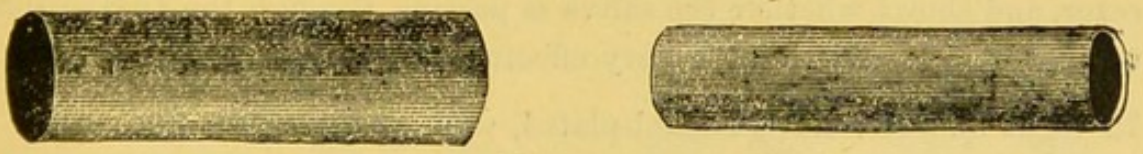
It is intended for use on both the upper and lower teeth, the rolls serving to protect the tongue and cheek in operations on the lower.

The rolls should be fixed in the loops before the Clamp is applied.

The Clamp is made in two sizes—for Molars and for Bicuspids.

		s.	*d.*
Price, either size, Nickel-plated throughout ..	each	3	0

WOOL ROLLS.



Full size.

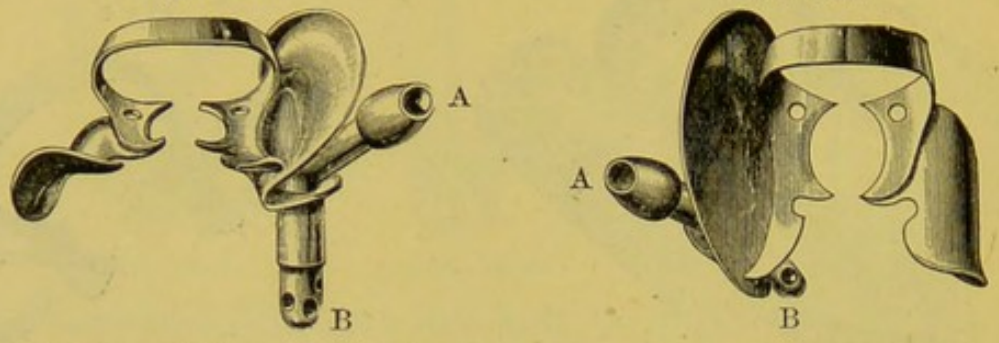
		s.	*d.*
In packets containing 100 either size or assorted ..	per packet	1	9
" " 500 " " " ..	"	7	6
Wool Rolls, 6 inches long, for cutting up as required, assorted sizes	"	2	0

Japanese Bibulous Paper, very fine ..	per pkt.	100 sheets	1	6
" " " "	"	500 "	5	0
French Bibulous Paper, best quality		per quire	1	0
Absorbent Napkins, in boxes of 100		per box	2	0

CLAMP AND SALIVA TUBE COMBINED.

(Dr. C. H. Stokes'.)

Right Side. Left Side.



A. Nipple to which the India-rubber tubing is attached. B. The Saliva Tube.

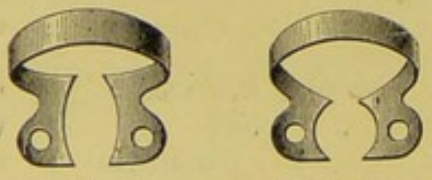
This appliance, which is designed for use with Coffer-dam Rubber, Bibulous Paper, or Fibre Lint, serves not only as a Clamp and Saliva Tube, but also as a Tongue Guard, Cheek Distender, and Mouth Reflector, thus enabling the Operator to have both his hands free. The Saliva Tube is connected to the Standard or Wall Saliva Ejector, shown on pages 76 to 79, in the following manner:—

Before the Clamp is applied to the tooth a piece of India-rubber tubing, three or four inches long, with a piece of glass tube in the free end, is attached to the Nipple A. (Each Clamp which we supply is furnished with this attachment.) The connection is completed, after the clamp is fixed in position, by stretching the India-rubber tubing attached to the Saliva Ejector over a portion of the uncovered part of the piece of glass tube; the part which is left exposed acts as an indicator, and shows whether the saliva is passing through the India-rubber tubing. The contrivance is very effectual in practice.

		s.	d.
In right and left sides, Nickel-plated, with short length of tubing and glass indicator attached ready for use	.. each	6	0

RUBBER-DAM CLAMPS.

(Dr. C. H. Stokes'.)

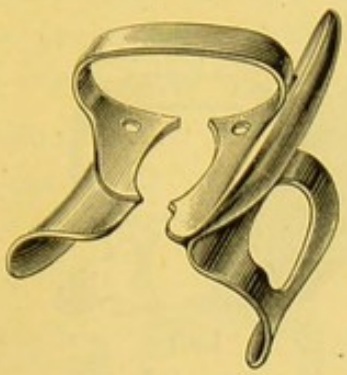


Molar. Bicuspid.

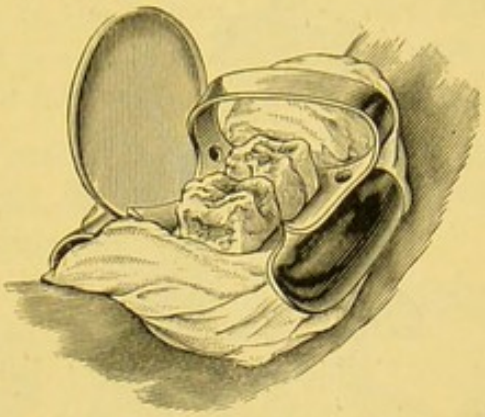
		s.	d.
Price, Nickel-plated	each	2	0

ABSORBENT-PAPER CLAMPS.

(Dr. C. H. Stokes'.)



Right Side.



Left Side.

Clamps with Tongue Guards for lower Bicuspids and Molars, designed to be used with Bibulous Paper and Paper Fibre Lint.

Directions for Use.

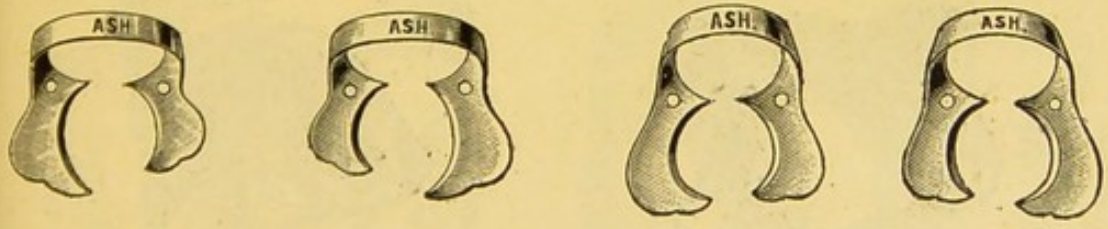
Take a roll of paper, pass it through the hole in the lip of the Clamp, carry it round the back, bring it under the plain lip and apply the Clamp. When the roll becomes saturated with moisture, pack additional paper under the lips over the top of the roll.

		s.	*d.*
In right and left sides, Nickel-plated	each	5	6
Clamps, without Tongue Guards, for upper and lower Molars, Nickel-plated	,,	3	0
Forceps for applying these and all kinds of Coffer-dam Clamps, Nickel-plated	,,	10	0

RUBBER-DAM CLAMPS,

WITH BROAD FLANGES.

(Suggested by Mr. J. F. Colyer, of London.)



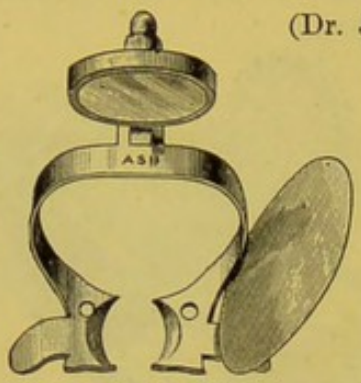
1. 2. 3. 4.

Mr. Colyer says: "Dr. Palmer's Clamps are admirably adapted for fitting the teeth, but they have one objection—the flanges are hardly broad enough to prevent the rubber slipping over them. To overcome this, I have had some made with broader flanges, and have found them a great advantage."

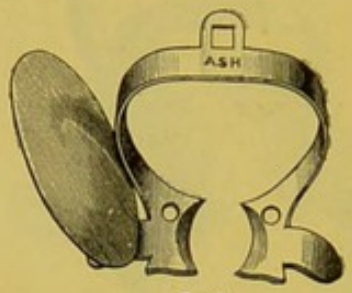
			s.	*d.*
Price	(Figs. 1–4)	each	2	0

CLAMPS FOR NAPKINS AND FOR RUBBER-DAM.

(Dr. J. L. Williams'.)



Right.



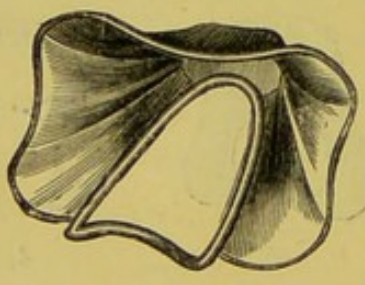
Left.

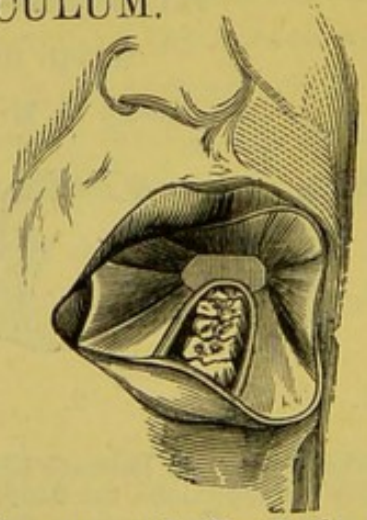
Dr. Williams says:—"The bow of the Clamp is thrown well back, so that an anterior approximal cavity in the tooth *behind* the one clamped may easily be reached. The projecting ears on the side of the Clamp hold folds of napkin or paper well down and pressed against the gums. The small projection at the back of the bow of the Clamp serves a double purpose. It holds the roll of napkin where it passes over the teeth in position, and also contains a socket for receiving a small mouth mirror. This mirror will be found a very useful feature on dark days. It has several advantages over the one I designed many years ago, as it can easily be placed in position *after* the Clamp is adjusted. I also find this Clamp the most satisfactory one I have ever tried for use with the rubber-dam. It keeps the tongue out of the way, and the ears and general shape of the Clamp prevent the rubber from 'cockling' up about the teeth, and so obstructing the operator's view of his work."

The Clamp is made for right and left sides.

		s.	*d.*
Price for either side	each	3	0
Mirror	extra	5	0

MOUTH SPECULUM.





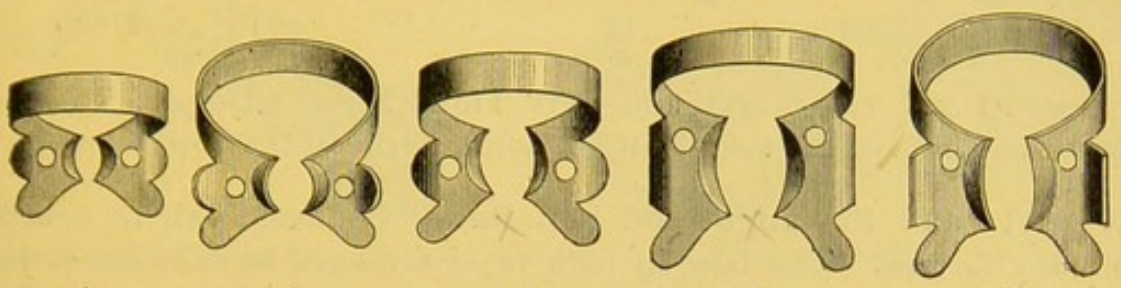
This also serves as a Mouth Prop, Tongue and Cheek Guard, and Napkin Holder.

	s.	*d.*
Price, Nickel-plated	3	0

IVORY'S RUBBER-DAM CLAMPS.

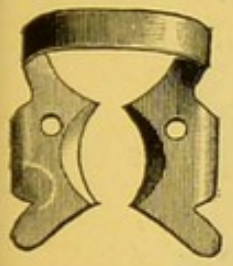
These Clamps are intended for use in the following manner: After the hole is punched in the rubber-dam, it is stretched over the flanges of the clamp that is to be applied, and carried into the mouth on the clamp.

By this method the rubber can be easily and quickly fixed in position when the clamp is placed on the tooth, the flanges and arms serving to keep it well spread out of the way during the operation.



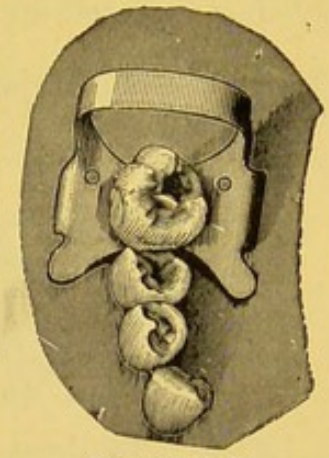
0. 1. 2. 7. 8.

Directions for Use.



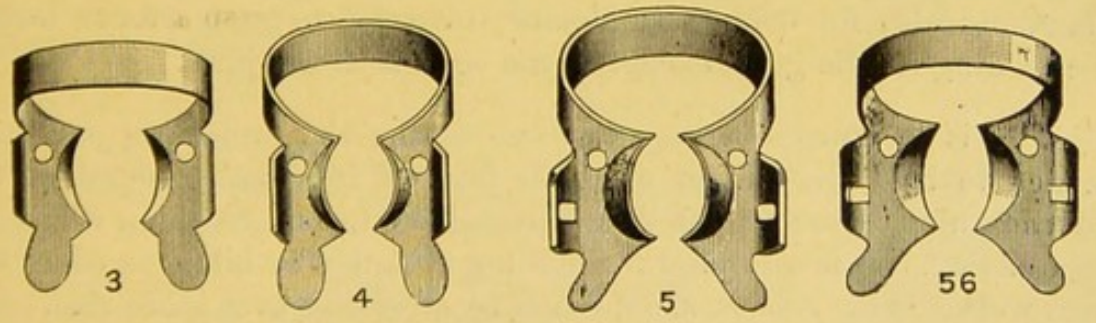
7a.
Larger size than No. 7.

Make the hole in the rubber-dam large enough for it to be stretched over the side flanges easily without tearing; carry the rubber-dam into the mouth on the clamp, holding both in such a way that the tooth can be seen through the jaws of the clamp while applying the clamp to the tooth; then push the rubber-dam off the flanges, and it will drop beneath the jaws of the clamp. The hole in the rubber-dam can be enlarged, if desired, and made oval in form by punching a second one overlapping it.



7a. applied.

Figs. 0–8 are for general use on Bicuspids and Molars.

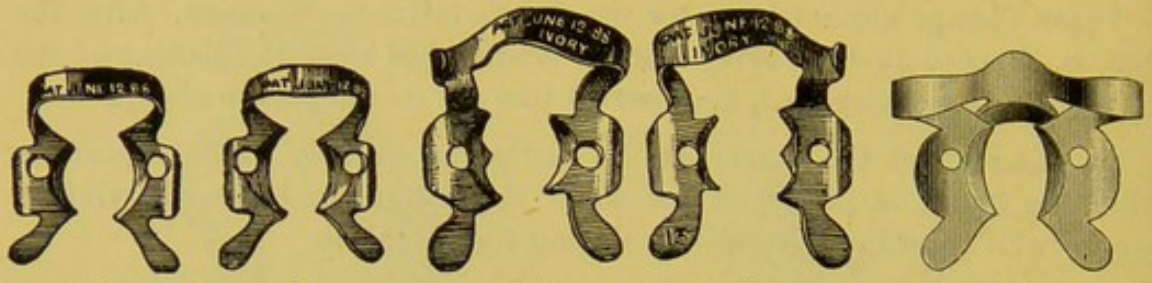


Figs. 3 and 4.—Universal Inferior and Superior Molar Clamps.

Figs. 5 and 56.—Large Superior and Inferior Molar Clamps, with extra stiff spring, for wide and large Molars.

		s.	*d.*
Price of all the above Clamps, Nickel-plated ..	each	2	6

IVORY'S RUBBER-DAM CLAMPS—*continued.*

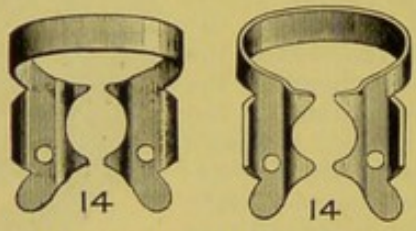


10. 11. 12. 13. 17.

Figs. 10 and 11.—Right and Left Third Molar Clamps. To open insert the points of the forceps in the holes, never in the bow.

Figs. 12 and 13.—Right and Left Buccal Clamps. Can be opened with any forceps. The bow in each is so arranged as to be out of the way when the distal surface of the tooth to which the Clamp is applied is being operated upon.

Fig. 17.—Three-jawed Clamp for Distal Surface Cavities.



The front and back views are here given.

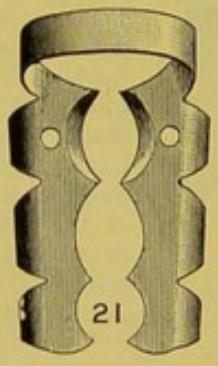


Fig. 14.—Special stiff spring Clamp for partially erupted superior Molars, and also for deciduous Molars; intended to grasp a tooth without crowding on the gum, except at the corners of the jaws.

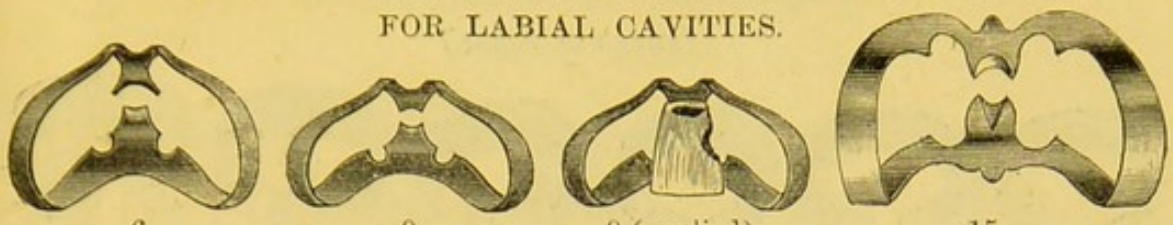
Fig. 21 is designed to grasp but one tooth; the projecting jaws are intended to hold the rubber away in front of the tooth clasped, or to hold the rubber down when it is carried on to one tooth in filling a crown cavity. It is also used for holding a napkin or bibulous paper in crown work. The rubber should not be stretched over more than one pair of the flanges.

Prices:

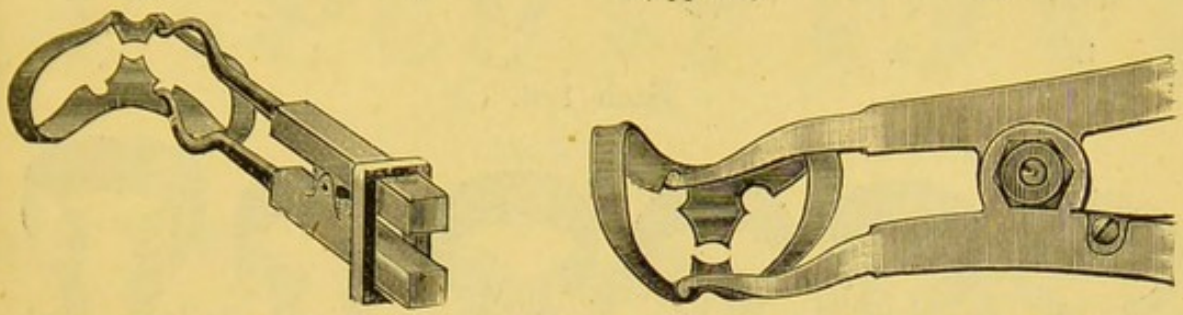
		s.	*d.*
Figs. 10, 11, 12, 13, 14, 17, Nickel-plated	each	2	6
Fig. 21 .. .. .. „		3	0

IVORY'S RUBBER-DAM CLAMPS.

FOR LABIAL CAVITIES.



6. 9. 9 (applied). 15.



These illustrations show the manner in which the clamps are held by the Forceps while being applied.

Fig. 6 is specially adapted for centrals and cuspids where the cavity of decay extends across the surface of the tooth.

Fig. 9 is of universal application to all anterior teeth.

Fig. 15, intermediate in size between Figs. 6 and 9, is constructed to give still greater access to the cavity during the operation of filling, finishing, &c. It is provided with downward arms, like the other clamps, for holding the rubber-dam till the clamp is adjusted, when the rubber-dam can be slipped off and will be held above the cavity by the jaw of the clamp.

All these Clamps can be applied with any Clamp Forceps.

IVORY'S IMPROVED NAPKIN CLAMP.

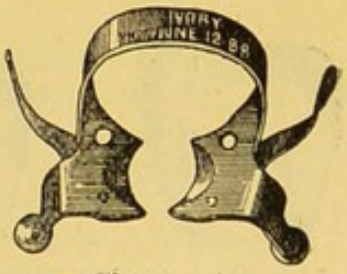
This Clamp is used as follows :—The napkin, or bibulous paper, is attached to the clamp, and carried with the clamp into the mouth by means of the forceps.

The lateral extending springs are moved forward; the napkin is passed between the springs and the sides of the clamp, and looped round the back of the bow and under the downward projecting arms, and the springs are then pressed against the material.

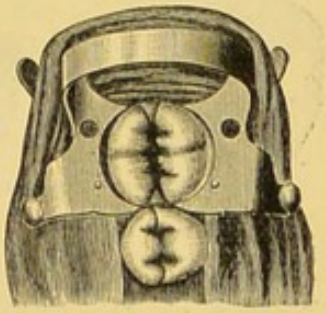
As thus fixed, the napkin is held in place on the clamp while being carried to the tooth, and will be found so closely adapted when the clamp is applied that it will keep the parts dry for quite a lengthy operation. The downward arms hug the napkin to the alveolar ridge without exciting the glands, and thus prevent the saliva flowing round the tooth under operation.

Instead of square napkins, strips two inches wide and of any desired length, made from bleached cotton, should be used, and thrown away when done with.

Bibulous paper or cotton-wool rolls can also be advantageously employed with the clamp.



Clamp only.

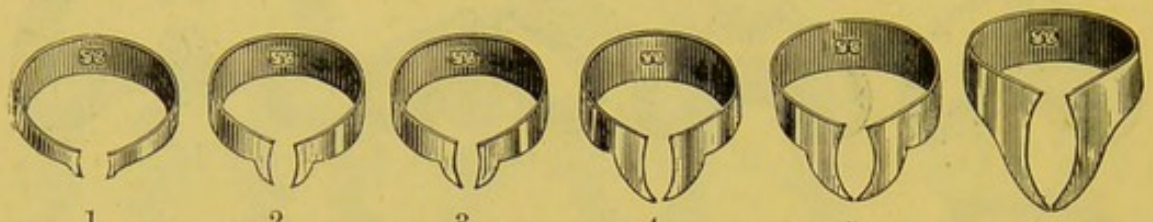


Clamp applied.

Prices :		*s.*	*d.*
Rubber-dam Clamps ..	.. (Figs. 6, 9, 15) each	3	0
Improved Napkin Clamp	„	3	0

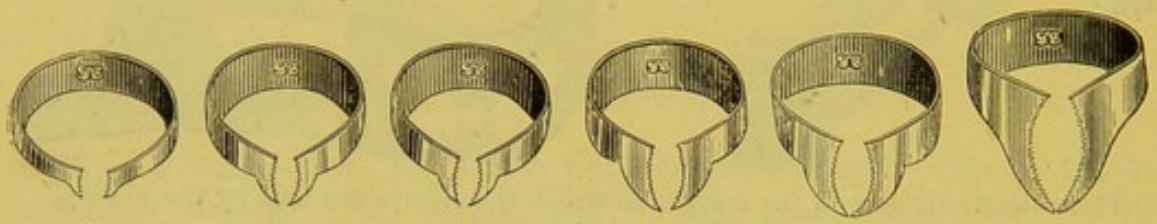
RUBBER-DAM CLAMPS.

(AMERICAN FORMS.)



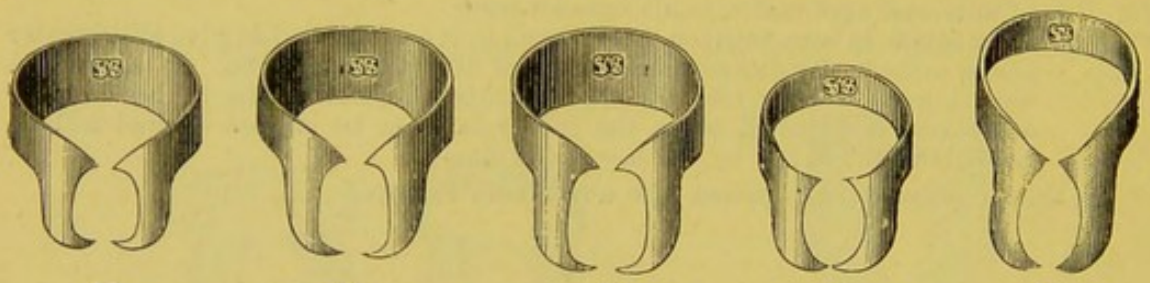
1. 2. 3. 4. 5. 6.

Each 1/8.



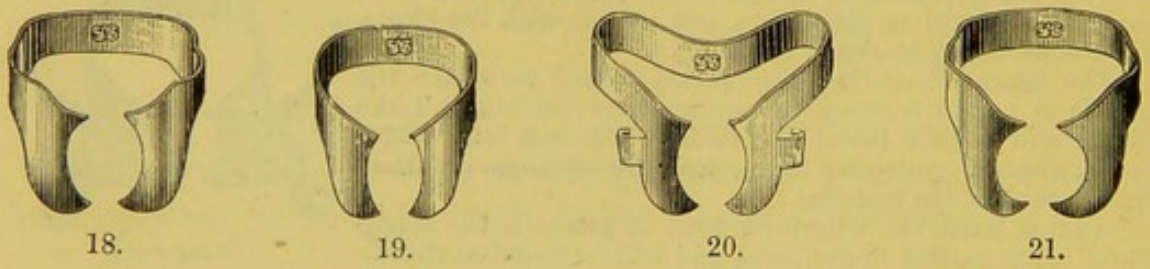
7. 8. 9. 10. 11. 12.

Each 1/8.

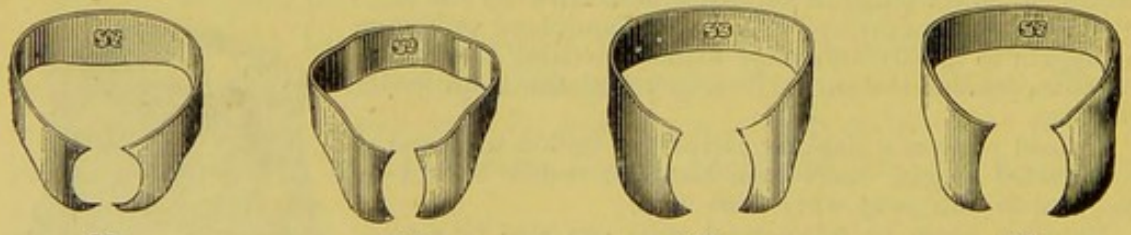


13. 14. 15. 16. 17.

Each 1/8.



18. 19. 20. 21.



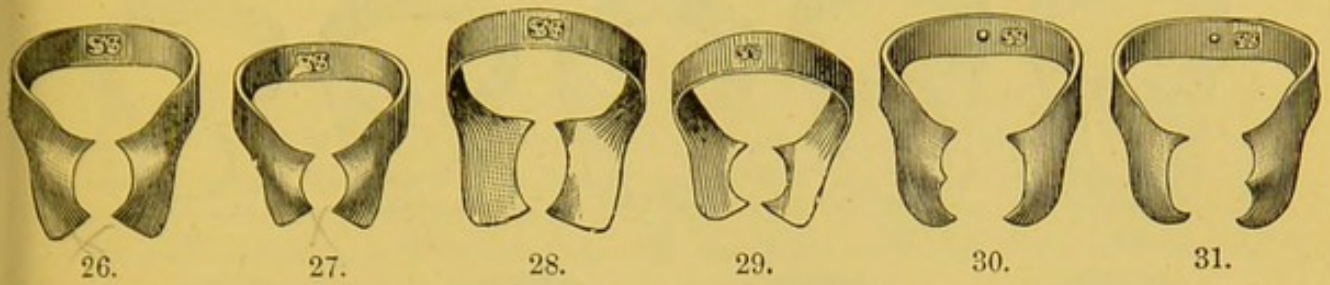
22. 23. 24. 25.

Each 1/8.

Nearly all the Clamps on this and pages 361 and 362 have holes in the jaws for admitting the points of the Forceps.

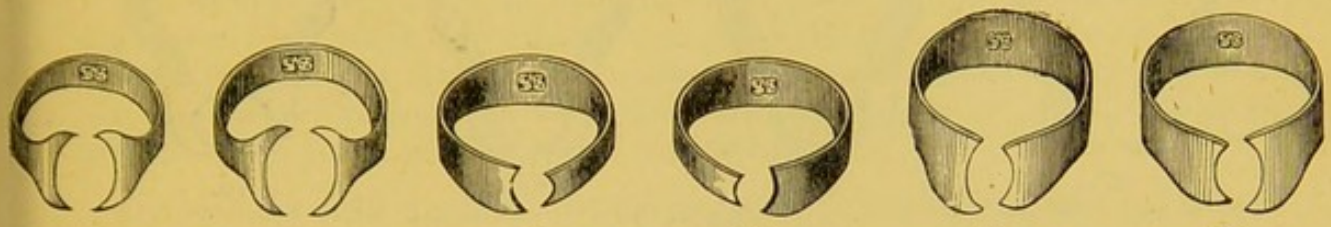
RUBBER-DAM CLAMPS.

(AMERICAN FORMS.)



26. 27. 28. 29. 30. 31.

Each 1/8.



32. 33. 34. 35. 36. 37.

Each 1/8.

Description.

Figs. 1 to 12.—**Dr. Chas. F. Allan's Original Patterns.**—Figs. 1 to 6, plain edges; Figs. 7 to 12, serrated edges. Designed for general use, the range of sizes being sufficient for all teeth.

Figs. 13, 14, 15.—Especially designed by **Dr. Chas. F. Allan** for use on lower molars, the inside edges of each Clamp being shaped to conform to the necks of these teeth. They have great back-set, entirely clearing the tooth on which they clamp, and broad flanges to keep the rubber spread.

Figs. 16, 17.—The **H. C.** Clamps, for ladies' and children's molars. Light, small, and very elastic. They have good back-set and well-spread flanges, affording easy access to any cavity in the tooth they are clamped on. The small hoop allows the patient to keep the mouth open without difficulty, and enables a very light Clamp to hold the dam down securely without pain.

Figs. 18 to 25.—**Dr. Delos Palmer's Set of Eight.**—Figs. 18 and 19, Universal Clamps for Molars. Fig. 20, for posterior cavities in molars standing alone. Fig. 21, for third molars, or any molar of a cone shape. This Clamp can oftentimes be turned round while on the tooth, so as to place the hoop out of the way of the Operator. Fig. 22, for bicuspids. Fig. 23, for lateral or central incisors. Figs. 24 and 25, **Right and Left,** for cavities under the gum on the buccal or lingual surface of molars.

Figs. 26, 27.—**Dr. Ambler Tees' "Festooned."**—For molars and bicuspids which have deeply festooned gums.

Figs. 28, 29.—**Dr. Ambler Tees' "Broad Flange."**—For molars and bicuspids. The broad flanges are intended to spread the dam wide.

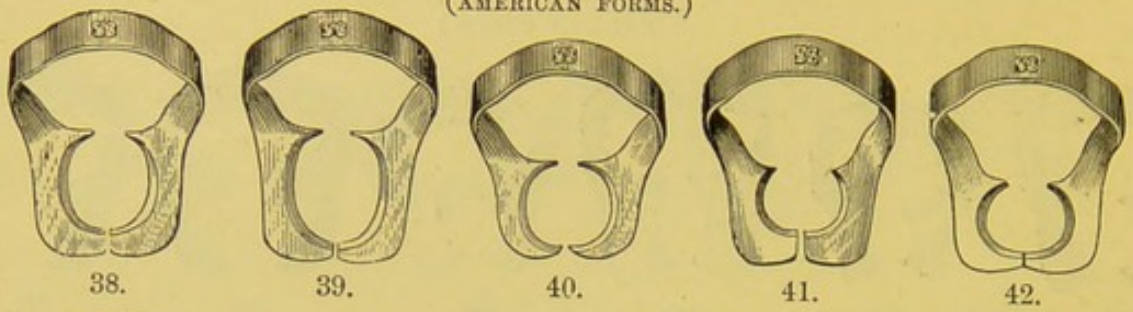
Figs. 30, 31.—**Dr. W. W. Evans' "Beaked Molar."**

Figs. 32, 33.—**Dr. Robert Huey's "Dens Sap."**—For very difficult cases to which other Clamps are inapplicable.

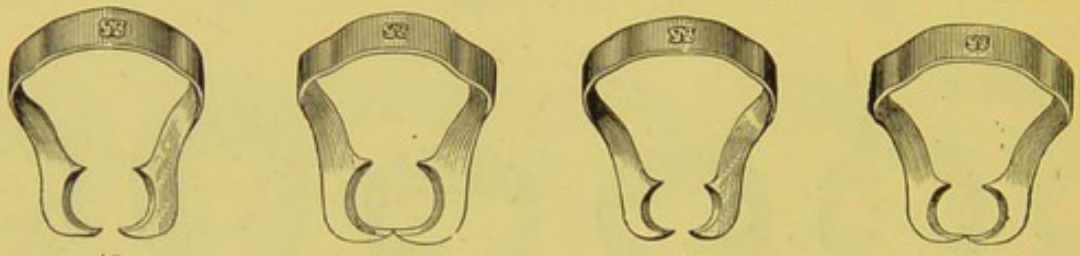
Figs. 34 to 37.—For teeth which require one side to be smaller than the other.

RUBBER-DAM CLAMPS.

(AMERICAN FORMS.)



38. 39. 40. 41. 42.



43. 44. 45. 46.

Each 1/8.

47. 48. 49. 50. 51.

Each 1/8.

52. 53. 54. 55. 56.

Each 1/8.

57. 58. 59. 60.

Each 1/8.

61. 62. 63. 64. 65. 66.

Each 2/6.

RUBBER-DAM CLAMPS.

(AMERICAN FORMS.)

Description.

Figs. 38 to 46.—**"Reach-Arounds."**—Designed for isolated teeth, or wherever the dam requires to be held down between teeth in a space caused by removal. On wisdom teeth they may be used with the hoop placed forward to compress the dam behind the tooth, in addition to retaining it as a Clamp. Figs. 43 and 45 are also serviceable on bicuspids and incisors for holding the dam out of the way of the Operator, their long back-set favouring this application.

Figs. 47 to 50.—**Dr. John W. Holt's.**—When labial cavities are low down upon the neck of a tooth, it is very difficult to carry the rubber-dam below the cavity and retain it there. These Clamps can be applied without pain, because there is usually a clear spot below the cavity on which the single point can be put, and the Clamp is steadied by the prongs, or two points, of the inner end.

Fig. 51.—**Dr. J. W. Lyder's.**—Of the general shape of Tees' Festooned and Evans' Beaked Molar, differing from the latter only in having beaks on both flanges.

Figs. 52 to 59.—**Dr. H. C. Longnecker's.**—The forms are such that the dam may be put over the teeth and low down on the necks with certainty and ease, and because of the recurvature of the flanges they will not hurt the festoons of the gums, and will yet retain position firmly under hard pressure. Figs. 52 to 56, with straight hoops, must often be unavailable for the tooth to be operated on, but, by reason of the small "open" required, may be placed on back teeth, and also on the tooth in front. Dr. Longnecker claims for them peculiar usefulness in approximal fillings, in that they permit the finishing of the filling, with dam and Clamp on, more nearly to completion than any other Clamp. Figs. 57, 58, 59, the same general shape of beaks as 52 to 56, but with back-set hoop.

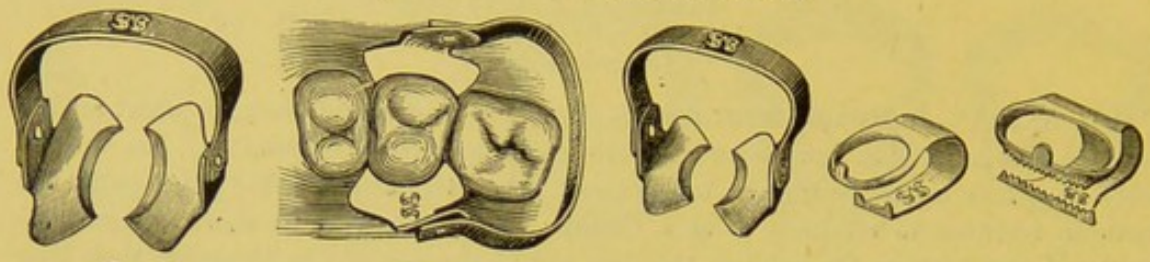
Fig. 60.—**Dr. A. P. Southwick's.**—To all the advantages of Dr. Huey's Dens Sap Clamp, Dr. Southwick has added in this Improved Clamp a recess for the forceps points, and so much back-set in the hoop as allows much freer access for filling than the straight band.

Figs. 61 to 64.—**Dr. E. C. Moore's.**—Dr. Moore says of these that they will get down, and stay firmly as placed, better than any other Clamp he has tried or made. The cuts show their neatness, and how they must be less obstructive than other Clamps; but their closeness of adaptation and perfect smoothness, which, with their great stiffness, permit rigid maintenance in place with very little pain and no injury to the tooth, will be known fully only to those who use them.

Figs. 65, 66.—**Dr. W. St. George Elliott's.**—Designed for molars. After inserting the four studs on the beaks of the forceps through the perforations in the Clamp, the rubber-dam is to be strained over the studs under the Clamp. The Clamp is then adjusted upon the neck of the tooth, and the forceps disengaged, when the rubber will slip under the Clamp up to the neck of the tooth. It will, however, usually lodge on the crowns of adjacent teeth, until the Operator, by a slight stretching motion of the rubber across the mouth, causes it to slip between them.

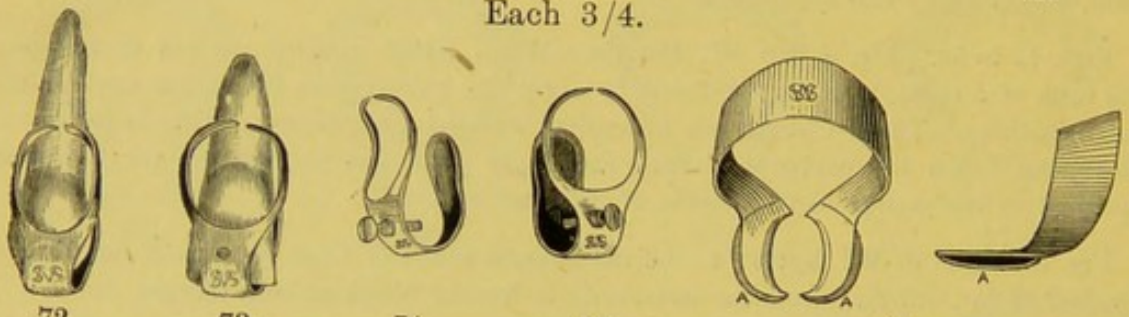
RUBBER-DAM CLAMPS.

(AMERICAN AND ENGLISH FORMS.)



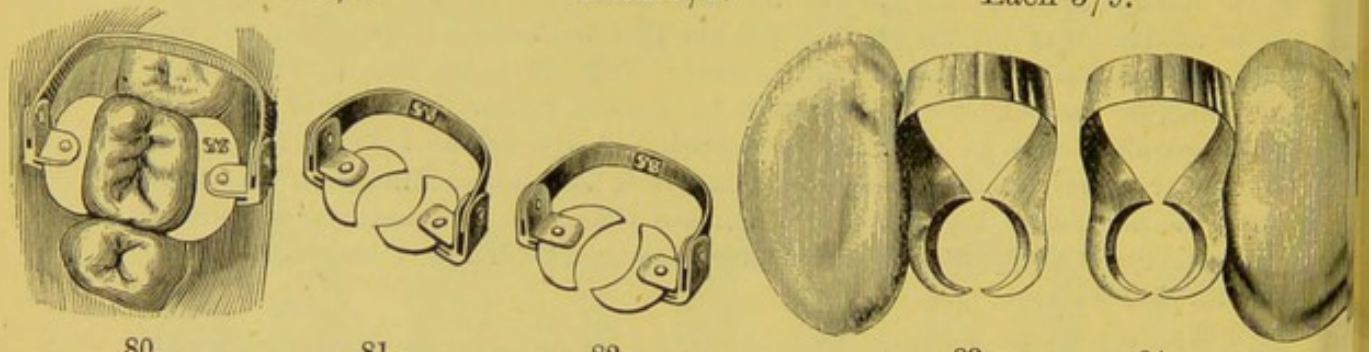
67. 68. 69. 70. 71.

Each 3/4.



72. 73. 74. 75. 76.

Each 3/4. Each 4/2. Each 3/9.



80. 81. 82. 83. 84.

Each 8/4. Each 3/6.

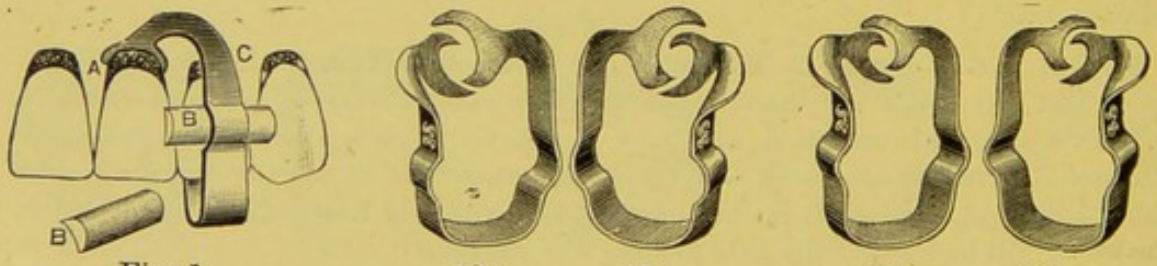


Fig. 1. 120. 121. 122. 123.

Each 2/1.

Not Illustrated:

		s.	d.
No. 124, Johnson's Lever Clamp	each	4	2
„ 125, How's Cervix Clamp	„	4	2
„ 126–129, Ottolengui's Root Clamps	„	6	3
„ 130, How's Screw Cervix Clamp	„	9	4

RUBBER-DAM CLAMPS.

(AMERICAN AND ENGLISH FORMS.)

Description.

Figs. 67, 68, 69.—**Dr. W. E. Buckman's Plain Hinged Clamps.**—Designed to meet a want for a Clamp, the hoop of which can be turned down so as to permit of work at the tooth on which it is placed.

Figs. 70, 71.—**Dr. J. F. P. Hodson's.**—For labial or buccal gum cavities.

Figs. 72, 73, 74, 75.—**Dr. W. W. Evans'.**—These Clamps are designed for use in filling labial surfaces of incisors, cuspids, and bicuspids, when the cavity is close to or under the margin of the gum. They can be put on without the aid of forceps, as the peculiar shape of the beak adjusts it to the lingual surface of the tooth, and it has sufficient spring to retain its position in most cases. Made in two sizes, and with or without regulating screw. The office of the screw is to tighten the hold in cases where the Clamp does not fit securely.

Fig. 76.—**Dr. F. Hickman's.**—This Clamp is made with a double lip, forming a clear space for the rubber to be lodged in before applying to the tooth. When the rubber is punched it is to be put on the Clamp by stretching it over the lip and allowing it to fall into the recess. Then apply the Clamp and rubber, spreading both together; after which stretch the rubber out of the recess, or free space, and allow it to close on the neck of the tooth. This is especially adapted to teeth which are spurred and jagged, or broken down low on one side.

Figs. 80, 81, 82.—**Dr. L. Ynchausti's Hinged and Jointed Clamps.**—The beaks are set in the grooves of the joints and work independently of the hoop, which is also hinged in another groove of the joint.

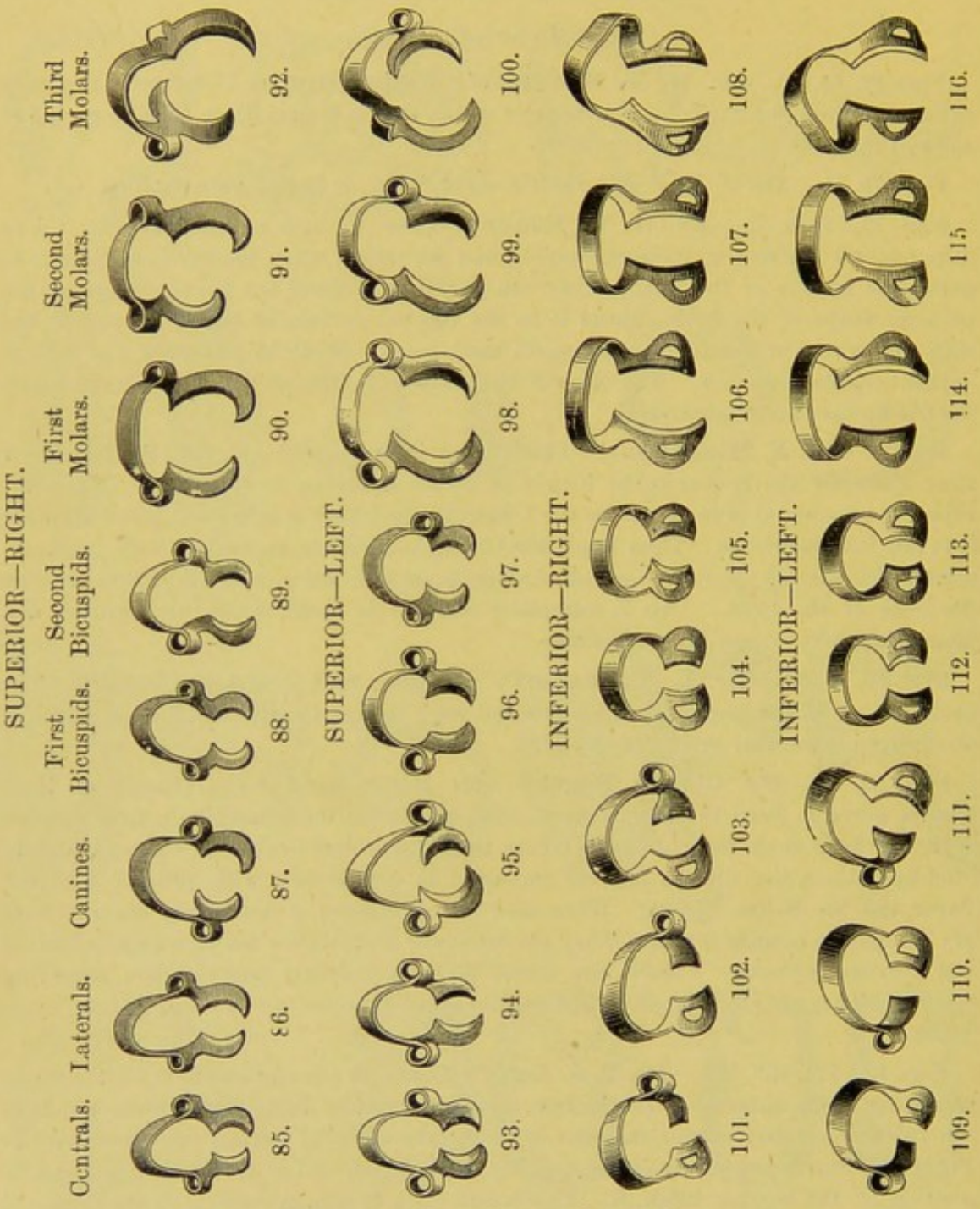
Figs. 83, 84.—**Mr. Claude Rogers'.**—Mr. Rogers says: "The Guards on these Clamps serve to keep the tongue away from the lower teeth, and help in a marked degree to keep them dry. In cases where the Rubber-dam cannot be endured, and in brief operations, the Clamps may be employed in conjunction with pads of Bibulous Paper and the Saliva Ejector. When used in this manner, a cavity may often be kept dry for half an hour or longer. They are especially suitable for the mouths of children and nervous patients. I have also found them exceedingly useful when preparing cavities. They are easily applied, and readily removed when one requires to wash out a cavity."

Figs. 120, 121, 122, 123.—**Dr. T. A. Long's Clamps** are applicable to all the upper and lower teeth anterior to the molars, and are specially designed to push and hold the rubber clear beyond the margins of such labio-cervical cavities as are shown in Fig. 1, wherein A is a cavity in the superior left central, and C is the Clamp fixed in position by the wooden block B. This is cut thick or thin, according as the Clamp is to be more or less propped outward to hold the clamp-jaw firmly beyond the cavity, and with the Clamp so placed free access is afforded for any operation, as is clearly shown by the illustration. The Clamps are rights and lefts, and of two sizes—the larger for centrals and cuspids, the smaller for laterals and bicuspids.

There are holes in the jaws of some of the above, for admitting the points of the Forceps.

AMERICAN RUBBER-DAM CLAMPS.

(Dr. DELOS PALMER'S SET OF THIRTY-TWO.)



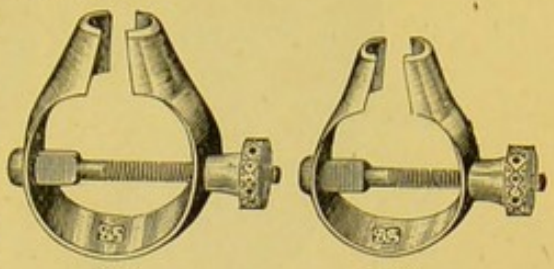
This set conveys its own description.

Prices :

		s.	d.
Clamps, Nickel-plated .. .. (Figs. 85-116)	each	2	6
The entire Set of Thirty-two, with a pair of Palmer's Nickel-plated Clamp Forceps, in neat card-board box, with Pin for holding each Clamp ..		96	0
The same, in Leather Case, with Satin and Velvet Lining		104	0
Clamp Forceps, Nickel-plated, separately	,,	10	0

ROOT CLAMPS.

(Dr. E. L. Hunter's.)



118. 119.

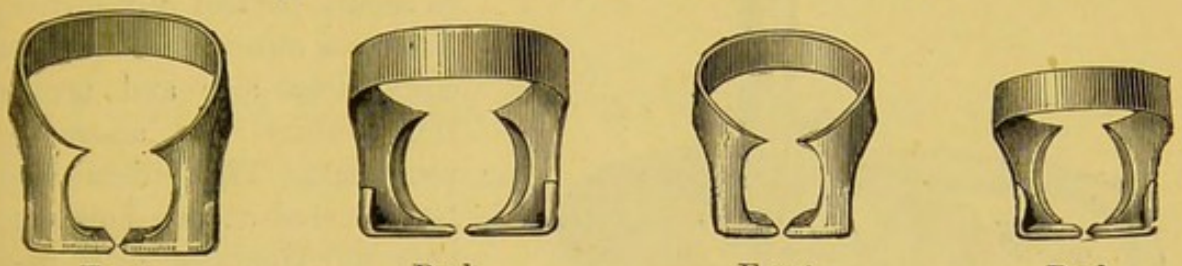
These Clamps will be found very useful in the application of the Rubber-dam to roots upon which porcelain crowns are to be fitted. After the thumb-screw has been adjusted so that the Clamp will slide over the root easily, the points are passed through the proper opening in a piece of *thin* Rubber-dam; then carried well under the gum and secured firmly to the root. The rubber is then placed over the adjoining teeth, and with a waxed silk ligature carried beyond the Clamp—the cone shape of which greatly facilitates the operation—and tied; after which the thumb-screw is loosened and the Clamp removed, leaving the dam in position.

	s.	d.
Price .. .. each	8	4

RUBBER-DAM CLAMPS WITH WEDGE JAWS.

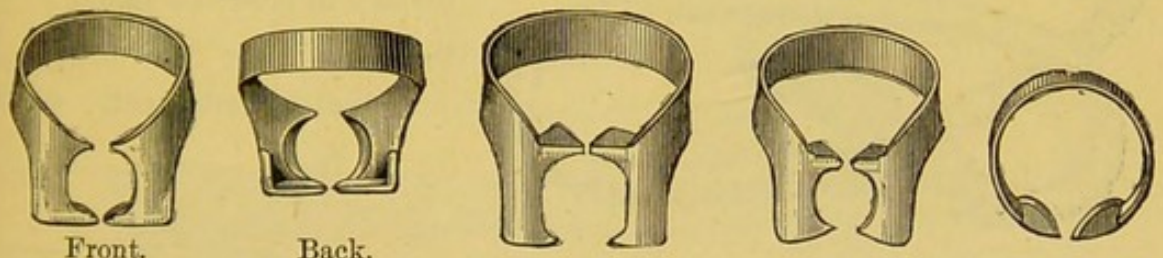
(Dr. Herbst's.)

A B



Front. Back. Front. Back.

C D E F



Front. Back.

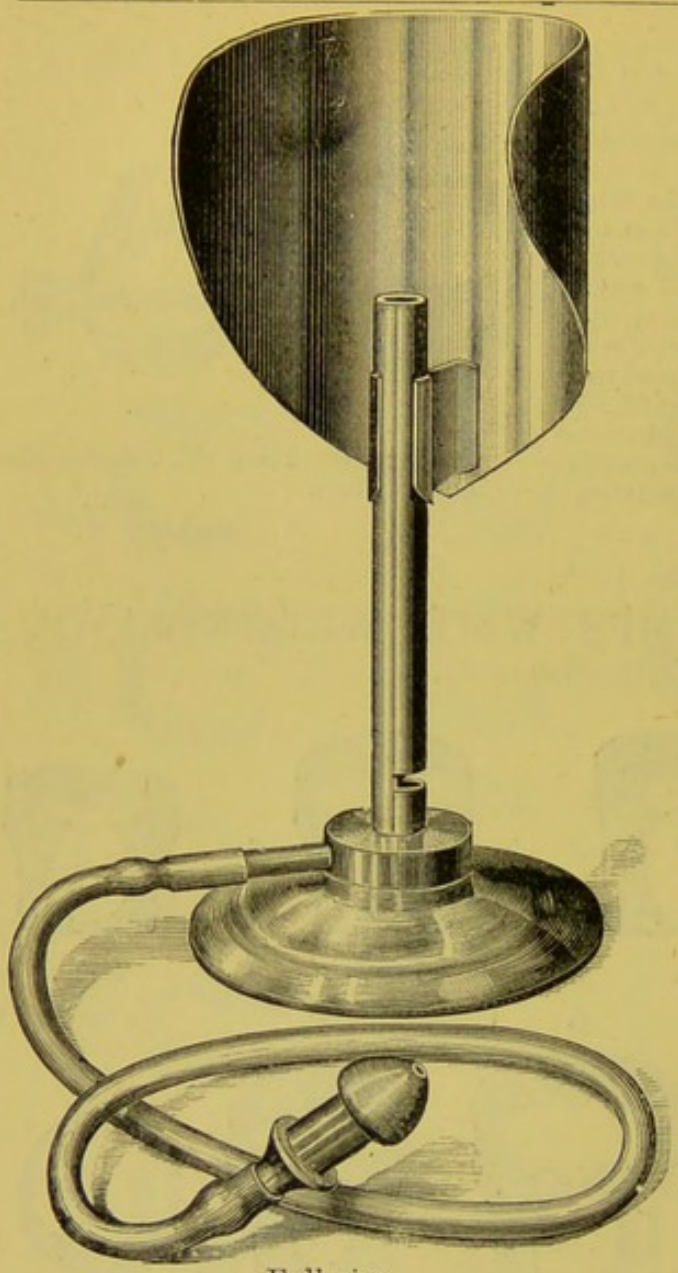
These Clamps are specially designed for use in cases where the teeth stand close together. There are holes in the jaws for admitting the points of the Forceps.

Fig. A is intended for Wisdom Teeth; B and D for Molars; C and E for Bicuspids; and F for general use when the Rubber-dam cannot be applied to the tooth under operation. In such cases the dam is placed over three or four teeth, and the Clamp is fixed on the most convenient. It can usually be so employed with facility, and sensitive patients find it much less disagreeable than the larger Clamps.

To apply Figs. A to E, proceed as follows:—Open the Clamp by means of the Forceps and place it over the tooth; then release it by removing the Forceps, and the wedge jaws will fit between the necks of the teeth. To make sure that the Clamp is properly adjusted, gently press it with the thumb and finger. The Rubber-dam may now be stretched over the Clamp and the tooth to which it is fixed and applied to the adjoining one or two teeth anterior to it.

If, when this is done, the cavity is not quite moisture-tight, it may be rendered completely so by easing the Clamp with the Forceps and letting the jaws grasp the Dam.

	s.	d.
Clamps, Nickel-plated .. .. (Figs. A–F) each	3	0



Full size.

ANNEALING LAMP.

(S. S. White's.)

This Lamp has been known to the Profession for many years. It is neat, simple, and effective. By means of the thumb-screw, shown in the engraving, the rod to which the annealing tray is attached can be fixed at any height that may be desired.

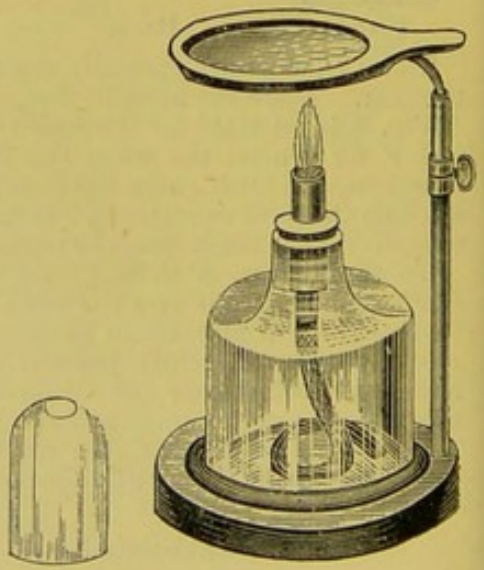
The base is made of ebonized wood, and the upright tube, rod and annealing tray of brass, Nickel-plated.

	s.	*d.*
Price complete, as illustrated	10	0

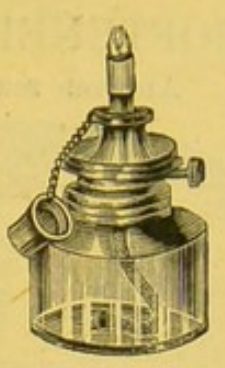
THE "MODEL" ANNEALING GAS BURNER.

This Burner is neat and small, occupying but little room on the bracket-table. The tubing, which rests upon the table or instrument stand, is made of the smallest size rubber-tubing, with an expanding-tip to connect with the large supply-tube from the gas-bracket. The Burner is so constructed as to secure perfect combustion, giving a clear blue flame, of convenient size and proper temperature for annealing purposes. The shield may be adjusted at any height to suit the Operator, or it may be lowered so as to completely expose the flame.

Price:	*s.*	*d.*
Nickel-plated, each	4	0



BRACKET LAMPS.



OUTSIDE MEASUREMENT OF GLASS PART.

	High.		Diameter.
Deep ..	1¾	by	2½ inches.
Shallow	1	by	2½ „

For general use in the Operating Room. In two sizes, deep and shallow. Made of flint glass with Nickel-plated mountings.

		s.	d.
Price, either size with Shield	each	2	9
„ „ without shield	„	1	9
Separately:—Glass vessels only, deep or shallow, for renewing broken lamps	„	0	8
Wicks for ditto	per doz.	0	3

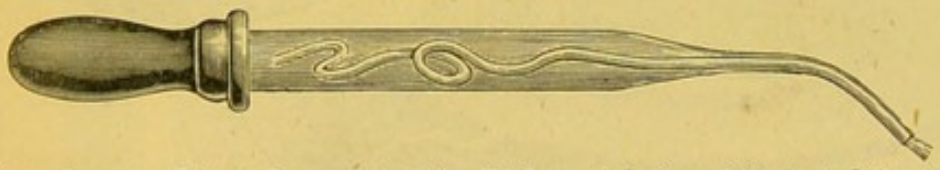
FLAT SPIRIT LAMP WITH SCREW CAP,

SUITABLE FOR VISITING CASE AND FOR HOSPITAL STUDENTS.

	s.	d.
In stout metal, Nickel-plated	3	0

SIMPLE FLASH LAMP.

(Introduced by Mr. D. V. BEACOCK, of Brockville, Canada.)



Mr. Beacock says: I have been using the little article here illustrated for some time with great satisfaction. I use it for setting crowns, removing crowns that have been set with gutta-percha, and drying the old gold in fillings that require new gold adding. It can be used for many purposes in the mouth, where a small flame can be flashed upon any tooth.

To replenish the lamp, slip off the little rubber bulb, put a small quantity of alcohol in the tube, and replace the bulb.

In use care should be taken not to press the bulb too hard, as this would cause the alcohol to be forced out past the flame, and take fire, running down the outside of the tube.

By placing the tube in a small tumbler or glass, bulb downwards, it is always ready to light, and will burn for some time without requiring further care. The wick should be kept projecting just beyond the end of the tube for lighting.

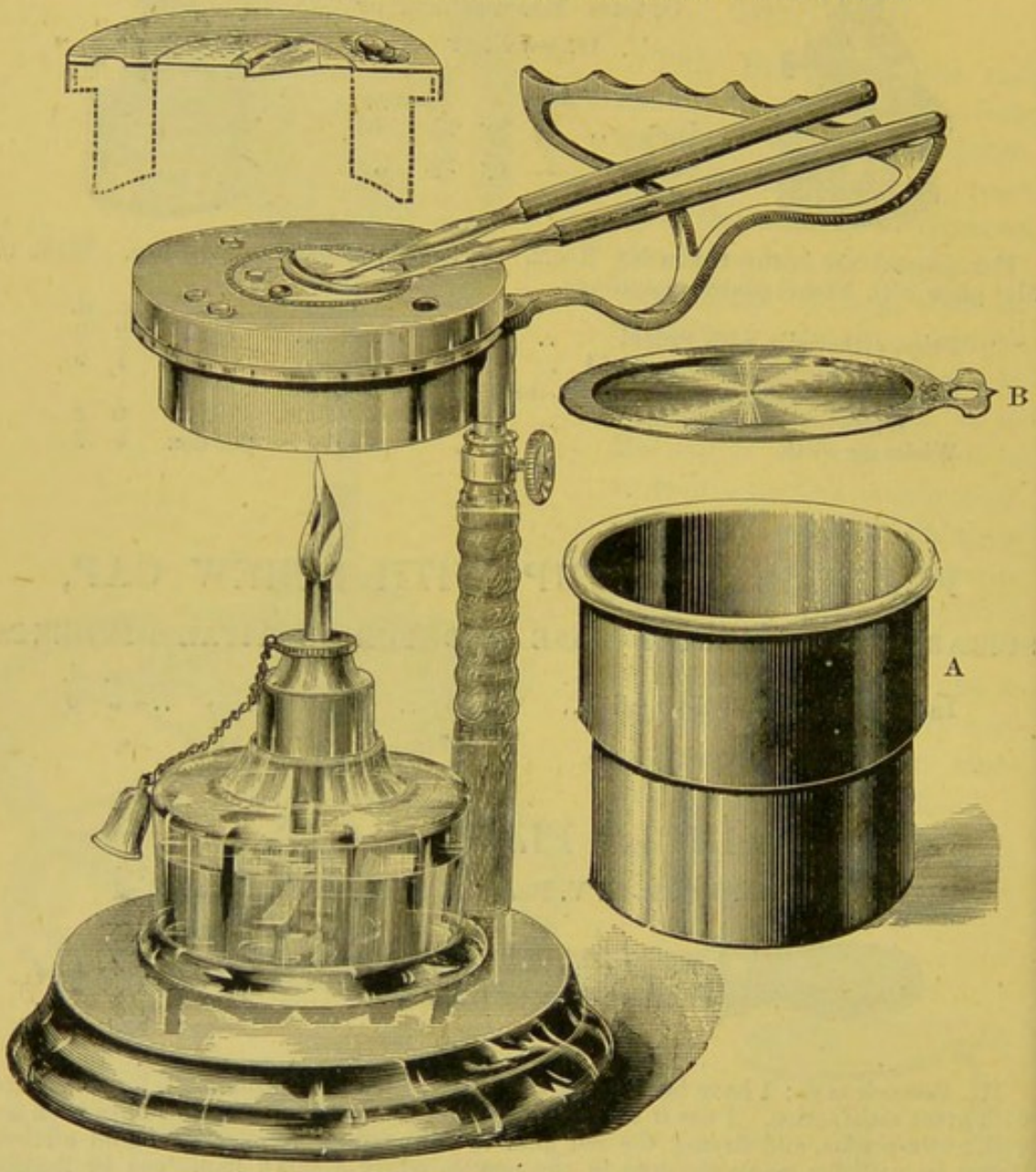
It is clean, neat, handy, and always ready for use.

	s.	d.
Price	0	6

FLAGG'S GUTTA-PERCHA

SOFTENER AND INSTRUMENT WARMER.

ADAPTED FOR BOTH DRY-HEAT AND MOIST-HEAT GUTTA-PERCHA.



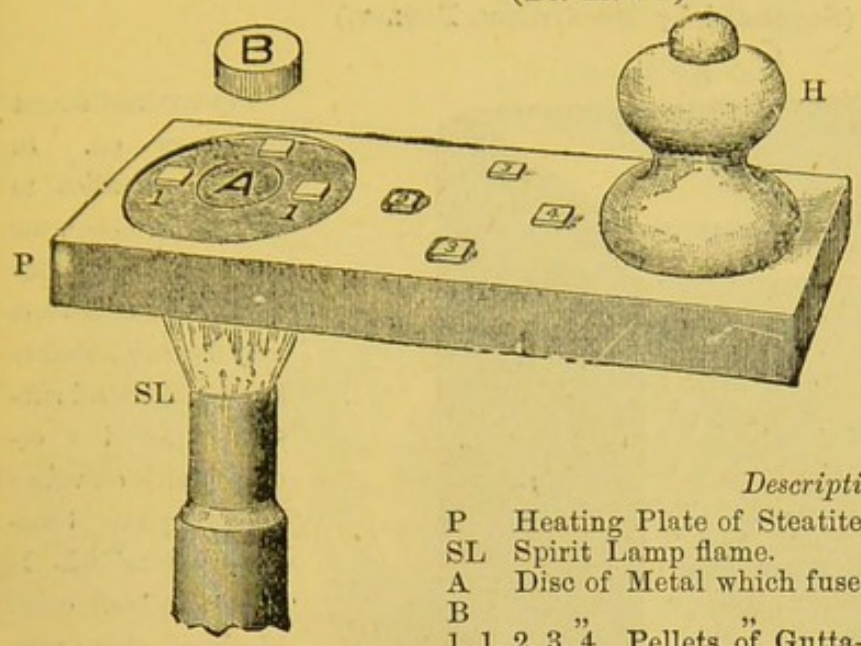
This useful office appliance will do practically all its name indicates. The skeleton cut above the lamp showes the section of the vessel, having a hollow centre, surrounded by a water-holder. By this ingenious arrangement the flame heats the centre-plate and the water-holder, giving both dry and moist heat.

There are two additional attachments, as shown in side-cuts. A boiler, made seamless, of hard metal, nickel-plated, holding about a half-pint, intended for keeping a small supply of tepid water ready for use; and a plain-top, nickel-plated annealing tray for gold foils; this tray can be attached to the upright, or simply laid on the ring.

		s.	d.
Price, with Nickel-plated Base		20	0
Additional Parts:	Boiler A, Nickel-plated	4	0
	Annealing Tray B, ditto	2	0
	Apparatus complete	26	0

GUTTA-PERCHA HEATER.

(Dr. How's.)



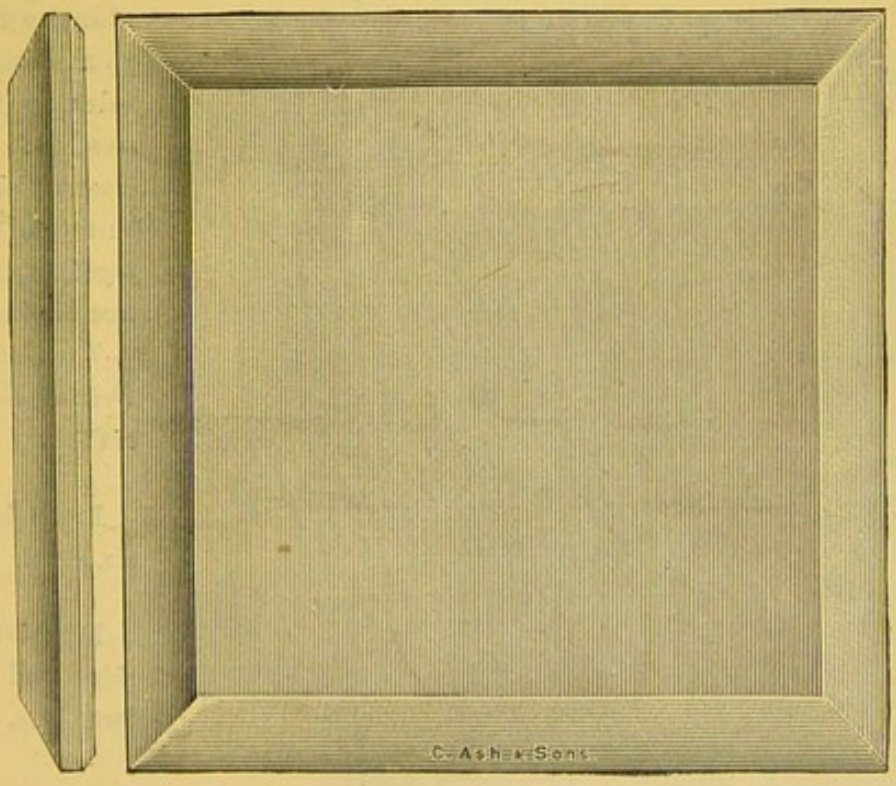
This Appliance is very useful for softening Gutta-Percha at various temperatures.

Description.

P Heating Plate of Steatite with wooden handle H.
SL Spirit Lamp flame.
A Disc of Metal which fuses at about 212° Fahr.
B " " " 230° "
1, 1, 2, 3, 4 Pellets of Gutta-Percha.

	s.	d.
Price of Heater, with directions for use	2	1

GLASS MIXING SLAB.



	s.	d.
Flat Glass Slab, with ground surface 4 by $3\frac{3}{4}$ inches, with bevelled edges	1	0

GLASS CUBES.

(Suggested by Mr. GEORGE PEDLEY.)

Fig. 1.

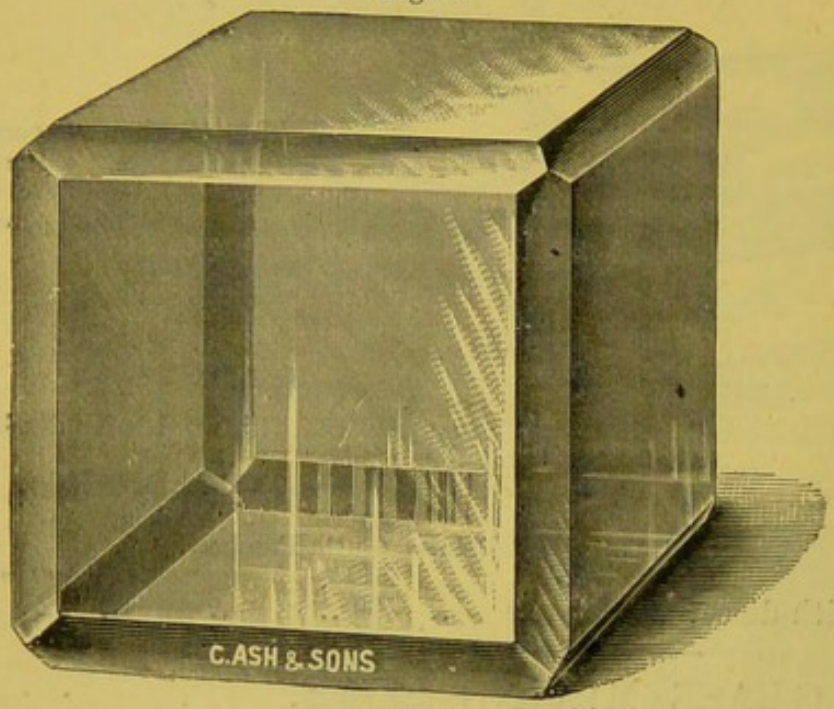
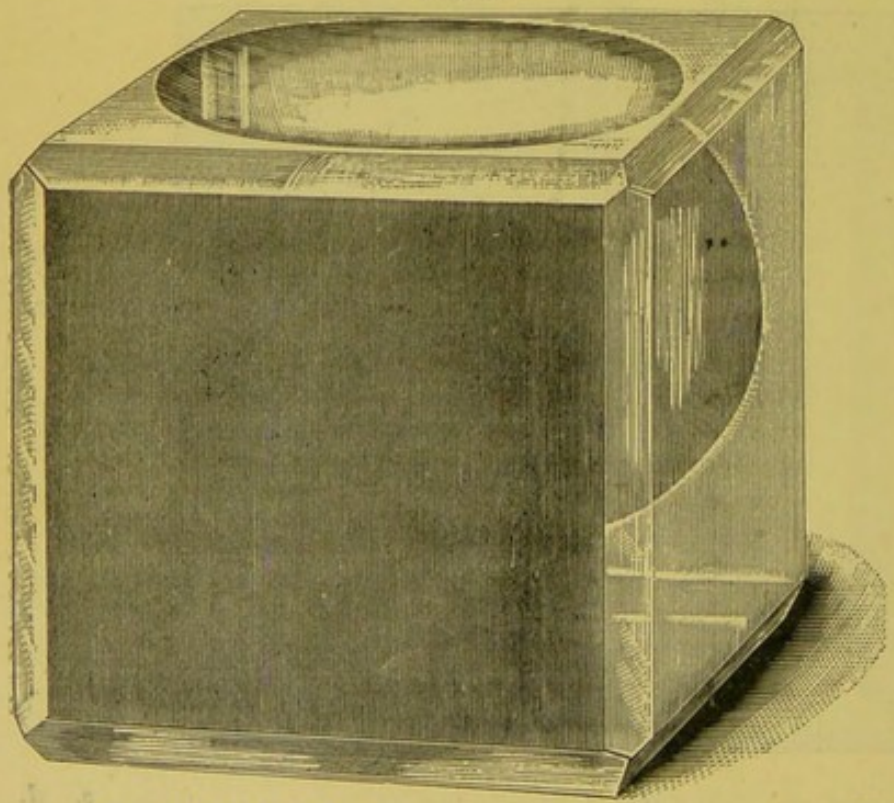


Fig. 2.



For mixing Cement Stoppings on. In calling attention to their usefulness, some years ago, Mr. Pedley said: "Your readers may be interested to know of a useful substitute for the ordinary slab on which Oxyphosphate Stoppings are mixed. It is a two-inch cubic block of glass, with bevelled edges, usually sold as a letter weight. Its advantages are obvious—always a firm grip on your block and six sides for mixing instead of two. To clean quickly, rub the surface of two blocks together, using a little fine sand and water." —*The Journal of the British Dental Association.*

Fig. 1 is flat on all six sides.

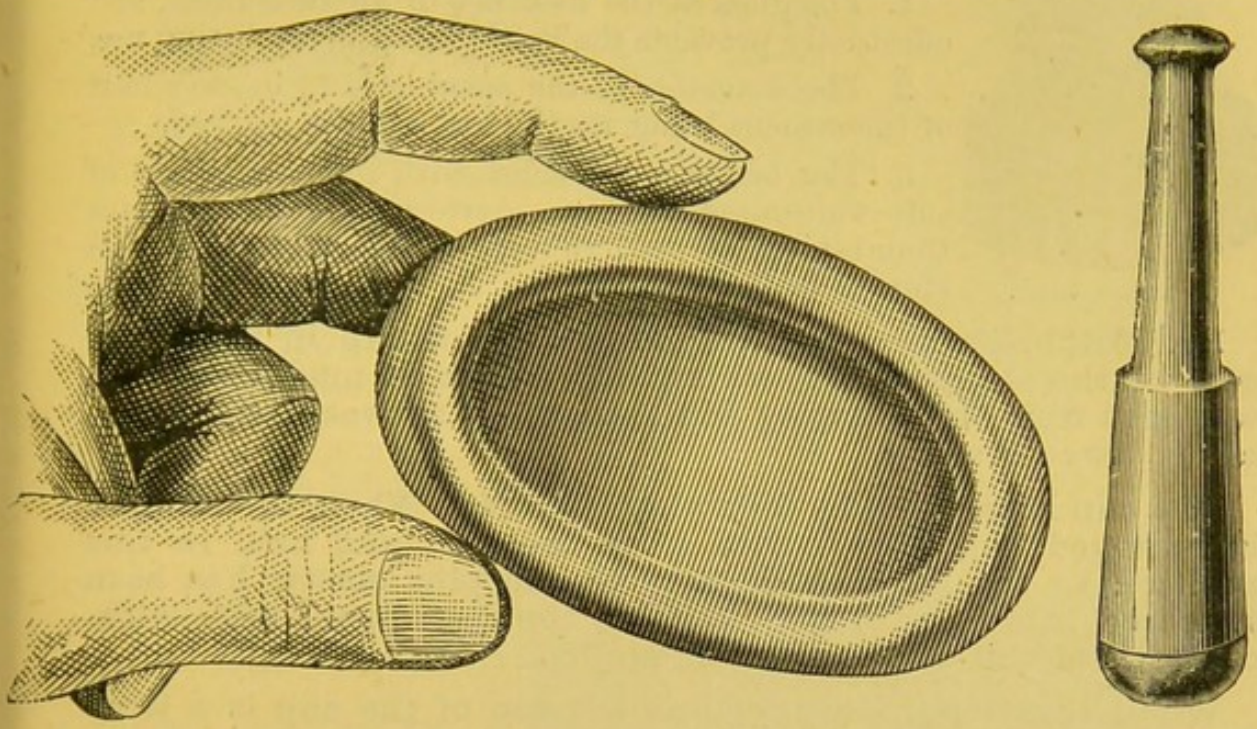
Fig 2 is flat on four sides and hollow on two sides.

			s.	d.
Two-inch Glass Cubes	(Fig. 1)	each	1	0
Two-and-a-half-inch Cubes, ground on three sides ..	(„ 1)	„	2	6
„ „ „ „ „ „ ..	(„ 2)	„	3	0

RUBBER PESTLE AND MORTAR,

FOR AMALGAM MIXING.

(Dr. Genese's.)



The amalgamation of metals is increased by friction, therefore any extra force that can be brought to bear upon the surface of the metal desired to be amalgamated ensures the thorough incorporation of the several particles with the least amount of mercury possible, giving a compact mass with solid edges, equal to a gold filling, and far more reliable than an imperfectly condensed gold plug.

This desirable result can be obtained by using the Rubber Pestle and Mortar for mixing Amalgam.

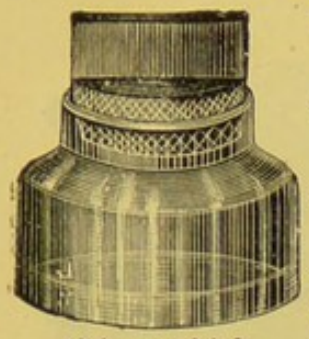
They are made from the purest material, allowing the Amalgam to be washed in the Mortar, with either pure Hydrochloric Acid, diluted Sulphuric Acid, or pure Alcohol.

The Pestle has a rough wedgewood slip inside to give it the desired stiffness, but the mixing part, either large or small end, is left plastic to cause the greatest friction upon the metal used.

	s.	*d.*
Price of Mortar	1	6
„ Pestle	0	10

HOCKLEY'S MASTIC BOTTLE,

WITH IMPROVED STOPPER suggested by Dr. W. MITCHELL.



1½ inches high.

This little bottle possesses the following advantages:

1. The glass at the base is ⅜ of an inch thick, and effectually prevents the bottle being upset during use.

2. The diameter of the opening is 1¼ in., to admit of the cement being readily and rapidly reached.

3. The bottle is provided with a stopper made of soft vulcanized rubber. Across the top there is a thumb-piece of hard rubber, by means of which the stopper is easily removed.

Dr. Mitchell's improvement consists of a cup in the lower part of the stopper into which any excess of mastic can be squeezed from the dressing while it is held between the points of the tweezers.

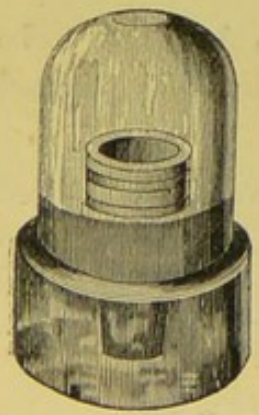
The cup is used in the following manner: When the stopper is removed from the bottle it is inverted and held in this position in the hand, and, after the surplus mastic has been squeezed into it, it may be laid on the instrument table without fear of the contents being spilled.

When the stopper is replaced the top of the cup is a little below the neck of the bottle, and consequently the cement drops vertically from it without smearing or touching the neck and sides.

		s.	d.
Mastic Bottle (Mr. Hockley's) with Improved Stopper ..	each	2	0
Improved Stoppers for Bottles now in use	„	1	3
Mastic Cement, thick, for temporary stoppings ..	per bottle	0	6
„ „ thin, for fixing teeth, &c.	„	0	9

CEMENT BOTTLE.

(Mr. ROWNEY'S.)



3 inches high.

For holding Mastic and other Cements. Provided with glass cover to prevent evaporation. The glass plunger, shown in the illustration, is placed in the bottle after it has been partially filled, and forces the cement up the inside of the tube. This renders it easy of access, and keeps it away from the neck of the bottle, which should always be kept clean outside, or the cover will become fixed, and difficult to remove.

		s.	d.
In Glass	each	2	9

GLASS BOTTLES,

FOR THE OPERATING ROOM.

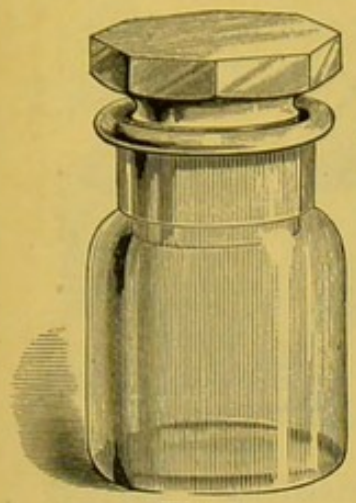


Fig. 1.

These bottles, which are illustrated full size, are made of the purest white glass, with cut-glass ground stoppers. They are supplied with labels, small enough to be pasted on the top of the stoppers, printed for the preparations mentioned below, or with plain labels, on which the Operator can write other names.

In ordering, please state which of the labels are required.

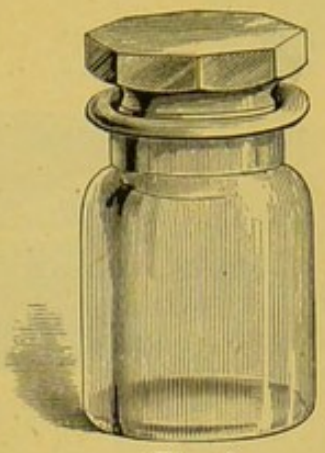


Fig. 2.

			s.	d.
Bottles, with Labels for Stoppers	..	(Figs. 1, 2) per doz.	8	0

CASE

WITH

GLASS BOTTLES.

Mahogany Box containing six bottles the size of Fig. 1 shown above. In ordering, please state which of the following labels are wanted :

Aconite. Arsenic. Aconite and Iodine. Carbolic Acid. Chloroform. Creasote. Eucalyptus. Eugenol Iodine. Iodoform. Iodol. Mastic. Oil of Cloves. Peroxide of Hydrogen. Sulphate of Copper. Tincture of Opium.

Cases to Dentists' own designs made to order.

	s.	d.
Price complete as illustrated	7	6
Mahogany Box, containing 12 bottles	14	0

PESTLES AND MORTARS.

Fig. 1.

Fig. 2.

			s.	d.
In Wedgwood ware, $3\frac{1}{4}$ in. diameter	(Fig. 1)	each	2	0
„ „ $2\frac{1}{2}$ „	(„ 1)	„	1	8
„ „ 2 „	(„ 1)	„	1	4
In Porcelain (Mr. Fletcher's), $1\frac{1}{4}$ in. diameter	(„ 2)	„	0	9
In Glass, ground inside (Mr. Fletcher's), $1\frac{3}{4}$ in. diameter		„	1	6
„ „ same form „ „ ..		„	1	0
In Agate, various sizes, obtained to order		each from	6	6

DROP BOTTLE.

(Suggested by Mr. R. Denison Pedley.)

"Such bottles as the one here illustrated," says Mr. Pedley, "are to be found in the Ophthalmic Departments of all Hospitals. They were first introduced by Mr. Leibreich, of St. Thomas's Hospital, for dropping fluids into the eye.

For years we have found them useful for Carbolic Acid, Creasote, Chloroform, Sind Benzoin, or any other fluid constantly required. When one hand only is free, there is no stopper or cork to remove or to replace.

The bottles should be only half filled, and, when turned upside down, the warmth of the hand expands the air inside, and a drop or two, as required, is driven down the glass tube."

		s.	d.		s.	d.
Price	per doz.	2	6 ;	each	0	3

MERCURY BOTTLE.

$2\frac{3}{4}$ inches high.

MERCURY BOTTLES.

	s.	d.
In Ivory, with cap, to hold 1 oz. each	4	6
In Boxwood ,, ,, ,,	1	0
,, without cap, ,, ,,	0	6

DROP BOTTLE.

3 inches high.

DROP BOTTLES,

For holding the liquid of Oxychloride Cements.

	s.	d.
In Glass, as illustrated .. each	1	0

MERCURY BOTTLE WITH DROP TUBE.

(Dr. MANNHARDT'S.)

Half-size.

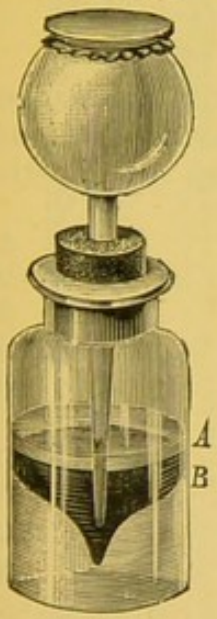


Fig. 1.

The advantages claimed for this mercury bottle with drop tube are cleanliness, practical storing, saving, and easy working of the mercury.

After the bottle has been about half filled with mercury, the upper portion is filled up with a mixture of three-parts distilled water and one-part glycerine. Beneath this fluid the mercury is kept clean and pure for a long time.

The weight of the mercury added to the heavy base of the bottle causes the latter to stand firm; and the tapering floor inside, shown in the illustration (Fig. 1), makes it possible to use up the whole of the mercury.

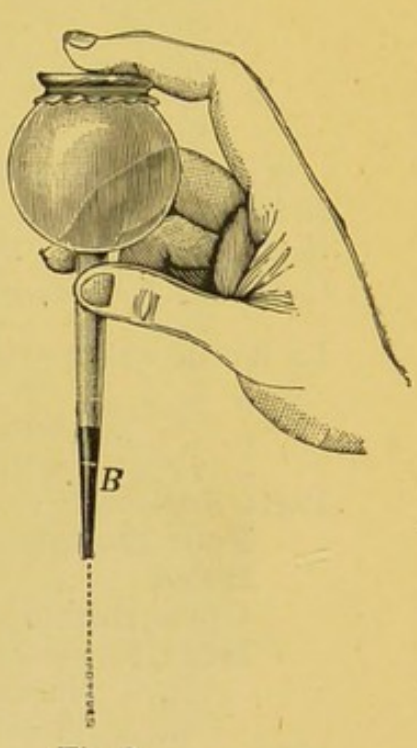


Fig. 2.

Directions for Use.

Press the rubber capping on the top of the drop tube with some force, and on removing the finger the mercury will be drawn up the tube.

Then remove the drop tube from the bottle, and force the mercury from the tube by slightly pressing upon the rubber capping with the finger, as shown in Fig. 2.

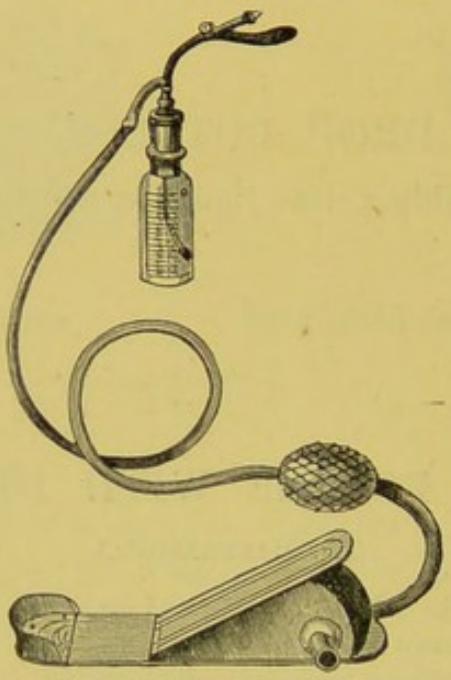
	s.	d.
Price complete, as illustrated .. .. (Fig. 1)	2	0

LOCAL ANÆSTHETICS.

ETHER APPARATUS,

FOR PRODUCING LOCAL ANÆSTHESIA.

(Sir B. W. Richardson's.)



Ether Apparatus, consisting of a graduated Glass Bottle, with tube to insert in same, straight, curved, and double Jets, for various positions in the mouth, a Tongue or Cheek Holder (Mr. Welsh's), an Elastic Connecting Tube, and Foot Bellows.

		s.	d.
In Wooden Box with Instructions	each	34	0
" " " with Hand Bellows ..	"	26	0
" " with Foot Bellows and no Tongue Holder	"	30	0
" " with Hand " " "	"	21	0
Parts Separately:			
Foot Bellows only	"	15	0
Hand " "	"	5	0
Glass Bottle, for Ether, Graduated, in Leather Case	"	2	6
Nozzles, straight	"	1	6
" curved	"	2	6
" double	"	4	0
Ether, Compound, in Bottles	4 oz.	2	0
" " "	10 "	4	0
" " "	20 "	7	0
" " in Tin Cases, for export	10 "	4	6
" " " "	20 "	7	7

N.B.—Compound Ether is not suitable for inhalation.

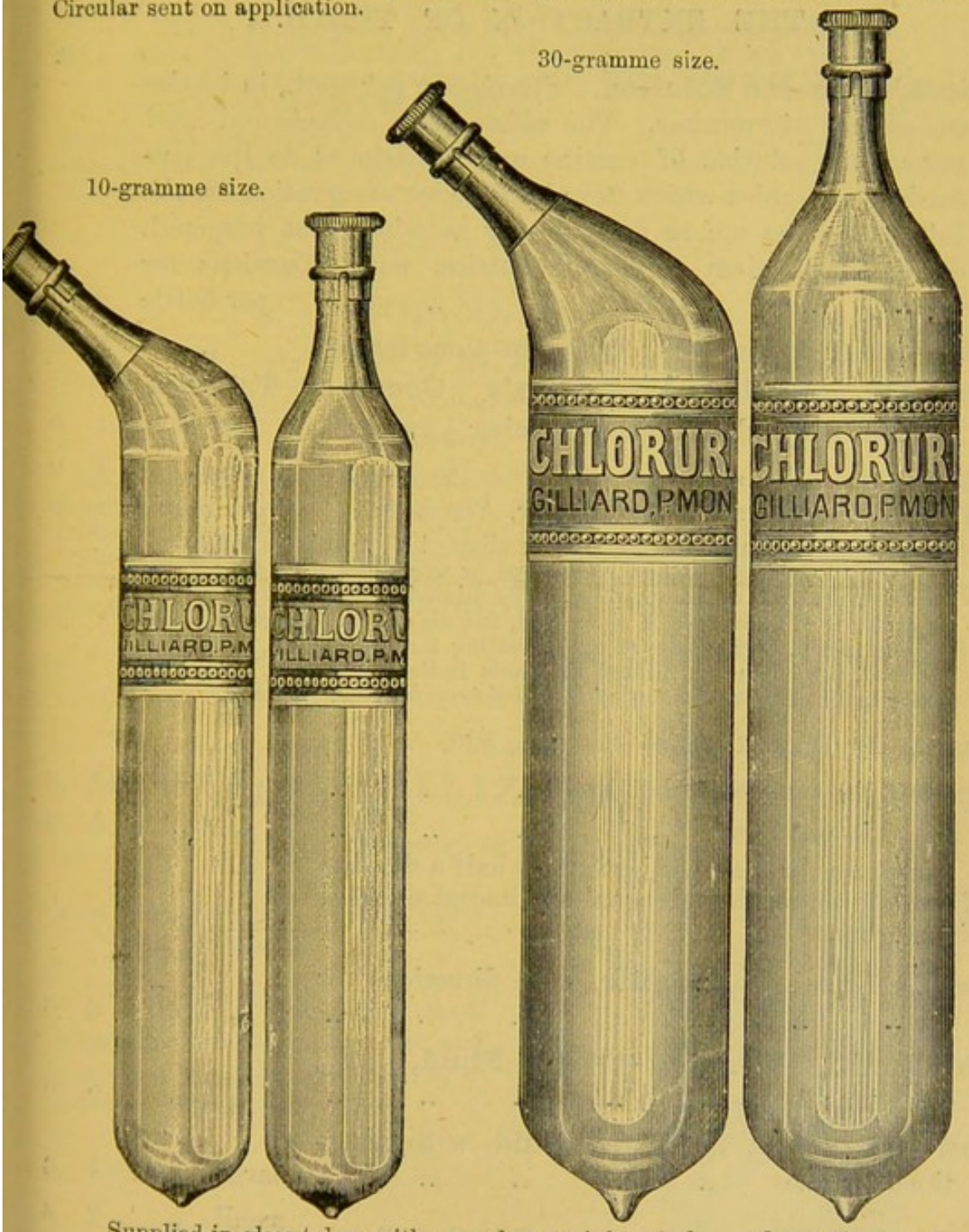
PURE CHLORIDE OF ETHYL.

(Gilliard, P. Monnet, and Cartier's.)

A most reliable local anæsthetic for dental extractions and operations in minor surgery. It is very extensively used and is giving satisfaction to thousands of operators. Circular sent on application.

30-gramme size.

10-gramme size.



Supplied in glass tubes, with curved or straight nozzles, and metallic caps.

		s.	d.
In boxes containing 10 tubes, 10-gramme size	per box	11	8
Single tubes	per tube	1	6
In boxes containing 3 tubes, 30-gramme size	per box	8	0
Single tubes	per tube	3	3

LOCAL ANÆSTHETICS

AND

PREPARATIONS FOR ANNULLING PAIN DURING THE EXTRACTION OF TEETH.

		s.	d.
Baldock's Cocaine Solution. Strength 5 per cent., in bottles containing 240 minims. The safest, most reliable and most permanent solution of cocaine ever introduced to the profession. Samples which have been under observation for the last five years are as good to-day as when first prepared. Supplied in glass-stoppered bottles, with directions for use	per bottle	4	0
Barr's Local Anæsthetic, with directions for use	„	5	0
Burroughs, Wellcome & Co.'s Cocaine Tabloids. In tubes of one doz., each containing $\frac{1}{6}$ grain ..	per tube	1	0
„ „ „ $\frac{1}{2}$ „ ..	„	1	0
Cannabis Indica, suggested by Mr. Aaronson ..	per bottle	1	0

Mr. Aaranson says: "The plan adopted by me is to dilute the tincture of Cannabis Indica some three or five times, according to the probable duration of the operation. The diluted tincture is then applied in cotton wool to cavities, if such exist, and also about the gums of the affected teeth. The beaks of my extracting forceps are also, after being warmed, dipped in the diluted Cannabis Indica."—See Mr. Aaronson's letter in *The British Journal of Dental Science* for Nov. 1st, 1884.

Cocaine Hydrochlorate—*See* page 320.

Dorsenia, in two-ounce bottles	per bottle	12	6
„ in one-ounce „	„ „	6	3

Directions for Use.—Inject about half a drachm of the solution on both lingual and buccal surfaces of the gum.

Marsh's Local Anæsthetic, with directions for use	„ „	3	6
Robertson's Nepenthe-Calor Fluid, with directions for use	„ „	6	0
Scott's Improved Calorific Fluid, with directions for use	large „	4	6
„ „ „ „ „	small „	2	6
Snape's Calorific Fluid, with directions for use	large „	7	6
„ „ „ „ „	small „	4	0

Wyleys' Cocaine Pellets—*See* page 320.

NERVE-DESTROYING AGENTS.

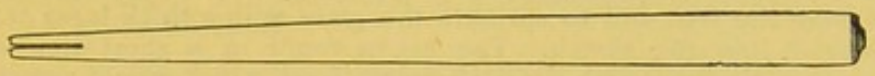
		s.	d.
Arsenic Powders, $\frac{1}{16}$ grain each	per doz.	0	9
Arsenious Paste	per bot.	2	0
Azotine (Rowney's)	„	5	0
Baldock's Improved Nerve-destroying Paste	„	5	0

This is now prepared in the form of a soft inseparable paste, which renders it extremely easy of application. It has been more extensively used during the last seventeen years than any other known devitalizing preparation.

Creasote and Arsenic (S. S. White's)	„	2	0
Devitalizing Nerve Fibre „	„	3	0
Horne's Nervine	„	5	0

IODINE DRESSER.

(Introduced by Mr. J. Dennant, of Brighton.)



Mr. Dennant says:—It is used with cotton-wool twisted in the slot, instead of a pencil brush. A brush is easily bent, and the lips stained, when patients apply the medicament to their gums. My patients appreciate its utility. Most operators would, I fancy, prefer to use this or some such contrivance, instead of staining their instruments. It will be obvious that only a small quantity of wool is necessary. Patients should be told to dip the holder in water after use and dislodge the wool.

		s.	d.
Made of Black Vulcanite	per dozen	2	0

STERILIZING VASE.

(Suggested by Mr. J. Dennant.)

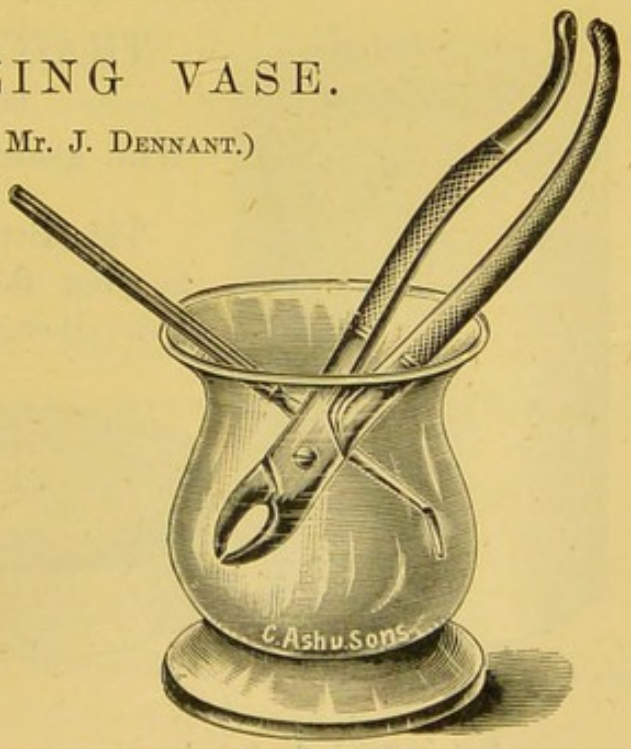
FOR USE IN THE OPERATING ROOM.

It is made of clear, white, thick glass, which will not easily break, and has a base $3\frac{3}{8}$ inches in diameter, to prevent its being readily upset.

	s.	d.
Price	1	0

Supplied also in claret-coloured glass.

	s.	d.
Price	1	6



4 inches high.

TRAGACANTH, GUM

(Suggested by Mr. D. HEPBURN),

FOR SECURING THE ADHESION OF SUCTION PLATES.

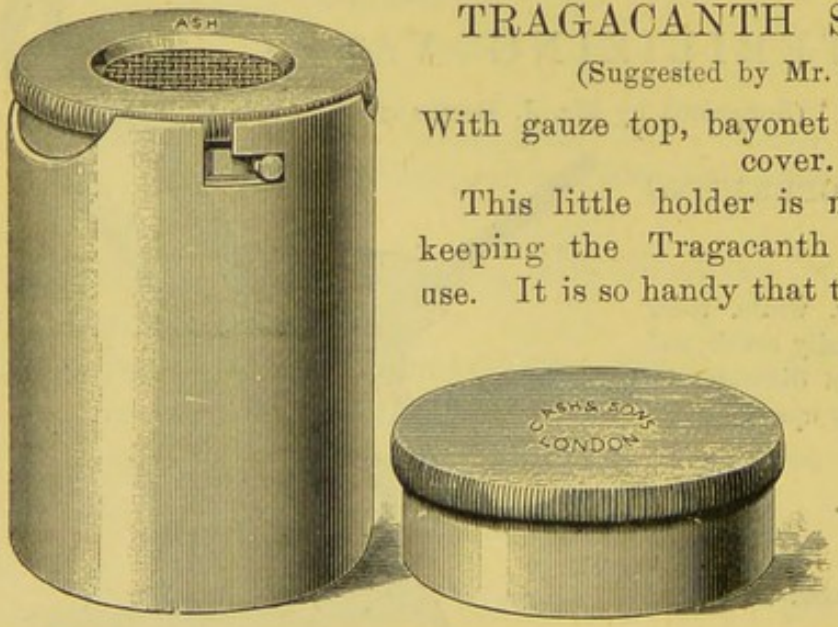
At the annual general meeting of the Odontological Society of Great Britain, held January 11, 1886, Mr. D. Hepburn called attention to the following plan for improving the adhesion of suction plates:—

"All must have experienced the difficulty which was not unfrequently met with in establishing the confidence of patients in suction plates, especially when first applied. Even with the most perfect model, the most accurately-adjusted arrangement will often, at the first offset, show no tendency whatever to adhere to the gum, and the patient may have to undergo many days of discomfort before adhesion is established. . . . For about a year he had employed powdered Gum Tragacanth with the most satisfactory results. Indeed, the most refractory plates, when this substance was used, would adhere with a certain amount of tenacity, and frequently could not be dislodged without a considerable effort."

"The best method of application was to keep the powder in a bottle with a piece of muslin tied over the top, and to sprinkle the plate with a thick layer of the powder before putting it into the mouth. The saliva would in a short time convert the Tragacanth into a glutinous and almost tasteless layer which would remain for days. In obstinate cases the patients could themselves apply the powder daily, and would find much comfort from so doing."

Gum Tragacanth, best white, powdered—

		s.	d.
Supplied in ¼ lb. packets	per pkt.	1	9
„ „ „	„ lb.	6	0



TRAGACANTH SPRINKLER.

(Suggested by Mr. J. ACKERY.)

With gauze top, bayonet joint, and air-tight cover.

This little holder is most convenient for keeping the Tragacanth Powder ready for use. It is so handy that the act of sprinkling the plate with a thick layer of the powder before putting it into the mouth, as recommended above, only occupies a few moments.

	s.	d.
Price, Nickel-plated	3	0

PREPARATIONS for the OPERATING ROOM.

COMPOUND CAPSICUM PLASTERS,

FOR DENTAL USE.

Prepared from the Formula of Mr. J. Leon Williams, D.D.S., L.D.S.

"The following advantages are claimed for the Compound Capsicum Plasters over any others hitherto offered to the Dental Profession:—

1. They are made in a more convenient form and size for use.
2. They contain a small quantity of opium and menthol, and thus act upon the sensitive as well as the vaso-motor nerve filaments, subduing the pain of periosteal inflammation much more rapidly.
3. The use of a small per cent. of opium and menthol enables the plaster to be made with a considerably larger proportion of mustard and capsicin, thus adding largely to their value as a counter-irritant, while the discomfort of their use is decreased.
4. If used according to instructions they are quite adhesive.

Instructions for Use.

Wipe the gum carefully and place the brown side of the plaster directly over the end of the root which is the seat of the inflammation, pressing gently but firmly with the finger for a few moments.

Supplied in boxes containing 80 Plasters and a number of small envelopes.

		s.	d.
Price	per box	2	6

DARBY'S CAPSICUM PLASTERS.

Supplied in boxes containing 80 plasters, a number of small envelopes and directions for use.

		s.	d.
Price	per box	3	6
„	„ doz.	36	0

FOULKS' CAPSICUM BAGS.

Useful as a counter-irritant, for hastening suppuration, &c. Supplied in boxes of one dozen, with directions for use.

		s.	d.
Price	per box	4	2

FOULKS' COMPOUND BAGS.

These contain Chlorate of Potassium, Hamamelis, and Tannic. Supplied in boxes of one dozen, with directions for use.

		s.	d.
Price	per box	4	2

PREPARATIONS FOR THE OPERATING ROOM—*continued.*

		s.	d.
Absolute Alcohol, for cleansing and drying cavities and root-canals	2-oz. bot.	1	6
Aconite, Tincture of.—A powerful sedative and pain obtundent	1-oz. „	0	6
„ „ „ „ „ ..	2-oz. „	1	0
Aristol.—An antiseptic dressing; can be dissolved in ether or chloroform; in five gramme boxes (77 grains)	per box	1	9
Aristol in Oil of Cassia.—A sedative dressing for root-canals ..	½-oz. bot.	0	9
Asbestos Fibre, for pulp capping, finest Italian	per oz.	0	4
„ „ „ „	per lb.	4	0
Baldock's Bactericide, for pulp treatment; a most efficient preparation, containing *inter alia* Borneol, Thymol, Phenol, Menthol and Eucalyptol	per jar	4	0
Baldock's Celluloidal Root-Filling, with directions for use ..	„	3	6
Baldock's Tooth Dressing, for root-canals, &c., composed chiefly of Carbolic, Glycerine, Eucalyptus and Iodoform, and highly appreciated for its antiseptic and penetrating properties	per bot.	4	0
Benzoin Gum, for dressings and temporary stoppings	½-oz. bot.	1	0
Borax Tabloids.—Five grains each, and Soda Bicarb. These Tabloids afford a means for dentists to recommend a definite quantity of Borax to be dissolved in an indicated quantity of water for use as a mouth lotion. The Tabloids are readily soluble, and are very convenient and portable	per box	0	6
Bunter's Nervine or Toothache Specific	per bot.	1	0
Cajeput, Oil of, for relieving toothache and for use with gutta-percha in root filling	1-oz. bot.	0	9
Dr. Trueman says that for filling roots he uses the oil *freely;* for pivoting teeth, *moderately;* and for filling cavities with gutta-percha, *very sparingly.*			
Camphor, for allaying pain after extraction, &c.	per oz.	0	2
„ „ „ „	„ lb.	2	0
"A strong solution of camphor in chloroform, applied on a pledget of cotton to the alveolar socket, is said to be an efficient remedy in allaying the pain induced by the extraction of teeth during severe periostitis."—STOCKEN.			
Capsicum Plasters.—*See* previous page.			
Carbolic Acid (Calvert's), best quality; possesses styptic, antiseptic, obtundent and stimulating properties. It is one of the most useful preparations at the command of the dentist	1-oz. bot.	1	3
Carbolized Resin (Fletcher's), for arresting hæmorrhage and for obtunding and hardening sensitive dentine	per bot.	1	0
„ „ „ „ „ ..	½-pint „	6	0
„ „ „ „ „ ..	pint „	12	0
Chlorate of Potash Tabloids, with directions for use, large boxes	per doz.	12	0
„ „ „ „ small „	„	6	0

PREPARATIONS FOR THE OPERATING ROOM—*continued.*

		s.	d.
Chloride of Zinc, for obtunding sensitive dentine	1-oz. bot.	0	8
Chloroform, Pure, for annulling pain during the extraction of teeth when locally applied, for drying the gums, making solutions, &c.	1-oz. bot.	1	0
Cloves, Oil of, for obtunding sensitive dentine, dressing root-canals, &c.	1-oz. bot.	0	10
Cocaine-Lanolin, for obtunding sensitive dentine	2-drm. bot.	3	0
Condy's Fluid, for washing out and deodorizing the mouth ..	per „	0	9
Copal Ether Varnish (Fletcher's), for coating cement stoppings, &c.	„ „	1	0
„ „ „ „ „ ..	½-pint „	6	0
„ „ „ „ „ ..	pint „	12	0
Copper, Powdered Sulphate of, for treatment of pyorrhœa alveolaris	2-oz. bot.	0	8
Cork, in very thin sheets, specially prepared for capping pulps ..	per doz.	1	6
Creasote, best quality, a useful antiseptic, pain obtundent, &c. ..	1-oz. bot.	1	3
„ „ „ „ „ ..	per lb.	10	0
Davis's Miraculine (now called Eucathymen), a specific for tooth-ache and neuralgia, with directions for use	small bot.	2	6
„ „ „ „	med. „	5	0
„ „ „ „ for Hospital use ..	large „	11	0
„ „ „ „ „ ..	ex. large „	21	0
Ditcham's Germicide, with directions for use. The chief chemical properties of this preparation are Chloride of Lime, Phosphate of Lime, Carbolate of Lime, Creolin and Storax. Supplied in the form of paste	per bot.	4	0
Ethylate of Sodium, for removing nævi and other vascular growths. With directions for use. Introduced by Sir B. W. Richardson ..	½-oz. „	2	6
„ „	1-oz. „	4	0
Eucalyptus Oil.—An antiseptic and pain obtundent	1-oz. „	0	10
Eugenol.—A powerful agent for obtunding sensitive dentine while excavating cavities	½-oz. „	2	6
Fletcher's Styptic.—*See* Carbolized Resin on previous page.			
Glycerole of Thymol, for treatment of pulp and alveolar abscess	1-oz. „	1	6
Hazeline.—This is a water-like liquid containing all the active principles of the Witch Hazel. It is a powerful styptic and is exceedingly useful in preventing hæmorrhage from the gums after the tooth has been extracted. It can be used either mixed with an equal quantity of warm water for rinsing the mouth, or may be applied by saturating a plug of Cotton Wool and filling the same into the cavity. Hazeline is quite non-poisonous; it does not injure the teeth, and has an agreeable and refreshing odour. It is supplied in 4-ounce and one-pound bottles	4-oz. bot.	1	6
.. .. „ „ „ ..	1-lb. „	4	0

PREPARATIONS FOR THE OPERATING ROOM—*continued.*

		s.	d.
Hydronaphthol.—An odourless, non-poisonous, non-corrosive antiseptic. As a **Germicide** it ranks second only to bichloride of mercury, and being harmless, it is preferable to that well-known agent in dental surgery.			
Hydronaphthol Powder, in one-ounce bottles	per bot.	1	0
,, ,, in one-pound cans	,, lb.	12	0
(*Instructions for use are affixed to each package.*)			
Hydronaphthol Cotton, charged with 5 per cent. of Hydronaphthol, put up in one-ounce packets	per oz.	0	4
Iodic-Hydrarg.—This is a salt of mercury similar in appearance to Iodoform. It is free from smell and possesses double the bactericidal power of corrosive sublimate. Iodic-Hydrarg. may be readily dissolved in water, one in four thousand being ordinarily employed for syringing out cavities or rendering antiseptic the tissues surrounding cavities in teeth previous to filling. It does not discolour the teeth, and is only about a fourth as poisonous as Hydrarg.-Perchlor. It is supplied in one-ounce bottles	per bot.	1	3
Iodine Liniment, for allaying pain and inflammation	1-oz. ,,	1	3
,, **Tincture of,** ,, ,, ,, ...	1-oz. ,,	0	10
,, ,, ,, ,, ,, ...	2-oz. ,,	1	3
,, **and Aconite, Dr. Fleming's,** double strength in equal parts, for allaying pain	3-oz. ,,	2	0
Iodoform, for root dressing; can be dissolved in any essential oil ..	1-oz. ,,	2	3
Iodoform Paste (Mr. Pedley's), an antiseptic root-filling	per ,,	1	0
Iron, Perchloride of.—A valuable styptic and astringent ..	1-oz. ,,	0	8
Kingzett's Bactericide.—Mercuric Chloride (corrosive sublimate) and Peroxide of Hydrogen, with directions for use	pint ,,	2	0
,, ,, for Hospital use, in stone jars	per gal.	10	0
Listerine.—An antiseptic, prophylactic and deodorant	,, bot.	4	0
Mastic Cement, thick, for dressings and temporary fillings ..	,, ,,	0	6
,, ,, thin, for fixing tube teeth, &c.	,, ,,	0	9
Morphia, Acetate of, for pulp treatment and as a pain obtundent in conjunction with oil of cloves	$\frac{1}{8}$-oz. ,,	3	0
Myrrh Gum, for making tinctures, mouth washes, &c.	per lb.	3	6
,, **Tincture of,** for treatment of the gums, &c.	8-oz. bot.	2	9
,, ,, ,, ,, ...	16-oz. ,,	5	0
Opium, Tincture of, for allaying inflammation	1-oz. ,,	0	8
,, ,, ,, ,, ...	2-oz. ,,	1	0
Phenate of Soda—has the same qualities as Phenol Sodique ..	4-oz. ,,	1	0
,, ,, ,, ,, ,, ...	10-oz. ,,	1	9
Phenol Sodique.—Useful as a mouth wash, pain obtundent, styptic, detergent, antiseptic, disinfectant and stimulant	8-oz. ,,	1	4
,, ,, ,, ,, ,, ...	per doz.	14	0

PREPARATIONS FOR THE OPERATING ROOM—*continued.*

		s.	d.
Peppermint, Oil of, for perfuming Tooth Powder, &c.	1-oz. bot.	3	6
Permanganate of Potash Tabloids.—Two grains each. These afford a means for prescribing with accuracy a solution of indicated strength for rinsing the mouth when an antiseptic lotion is desirable	per box	1	6
Peroxide of Hydrogen.—A powerful antiseptic and germicide, used for the treatment of pus-making surfaces	2-oz. bot.	1	3
Potassa cum Calce, in sticks, a powerful caustic, for the formation of sloughs, for touching ulcers, &c.	per „	0	9
Resorcin.—A powerful disinfectant and antiseptic	1-oz. pkt.	1	0
Sandarac Varnish, for temporary stoppings, and for coating plaster models	per bot.	0	10
Sanitas Oil, for treatment of pulp and alveolar abscess	4-oz. „	1	0
Scott's Nerve Obtunder, antiseptic	„ „	3	0
„ **Specific,** for Neuralgia	„ „	2	6
„ „ „	„ doz.	27	0
Stent's Amber Cement, for dressings and temporary stoppings ..	„ bot.	1	6
„ **Prepared Cotton** „ „ „ ..	„ pkt.	1	0
Styptic Colloid, for arresting hæmorrhage	„ bot.	2	6
Sulphur Cement, in powder, for fixing tube teeth, &c.	„ „	0	6
Tannin, for reducing inflammation and arresting hæmorrhage ..	1-oz. „	1	0
Vaseline, an emollient, useful also as a base for pastes and ointments of various kinds	per „	1	0

Other preparations obtained to order.

Full information concerning the properties and uses of most of the above preparations will be found in the following three books :—

STOCKEN—Elements of Dental Materia Medica and Therapeutics with Pharmacopœia. By James Stocken, L.D.S. Eng., Pereira Prizeman for Materia Medica, assisted by Thomas Gaddes, L.D.S. England and Edinburgh.

	s.	d.
Third edition, fcap. 8vo., 400 pp.	7	6

GORGAS—Dental Medicine : A Manual of Dental Materia Medica and Therapeutics. By F. J. S. Gorgas, A.M., M.D., D.D.S., Professor in the Dental Department of the University of Maryland, Baltimore, U.S.A. 524 pp. including index.

	s.	d.
Fourth edition, revised and enlarged, 8vo., cloth net	14	0

FLAGG and INGLIS—Dental Pathology and Therapeutics in the form of Questions and Answers. Compiled by Otto E. Inglis, D.D.S., carefully revised and approved by J. Foster Flagg, D.D.S., Professor of Dental Pathology and Therapeutics in Philadelphia Dental College. 105 pp., interleaved for Memoranda, 8vo., cloth.

	s.	d.
Price .. .. net	12	0

SUNDRIES FOR OPERATING ROOM.

VERY ABSORBENT COTTON-WOOL.

This is one of the best absorbents we have ever tried. It must not be confounded with our Chemically Pure Cotton-Wool mentioned below.

Supplied in one ounce and in one pound packets.

		s.	d.
Price	per oz.	0	3
„	„ lb.	3	0

CHEMICALLY PURE COTTON-WOOL.

This is not an absorbent, but it is an excellent material for dressings, temporary stoppings, and for carrying medicaments to cavities that the Operator desires to disinfect or cleanse.

For these purposes the Chemically Pure is far superior to any absorbent Cotton-Wool.

Supplied in one ounce and one pound packets.

		s.	d.
Price	per oz.	0	3
„	„ lb.	3	6

CARBONIZED COTTON-WOOL,

FOR ROOT-FILLING.

(Recommended by Dr. Elof Förberg.)

Carbonized Cotton-Wool is a soft, elastic preparation which acts as an antiseptic and non-irritant; it is indissoluble and much to be commended for root-filling and pulp-capping.

		s.	d.
Price	per box	4	6

WOOD PULP-CANAL POINTS.

(Dr. B. Q. Stevens'.)

Dr. Stevens says:—"I first get my pulp-canal smooth and clean; take a new broach that will reach the end of the root, and slip a small piece of rubber-dam on the broach; then push it to the end of the root. This gives me the exact length of the pulp-canal. I then select a peg that will fit loosely and mark the length. This I dip in chlora-percha two or three times and let dry. When everything is ready I warm this peg and force it to the apex with a rotary motion. It will twist off only where it fits tight. For bicuspids or lower molar roots, pump in some chlora-percha before putting in the peg, which will force it all in place without any danger of drawing it out again."

	s.	d.
Price, per box of 100	2	0

SUNDRIES FOR OPERATING ROOM—*continued.*

PAPER CYLINDERS,

MADE FROM JAPANESE BIBULOUS PAPER.

(Introduced by Dr. Morelli, of Buda-Pesth.)

In sizes .. 1. 2. 3. 4.

Dr. Morelli, of Buda-Pesth, has suggested Japanese Bibulous Paper Cylinders for drying cavities and for applying Arsenical Paste, Cocaine, Carbolic Acid, or any other of the numerous medicaments now used by dentists, and also as being useful, if dipped in mastic or other varnish, for temporary stoppings and for sealing dressings.

The Cylinders can be converted into Pellets by being pressed flat between the thumb and finger.

At Dr. Morelli's request, we have prepared four useful sizes, which he thinks will meet every requirement. They are very loosely rolled, and are thus well adapted for their purpose.

		s.	*d.*
Put up in boxes containing four assorted sizes ..	per box	1	0

AMADOU PELLETS,

FOR DRYING CAVITIES, CONVEYING MEDICAMENTS, &c.

We have frequently been asked for these. They are prepared in convenient sizes from Amadou of the best quality, and put up in boxes four inches long by two inches wide by $\frac{7}{8}$ inch deep.

		s.	*d.*
Price	per box	0	9

POULSON'S PAPER POINTS,

FOR DRYING ROOT-CANALS.

Speaking of paper points for drying root-canals, *The Independent Practitioner* says:—"The first root which we had prepared for filling, after the reception of these paper points, was tested with one of them, and, to our surprise, we found moisture at the extreme end, which was effectually removed by the points. Yet we had believed it quite dry, for the hottest syringe and other appliances had been, we thought, faithfully employed. A useful lesson was taught, and the possible cause of occasional pericimental irritations subsequent to root-filling revealed."

		s.	*d.*
In boxes containing 100	per box	2	0

DARBY'S STIFFENED PAPER POINTS,

FOR DRYING ROOT-CANALS.

		s.	*d.*
In boxes containing 100	per box	1	0

SUNDRIES FOR OPERATING ROOM—*continued.*

ABSORBENTS, &c.

		s.	d.
Absorbent Cotton, Seabury and Johnson's	per oz.	0	3
„ „ Lawton's	per 2 oz. pkt.	0	8
„ „ „	„ 4 oz. „	1	0
„ „ „	„ 1 lb. „	3	0
„ „ (Dr. Von Brun's), very absorbent	„ ½ lb. „	2	6

Absorbent Dental Napkins. These napkins are made of a material which is very absorbent, and are of a convenient size for dental purposes, the size for each being nine inches long by eight inches wide. They are extremely useful in cases where the rubber-dam cannot be used, such cases usually being very troublesome on account of the rapidity with which ordinary napkins become saturated.

Put up in packets containing 25 napkins	per pkt.	2	6
Absorbent Dental Napkins, in boxes of 100, size 6 by 5½ inches	per box	2	0
Amadou or Spunk, finest quality, selected	per oz.	0	10
„ „ „	per lb.	11	6
Bibulous Paper, French	per quire	1	0
„ „ Japanese, very fine	per pkt. 100 sheets	1	6
„ „ „ „	„ 500 „	5	0
Paper Fibre Lint (Parker's)	per ½ lb. pkt.	2	0
„ „ (B. W. & Co.)	„	2	6
„ „ „	per lb.	4	0

For Wool Rolls, *see* page 353.

POLISHING MATERIALS, &c.

		s.	d.
Arkansas Slips	each from 1*s.* to	1	6
„ „ Knife edge	each	1	6
Celluloid Strips, in boxes of 1 dozen	per box	0	10
Chalk Prepared, per lb., 3*d.*; French and Præcipitated, each	per lb.	0	6
Corundum Flour per lb., 3*s.* 6*d.*	per box	0	6
Cotton Wood, in sticks	per doz.	0	10
Crocus Cloth Strips	per gross	2	0
Cuttle-Fish Paper Strips	„	2	0
Dog or Orange Wood, in bundles	per bundle	0	3
Dragon Canes, Pointed, white or red	„	1	0
„ „ **Blunt** „ „	„	1	0
Dragon Cane Points to fit Holder on opposite page	per doz.	0	6
Emery Cloth Strips	per gross	1	8
„ „ „ extra broad, for polishing	„	2	6
French Chalk	per lb.	0	6
French Cloth Strips, very thin, for polishing, Emery	per gross	2	0
„ „ „ „ „ Granite	„	2	0
„ „ „ „ „ Lava	„	2	0
„ „ „ „ „ assorted	„	2	0
French Emery Paper Strips	„	1	0
Lava Strips	per bundle	0	10
Præcipitated Chalk	per lb.	0	6
Prepared „	„	0	3
Pumice Powder, coarse, per lb., 3*d.*; fine, per lb., 4*d.*; superfine	„	0	6
Silicon Powder	small pkt.	0	3

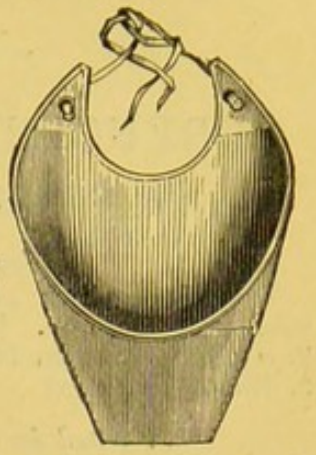
For Polishing Discs, &c., *see* Engine section. Other Polishing materials supplied to order.

SUNDRIES FOR OPERATING ROOM—*continued.*

APRON, OR BIB

(Dr. Horton's),

FOR USE DURING DENTAL OPERATIONS.



	s.	d.
In Check Rubber Cloth	5	0

ARTICULATING PAPER.

	s.	d.		s.	d.
Broad black (Mr. Barkley's), thick and thin, in books, per book	0	3	per doz.	2	6
„ Strips, black, in books .. .. „	0	2	„	1	6
„ „ blue, „ .. .. „	0	2	„	1	6
Narrow „ black or blue .. .. „	0	1½	„	1	0

CAUSTIC (NITRATE OF SILVER) AND HOLDERS.

	s.	d.
Caustic Points in Ebony holders .. .. each	0	6
Caustic Holders, in Silver .. .. „	7	0
Caustic (Nitrate of Silver) in sticks to fit holders .. .. .. per stick	1	2

STONES FOR SHARPENING INSTRUMENTS, &c.

		s.	d.		s.	d.
Arkansas:						
Wheels 2¼ to 3 inches in diameter, for lathes ..	each from	13	0	to	18	0
Flat Slabs in Mahogany cases	„	2	6	„	8	0
Slips for hand, square and flat	„	1	0	„	2	6
Knife Slips with very fine edges	each	1	6			
Turkey:						
Flat Slabs in Mahogany cases	each from	4	0	to	6	0
Slips for hand, square and flat	„	0	9	„	2	0

Other Stones obtained to order.

CANE HOLDER WITH SCREW RING.

6 inches long.

This Holder is considered very useful for cleaning teeth at the back of the mouth, where straight Canes will not reach. It has a screw ring so that Cane points of various sizes may be secured.

	s.	d.
In Steel octagon handle, Nickel-plated .. .. each	2	9
Cane points for ditto .. .. per doz.	0	6

Goods of every description obtained to order at current prices.

MATERIALS FOR IMPRESSIONS.

PERFECTED IMPRESSION COMPOSITION,

A SUPERIOR ARTICLE FOR TAKING IMPRESSIONS OF THE MOUTH, &c.

This Composition possesses the following qualities:—1. Fineness and wax-like smoothness of grain. The impressions that are taken with it are very clear and sharp. 2. Absolute freedom from stickiness; does not require wet fingers to manipulate it. 3. No shrinkage.

Prepared in Square Cakes, Pink in Colour and agreeably Scented.

		s.	d.
Supplied in ½ lb. boxes	per lb.	5	0
In 6 lb. lots	,,	4	0

Directions for working enclosed in each box.

EXTRA SOFT QUALITY,

FOR RENOVATING. WITH WORKING DIRECTIONS.

		s.	d.
In ½ lb. boxes	per lb.	5	0

STENT'S COMPOSITION.

A most reliable article for taking impressions of the mouth; can be used for many dental purposes.

This Composition is agreeably scented, and each box contains full directions for use. Supplied in **Pink, Yellow** and **White** for ordinary cases, the Pink being mostly used.

		s.	d.
In ½ lb. boxes	per lb.	5	0
,, 6 ,, lots	,,	4	0
Pink, extra soft, for renovating	,,	5	0

HIND'S GODIVA COMPOSITION.

No. 1, Soft, for taking impressions of tender gums, cleft palate, &c.; also for use during cold weather.

No. 2, Medium, for ordinary cases.

,, **3, Hard,** for edentulous cases, and for use during hot weather.

,, **4, Extra Soft,** for renovating and for taking bites.

The Composition is agreeably scented, and full directions for use are enclosed in each box.

		s.	d.
In ½ lb. boxes	per lb.	5	0
,, 6 ,, packets	,,	4	0

MATERIALS FOR IMPRESSIONS—*continued.*

CROWN COMPOSITION.

(KING'S.)

This Composition gives a sharper impression even than plaster, has a delightful aroma when softened, does not require renovating, does not adhere to the tray as some compositions do, and is particularly suited for use with Fusible Metal.

Directions for Use enclosed in each Box.

		s.	d.
Supplied in ½ lb. boxes	per lb.	5	0

GLOBE MODELLING COMPOSITION,

FOR TAKING IMPRESSIONS OF THE MOUTH, &c.

This preparation has met with much favour, and is now very extensively used. It is recommended as a first-class article, possessing all the qualities that are necessary for obtaining a faithful impression of the mouth.

		s.	d.
Supplied in ½ lb. boxes	per lb.	5	0
In 6 lb. lots	,,	4	0

MATERIALS FOR IMPRESSIONS—*continued.*

BEES' WAX.

This is the purest English Bees' Wax.

		s.	d.
Supplied in round cakes, in ½-lb. boxes	per lb.	3	0

PINK GUTTA PERCHA.

(BEST QUALITY.)

In ½-lb. packets, with full directions for use and for renovating.

		s.	d.
Supplied in thick sheets	per lb.	7	9
„ in thin „	„	7	9

Mr. W. H. Coffin says that if this Gutta Percha be placed in glycerine it will keep good for an indefinite length of time. He uses an earthenware jar with lid for this purpose, but any other vessel having a wide mouth will serve equally well.

PARAFFIN WAX.

Of a delicate pink colour, in round cakes.

		s.	d.
Supplied in ½-lb. boxes	per lb.	3	0

PLASTER OF PARIS.

(EXTRA SUPERFINE.)

		s.	d.
Very quick-setting	per 2-lb. tin	0	9
„ „	„ 7-lb. „	2	0
„ „	„ 14-lb. „	3	9
„ „	„ 28-lb. „	6	0
„ „	„ 7-lb. bag	1	0
„ „	per cwt.	12	6

Other Impression Materials supplied to order.

GUTTA-PERCHA,

FOR LINING ARTIFICIAL PALATES.

(Mr. TRUMAN'S.)

Supplied in 1-oz. boxes, Pink or White, with directions for use.

		s.	d.
Pink	per oz.	4	9
White	„	8	0

IMPRESSION TRAYS.

German Silver Impression Trays.—The three new forms mentioned below are considered very useful. They are known by the following names :—

A^{N}.—**Upper with Tapered Palate.** This Tray resembles the A Upper, shown on page 397, only the palate is more arched and about a quarter of an inch higher. Made in sizes 0, 1, 2 and 3.

C^{N}.—**Lower, with bent ends,** size 00. This Tray is a quarter of an inch narrower, but the same length as size 0, shown on page 401.

E^{VS}.—**Lower, very shallow, for edentulous cases.** This Tray resembles the American pattern Lower, shown on page 412. Made in sizes 0, 1, and 2.

		s.	*d.*
Price, any form or size	each	1	6

For Lennox's Pivot Tray, see page 290.
For Parris's Crown Tray, see page 550.

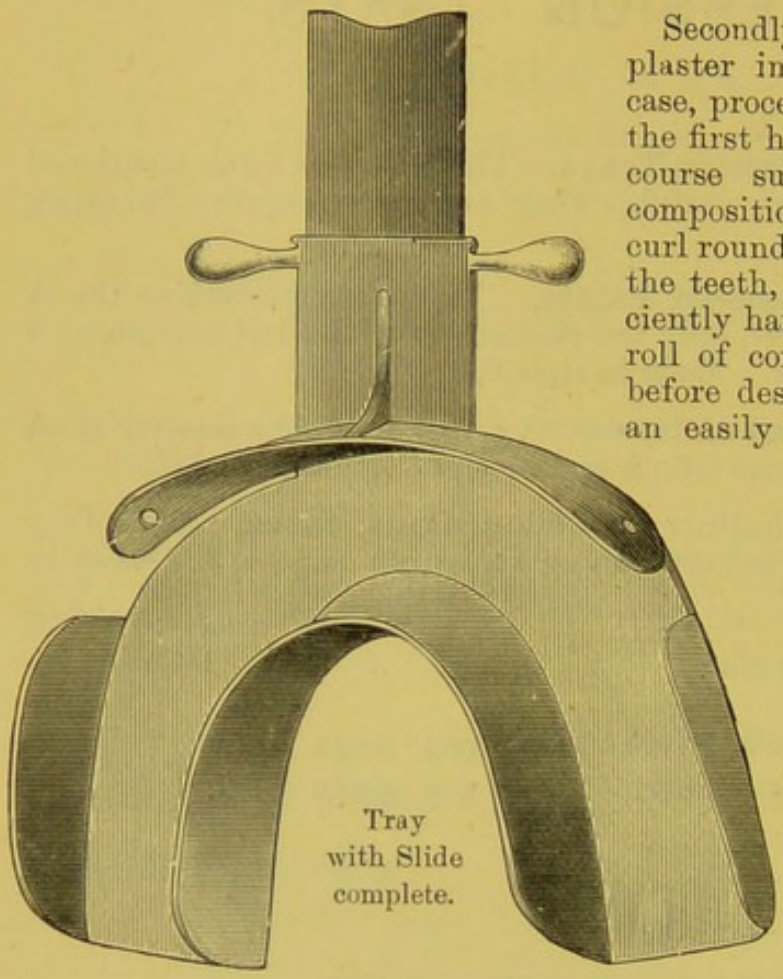
SLIDE SECTION TRAY.

(Mr. David Hepburn's.)

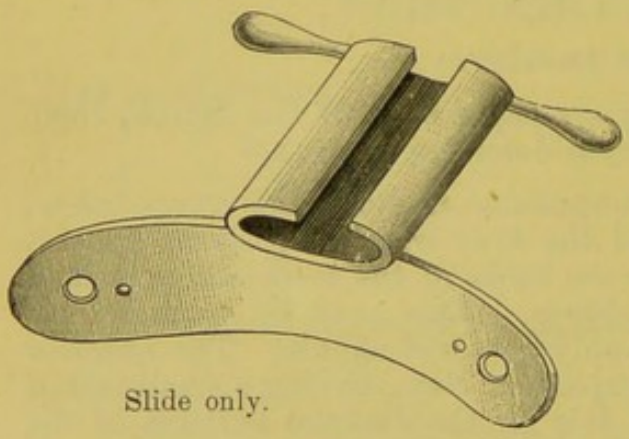
For full description of this Tray see pages 8–10 of the March, 1890, *Quarterly Circular*. Mr. Hepburn thus describes its use :—

"Firstly, in order to take an impression in modelling composition : remove the slide, and having filled the Tray with composition, place it in the mouth. Bring it well up to the backs of the teeth and hold it in position until the composition hardens. This may be hastened by syringing with cold water or by applying a wet napkin. The anterior surfaces of the teeth are thus left exposed. Next, having a small roll of composition ready softened, place this on the exposed surfaces of the teeth, apply the slide and press it home ; this will force the roll into all inequalities and complete the impression. In order to remove the impression, partially withdraw the slide by means of the finger rests provided for the purpose. The anterior section will be found adherent to the slide. This relieves the greatest points of resistance, and the posterior section may then easily be detached from its position and the whole removed from the mouth. It only remains to bring the two sections once more in contact, and the impression is ready for casting.

SLIDE SECTION TRAY—*continued.*



Tray with Slide complete.



Slide only.

Secondly, in order to obtain a plaster impression of a similar case, proceed in the same way for the first half of the operation, of course substituting plaster for composition. If the plaster should curl round the anterior surfaces of the teeth, pare it off when sufficiently hardened; then apply the roll of composition and slide as before described. Thus we have an easily removable impression, in plaster, of the important parts, namely, the palate and lingual surfaces of the teeth, while their anterior surfaces are sufficiently well taken in composition. This describes in a few words the use and action of the 'Slide Section Tray.'

A little practice, of course, is necessary for its successful employment, but Mr. Hepburn thought its possibilities were sufficient to warrant its introduction to the notice of brother practitioners.

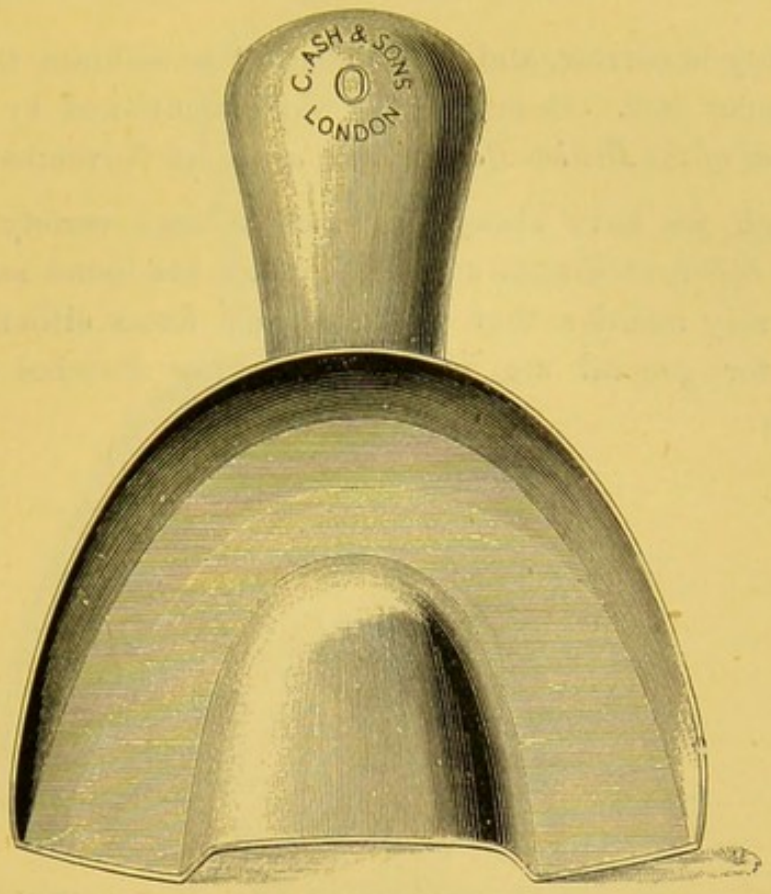
It is useful in bar lower cases, when the bicuspids incline inwards or the incisors project. It will also simplify modelling in marked cases of erosion, and may be employed in cases of irregularity and cleft palate with advantage."

Prices:

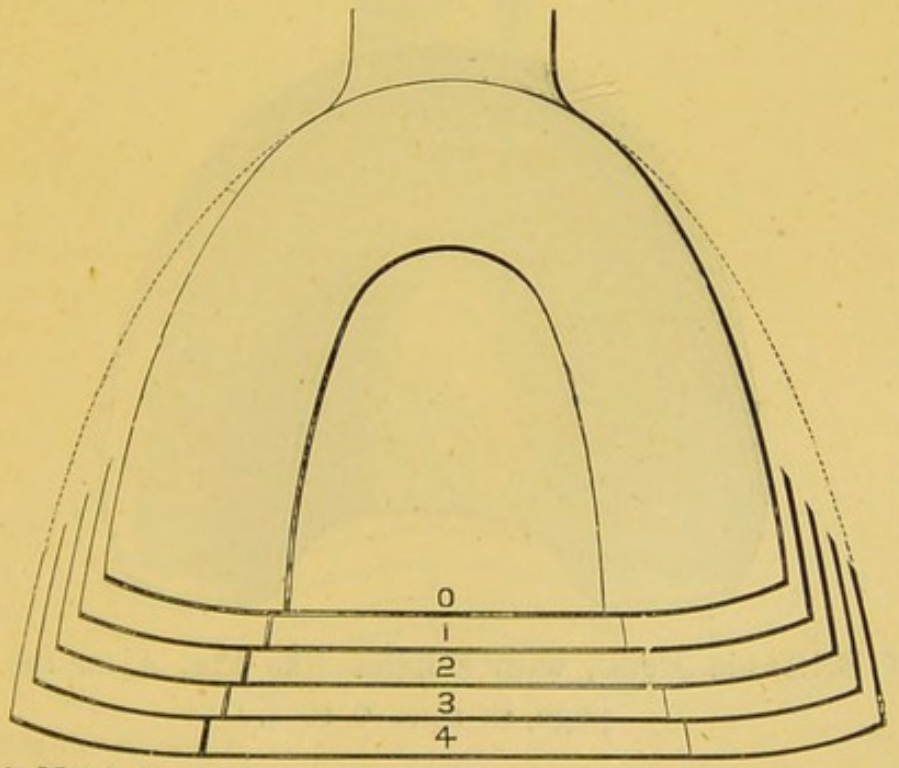
		s.	d.
Tray only, any form or size, as illustrated on pages 397–406	each	3	0
Slide only. for any form	,,	2	0

One Slide will serve for two Trays—the smaller size that we make for Trays Nos. 0 and 1, and the larger size for Trays Nos. 2 and 3.

IMPRESSION TRAYS.



A.—UPPER. Depth of Tray $\frac{5}{8}$ inch. Height of Palate $\frac{1}{2}$ inch.



		s.	d.
In Britannia Metal, Sizes 0–4	each	2	0
In German Silver, „ 0–4	„	1	6

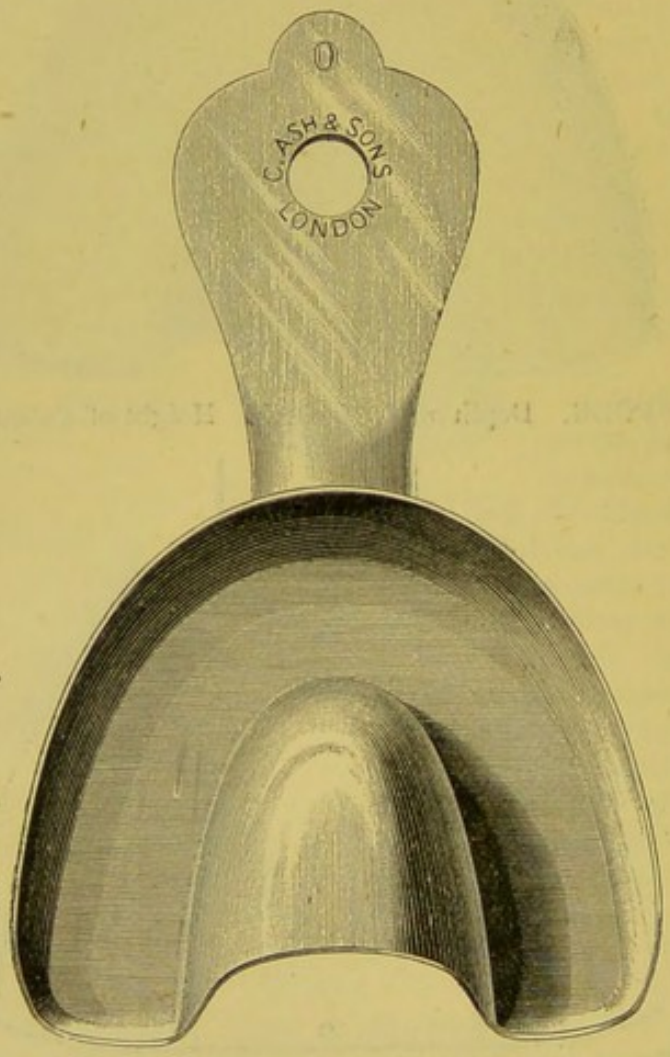
A discount of 10 per cent. is allowed when Impression Trays are purchased by the dozen.

UPPER IMPRESSION TRAY—Form Ax.

This Tray is narrow, and long enough "to embrace the tuberosities" of the upper jaw. It meets the want mentioned by Dr. Bogue, in *The Journal of the British Dental Association*, for November 15, 1886.

Although we have always in stock a large variety of Impression Trays, of different shapes and sizes, which are found suitable for most cases, we may mention that we make new forms either to suit special cases or for general use, provided working sketches or models are sent to us.

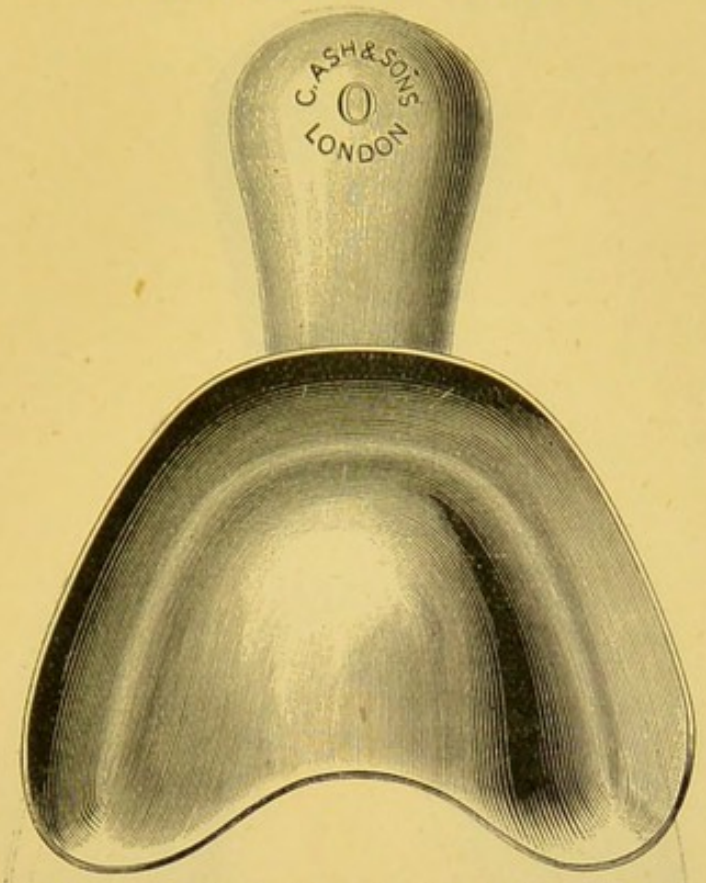
Ax.



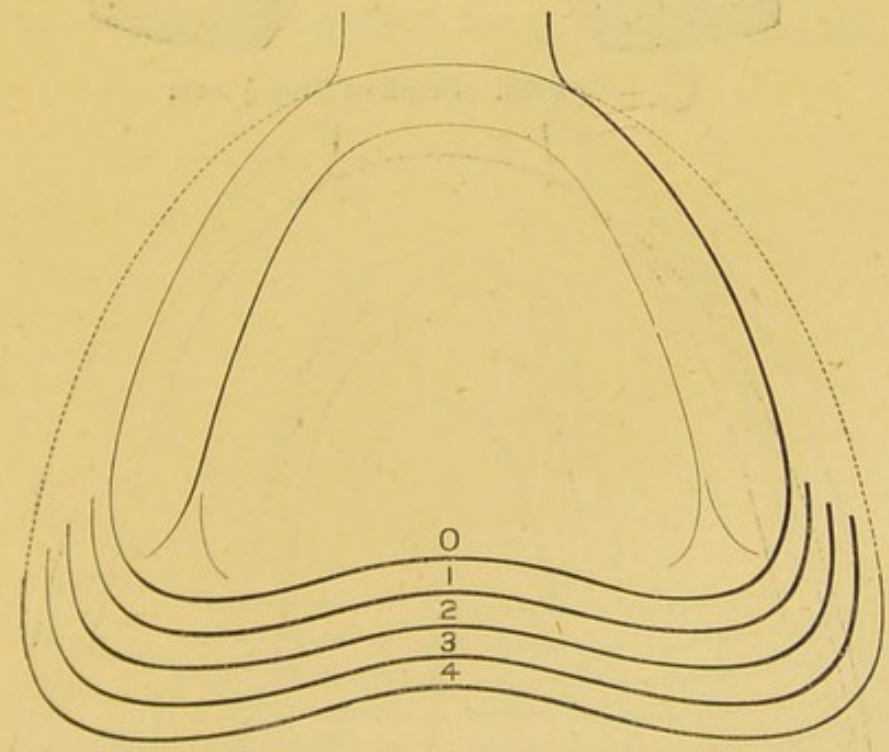
Made of Britannia Metal, with handles like Fig. A on the previous page, in sizes 0 to 4.

		s.	d.
Price, any size	each	2	0

IMPRESSION TRAYS.



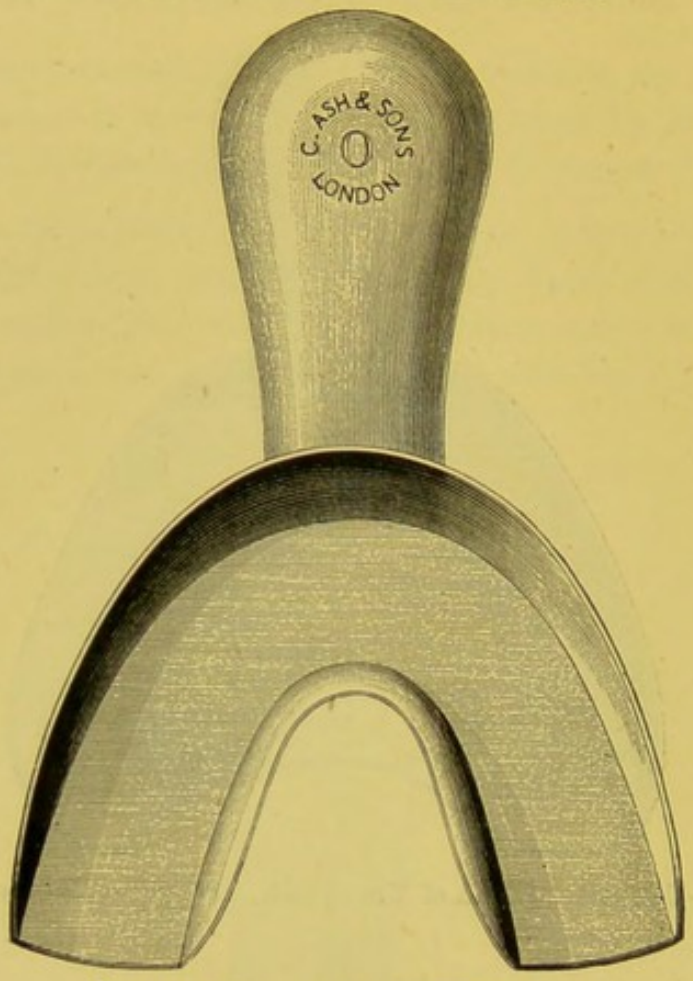
B.—UPPER. Depth of Tray $\frac{5}{8}$ inch. Height of Palate $\frac{3}{8}$ inch.



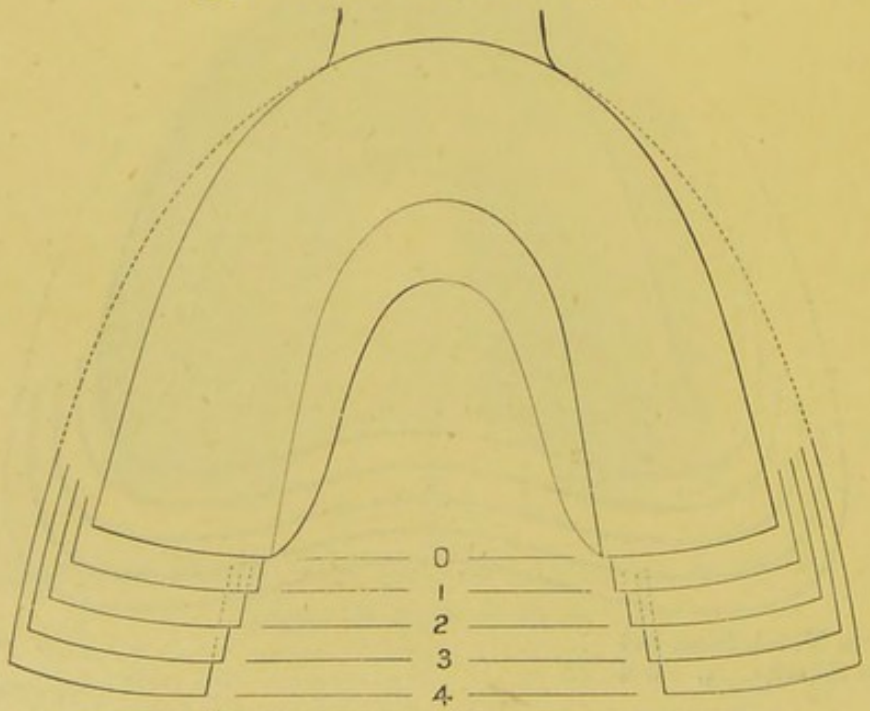
		s.	d.
In Britannia Metal, Sizes 0–4	each	1	6
In German Silver, „ 0–4	„	1	6

Larger or smaller sizes made to order.

IMPRESSION TRAYS.



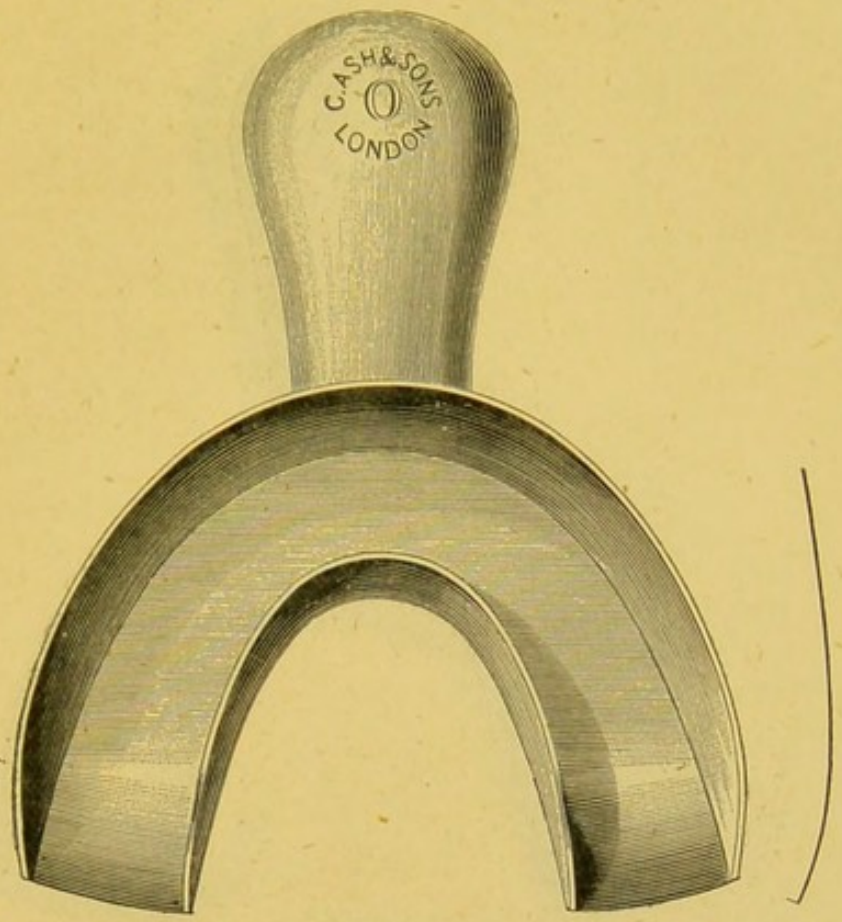
C.—UPPER. Depth of Tray ½ inch.



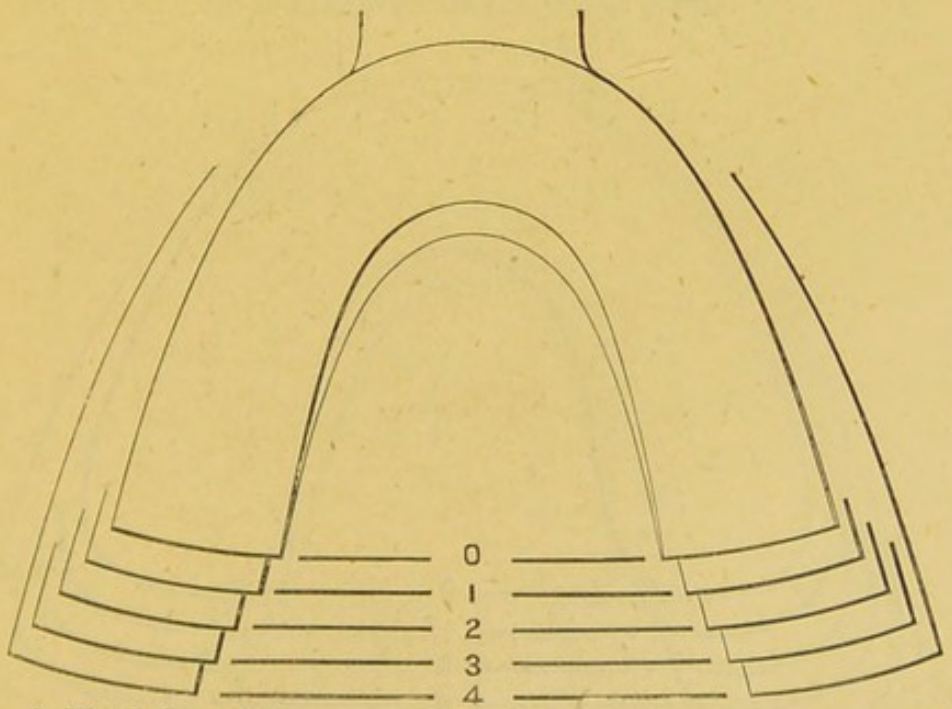
		s.	d.
In Britannia Metal, Sizes 0–4	each	1	6
In German Silver, „ 0–4	„	1	6

A discount of 10 per cent. is allowed when Impression Trays are purchased by the dozen.

IMPRESSION TRAYS.



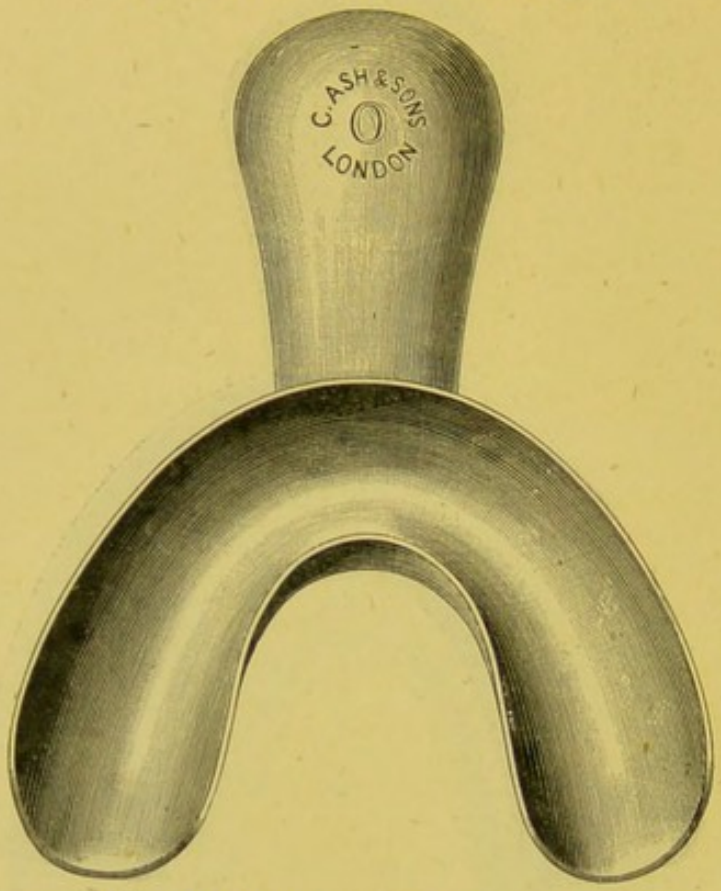
C.—LOWER, WITH BENT ENDS. Depth of Tray ½ inch.



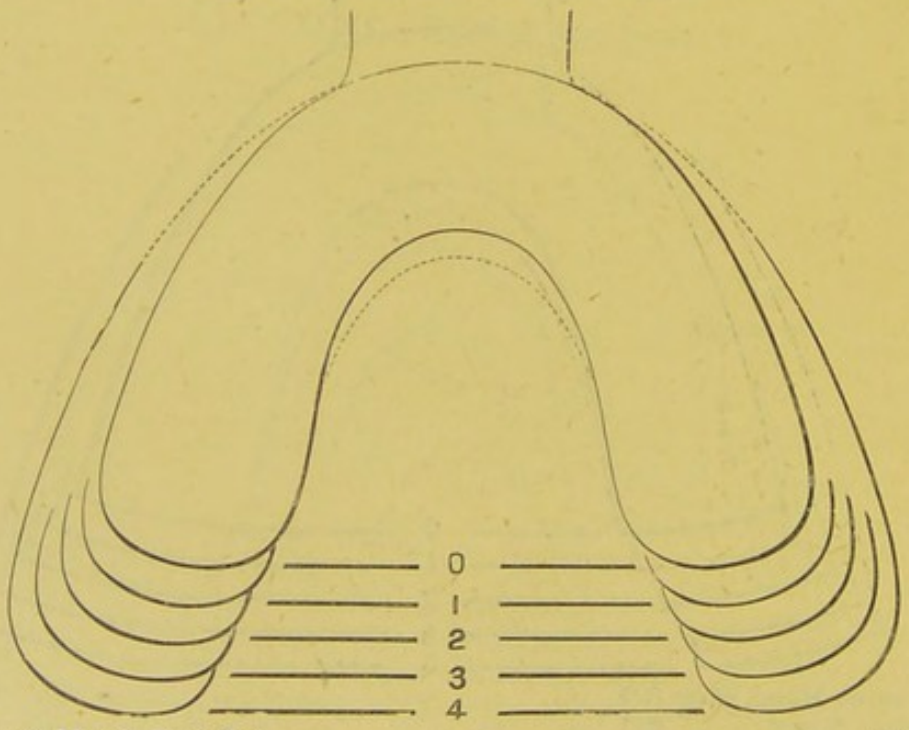
		s.	d.
In Britannia Metal, Sizes 0–4	each	1	6
In German Silver, „ 0–4	„	1	6

Larger or smaller sizes made to order.

IMPRESSION TRAYS.



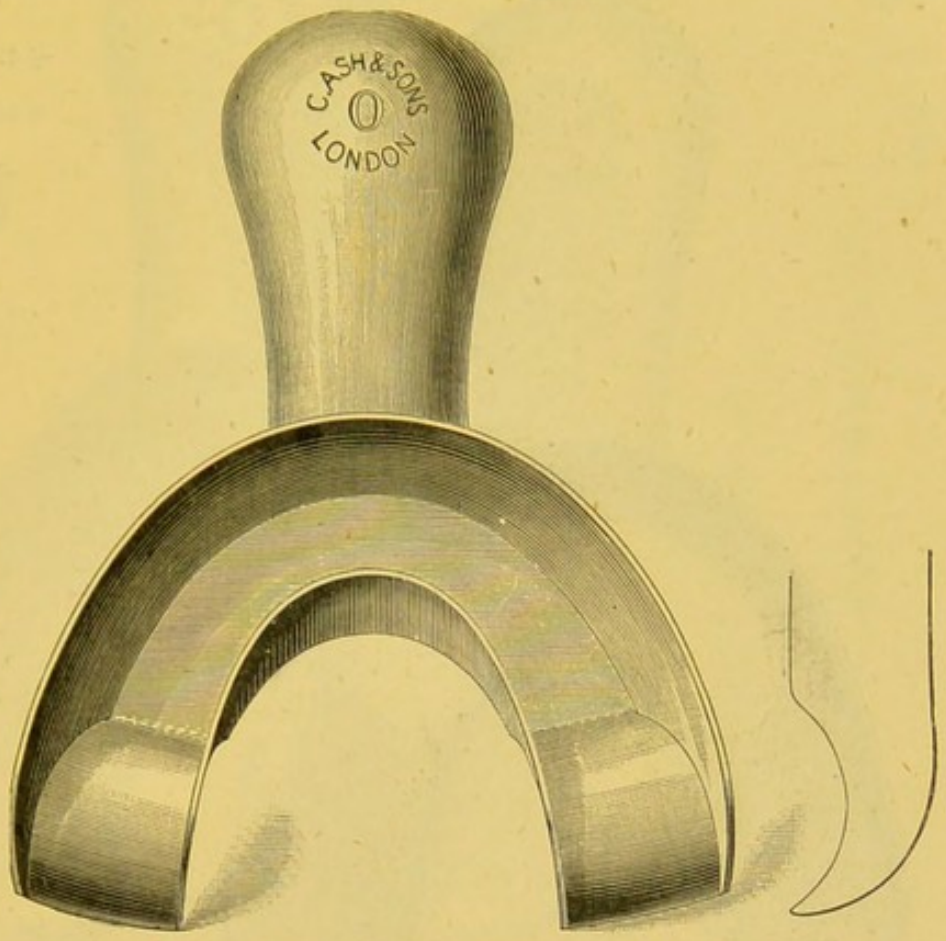
E.—LOWER. Depth of Tray $\frac{3}{8}$ inch.



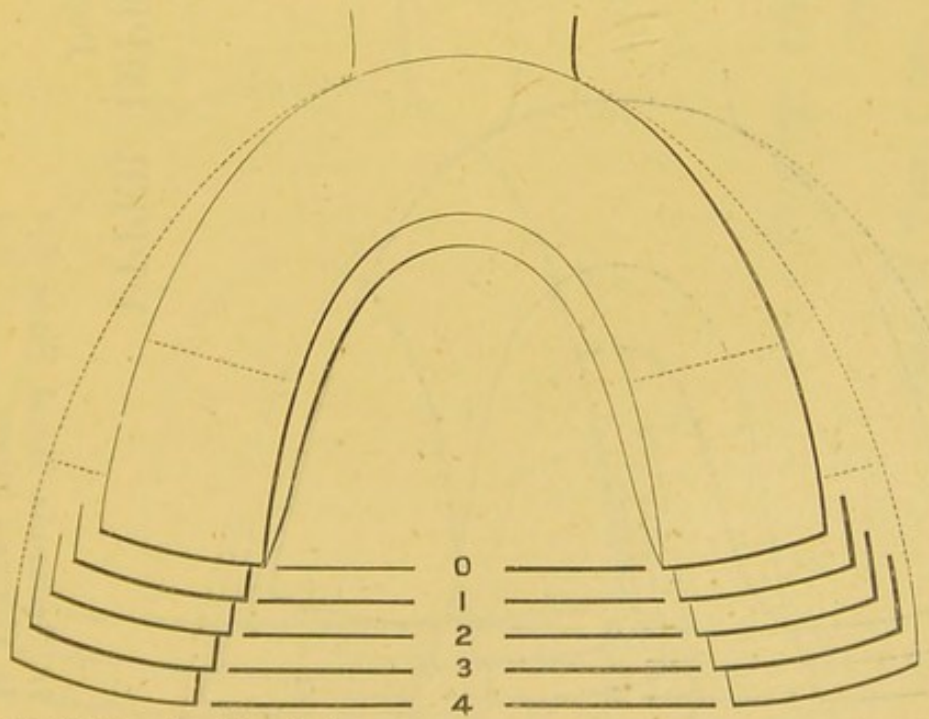
		s.	d.
In Britannia Metal, Sizes 0–4	each	1	6
In German Silver, „ 0–4	„	1	6

A discount of 10 per cent. is allowed when Impression Trays are purchased by the dozen.

IMPRESSION TRAYS.

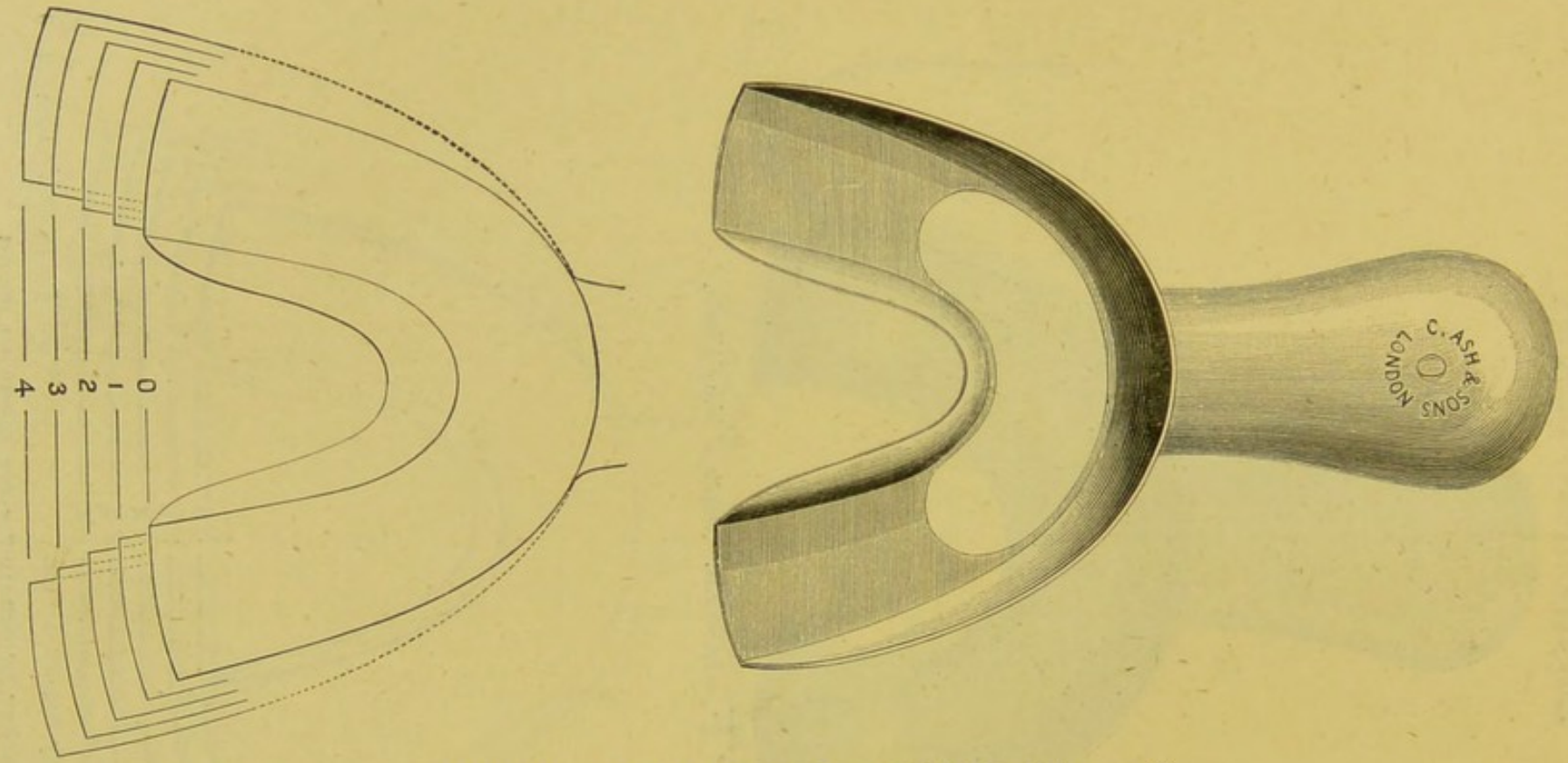


F.—LOWER. Depth of Tray ½ inch.



	s.	d.
In Britannia Metal only, Sizes 0–4 .. .. each	2	0

Larger or Smaller sizes made to order.



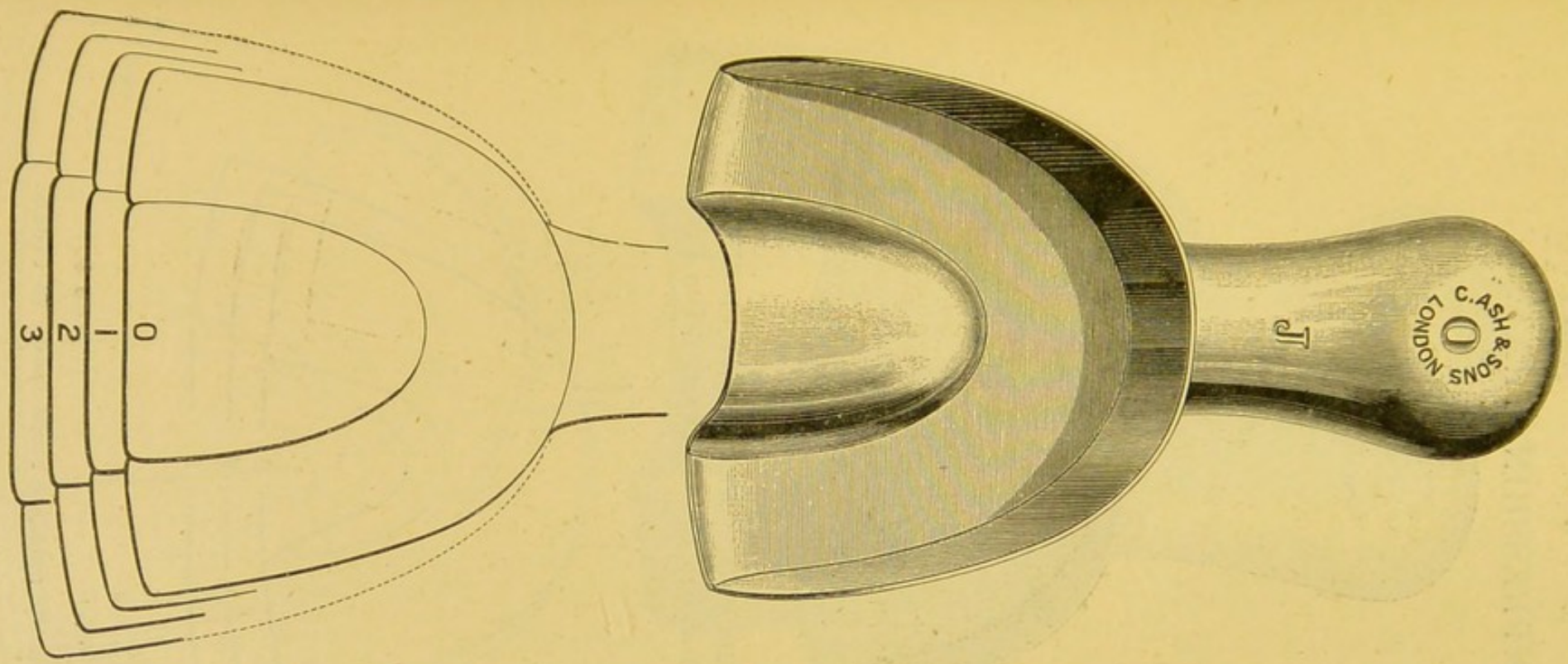
UPPER IMPRESSION TRAY—Form G.

Depth of Tray, $\frac{1}{2}$ inch.

		s.	d.
In Britannia Metal, Sizes 0–4	each	2	0
In German Silver, „ 0–4	„	1	6

This Tray is also made with bent ends for Lowers.

		s.	d.
In Britannia Metal, Sizes 0–4	each	2	0
In German Silver, „ 0–4	„	1	6



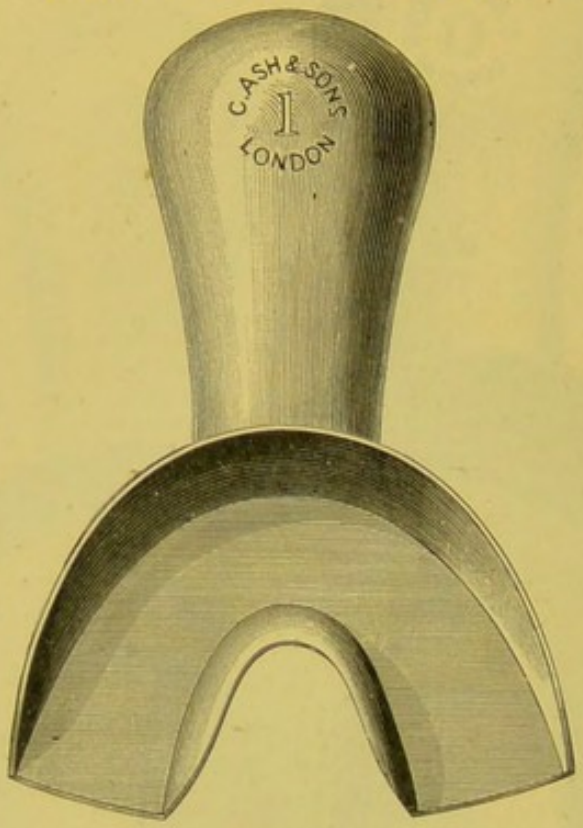
UPPER IMPRESSION TRAY—Form J.

WITH NARROW PALATE.

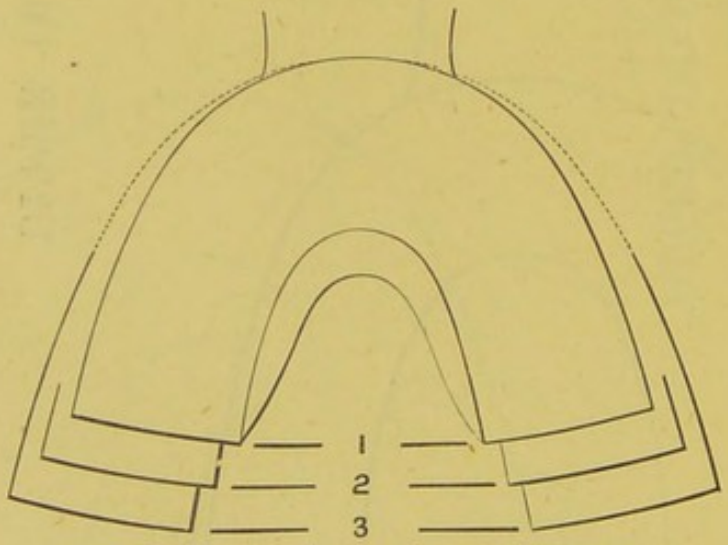
Depth of Tray, $\frac{5}{8}$ inch. Height of Palate, $\frac{9}{16}$ inch.

		s.	d.
In Britannia Metal, Sizes 0, 1, 2, 3	each	2	0
In German Silver, Nickel-plated, Sizes 0, 1, 2, 3	„	1	9

IMPRESSION TRAYS.

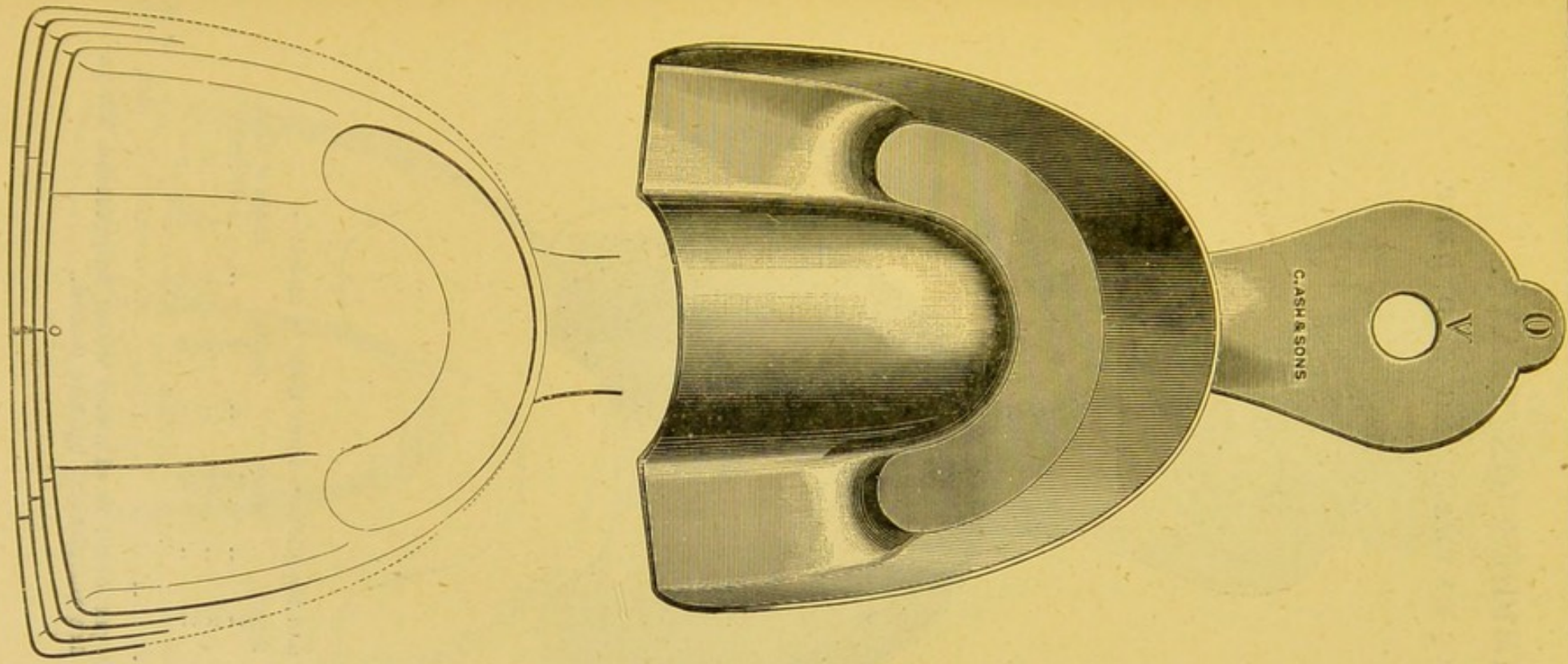


K.—FOR UPPER AND LOWER FRONT PIECES, AND FOR REGULATION CASES. Depth of Tray ½ inch.



		s.	d.
In Britannia Metal, Sizes 1, 2, 3	each	1	3
In German Silver, „ 1, 2, 3	„	1	6

Larger or smaller sizes made to order.



UPPER IMPRESSION TRAY—Form V.

WITH WELL IN FRONT.

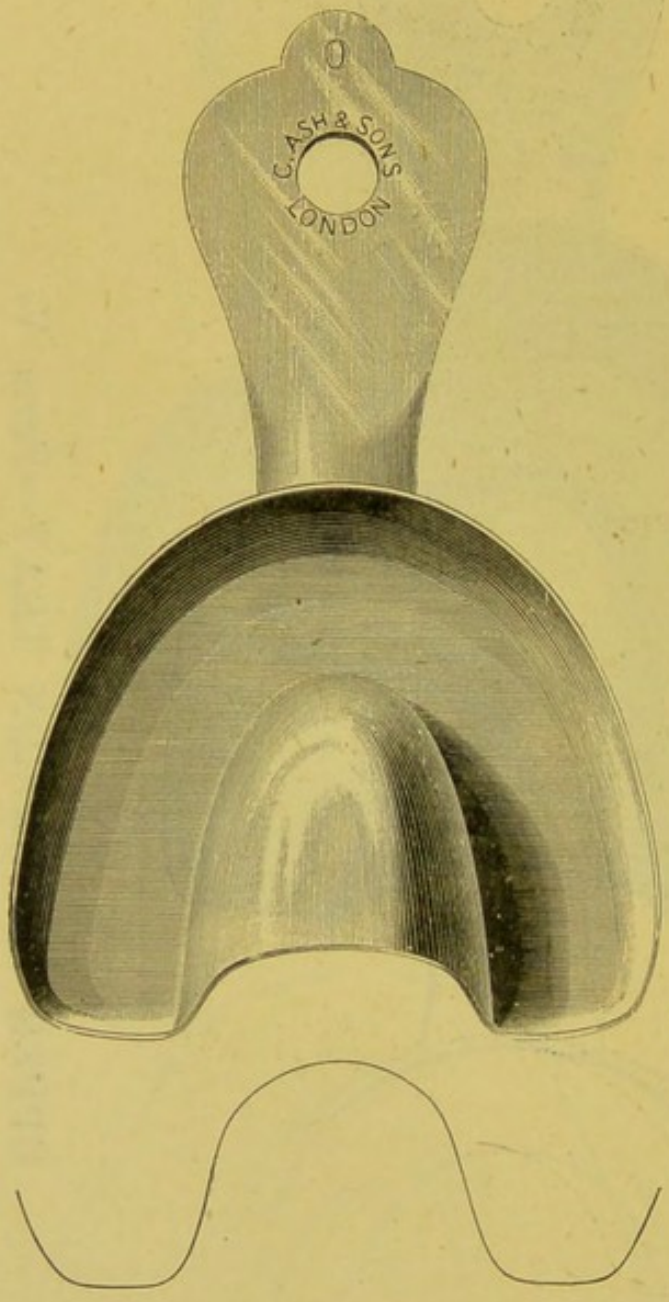
Depth of Tray $\frac{5}{8}$ inch. Depth of Well part $\frac{7}{8}$ inch.

Height of Palate $\frac{1}{2}$ inch.

		s.	d.
In German Silver Nickel-plated, sizes 0, 1, 2, 3	each	1	9

IMPRESSION TRAYS.

UPPER—EXTRA LONG AND DEEP.



Made in German Silver, and supplied in three sizes as under:—

	Length.	Width.	Depth.	Height of Palate.
No. 0 ..	2 ..	$2\frac{3}{8}$ ..	$\frac{1}{2}$ ..	$\frac{7}{8}$ inches.
„ 1 ..	$2\frac{1}{4}$ ..	$2\frac{1}{2}$ ..	$\frac{9}{16}$ ..	1 „
„ 2 ..	$2\frac{3}{8}$ ..	$2\frac{5}{8}$ ..	$\frac{9}{16}$ ..	$1\frac{1}{8}$ „

	s.	d.
Price, any size .. .. each	1	6

A discount of 10 per cent. is allowed when Impression Trays are purchased by the dozen.

BITE FRAME.

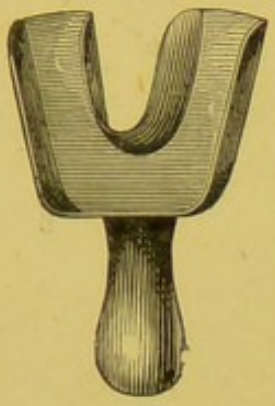
Made of German Silver in four sizes—0, 1, 2, 3 .. .. each

s. d.
1 6

IMPRESSION TRAYS—D TO N.

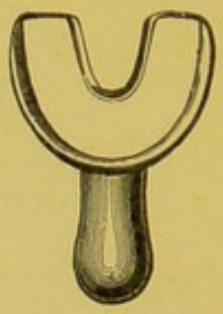
BRITANNIA METAL.

D.



H.

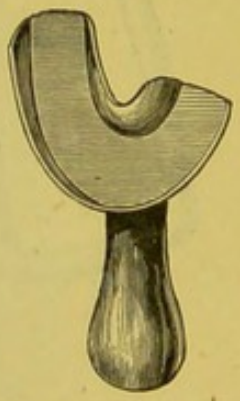
I.



L.

M.

N.



These Trays are made in five sizes.

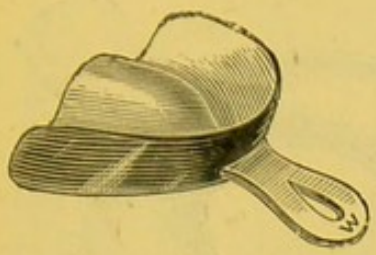
Prices:

			s.	d.
D, for Upper and Lower	sizes 0–4	each	1	6
H, Plaster Tray, for Upper	„ 0–4	„	2	3
I, Bite Frames, for Upper and Lower	„ 0–4	„	2	0
L and M, for Upper and Lower Side Pieces ..	„ 0–4	„	1	3
N, „ „ three-quarter Pieces	„ 0–4	„	1	6

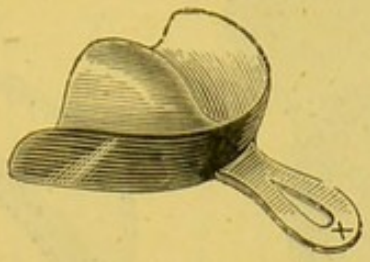
Britannia Metal or German Silver Trays, Nickel-plated, to order, at a charge of 6/- per dozen.

IMPRESSION TRAYS.

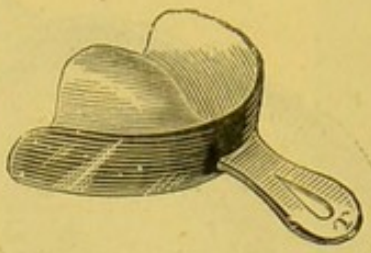
W.



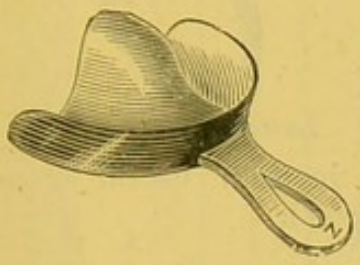
X.



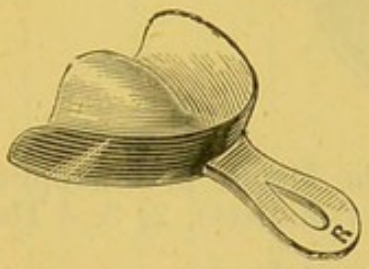
T.



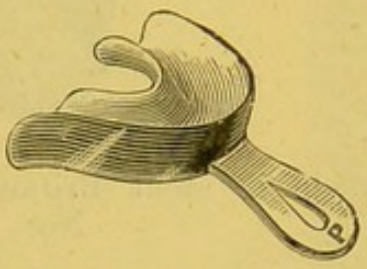
Z.



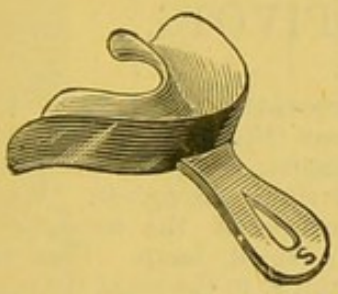
R.



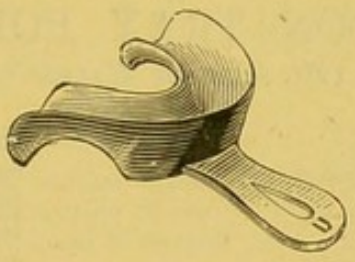
P.



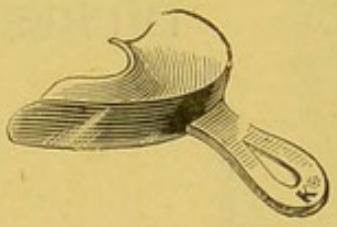
S.



U.



K*.



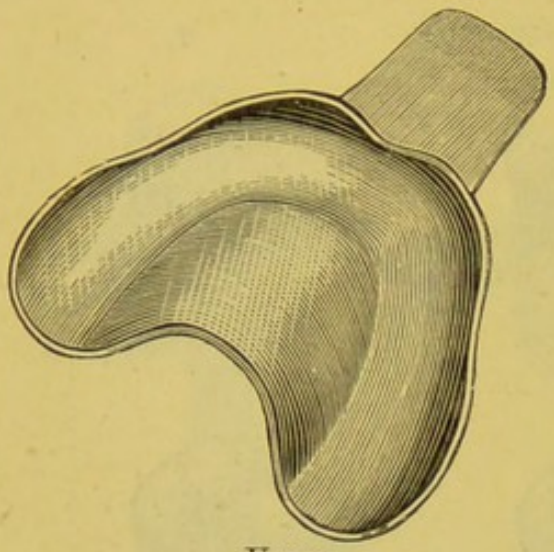
These Trays are considered very useful. As will be seen from the illustrations, the **Uppers** have extra high palates, and the **Lowers** are made considerably deeper than usual. Z and K* are only made in one size, but all the others are supplied in four convenient sizes. U is made in two lengths, which are known as **long** and **short**; therefore, when ordering U/1, U/2, U/3, U/4, please state whether **long** or **short** of any or all these numbers is required.

		s.	*d.*
In German Silver, Nickel-plated	each	1	9

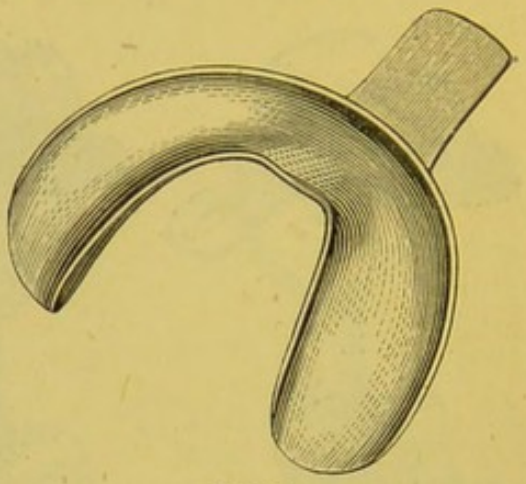
Less 10 per cent. when purchased by the dozen.

IMPRESSION TRAYS.

(AMERICAN PATTERN.)



Upper.



Lower.

Made in stout Britannia Metal, and supplied in four useful sizes, Nos. 1 (smallest), 2, 3, 4 (largest).

	s.	d.
Price, any size, Upper or Lower .. .. .. each	2	0

IMPRESSION TRAY FOR PIVOTS.

(Mr. GILBERT WALKER'S.)

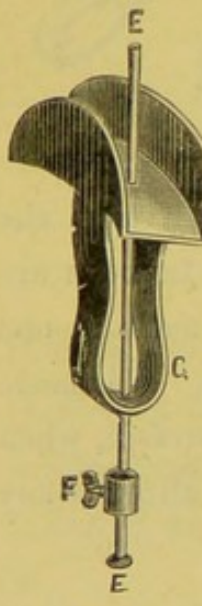


Fig. 1.

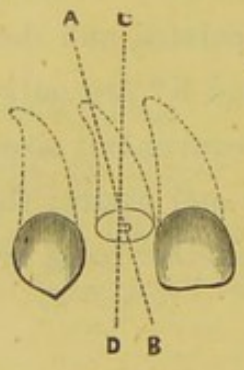


Fig. 2.

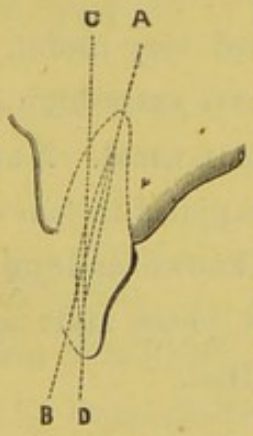


Fig. 3.

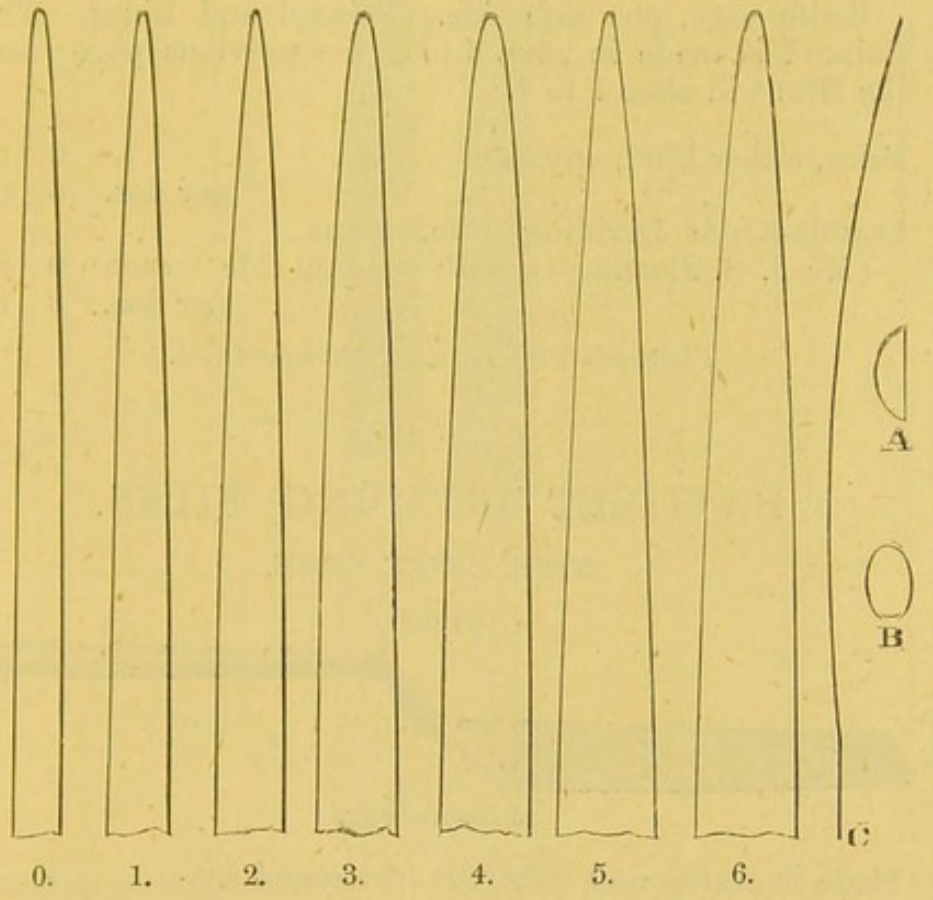
Directions for Use.—"Fill the Tray (Fig. 1) with modelling composition, and press the pivot-pin E right through it. Warm the surface of the composition over a spirit lamp. Pass the pivot-pin E to the top of the pivot cavity in the root, and gently slide the tray up the pin sufficiently to take a good impression. When hardened, place the set screw F close to the handle of the tray G, and fix it. Withdraw the pivot-pin, which can only be done in the direction of A B (Figs. 2 and 3), when the impression may be removed in the direction of C D, avoiding 'drags' or shifting of the pivot-pin. Replace the pivot-pin, which will be found to accurately retain the relative position of the pivot cavity, with respect to the plane of the root's surface, whilst the set screw F will unerringly adjust the depth of the pivot cavity."

	s.	d.
In German Silver, Nickel-plated .. .. each	3	6

STUMP FILES.

(Stubs'.)

Pointed.



0. 1. 2. 3. 4. 5. 6.

A, section of half-round File.
B, section of oval ,,
C, bend of curved ,,

Blunt.

The Half-round are made in sizes 1 to 6.

	per doz.		each.	
	s.	*d.*	*s.*	*d.*
Straight or Curved, Pointed	6	0	0	6½
,, ,, Blunt	6	0	0	6½
,, double-ended, one end pointed, the other blunt	7	6	0	8

The Oval are made in sizes 0 to 3.

	per doz.		each.	
	s.	*d.*	*s.*	*d.*
Straight or Curved, Pointed	6	0	0	6½
,, ,, Blunt	6	0	0	6½
,, double-ended, one end pointed, the other blunt	7	6	0	8

DIVIDING FILES.

(STUBS'.)

Pointed.

Knife edge, one safe side. Pointed and Blunt. The Pointed is made in sizes 3 to 6 (see previous page), and the Blunt in sizes 1 to 4.

		s.	d.
Price, either kind, any size	each	0	6½
,, ,, ,, ...	per doz.	6	0
Double-Knife Dividing File, blunt (Mr. J. B. Fletcher's), with one safe side	each	0	8½
,, ,, ,, ,, ,,	per doz.	8	0

Fletcher's File is a most convenient tool.

Blunt.

BAYONET DIVIDING FILES.

WITH KNIFE EDGE.

(STUBS'.)

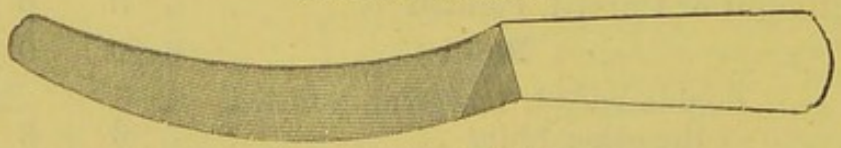
5 inches long.

	s.	d.
Made in rights and lefts, cut inside and outside, with Tang to fit into wooden handle each	0	8½

DIVIDING FILES.

(STUBS'.)

SICKLE SHAPE.



For sizes see next page.

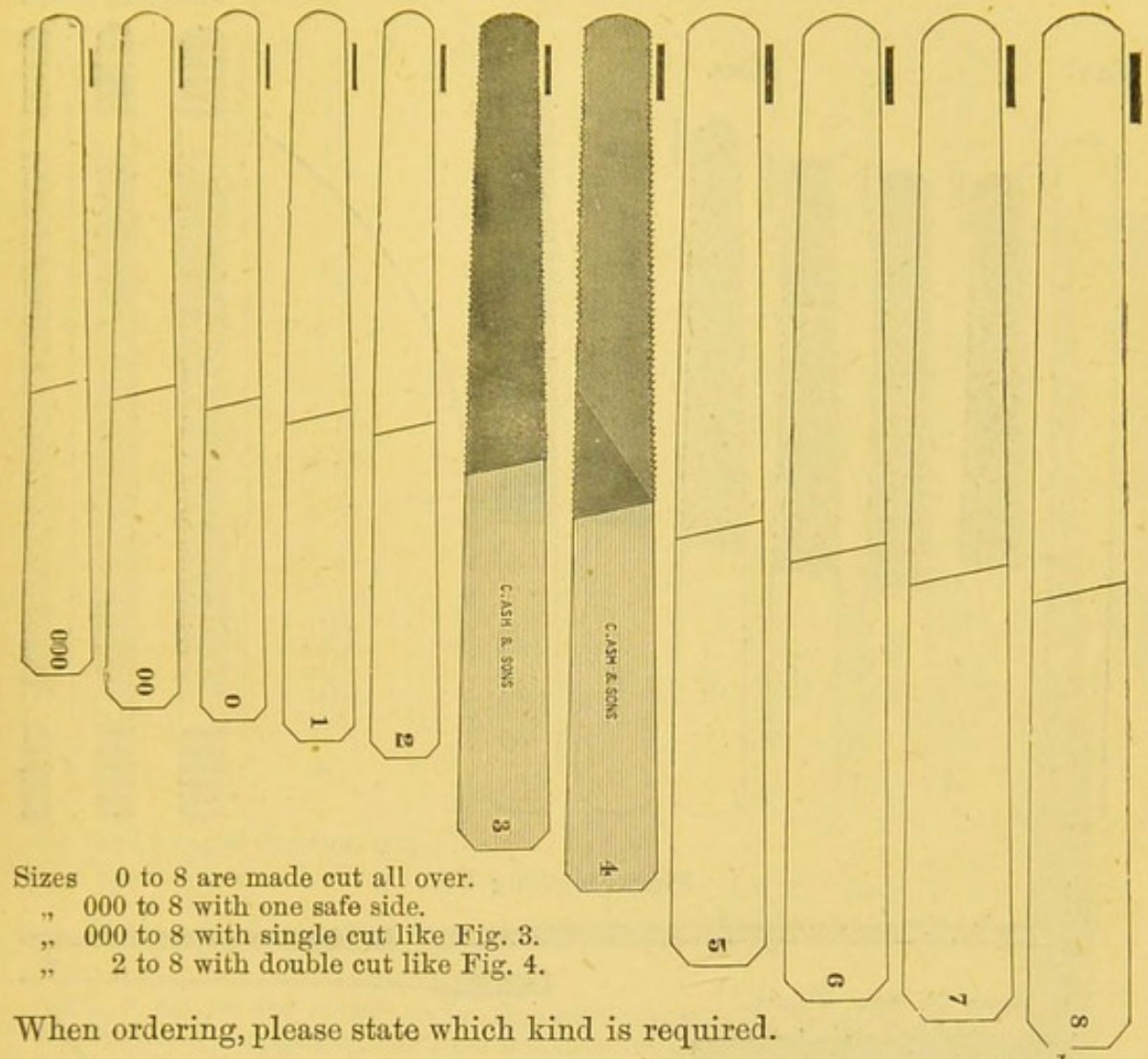
Made in Nos. 0 to 4, one safe side.
,, ,, 0 to 4, cut all over.
,, ,, 2 to 4, *double* cut.

		s.	d.
Price, all kinds and sizes	per doz.	3	3

Other forms of Stump or Dividing Files obtained to order.

DIVIDING FILES.

(Stubs'.)



Sizes 0 to 8 are made cut all over.
„ 000 to 8 with one safe side.
„ 000 to 8 with single cut like Fig. 3.
„ 2 to 8 with double cut like Fig. 4.

When ordering, please state which kind is required.

	s.	d.
Price, any size or kind .. .. per doz.	3	3

FILE CARRIER.

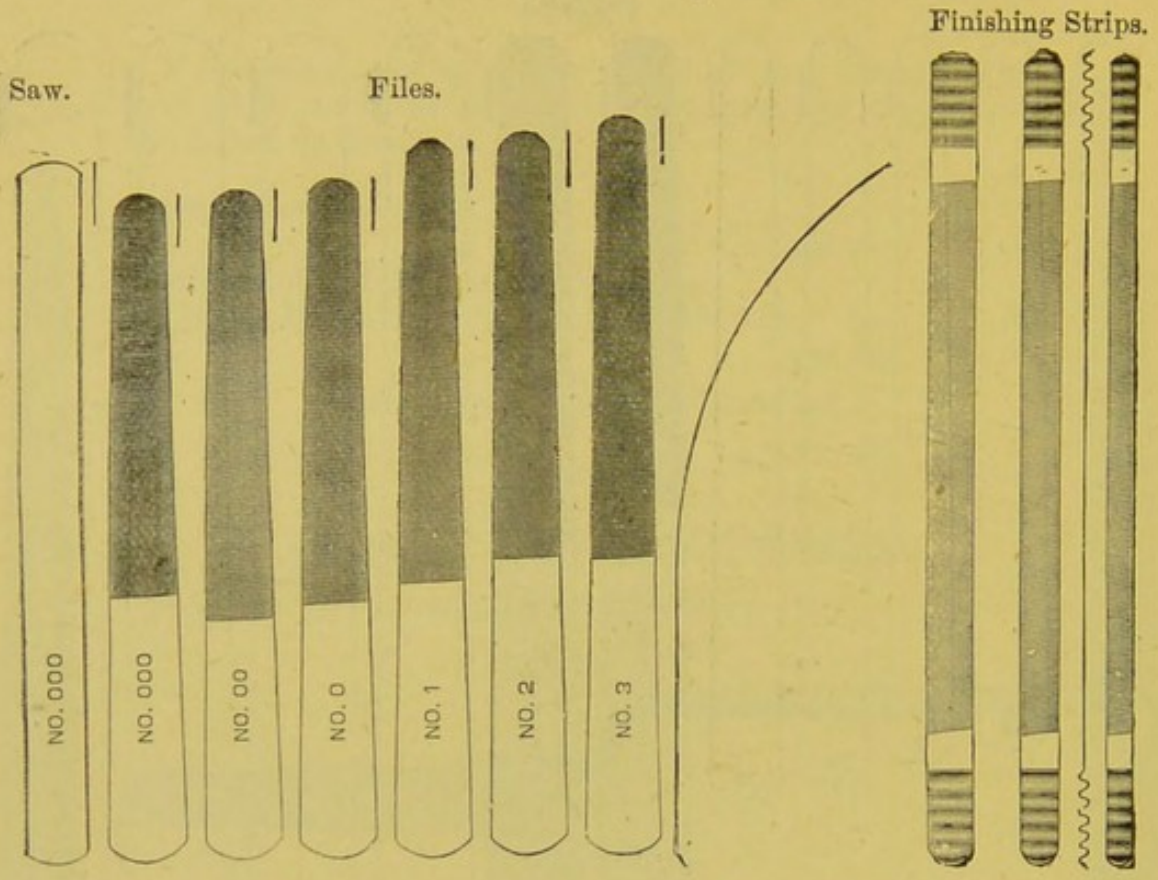
(Dr. Cogswell's.)

With screw clamp for holding pieces of files.

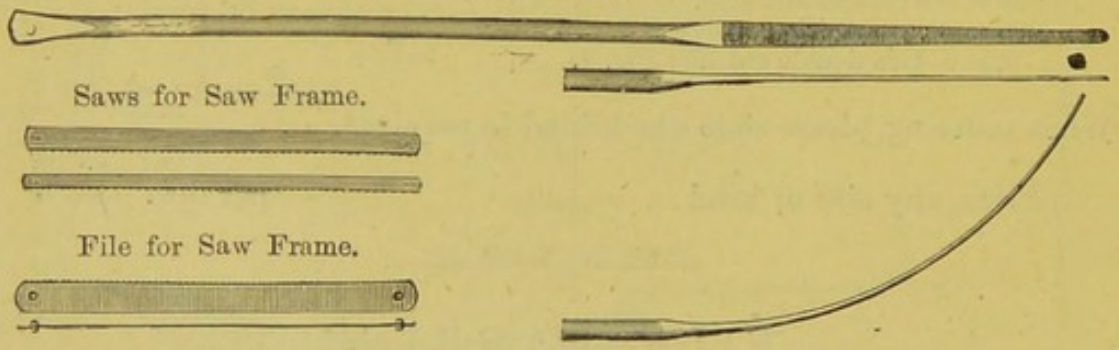
By means of the slots in the head of the Carrier the files can be fixed at various angles.

	s.	d.
Price, in Ebony handle, as illustrated	6	6
File Carrier (Dr. Jack's), in Ebony handle	6	6

"FLEXO" FILES, SAWS, AND STRIPS.



Plug Finishing File.



Saws for Saw Frame.

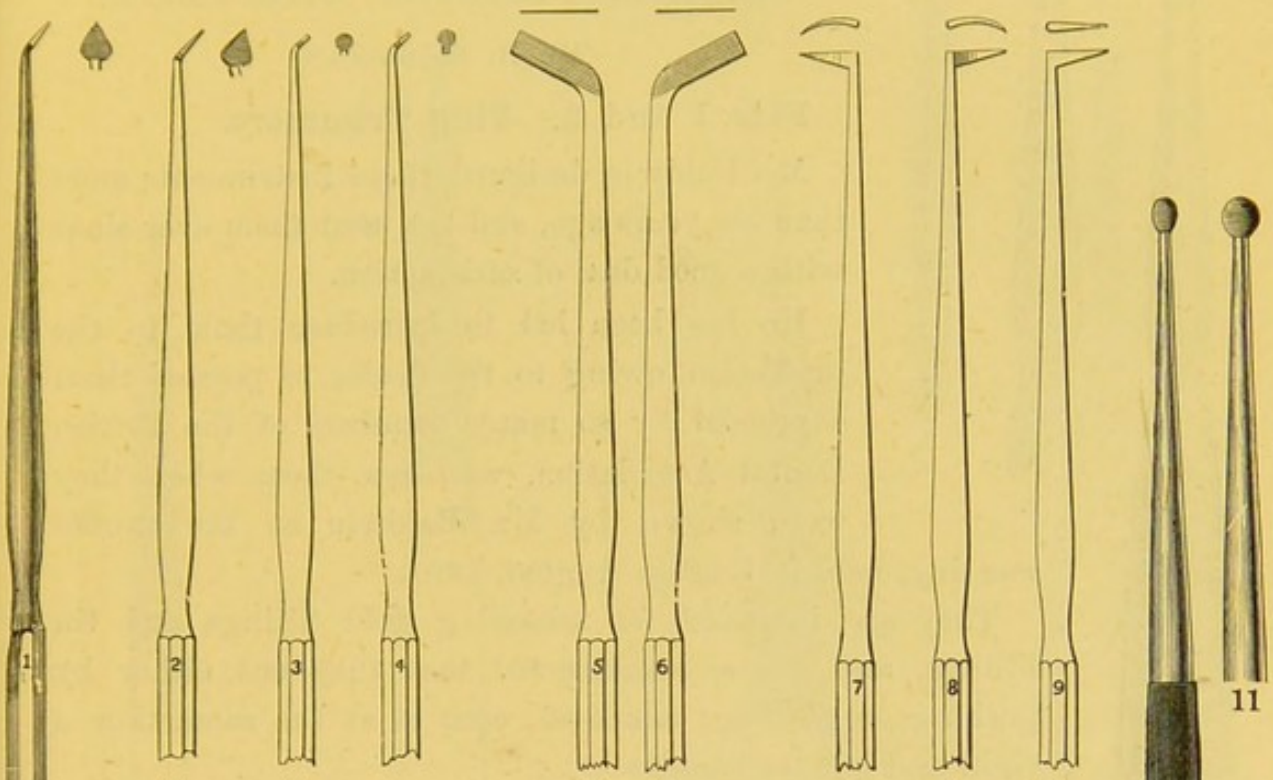
File for Saw Frame.

		s.	*d.*
Separating Files, push cut, in six sizes, 000 to 3 .. .. .. per doz.		5	3
„ „ draw cut, in four „ 000 to 1 .. .. .. „		5	3
„ Saws, size 000, cut on edges only .. .. „		4	2
Plug Finishing Files, one size, thin, narrow and tapering .. .. „		8	4
Finishing Strips, in three sizes, broad, medium, and narrow .. .. „		4	2
Saw Blades for the Kaeber Frame, two sizes, broad and narrow .. „		3	2
Files for Saw Frames .. .. „		4	2

The Files cut on both edges and one side; the other side is smooth.
The Saws cut on both edges; the two sides are smooth or safe.

A variety of Froid's Dividing Files kept in stock.
Other Dividing Files supplied to order.

PLUG TRIMMERS.



1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

In Steel octagon handles, blued :—

		s.	d.
Dr. Redman's	(Figs. 1, 2, 3, 4) each	1	0
Mr. C. Rogers'	(„ 5 and 6) „	1	3
Square edge	(„ 7, 8, 9) „	1	0

Fig. 1, cut on the outside, is for trimming plugs in the mesial surfaces of molars and bicuspids; Fig. 2, cut inside, is for the distal surfaces of the same teeth. Figs. 3 and 4, cut inside and outside respectively, are for smoothing the cervical edges of approximal cavities previous to filling.

Figs. 5 and 6, right and left, are for trimming down the cervical margins of fillings. They are used with a pushing motion, and literally cut the gold away without any chance of tearing or fraying its edges or surface.

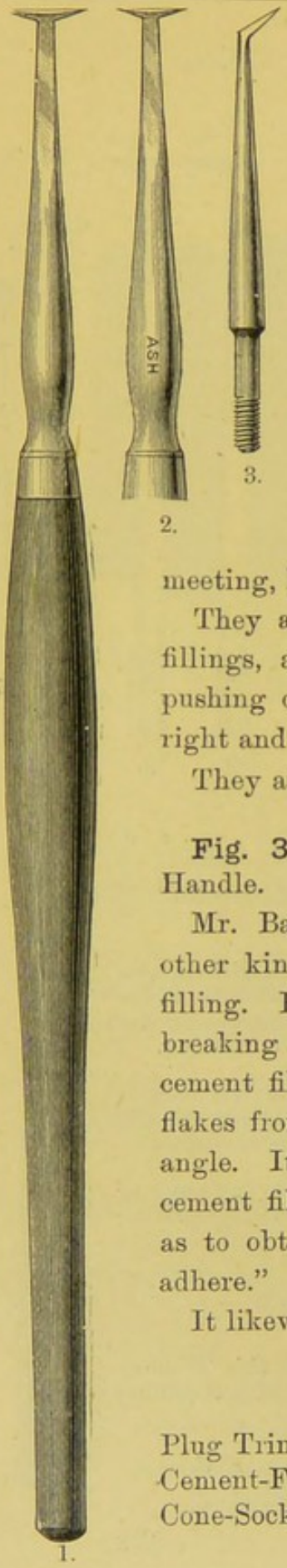
Figs. 7, 8, and 9, straight, right and left, are applicable to any angle or curve of any tooth, and can be used with a thrusting or drawing motion; they will also be found very useful as small scalers.

Figs. 10 and 11—SERRATED AND STONED.

Fig. 10. Oval, coarse cut, cut on one side only.
„ 11. Round, fine cut, cut on both sides. One side of this Trimmer is used with a pushing motion, and the other with a pulling motion.

Prices :

		s.	d.
In Ebony or blued Steel handles	(Fig. 10)	1	9
„ „ „	(„ 11)	2	0



PLUG TRIMMERS AND CEMENT-FILLING BREAKER.

(Mr. H. Baldwin's.)

Figs. 1 and 2.—Plug Trimmers.

Mr. Baldwin designed these instruments more than six years ago, and has used them ever since with a good deal of satisfaction.

He has been led to introduce them to the profession, owing to the desire to possess them expressed by so many members of the British Dental Association, who saw them when they were shown by Mr. Baldwin at the annual meeting, held in London August, 1891.

They are intended for trimming gold fillings and tin fillings, and are so constructed that they cut either by pushing or pulling; moreover, each is at the same time a right and left instrument.

They are made to patterns approved by Mr. Baldwin.

Fig. 3.—Cement Filling Breaker, for Cone-Socket Handle.

Mr. Baldwin claims that this instrument surpasses any other kind used for the purpose of breaking up a cement filling. He says: "There is not the slightest danger of breaking the tooth when using it. It readily digs into a cement filling, even on a sloping surface, and raises large flakes from it. The instrument should be pushed in at an angle. It is also useful for scratching the surface of a cement filling which has become hollowed out by wear, so as to obtain a rough surface to which fresh cement will adhere."

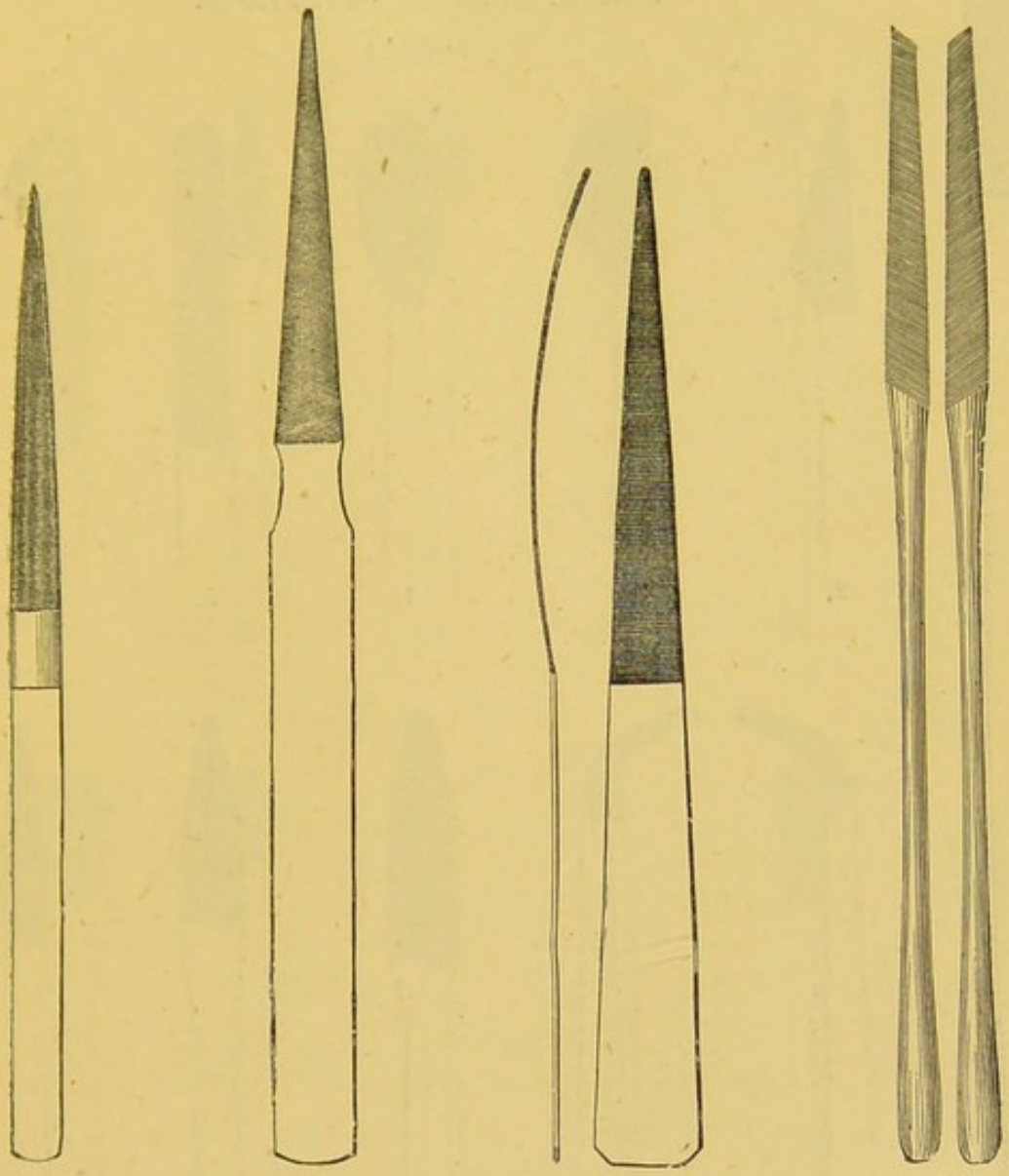
It likewise serves as a useful Plug Trimmer.

Prices:

			s.	d.
Plug Trimmers in Ebony handles	(Figs. 1, 2)	each	2	3
Cement-Filling Breaker ..	(Fig. 3)	„	0	9
Cone-Socket Handle for ditto ..	.. ..	„	0	6

FINISHING FILES.

(Stubs' and French.)



9. 10. 11. 12.

			s.	d.
Fig. 9,	half-round pointed, straight, cut all over ..	each	0	6½
„ 10,	„ „ straight and curved, one safe side	„	0	6½
„ 11,	half-round pointed, straight and curved, cut all over, sizes 0, 1, 2	„	0	4
„ 11,	half-round blunt, cut all over, sizes 0, 1, 2 ..	„	0	4
„ 12,	Dr. Taft's spring tempered, made in rights and lefts	„	0	5½
„ 12	„ „ „ „ „	per doz.	5	0

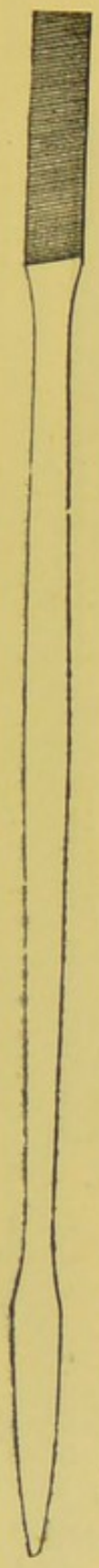
The side view of Fig. 11 shows the bend of the curved.

Size No. 1 is given in the Illustration.

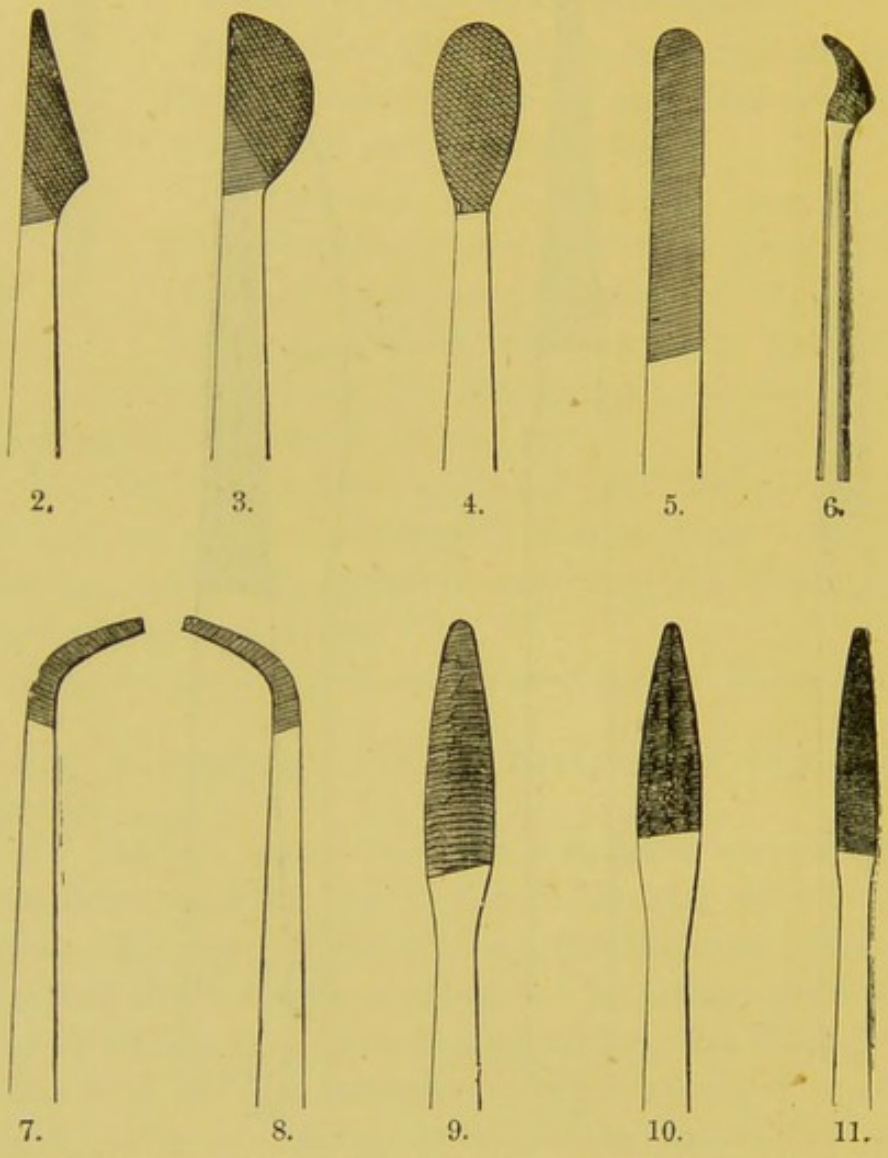
RIFFLERS.—Double-ended.

FOR FINISHING STOPPINGS.

(Stubs'.)



1.



2. 3. 4. 5. 6.

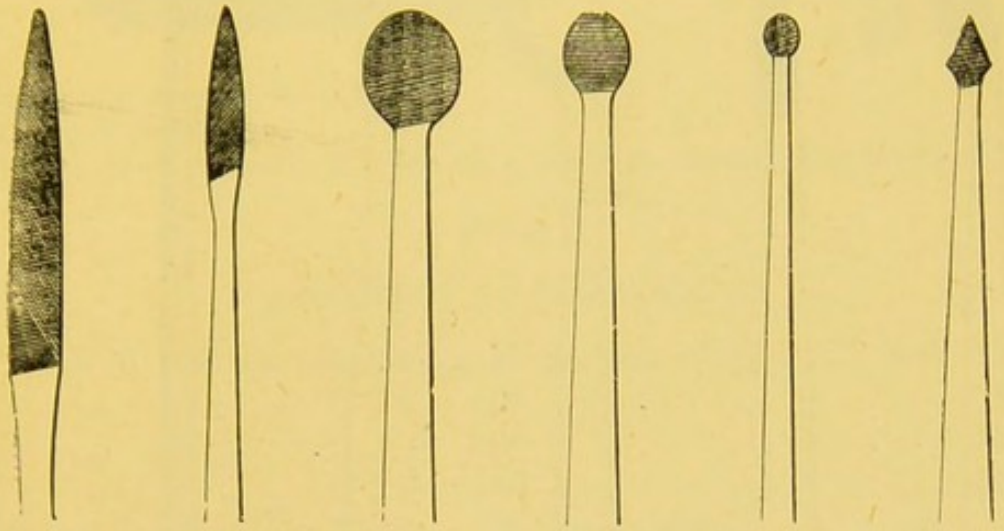
7. 8. 9. 10. 11.

					s.	d.
Fig. 1.		Flat, curved, and half-round—curved at other end	each		0	7½
,,	2, 3, 6	,, straight—other end same shape	,,		0	7½
,,	4	,, curved ,, ,,	,,		0	7½
,,	5	,, straight and narrow ,,	,,		0	7½
,,	7, 8	,, right and left sides ,,	,,		0	7½
,,	9, 10.	Half-round, curved ,,	,,		0	7½
,,	11.	Oval, thin, curved ,,	,,		0	7½

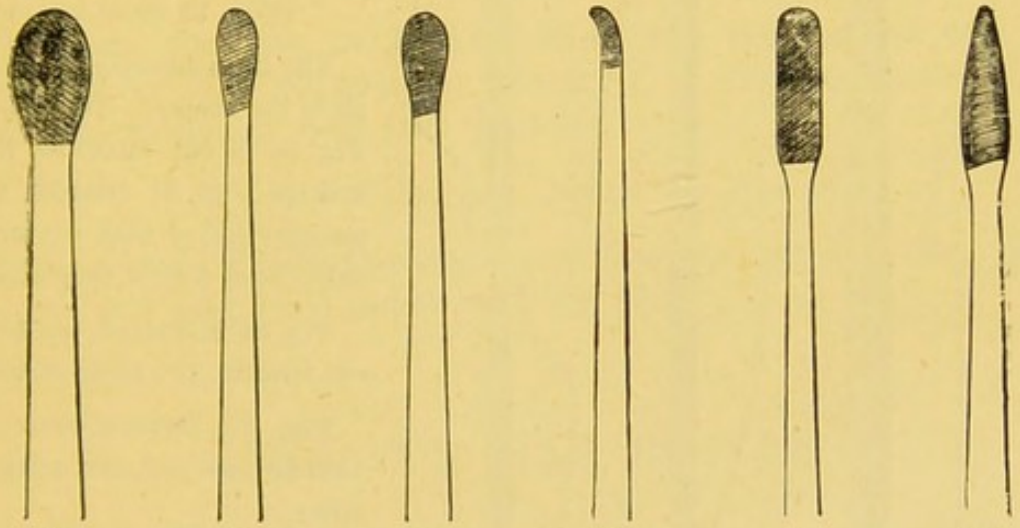
RIFFLERS.—Double-ended.

FOR FINISHING STOPPINGS.

(Stubs'.)



12. 13. 14. 15. 16. 17.



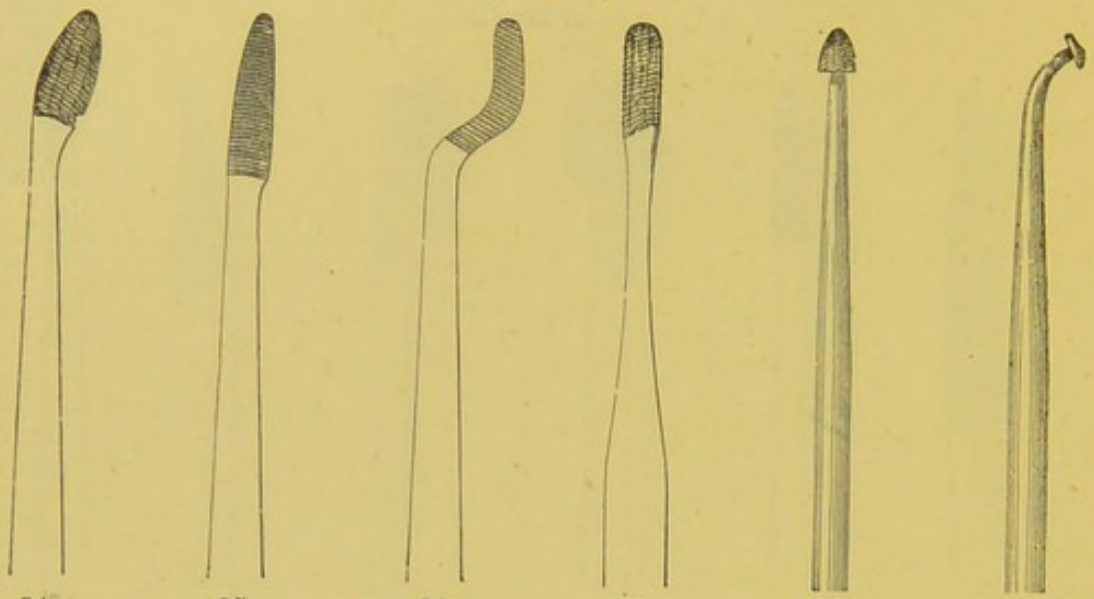
18. 19. 20. 21. 22. 23.

						s.	d.
Figs.	12 to 17,	Half-round,	curved—other end same		shape	each	0	7½
„	18 to 20,	Oval,	straight	„	„	„	0	7½
„	21	„	curved	„	„	„	0	7½
„	22	„	straight, thin	„	„	„	0	7½
„	23	„	curved	„	„	„	0	7½

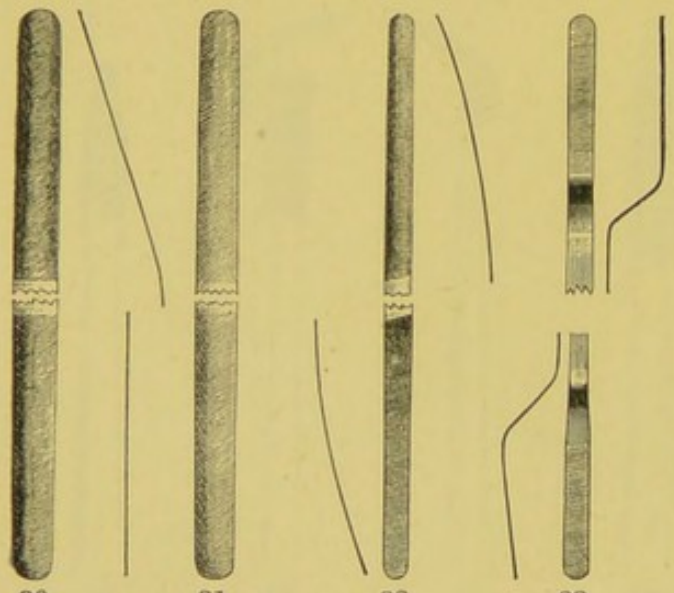
RIFFLERS. — Double - ended.

FOR FINISHING STOPPINGS.

(Stubs'.)



24. 25. 26. 27. 28. 29.



30. 31. 32. 33.

NEW SHAPES.

(Figs. 30 to 33 fine cut.)

The lines between these Rifflers show the shapes. The bent end of Fig. 30 is cut **outside**, the bent end of Fig. 31 **inside**, and the straight end of both **on one side** only. They form a very useful pair.

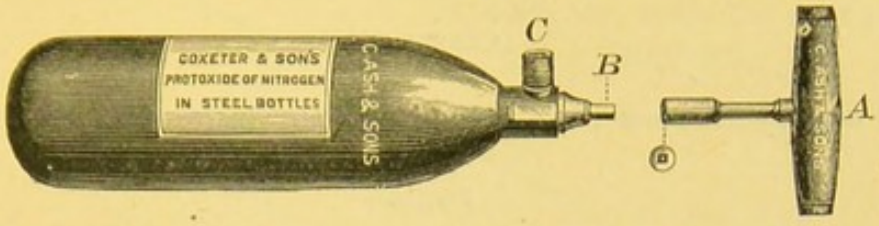
Fig. 32 is curved, one end being cut **inside**, the other **outside**.

Fig. 33, Bayonet-shape, is cut **inside** one end, and **outside** the other.

			s.	d.
Fig. 24.	Oval, thin, flat—other end curved	each	0	7½
„ 25, 26.	„ „ straight—other end same shape ..	„	0	7½
„ 27, 28.	Round, straight „ „ „ ..	„	0	7½
„ 29.	Half-round, curved „ „ „ ..	„	0	7½
„ 30 to 33.	See description above	„	0	7½

Rifflers for Vulcanite Work, see page 574.

NITROUS OXIDE GAS AND BOTTLES.



A. Key for releasing the Gas.
B. Tap of Gas Bottle.
C. Male Screw on bottle, to which the union of the Cattlin's Bag is attached.

Prices:

(COXETER'S OR CLARKSON'S.)

									s.	d.
Steel or Iron Bottles, containing				50	gallons	of	Gas	each	29	6
,,	,,	,,	,,	100	,,	,,		,,	36	6
,,	,,	,,	,,	200	,,	,,		,,	63	0
,,	,,	,,	,,	500	,,	,,		,,	100	0
* Refilling Steel or Iron Bottles				50	gallon-size			,,	4	6
* ,,	,,	,,		100	,,			,,	9	0
* ,,	,,	,,		200	,,			,,	18	0
,,	,,	,,		500	,,			,,	40	0

*** When the gas in bottles that are refilled at one time amounts to 300 gallons, or more, it is charged at the rate of eight shillings per 100 gallons.**

For 1000 *Gallon-size Bottles see page* 424.

For Clarkson's Pedal Attachment, with Spanner and Foot Key, for 100, 200, *and* 500 *gallon-size bottles, see page* 425.

KEYS FOR GAS BOTTLES.

			s.	d.
Plain Steel, japanned	.. ..	each	2	0
,, ,, Nickel-plated	.. ..	,,	3	6

NOTE.—In order to avoid disappointment we desire to state that we are unable to lend bottles, but to save delay we usually forward refills immediately the empty bottles come to hand. We are careful to see that every bottle is perfect and contains the full weight of gas before it leaves our possession, a practice which forms the most safe guarantee that we can offer to the profession.

NITROUS OXIDE GAS—*continued.*

(CLARKSON'S.)

We now supply Nitrous Oxide Gas in 1,000 Gallon-size Steel Bottles.

Prices :

		£	s.	d.
1,000 Gallon-size Bottle full of Gas		8	0	0
Separately:	Empty Bottle	4	0	0
	1,000 Gallons Gas	4	0	0

Clarkson's Pedal Attachment, as shown on the next page, can be had to order for these 1,000 Gallon-size bottles.

Those dentists residing at a distance from the depôts—in the Provinces, on the Continent and in the Colonies—will find the 200, 500, and 1,000 gallon bottles very convenient, as they can be packed in less space and are lighter than two, five, or ten 100 gallon bottles respectively, and they are now made of such good, sound material that we can confidently recommend them for strength and safety.

NOTE.—We have sometimes been asked if Nitrous Oxide Gas deteriorates with age. A reference to some of the old Journals will show that this question has been discussed again and again and decided in the negative.

We have had Gas returned to us from two to three years old, which was quite good and pleasant to inhale. We cannot conceive how the Gas can deteriorate in a steel or iron bottle in which it is hermetically sealed.—CLAUDIUS ASH AND SONS, Limited.

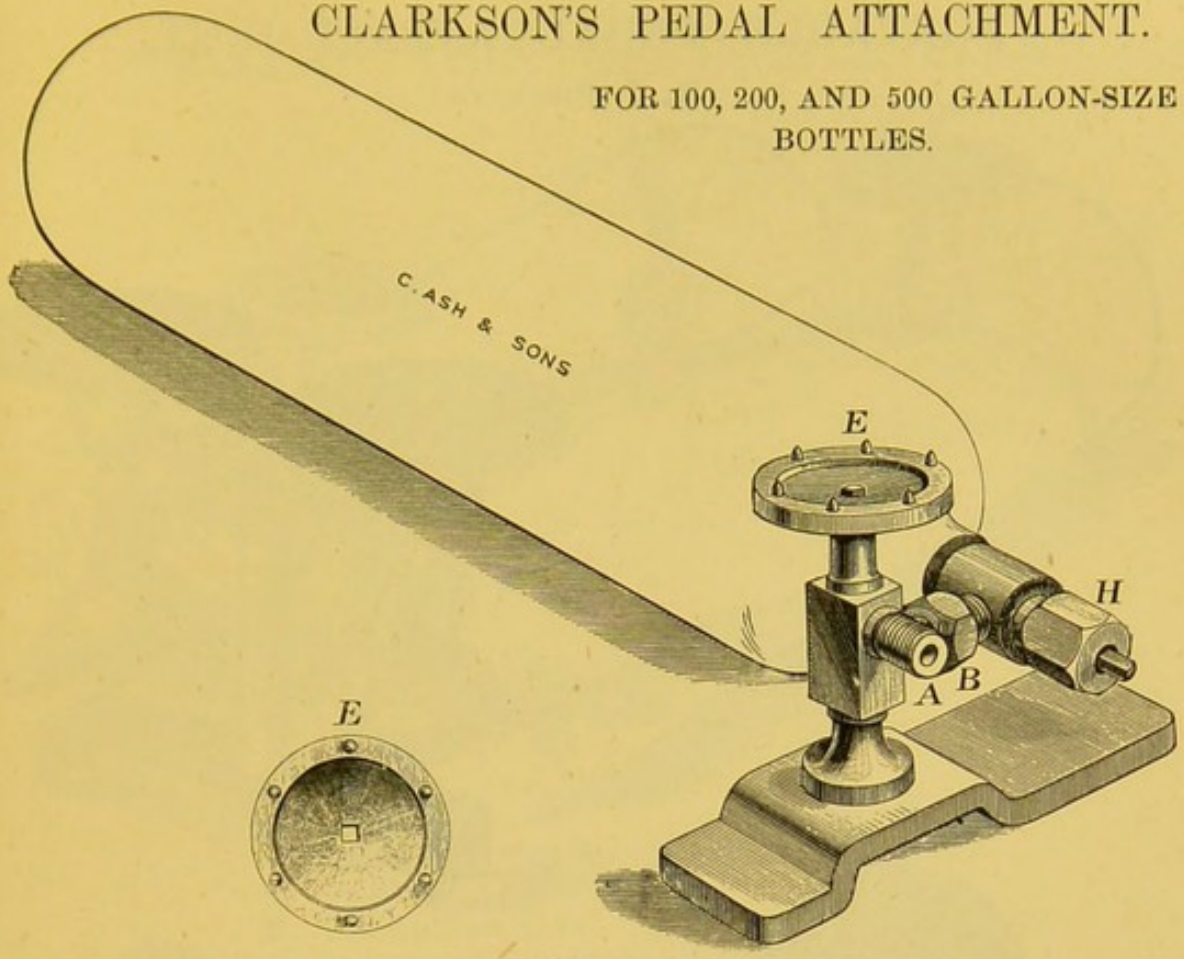
OXYGEN GAS.

For use in conjunction with Nitrous Oxide; also for use with Fletcher's Oxygen Blowpipe, and for other purposes :—

		s.	d.
In Bottles containing 30 gallons		32	6
Separately:	Bottle	27	6
	Oxygen	5	0
Price for refilling Bottles with Oxygen	per gallon	0	2

CLARKSON'S PEDAL ATTACHMENT.

FOR 100, 200, AND 500 GALLON-SIZE BOTTLES.



Description.

A. Male Screw to which the Union of the Cattlin's Bag is attached.
B. Union connecting Pedal Attachment to Gas Bottle.
E. Foot Key for opening the Tap of the Gas Bottle and releasing the Gas.
H. Brass Washer for protecting the lower part of the Tap on the Gas Bottle.

It is the simplest Pedal Attachment that has yet been introduced for 100, 200, and 500, Gallon-size Bottles.

	s.	d.
Price, including Foot Key and Spanner	21	0

WOODEN CASES FOR GAS BOTTLES.

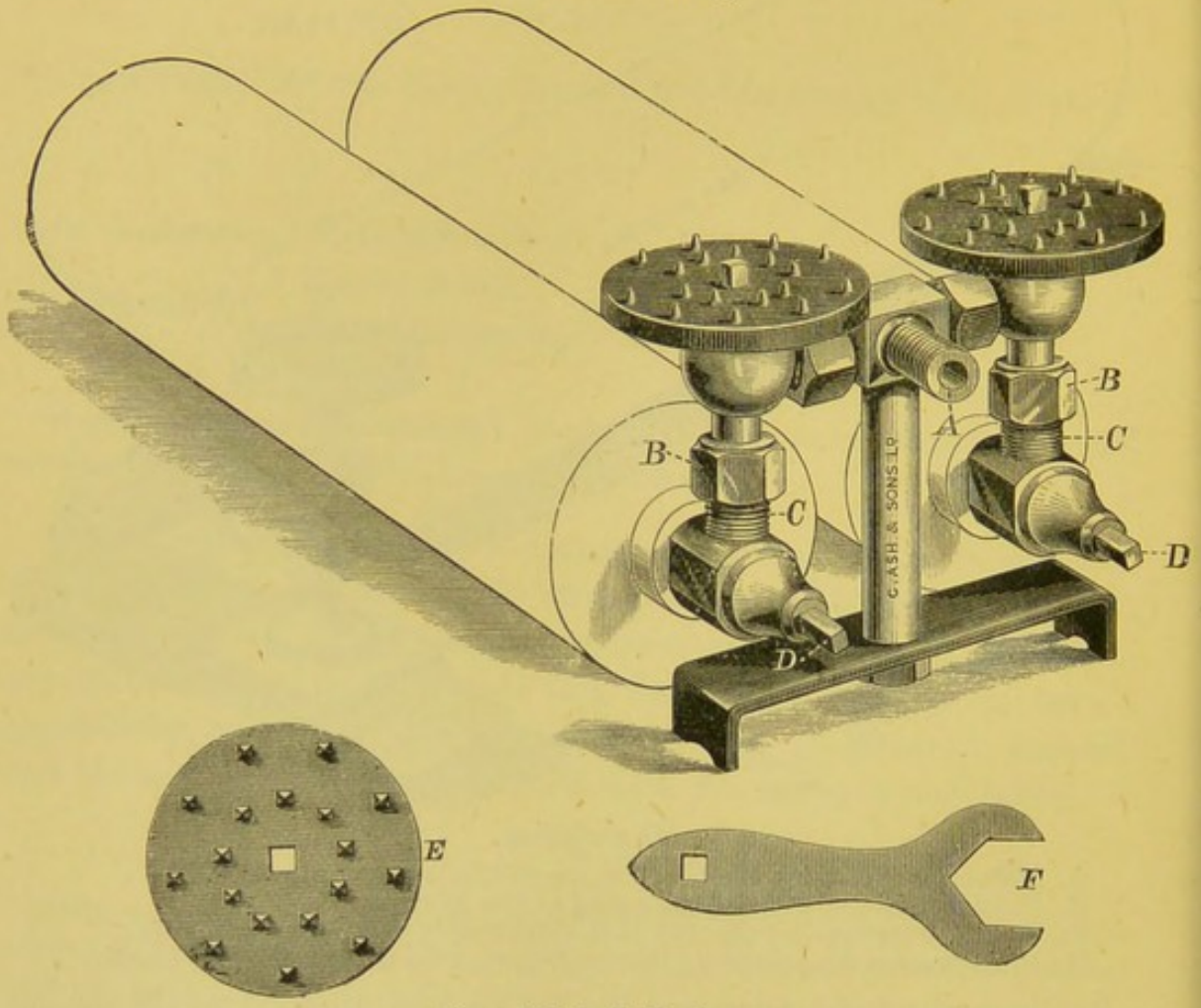
These Cases are made of stout deal, iron hooped, and with reversible screw lids. They are intended for the conveyance of Nitrous Oxide Gas Bottles by rail, &c., and will stand rough usage. One side of the lid is reserved for the name and address of the dentist, and the other for our own, so that all that need be done—say, when an empty bottle is to be returned to us—is to turn over the lid, screw it on, and the case is ready for forwarding. The trouble of writing and affixing a label each time is thus saved; the case can be sent to and fro a great many times before it is worn out, and the lid always bears the name and address of the owner, so that there can never be any doubt where it comes from. We can speak from experience of their durability.

Prices :

	s.	d.
Case to hold one Fifty-gallon bottle	1	9
,, ,, two ,, ,, ...	2	3
,, ,, one One hundred-gallon bottle	2	3
,, ,, two ,, ,, ...	2	9

PORTABLE PEDAL ATTACHMENT.

(Mr. P. Edgelow's.)



One-third full size.

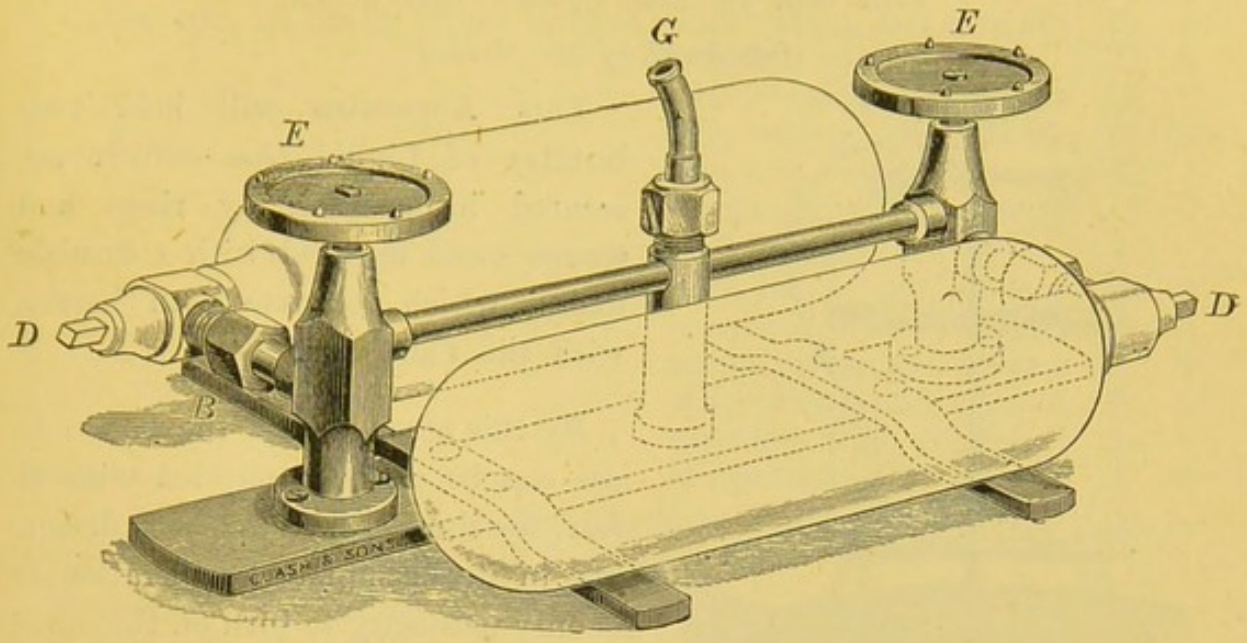
A. Male Screw to which the Union of the Cattlin's Bag is fixed.
B. Unions for attaching to Gas Bottles.
C. Male Screws on Gas Bottles.
D. Taps of Gas Bottles.
E. Shows one of the Foot Keys.
F. Spanner for attaching Unions to Gas Bottles.

In shutting off the gas with this Pedal Attachment no force whatever is necessary. The valve plug is so finely turned that an easy movement closes it effectually. In this respect the Pedal Attachment differs entirely from the taps of gas bottles, which sometimes require considerable force to open and close.

Being portable, it is specially suited for carrying about in the Anæsthetist's Hand Bag.

	s.	*d.*
Price complete, with Spanner, Plug and 2 Circular Foot Keys ..	27	6

WELLER'S TWIN GAS-BOTTLE STAND.



Description.

B. Union connecting Gas Bottle with stand.
D. Taps of Gas Bottles.
E. Circular Foot Keys.
G. Union to which tubing of Cattlin's Bag is attached.

Directions for Use.

Fix the two bottles—fifty-gallon or one-hundred-gallon size, steel or iron—by means of the Unions B. Attach the union of the Cattlin's Bag to the stand, as shown under G. Open the Taps D of the bottles.

The apparatus is now ready for use. A slight unscrewing movement with the foot on either Foot Key E releases the gas, which will freely enter the Cattlin's Bag, and a gentle screwing-up motion with the foot turns off the gas. Scarcely any force is required to work the Foot Keys.

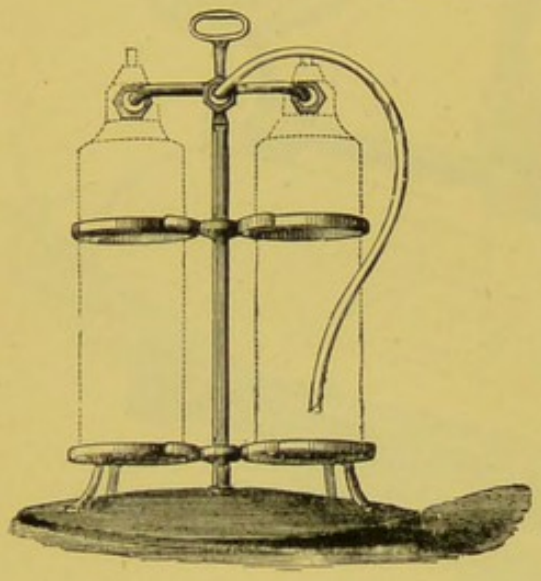
Prices:

	s.	*d.*
Stand, with two Foot Keys E and Spanner F, as shown on previous page, but minus Union G	30	0
The same, with Upright Rod, on which there are two Spirals for holding Facepiece, &c.	42	0
Ditto ditto Nickel-plated throughout	57	0
Union G .. .. extra	3	6
Upright Rod, for any Weller's Stand now in use, to fit on screw in place of mount G .. .. Lacquered	14	0
" " " " Nickel-plated	17	0

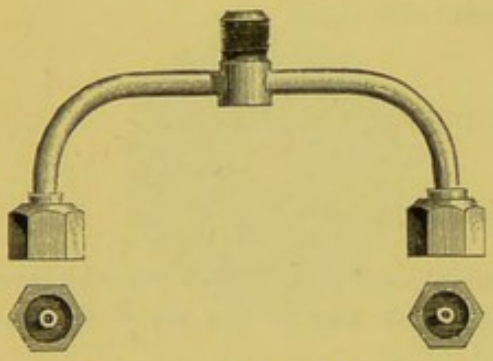
LIQUID GAS BOTTLE STAND,

FOR USE IN THE OPERATING ROOM.

(Introduced by Mr. NAPIER.)



DOUBLE UNION.



Suitable for use with two bottles with or without the Gas Stand.

This Apparatus will hold **two bottles** of Liquid Gas—which are secured in position by rings and screws—and is fitted with a **double union** which connects both bottles with the Facepiece.

By this arrangement the bottle in use can be entirely emptied without fear, for should there not be sufficient gas in it to complete an operation, it is only necessary to turn on the other bottle.

After the operation is completed, if another full bottle is not at hand, the double union can be removed, and the **union** of the Cattlin's Bag fixed to the remaining bottle, while the empty one is being refilled.

The Stand is made of iron, japanned, and the Union of gun-metal; the whole being light and portable.

Prices:

	s.	*d.*
Stand to hold two 50-gallon Bottles, with Double Union, complete	30	0
„ „ two 100-gallon „ „ „ „	30	0
Double Union only, for two 50-gallon Bottles, as illustrated ..	8	6
„ „ for two 100-gallon „ „ ..	8	6
„ „ in Steel, for either size	14	0
Double Unions, Nickel-plated .. .. extra	2	6
Long Gas Key	5	6

In ordering, please state whether the Stand and Union are required for two 50 or two 100-gallon Bottles.

CATTLIN'S BAGS, &c.*

		s.	d.
3 Gallon size, **in black sheet rubber,**	with tubing and mounts	23	6
3 „ „ „	complete with quieter ..	30	0
3 „ „ „	minus tubing and mounts	12	6
5 „ „ „	with tubing and mounts	30	0
5 „ „ „	complete with quieter ..	36	6
5 „ „ „	minus tubing and mounts	18	0
3 „ **in red or grey vulcanized rubber:—**			
	with tubing and mounts	23	6
3 „ „ „	complete with quieter ..	30	0
3 „ „ „	minus tubing and mounts	10	6
5 „ „ „	with tubing and mounts	30	0
5 „ „ „	complete with quieter ..	36	6
5 „ „ „	minus tubing and mounts	17	0

We also supply strong, check, Gas-tight Canvas Bags, very light in weight, for India and other hot climates.

Rubber Apron, as used at the Dental Hospital of London, to prevent the garments of patients being soiled during the administration of anæsthetics. The Apron is about 5 feet long by about 43 inches wide, and is provided with weighted flaps, which hang over the shoulders to keep it in position; colour, black outside, light check inside.

	s.	d.
Price	11	6

SUPPLEMENTAL BAGS.*

	s.	d.
In black sheet rubber, complete with mount	12	6
Bag only, in black sheet rubber	6	6
In red or grey vulcanized rubber, complete with mount ..	12	6
Bag only, in red or grey vulcanized rubber	6	6

METAL PARTS FOR GAS BAGS,

IF SUPPLIED SEPARATELY.

		s.	d.
Single Union for Cattlin's Bag	Lacquered	3	6
„ „ „ „	Nickel-plated	4	3
Gas Quieter with unions for attaching to the India-rubber tubing of Cattlin's Bag, and the outlet tap of Gas Bottle	Lacquered	8	0
„ „ „	Nickel-plated	11	0
Mount with Stopcock for Supplemental Bag ..	Lacquered	6	0
„ „ „ „ ..	Nickel-plated	7	6

* These Bags in **black sheet rubber,** and **red or grey vulcanized rubber,** have quite superseded the old kind which were made of red sheet rubber.—C. A. & S.

PORTABLE LIQUID GAS CASE.

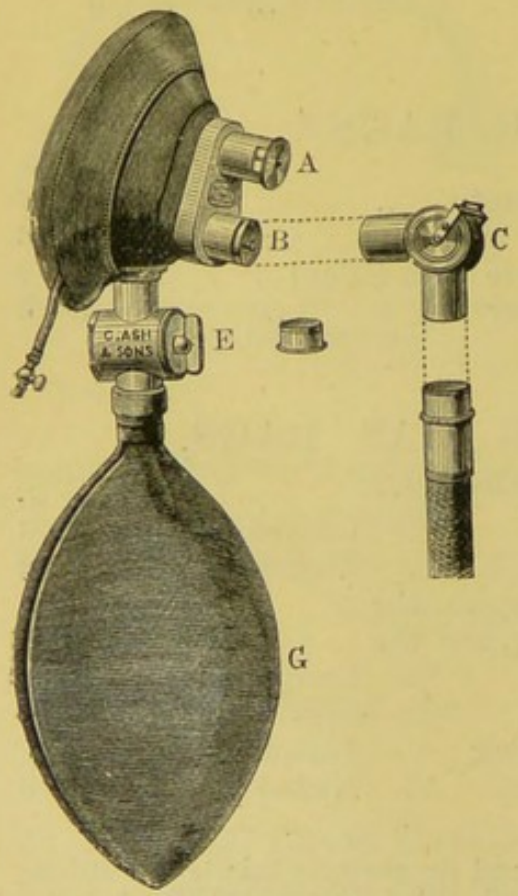
TO HOLD A 50 OR A 100-GALLON BOTTLE AND COMPLETE OUTFIT FOR THE ANÆSTHETIST WHEN VISITING.

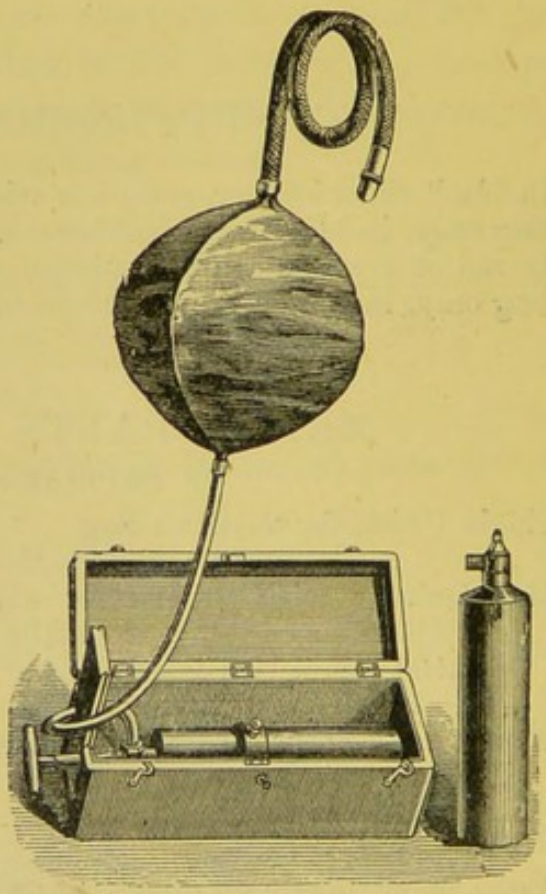
In addition to the Bottle of Gas, Key, and Cattlin's Bag, the Leather Case shown on the right-hand side of this page will hold two Facepieces, the Supplemental Bag G, Two-way Stopcock C, and a set of Gags, &c.

The following description and remarks relating to the Supplemental Bag, as used with this and other Facepieces, are taken from the second edition of Underwood and Braine's *Notes on Anæsthetics in Dental Surgery*:

"*Administration.*—Gas is inhaled by turning the stopcock C, and expired through the valve A. When the patient has taken seven or eight respirations of gas, the tap E is turned, and the forefinger placed upon the expiratory valve A to prevent its working, the result being that the patient breathes backwards and forwards into the supplemental bag G, alternately emptying and distending it. By releasing the valve at A occasionally, and at the same time applying hand pressure upon the supplemental bag in order to empty it, fresh gas can be inhaled through the inspiratory valve B.

It is stated by some that a longer anæsthesia can be obtained by the use of a supplemental bag. It undoubtedly economises the gas, but it takes longer to produce anæsthesia, causes more blueness of the countenance than does pure nitrous oxide, and is more apt to be followed by headache, &c."





PORTABLE LIQUID GAS CASE—*continued.*

Prices:

	s.	d.
Apparatus, consisting of—		
Wrought-Iron Bottle, containing 100 Gallons of Coxeter's or Clarkson's Gas	36	6
Gas Key	2	0
Spanner for attaching Union to gas-bottle	1	6
Cattlin's Bag to hold about 3 gallons, with Brass Mount and Union	23	6
Two Facepieces, large and medium (or small)	40	0
Supplemental Bag with Stopcock—G	12	6
Two-way Stopcock to connect Facepiece and Cattlin's Bag ..	7	6
Set of 3 simple Gags	3	9
Leather-covered Wooden Box ($16\frac{3}{4}$ by $6\frac{3}{4}$ inches), with Lock and Key, to hold all the above apparatus	16	0
	143	3
Apparatus, consisting of—		
Wrought-Iron Bottle, containing 50 gallons of Coxeter's or Clarkson's Gas	29	6
Gas Key	2	0
Spanner for attaching Union to gas-bottle	1	6
Clarkson's Pedal attachment for a single bottle	12	6
Cattlin's Bag, to hold about 3 gallons, with Brass Mount, Union and Gas Quieter	30	0
Two-way Stopcock	7	6
Two Fig. 3 Facepieces, minus Mount E., large, medium, or small	34	0
Dr. Hewitt's fixed Gag	4	6
Mr. Braine's Tongue Forceps	9	0
Leather Hand-Bag, with Lock and Key, made of the best Cow-hide, to hold the above outfit	21	0
	151	6

Anæsthetist's Hand-Bag for holding two one-hundred gallon bottles of Nitrous Oxide Gas, made of the best Cowhide, complete, with Fittings and Lock and Key, to order .. 45 0

INDIA-RUBBER FLAP VALVES.

(Suggested by Mr. P. Edgelow.)

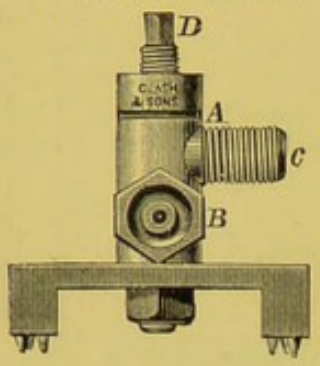
See page 174 of the September, 1891, number of our Quarterly Circular.

	s.	d.
Existing Facepieces altered to take Flap Valves .. .. each	5	0
Extra Flap Valves for renewing .. .. „	0	6

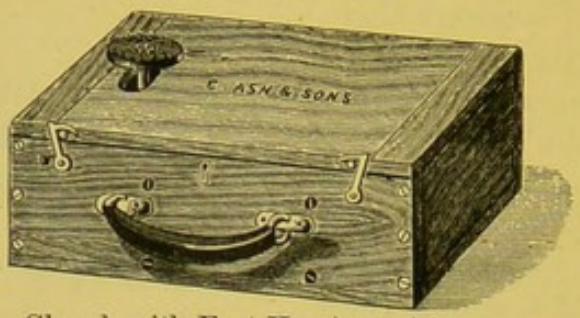
GAS BOX WITH PEDAL ATTACHMENT,

ARRANGED TO HOLD TWO BOTTLES OF LIQUID GAS.

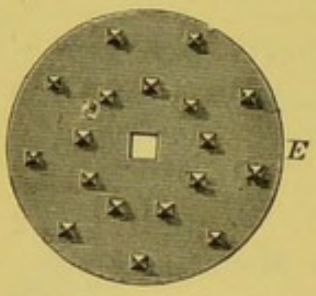
PEDAL ATTACHMENT.



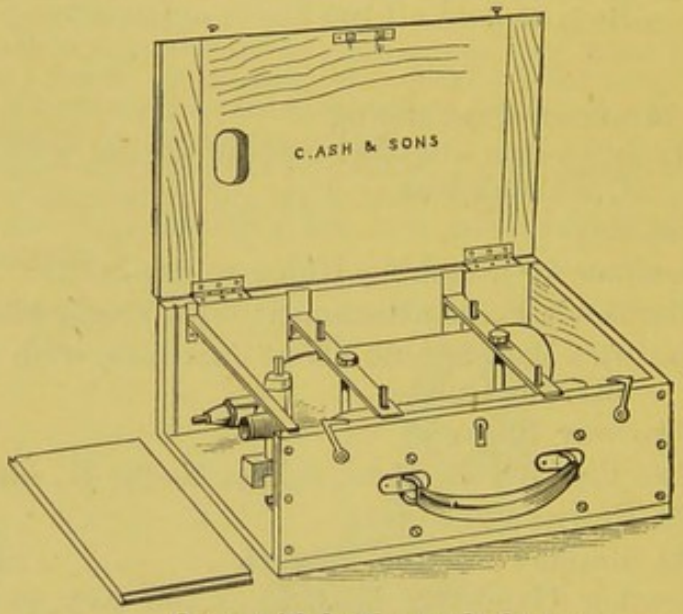
GAS BOX.



Closed, with Foot Key in position.



One-third full-size.



Open, with bottles ready for use.

Description of Pedal Attachment.

A. Brass Pillar with iron base.
B. Union for attaching to gas-bottles. There is a second union on the opposite side of the pillar.
C. Male screw to which the Cattlin's Bag is fixed.
D. Tap leading to bottle.
E. Foot Key for releasing the gas.
F. Spanner.

The Foot Key is shown in position on the top of the Gas Box in the closed illustration.

The Gas Box in outline gives an open view of the box with the bottles in position connected by the two unions B. The bottles are held securely in the iron framework by four screws, which can be tightened or released by the foot key E.

GAS BOX WITH PEDAL ATTACHMENT,

SUITABLE FOR USE EITHER IN THE OPERATING-ROOM OR WHEN VISITING.

The Pedal Attachment is designed to give complete freedom to the hands of the Anæsthetist during the administration of Nitrous Oxide Gas, and, being simple in construction, it can be regulated and worked with the greatest ease.

Directions for Use.

Connect the bottles to the attachment by means of the unions B; fit the union of the Cattlin's Bag on to the male screw C; open the tap of the bottle, place the foot key on the attachment, and release the gas by gently unscrewing.

When only one bottle is required, or while one is being refilled, the union not in use can be closed with a brass plug which we supply for that purpose.

Prices:

	s.	d.
Gas Box in Walnut, highly polished (to order) ..	40	0
To hold two one-hundred-gallon Bottles, Pedal Attachment, Foot Key E, and Spanner F.		
Gas Box in Walnut, highly polished (to order) ..	35	0
To hold two fifty-gallon Bottles, Pedal Attachment, Foot Key E, and Spanner F.		

Parts separately:

Pedal Attachment, with double union and foot key E ..	16	0
„ „ with single union and foot key E ..	12	6
(Made in two sizes for use with 50 and 100-gallon bottles.)		
Spanner F	1	6
Brass Plug for closing either union	1	6

The size of the box for two one-hundred-gallon bottles is about 17 × 11 × 6 inches (outside measurement); for two fifty-gallon bottles about 14 × 10 × 6 inches.

If filled with iron bottles, the total weight of the two one-hundred-gallon box is about 40 lbs.; of the two fifty-gallon box, about 29 lbs.

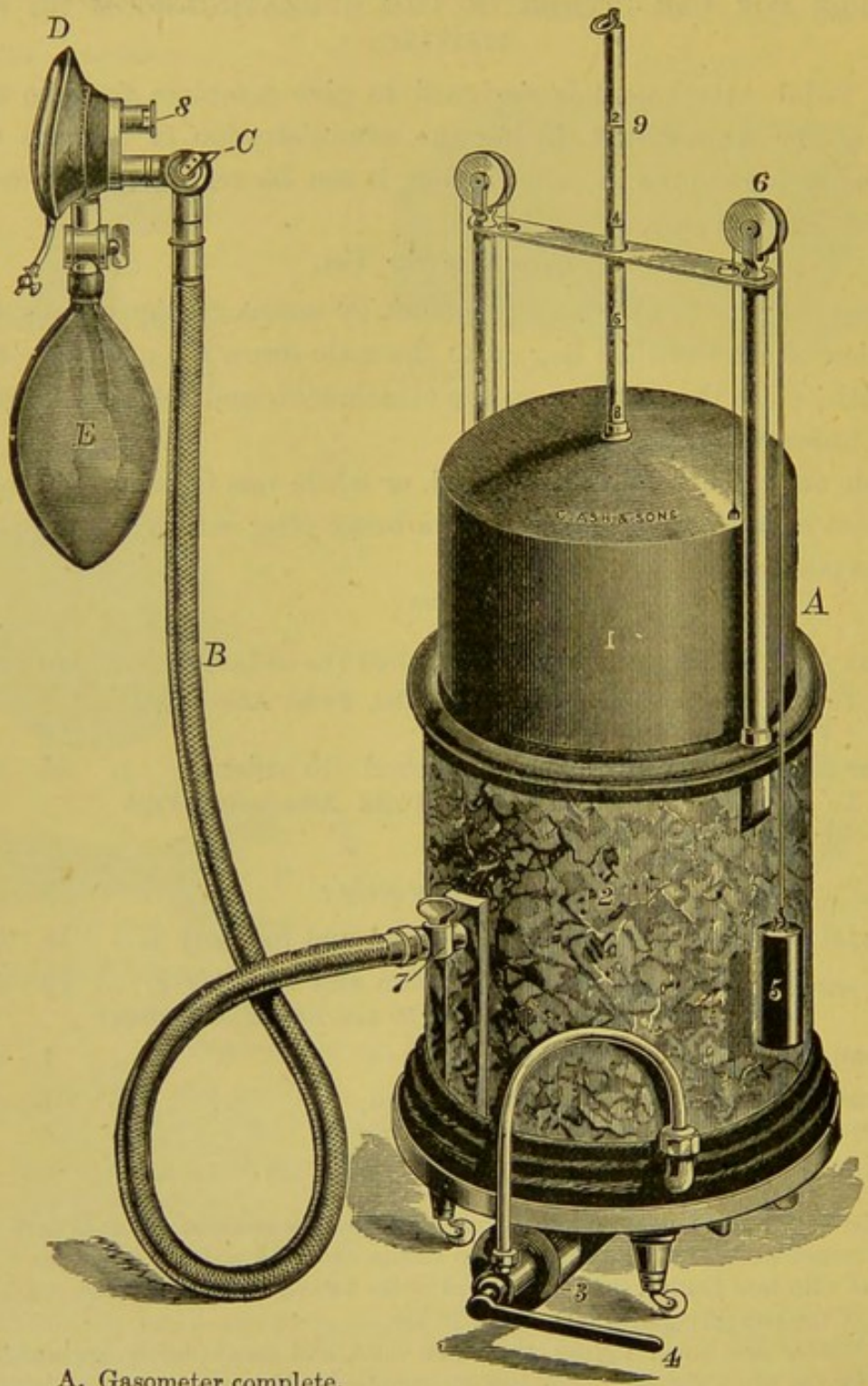
Steel bottles are much lighter than iron ones, and consequently are much more suitable for use when visiting. The two one-hundred-gallon box with steel bottles, &c. complete, weighs about 30 lbs.; the two fifty-gallon box with steel bottles, &c., about 22 lbs.

The boxes may be had in oak, to order, at the prices quoted above.

When ordering, please state which size box is required.

GASOMETER FOR LIQUID GAS,

FOR USE IN THE OPERATING ROOM.



A. Gasometer complete.
B. Mohair Tubing leading from Facepiece, &c., to Gasometer.
C. Two-way Stopcock connecting Facepiece with Mohair Tubing.
D. Clover's Facepiece with movable India-rubber Pad.
E. Supplemental Bag attached to Facepiece.

1. Drum of Gasometer.
2. Water Holder.
3. Gas Bottle.
4. Key for releasing the Gas.
5. Weights for raising the Drum.
6. Pulleys and brass Uprights.
7. Outlet Tap of Gasometer.
8. Expiratory Valve of Facepiece.
9. Centre brass Indicating Rod.

GASOMETER FOR LIQUID GAS—*continued.*

The Gasometer shown on the previous page is made expressly for holding Liquid Gas to be used in the Operating Room. It is illustrated with all the necessary parts attached that are required to make it complete and ready for use. Before the Gas is admitted, the Drum, No. 1, should be pressed down as far as it will go, and the Water Holder, No. 2, should be filled with pure water up to within about an inch of the top. The water requires renewing about every two months.

The centre brass rod, which is divided into intervals of two gallons each, indicates the quantity of Gas in the Gasometer at any given time. To ensure having sufficient for each operation, the Gasometer should be filled for each patient.

When the Gas bottle is empty, it can be replaced by a full one in a few minutes.

Prices:

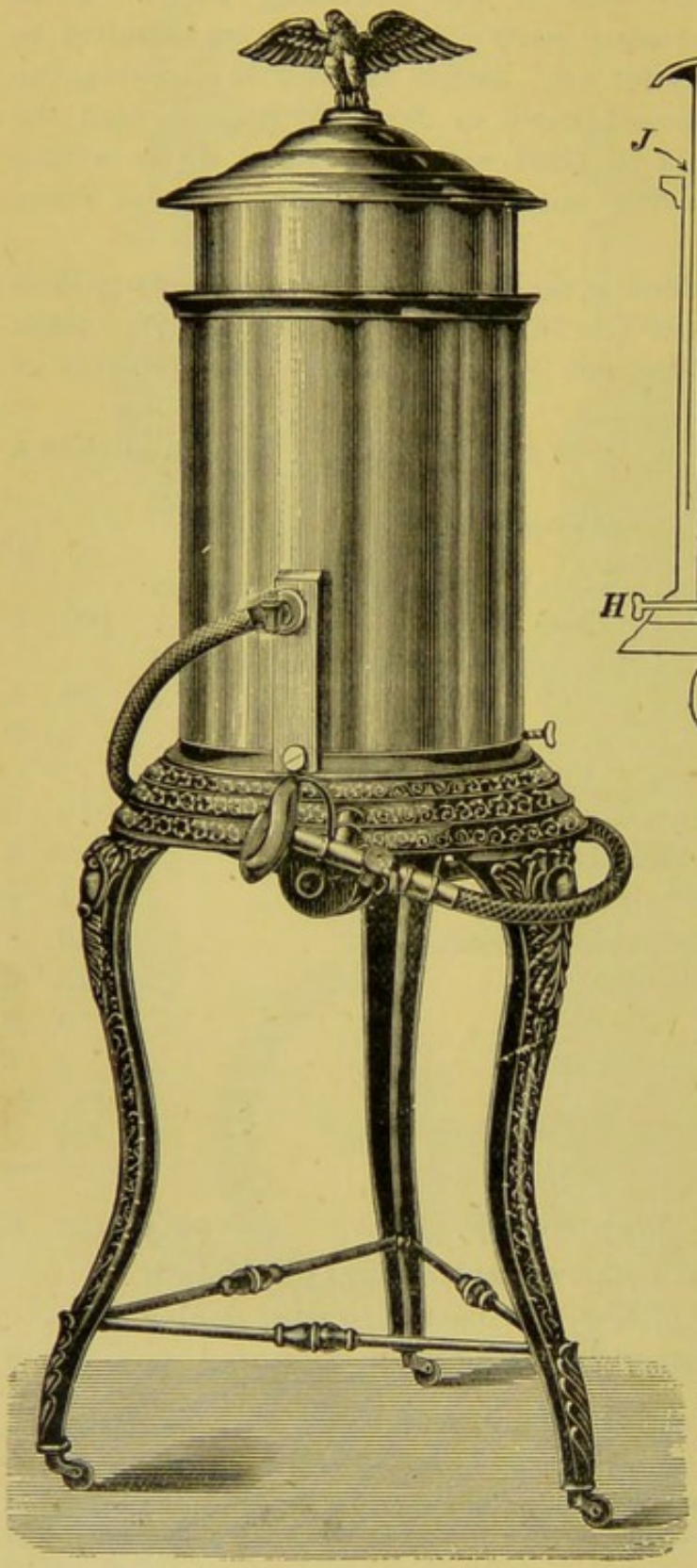
	s.	*d.*
*Gasometer, made of zinc and tastefully japanned in imitation of marble, to hold 8 gallons of Gas	100	0
Bottle containing 100 gallons of Coxeter's or Clarkson's Liquid Gas	36	6
Gas Key	2	0
Six feet of India-rubber Tubing, $\frac{3}{4}$-inch diameter, covered with mohair and wired inside	10	0
Two-way Stopcock in lacquered brass	7	6
Mount for upper part of mohair tubing	1	6
Two Clover's Facepieces, large and medium	40	0
Supplemental Bag, with Stopcock	12	6
Set of Gags, three sizes	3	9
Spanner	1	6
Complete	215	3
*Gasometers, as illustrated, 12-gallon capacity .. .. each	110	0
Either size Gasometer fitted with two sets of rings underneath for holding two bottles of Gas, and bent pipe with double union for connecting them, at an extra cost of	10	6

The Apparatus can be varied to any extent that may be desired.

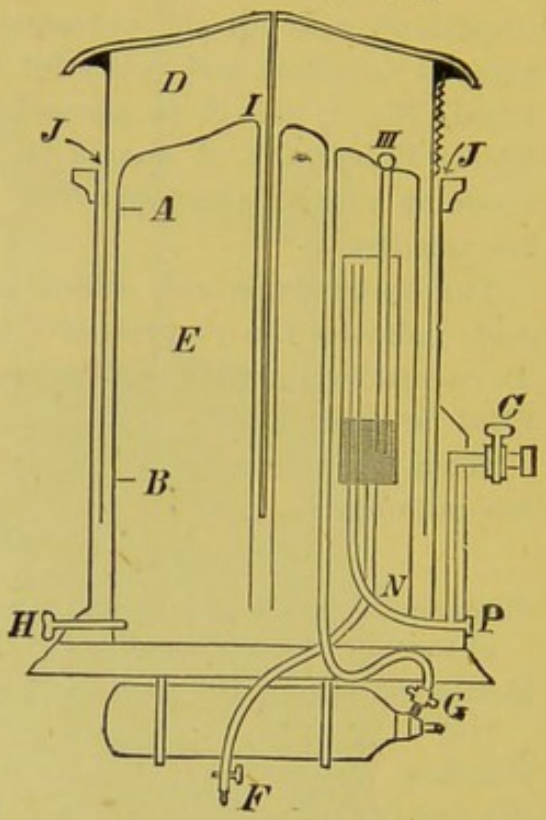
* These are usually supplied with ring underneath to hold a 100 gallon-size bottle, but they can be had to order at the same prices with ring to hold a 200 gallon-size bottle.

GASOMETER,

FOR LIQUID GAS, WITH LATEST IMPROVEMENTS.



SECTION OF GASOMETER.



Gasometer, to hold ten gallons, handsomely Nickel-plated, mounted on cast-iron stand elegantly japanned in black and gold, with water reservoir, 6 feet Mohair Tubing smooth inside, Nickel'd mounts, Two-way Stop-cock, and Clover's Facepiece with movable India-rubber Pad.

	s.	d.
Price	300	0

Gasometer, to hold eight gallons, same as above.

	s.	d.
Price	275	0

GASOMETER—*continued.*

Directions for Use.

Lift the bell D out of the drum E, and close the taps H and F. Leave the tap C and the screw G open.

Pour as much water into the reservoir III. as the tin can, supplied with the Gasometer, will hold up to the slot in the side. Fill the outer partition J of the drum E with water up to B, and very carefully replace the bell.

When this is done, add enough water to fill up to A, that is, to within 1½ inches of the rim. The small slide on the rim of E must remain drawn back.

Now connect the pipe G to the gas-bottle, and firmly screw up the nut; then close the tap C, attach the Mohair Tubing by means of the union, and the Gasometer will be ready for use.

Open the tap of the gas-bottle with the key supplied for that purpose, and gradually allow the gas to enter until the bell D is raised as high as the nine-gallon mark on the indicator. It must not be raised above the top of the water, or the gas will escape.

Nine gallons are sufficient for the ten-gallon size.

General Remarks.

It is advisable to use boiled or distilled water for pouring into the partition J, because ordinary fresh water leaves stains or water marks on the bright polish.

The water should not be too frequently renewed—once every two or three months will suffice—as each new supply absorbs a certain quantity of gas, and thus occasions loss. The old water is run off through the taps H and F.

Before admitting any gas, the Gasometer should be tested by filling it with water and allowing it to stand for twenty-four hours, to make sure that all the connections are perfectly secure. We carefully examine every apparatus before it is packed, but the act of packing necessitates the removal of some of the connections; hence the reason for this test.

Should a further test be considered desirable, empty the reservoir III. through the tap F; open the tap C and lift the bell D about two-thirds out of E. Then close the taps F and C, and note which figure on the gallon measure is level with the rim. Allow the Gasometer to stand for another twenty-four hours, and if the bell is in the same position at the end of that time, everything is in working order, and the directions for use may be followed, after the test water in J has been removed through the tap H.

There must be enough water in the reservoir to keep the bell D stationary when the tap C is open. The tin can, filled up to the slit in the side, holds just sufficient. If the air in the Gasometer can be inhaled without difficulty, and the bell slowly descends, the gas may be admitted; but if the air can only be inhaled with exertion, there is too much water in the reservoir, and a little should be emptied through the tap F.

If there is any difficulty in inhaling the gas, it will prove that water has found its way into the space N. When all the gas has been taken, this may be remedied by opening the screw P and the connection G, and allowing the water to escape.

The Gasometer should be filled up to the nine-gallon mark for each patient. It can be used without the reservoir, by leaving out the water and keeping the tap F firmly closed.

FACEPIECES, &c.

Fig. 2.

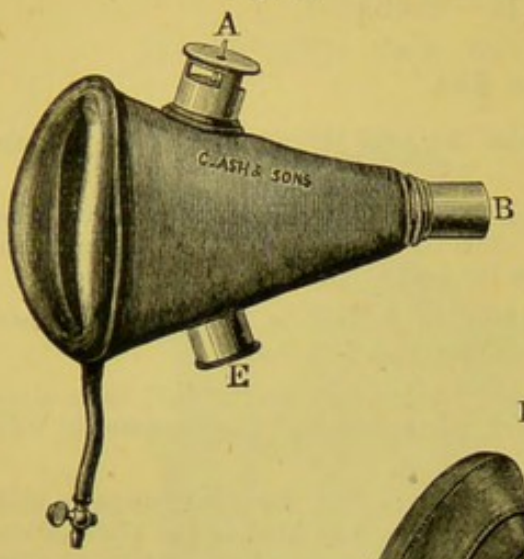


Fig. 3.

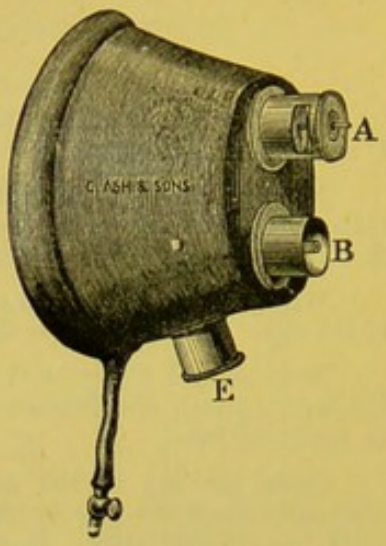


Fig. 1.

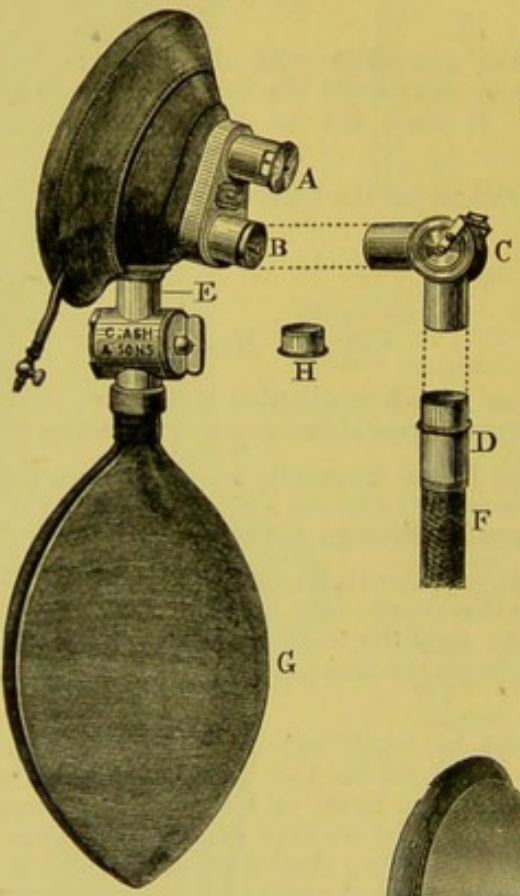


Fig. 5.

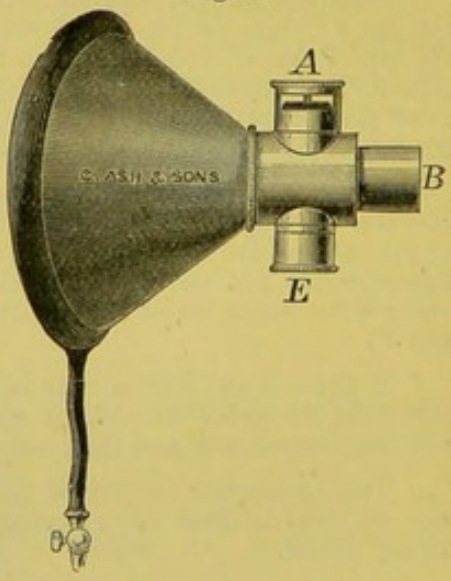
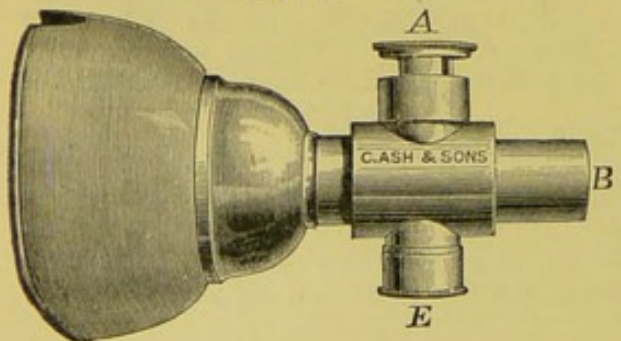


Fig. 4.



FACEPIECES, &c.

Description.

A. Expiratory Valve.
B. Inspiratory Valve.
C. Two-way Stopcock for connecting Facepiece with Cattlin's Bag, or Gasometer.
D. Mount attached to Mohair Tubing.
E. Mount for holding either an Ether or a Supplementary Bag.
F. Mohair Tubing leading to Cattlin's Bag, or to Gasometer.
G. Ether Bag or Supplemental Bag.
H. Cap to cover Mount when the Ether or Supplemental Bag is not used.

FACEPIECES.

		s.	d.
Fig. 1. (Clover's) with Mount E, large, medium, or small	each	20	0
„ 1. „ without „ „ „ „ „	„	17	0
„ 2. Funnel-shaped with „ „ „ „ „	„	20	0
„ 2. „ without „ „ „ „ „	„	17	0
„ 3. Flexible with „ „ „ „ „	„	20	0
„ 3. „ without „ „ „ „ „	„	17	0
„ 4. American pattern with Dr. Redman's improvements, Mount E, and Nickel-plated metal parts ..	each	25	0
The Rubber Cup of this Facepiece can be removed for cleaning.			
„ 5. With protected valves and Mount E	each	24	6
„ 5. „ „ „ without „	„	22	0
(Fig. 5 is the latest shape made.)			
Extra large Facepieces, in any shape except Fig. 4, supplied to order at an extra charge of	each	2	0
Facepieces Figs. 1, 2, 3, and 5 may be had to order with the metal parts nickel-plated instead of lacquered, at an extra cost of	each	2	6

FACEPIECE PADS, &c.

		s.	d.
Facepiece Pads, best sheet rubber, with Tap	each	5	6
„ „ „ „ without Tap	„	3	6
Two-Way Stopcocks—C, Lacquered	„	7	6
„ „ „ Nickel-plated	„	9	0
Mount D for Mohair Tubing, Lacquered	„	1	6
„ „ „ Nickel-plated	„	2	3

PATENT COMBINATION

STOPCOCKS AND VALVES.

(BARTH & Co.'s.)

Fig. 1.

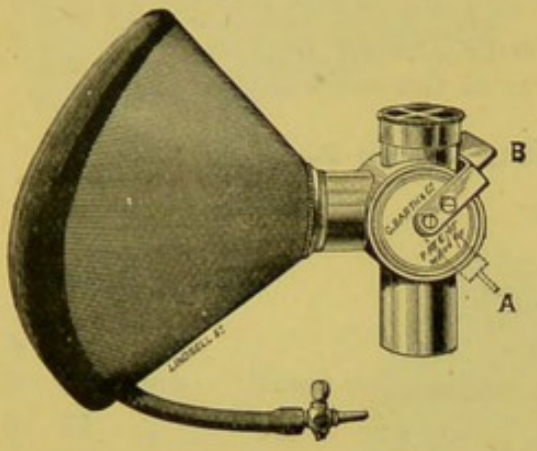
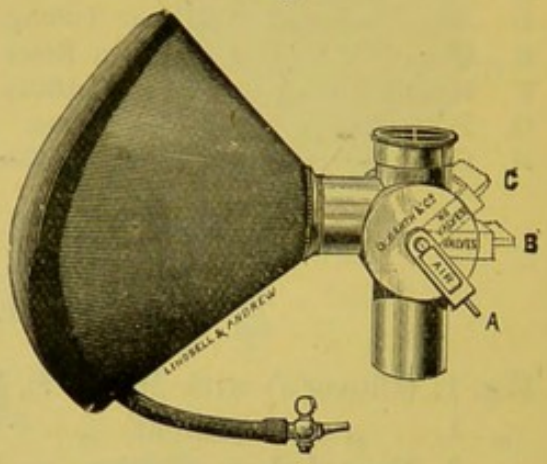


Fig. 2.



The following advantages are claimed for these Stopcocks and Valves:—

1. Simplicity.
2. Compactness.
3. Non-liability to get out of order.
4. Lightness.
5. Diminished cost.
6. Economy of Gas when required.

The essential feature in the invention is this: The Valves, instead of being attached to the facepiece, are fixed in the stopcock, and are consequently available for any number of facepieces. A clear saving of expense is thus effected, which will be readily appreciated when it is stated that a new facepiece, as shown above without valves, costs rather less than half the amount of one with valves. These combined stopcocks and valves are made in two forms.

Fig. 1 has two movements. When the handle of the stopcock is placed at A, communication with the gas-bag is shut off, and air is admitted; when the handle is placed at B, communication with the gas-bag is opened, and the gas is inhaled through the inspiratory valve, and exhaled through the expiratory valve.

Fig. 2 has three movements, two of which correspond with the two in Fig. 1—marked A (air) and B (valves) in the above illustration, Fig. 2. By raising the handle to C (marked no valves) the valves are thrown out of action, and the gas is breathed from and re-breathed into the bag in just the same manner as when a supplemental bag is used with the old form of facepiece.

STOPCOCKS AND VALVES—*continued.*

The Combination Stopcocks and Valves can be fitted to any form of Facepiece, but the two shown above, for which they are especially designed, are made of leather, with fixed india-rubber pads.

Prices :

	s.	d.
Fig. 1.—		
Facepiece, Stopcock and Valves, with two movements, plain	29	0
Stopcock and Valves only, „ „ „	18	6
Facepiece, Stopcock, and Valves, „ nickel-plated	30	6
Stopcock and Valves only, „ „ „	20	0
Fig. 2.—		
Facepiece, Stopcock, & Valves, with three movements, plain	31	6
Stopcock and Valves only, „ „ „	21	0
Facepiece, Stopcock, and Valves, „ nickel-plated	33	0
Stopcock and Valves only, „ „ „	22	6
Fig. 2, if fitted with Barth's Improved Hair-spring Valves, extra	2	0
Extra Facepieces without valves, large, medium, or small each	10	6

UNDERWOOD and BRAINE — Notes on Anæsthetics in Dental Surgery. By Arthur S. Underwood, M.R.C.S., L.D.S. Eng., Professor of Dental Surgery, King's College Hospital, and Lecturer on Dental Anatomy and Physiology at the Dental Hospital of London; and C. Carter Braine, F.R.C.S., Anæsthetist and Instructor in Anæsthetics at Charing Cross Hospital, and Assistant Anæsthetist at the Dental Hospital of London. With 40 illustrations, 166 pp., including index, 8vo., cloth.

	s.	d.
Price .. .. net	4	0

This work has been thoroughly revised and enlarged, many new illustrations have been added, and the chapters on Ether and Chloroform have been entirely re-written. It is a most safe and reliable guide to the administration of anæsthetics.

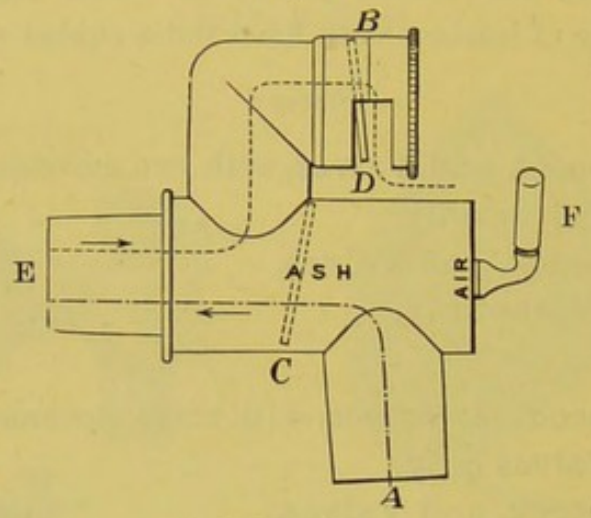
"We welcome the second edition of this useful book . . . . since it so excellently fulfils the objects for which it was written."

"It contains all that a dentist can possibly need. Next to the pleasant and easy style of the authors, the lucidity which characterises the whole book is its most charming feature."—*The Journal of the British Dental Association.*

WELLER'S TWO-WAY STOP-COCK,

WITH INDIA-RUBBER FLAP-VALVES.

Fig. 1.



HALF SIZE.

A. Mount to which the Cattlin's Bag is attached.
B. Adjustable metal frame over Expiratory Valve.
C. Inspiratory Flap-valve.
D. Expiratory Flap-valve.
E. Mount to which the Face-piece is attached.
F. Handle for opening and closing the Gas or Air passage.

The above Stop-cock is shown in outline for the purpose of exhibiting its construction. When the handle F is fixed at *Air* the patient breathes only pure air; when it is fixed at *Gas*, on the opposite side of the mount, the nitrous oxide passes up from the Cattlin's Bag, through the mount A and flap-valve C, to the face-piece which is attached to mount E. The expirations from the patient pass back through the mount E and flap-valve D, and escape into the room from the opening in the metal frame B.

The advantages claimed for the Stop-cock are these:—

1. The valves being fitted in it instead of in the face-piece, it will serve for face-pieces of different sizes, and is thus more economical to the purchaser than face-pieces with valves in them.
2. The metal frame B over the expiratory valve D is adjustable, and can be turned in such a way as to direct the expirations from the face of the administrator.
3. The mount A is fixed at an angle that tends to keep the Cattlin's Bag off the chest of the patient.
4. The handle F enables the administrator to give an occasional breath of air should he desire to adopt the method for slightly prolonging the anæsthesia practised by Mr. George Rowell, F.R.C.S., and described on pages 74 to 77 of the second edition of Underwood and Braine's *Notes on Anæsthetics in Dental Surgery*.

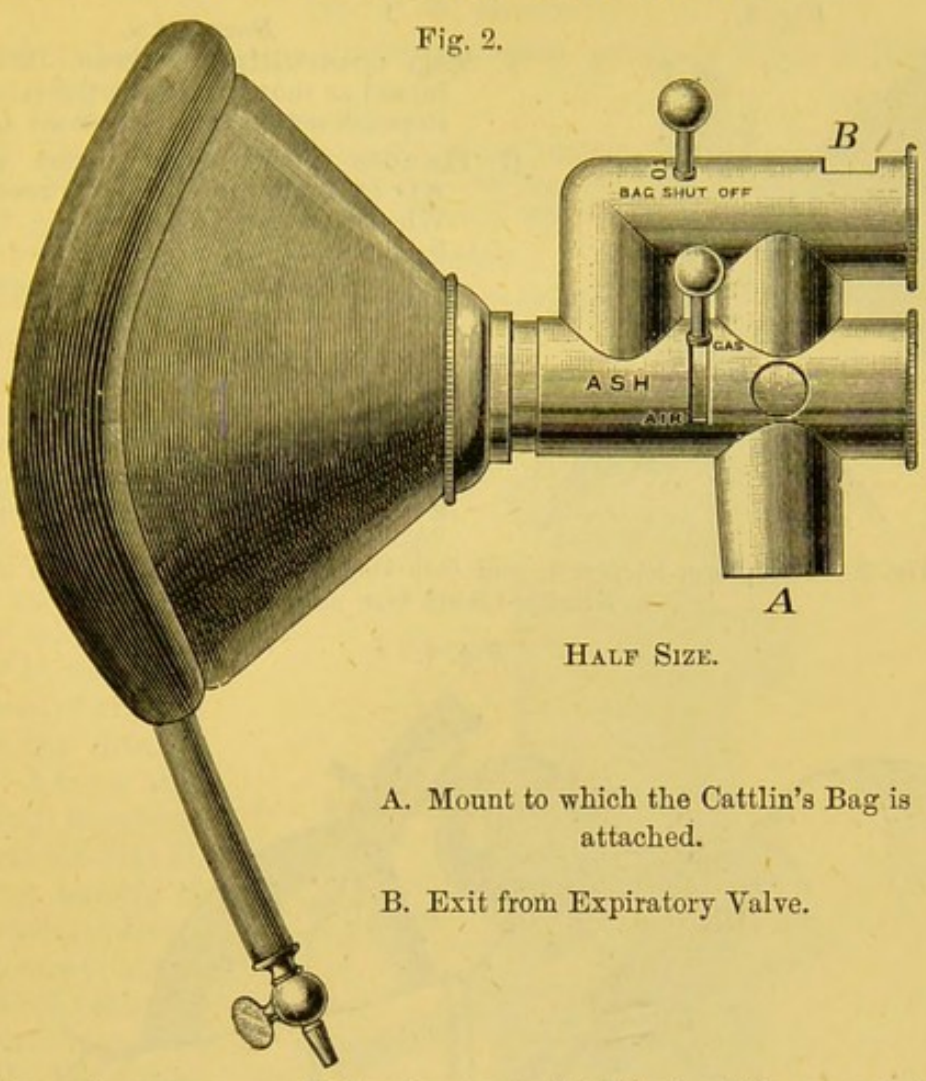
Prices:

		s.	d.
Two-way Stop-cock, with India-rubber Flap-valves	(Fig. 1)	16	0
Face-pieces, large, medium or small	each	10	6
India-rubber Flap-valves for renewing	,,	0	6

WELLER'S THREE-WAY STOP-COCK,

WITH INDIA-RUBBER FLAP VALVES.

Fig. 2.



HALF SIZE.

A. Mount to which the Cattlin's Bag is attached.

B. Exit from Expiratory Valve.

This Stop-cock possesses an additional movement to Fig. 1, which some administrators desire to have in an apparatus. It is this. When the top handle is fixed at **Bag on, for to and fro,** on the opposite side of the mount to **Bag shut off** in the illustration, it causes the patient to breathe into and from the Cattlin's Bag, which is thus converted, for the time being, into a Supplemental Bag for economizing the gas, &c. When the top handle is fixed opposite the figures alongside the groove in which it works, it indicates at

0. (**Bag shut off**) That all the expirations are escaping through the hole at B.
1. That one-fourth is being breathed back into the bag and three-fourths are escaping.
2. That one-half is being breathed back into the bag and one-half is escaping.
3. That three-fourths are being breathed back into the bag and one-fourth is escaping.

F. That the whole of each expiration is being breathed back into the bag and re-breathed from it.

The lower handle is for opening and closing the Gas or Air passage, and serves the same purpose as the handle on Fig. 1, described under No. 4 on the opposite page.

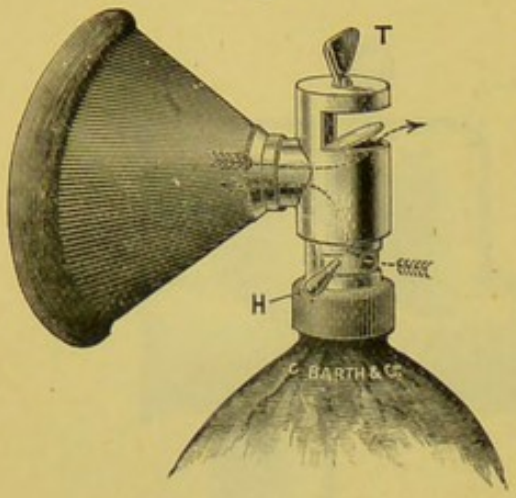
Prices :

		s.	d.
Three-way Stop-cock, with India-rubber Flap Valves ..	(Fig. 2)	22	6
Face-pieces, Large, Medium or Small	each	10	6
India-rubber Flap Valves, for renewing	„	0	6

Dr. HEWITT'S APPARATUS

FOR THE ADMINISTRATION OF NITROUS OXIDE AND NITROUS OXIDE AND ETHER.

Fig. 3.



Description.

T. **Tap controlling Valves.**—When it is turned as shown in Fig. 3, the valves in the stopcock act and all expirations escape.

H. **Handle which determines whether Air or Nitrous Oxide is breathed.**—When H is arranged as in Fig. 3, the air-hole is open and air is breathed; when it is turned so that the air-hole closes, Nitrous Oxide is breathed instead of air.

N.B.—Should the Nitrous Oxide fall short, or should the administrator wish to convert the gas-bag into a "Supplemental Bag," the valves can at once be thrown out of action by turning the handle T, and the patient will then breathe into and from the bag.

Fig. 3.—Facepiece, Stopcock, and Gas Bag for the administration of Nitrous Oxide Gas only.

Fig. 4.

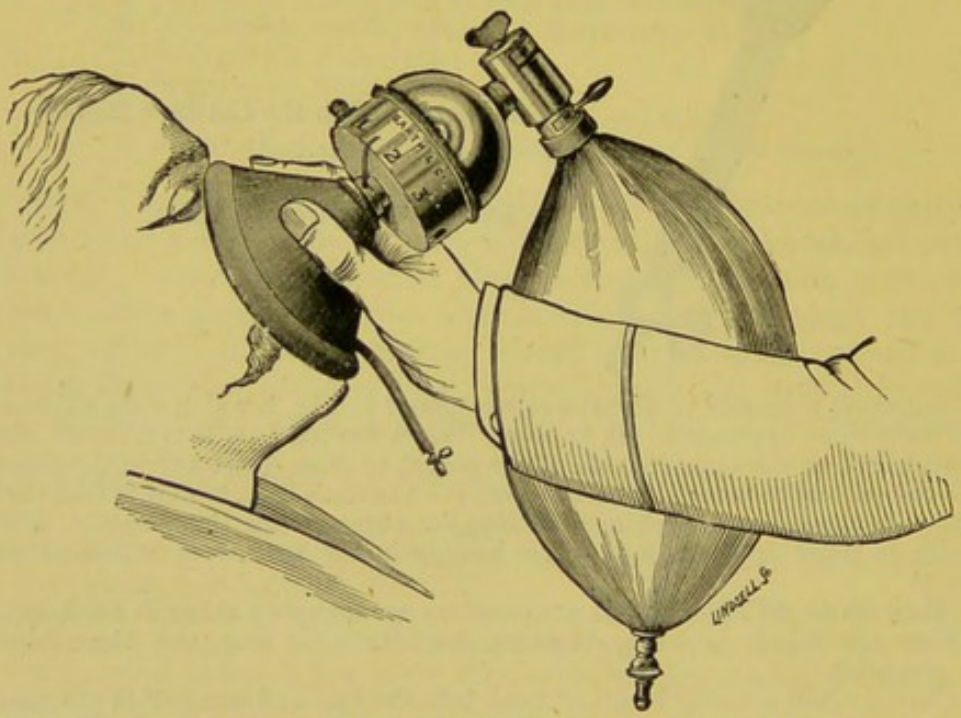


Fig. 4.—Facepiece, Clover's Ether Chamber, Stopcock, and Gas Bag for the administration of Nitrous Oxide and Ether.

When the Ether Chamber is used, Nitrous Oxide with a small quantity of Ether may be administered, or gas only may be given as a preliminary to deep etherisation.

Prices:	*s.*	*d.*
Facepiece	10	6
Clover's Ether Chamber	40	0
Stopcock	30	0
Gas Bag	12	6
Five feet Tubing and Single Union	7	0

PORTABLE APPARATUS

FOR ADMINISTERING NITROUS OXIDE WITH OXYGEN.

(Dr. F. W. Hewitt's.)

The advantages of this apparatus over previous forms employed for the same purpose are :—

1. That it is far more portable;
2. That a continuous supply of the mixture can be given; and
3. That it gives perfect control over the admission of oxygen, so that very small increments or decrements can be effected.

Description.

Dr. Hewitt, who has used the apparatus in nearly one thousand cases, thus describes it :—

Two india-rubber bags are employed, one for nitrous oxide, the other for oxygen—Fig. 1, ON_2 and O. These, which are fed from cylinders worked by the foot, are attached to two metal tubes T' and T. Where the tubes join there is an arrangement by which oxygen may be added to the current of nitrous oxide to the desired extent. Above this regulating arrangement with its dial D, indicating handle H and indicator *i*, there is a two-way stop-cock, which allows, by the movement of its handle H', either of air or the mixed gases being breathed. In order to permit of the free escape of each expiration, two flap-valves, one an expiratory (EV) and one an inspiratory (IV), are provided. The tubes T and T' also possess flap-valves (V and V') to prevent the contents of one bag passing over to the other. The oxygen tube T is considerably expanded above, so that the nitrous oxide tube may pass up through its middle. Oxygen thus travels along the circular channel left between the tubes, whilst nitrous oxide passes along the inner tube.

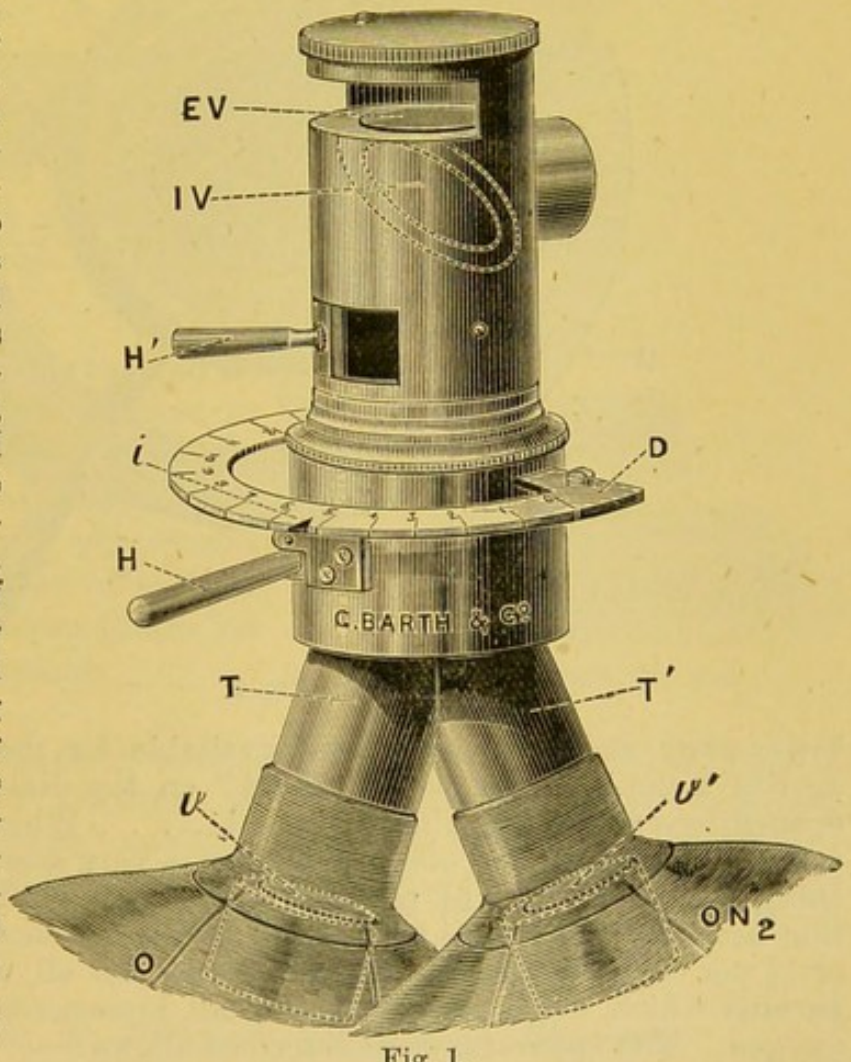


Fig. 1.

PORTABLE APPARATUS—*continued.*

FOR ADMINISTERING NITROUS OXIDE WITH OXYGEN.

Description.

Fig. 2 shows the central nitrous oxide tube T' and the expanded oxygen tube T. The space left between the nitrous oxide tube and the expanded oxygen tube is closed in by two circular plates, the upper of which (P) revolves by means of the handle H upon the lower, which is fixed. The upper plate has thirteen holes in it. The lower has a long slot (S), shown in dotted lines. Now, when the handle H is turned so that P revolves, one or more holes can be brought over the slot in the

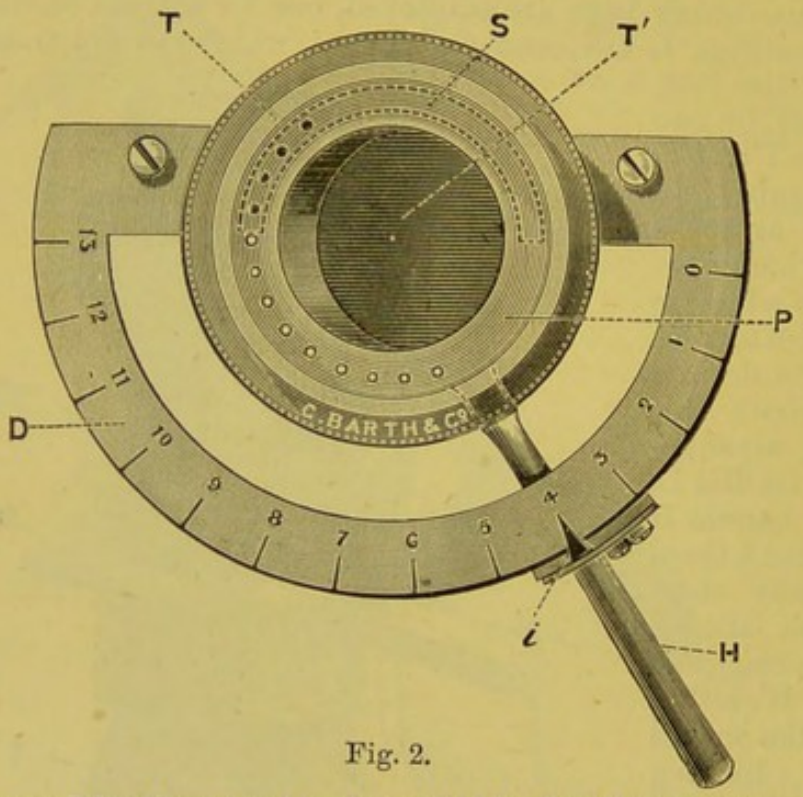


Fig. 2.

lower plate, and be thus rendered available for the passage of oxygen. In Fig. 2 the indicator points to "4" on the dial—*i.e.*, four holes are opened for oxygen and nine are closed . . . . When both bags are kept partially distended and one hole is open, a very small percentage—something between 3½ and 6½ per cent.—of oxygen will come through, and that each additional hole turned on represents something like 1 per cent. or 1½ per cent. of oxygen. In actual practice all we require is an apparatus which will allow of very small increments and decrements of oxygen. The apparatus here described allows:—

1. Air;
2. Nitrous oxide; or
3. Nitrous oxide mixed with a proportion of oxygen, to be freely respired through valves at the will of the administrator.

When ready for use, the apparatus has the appearance represented in Fig. 3.

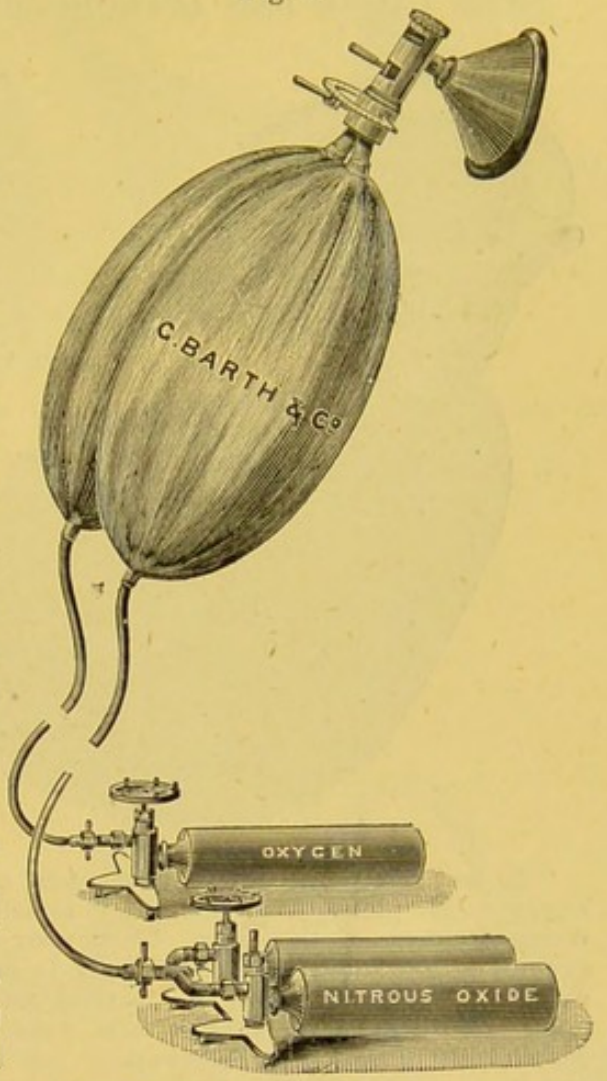
PORTABLE APPARATUS—*continued.*

ADVANTAGES OF THE MIXTURE.

The advantages of administering Oxygen with Nitrous Oxide are :—

1. That the natural colour of the features is preserved.
2. That the so-called "stertor" and "jactitation" of ordinary nitrous oxide administration are prevented.
3. That a longer period of anæsthesia results than with nitrous oxide alone—the average duration is 44 seconds; and
4. That, so far as experience has at present gone, the mixture is absolutely free from risk to life, the presence of oxygen preventing the asphyxial phenomena which, in the case of nitrous oxide alone, have sometimes led to alarming symptoms.

Fig. 3.



Apparatus ready for use.

For full information concerning "The Anæsthetic Effects of Nitrous Oxide and Oxygen when administered at ordinary atmospheric pressures," see Dr. Hewitt's Work on *The Administration of Anæsthetics: A Manual for Medical and Dental Practitioners.*

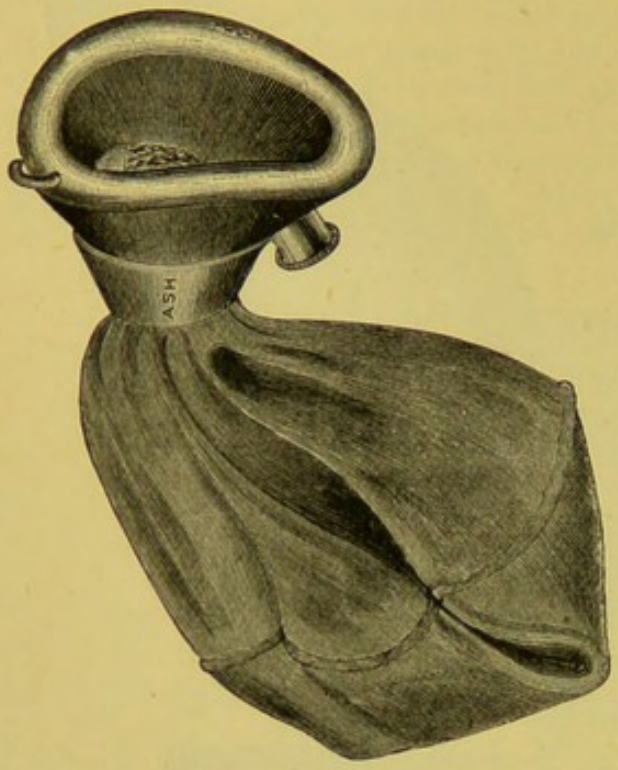
Price:

	£	s.	d.
Apparatus, consisting of Facepiece, Regulating Stopcock, 2 India-rubber Bags with small tubing on each, but without Single Unions	4	12	6

The Single Unions, Pedal Attachments, and Gas Bottles are charged extra.

ORMSBY'S ETHER INHALER,

WITH LARGE BAG INTRODUCED BY MR. WOODHOUSE BRAINE.



For description of this Inhaler and its advantages see pages 86 to 88 of the second edition of

Underwood & Braine's Notes on Anæsthetics in Dental Surgery.

"It is an exceedingly useful one, very simple in construction, has no parts to get out of order, and is not liable to be damaged by a struggling patient. It consists of a Facepiece, to which is affixed a wire cage bearing an ordinary sponge, and of a respiratory bag drawn over the cage.

"Fitted on to the Facepiece is a brass cap, covering a funnel-shaped opening leading down to a lead tube, which bifurcates, enclosing the sponge. This tube is punctured with many openings, and is intended to facilitate the pouring on of ether without removing the facepiece."

As here illustrated it is provided with a Bag 12 inches in diameter, which is "quite large enough to hold an expiration without any distension of the bag."

"To use Inhaler, choose a good open sponge—one that can be breathed through easily—and place it in the cage loosely, entirely filling up the opening at the commencement of the cage. Then pour on ʒij. ether" (anhydrous ether, specific gravity 0·720), "and gradually apply to face. Very soon ether may be increased by another ʒij., and with care the patient can be anæsthetised as quickly and comfortably as with a Clover Inhaler, and remain a better colour throughout." . . . . . Moreover, "a stronger ether vapour can be obtained with it than with the Clover, and there are fewer after-effects when it has been used."

		s.	d.
Ormsby's Ether Inhaler, complete as illustrated		24	0
Extra Facepiece Pads, without Taps	each	2	6
Anhydrous Anæsthetic Ether (specific gravity 0·720)	per pint	7	0

ASH'S ETHER BAG, WITH BRASS CUP,

CONTAINING SPONGE FOR HOLDING THE ETHER.

Adapted for attaching to Mount E of Facepieces.

	s.	d.
Price, in black sheet rubber	23	6
„ in red or grey vulcanized rubber	24	6

HYDERABAD CHLOROFORM INHALER.

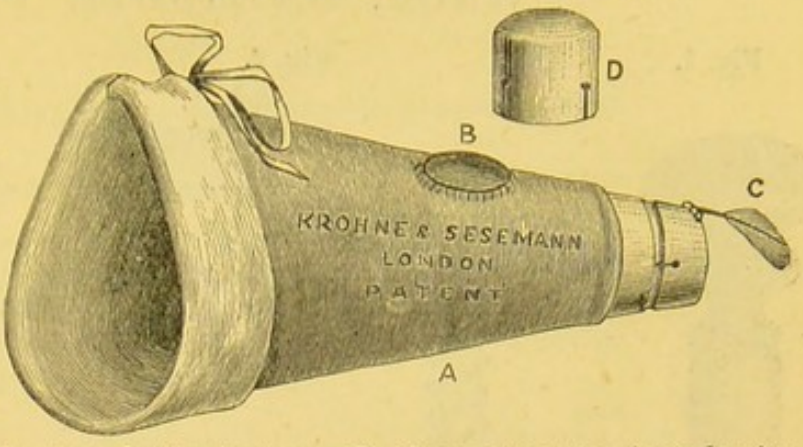
Description.

A. Inhaler.

B. Opening through which the chloroform is poured.

C. Feather breathing indicator.

D. Cap for covering opening B.



This Inhaler consists of a wire network covered inside and outside with flannel.

The feather indicator, which is delicately balanced, is blown outwards at each expiration and drawn inwards at each inspiration. It thus serves to show by its movement that the patient is breathing.

	s.	d.
Price complete, as illustrated	15	0

JUNKER'S CHLOROFORM INHALER.

(As modified by Mr. Carter Braine.)

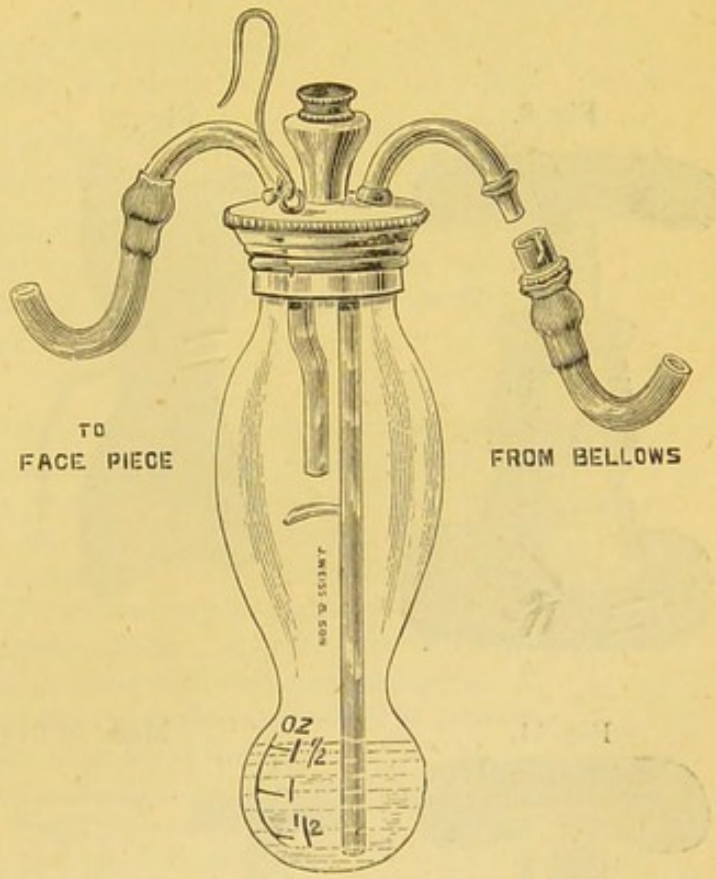
The objections to the original form of this inhaler are:—

1. The tubes are interchangeable, the tube from the bellows may be put on the wrong side of the bottle, and then the compression of the bellows drives fluid chloroform out of the bottle into the face-piece, thereby directly endangering the life of the patient.

2. Should the bottle be tilted on its side during the administration, then again fluid chloroform may be driven into the face-piece or along a nasal tube.

3. That the bottle must always be kept upright when it contains chloroform.

4. Should more than four drachms of chloroform be poured into the bottle, then splashing may occur, and a spray of chloroform enter the egress tube, instead of air laden with chloroform vapour.



In the modification by Mr. Carter Braine, all these defects are remedied. The tubes cannot be reversed, as one is plain and the other is fitted with a bayonet catch; in any position of the inhaler, on its side or completely reversed, no fluid chloroform can be driven out of it, neither can any splashing enter the egress tube, the convex plate fitted below the shorter tube effectually preventing this catastrophe. Chloroform may be poured in to the amount of one ounce and a half, but never above the constriction between the bulbs; the inhaler may be laid aside until wanted, with perfect safety, as no chloroform can run into the egress tube. It can be placed in the coat pocket or suspended from the button-hole, operating table or bed.—*See the Second Edition of Underwood and Braine's Notes on Anæsthetics.*

	s.	d.
Price complete, as illustrated	65	0

GAGS, OR MOUTH PROPS.

Fig. 1.

Fig. 2.

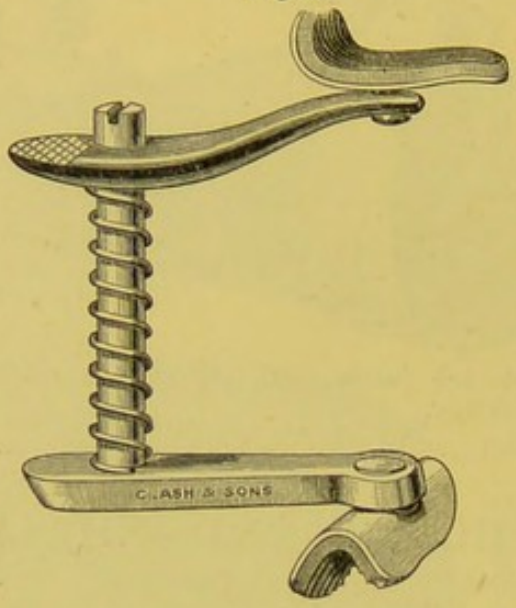


Fig. 5.

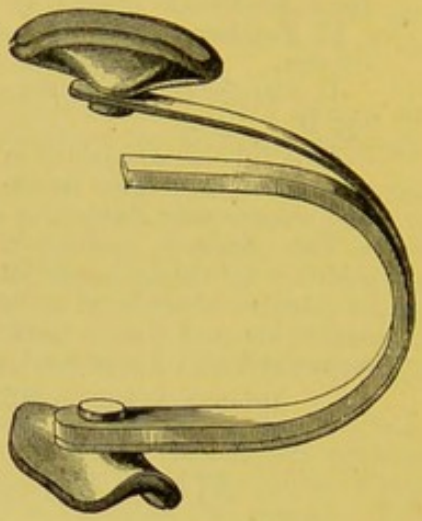


Fig. 8.

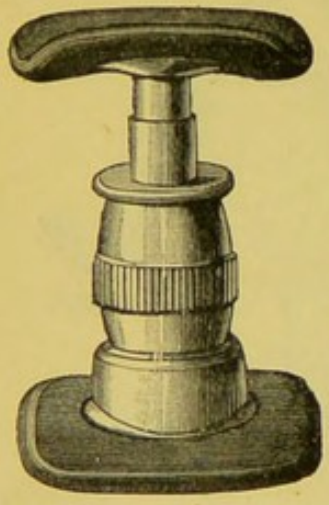


Fig. 9.

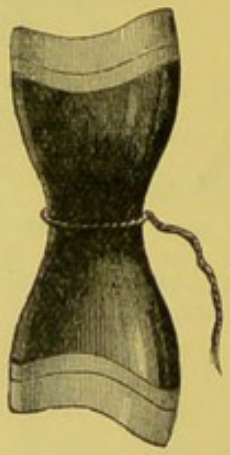


Fig. 10.

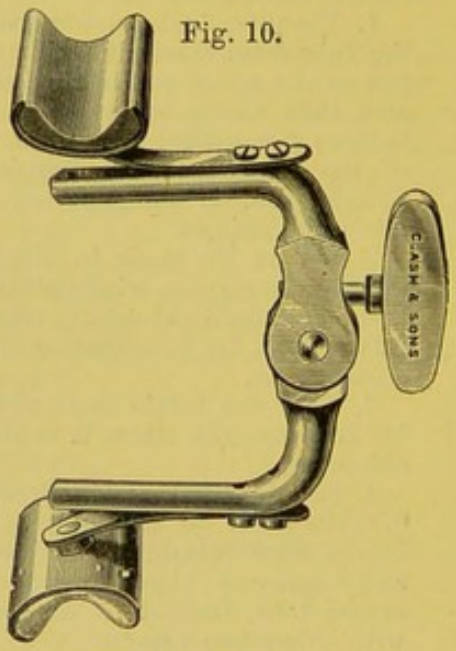
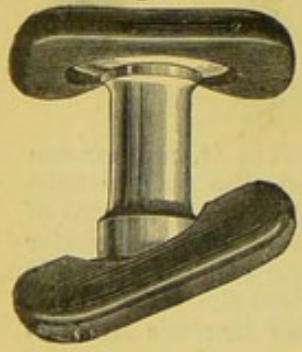
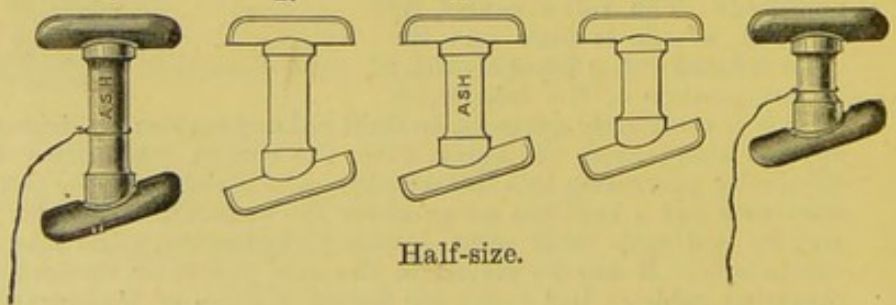


Fig. 11.



Made in five lengths, known as sizes:—

1. 2. 3. 4. 5.



Half-size.

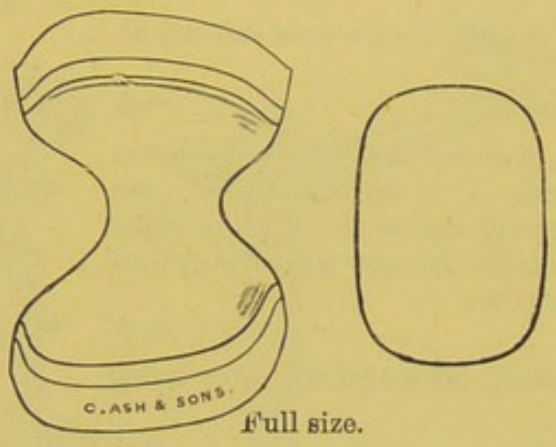
GAGS, OR MOUTH PROPS.

Prices :

		s.	d.
Fig. 1.	Spring Gag in steel, Nickel-plated, with gutta-percha pads and adjusting screw. Made in two lengths—long and short .. .. each	5	6
Fig. 2.	Hinged Gag (Mr. Brunton's) in steel, Nickel-plated, with india-rubber pads on the plates and spring on rod. It works very smoothly, can be quickly applied or removed and swung against the cheek on either side of the mouth out of the way of the Operator when the patient is under the influence of the anæsthetic. Price, as illustrated .. .. each	10	6
Fig. 5.	Hinged Gag (Mr. Hutchinson's) in steel, Nickel-plated, with spring and gutta-percha pads. Made in two sizes—large and small .. .. each	6	6
Fig. 8.	Spring Gag (Mr. Buck's) in steel, Nickel-plated, with adjusting screw, india-rubber pads and knuckle-joint. Made in two sizes, large and small .. .. each	7	6
	Extra pads for ditto .. .. per pair	0	6
Fig. 9.	Simple Gag in Vulcanite with soft india-rubber pads. Made in three sizes—long, medium, and short .. .. .. each	1	3
	Fig. 9 is also made of hard vulcanized rubber throughout, in the four following sizes—long, medium, short, and extra short .. .. each	1	0
Fig. 10.	Adjustable Gag in steel, Nickel-plated, with regulating thumb-screw and gutta-percha pads. This Gag, like Figs. 2 and 5, can be fixed on either side of the mouth and swung against the cheek out of the way when it is applied. Price, as illustrated	14	0
Fig. 11.	Fixed Gag (Dr. Hewitt's) in five sizes, made of steel, Nickel-plated, and furnished with india-rubber pads for the patient to bite on. It is readily applied, and so constructed that it adapts itself to the wedge-shape space between the teeth which is formed by opening the mouth. It should be passed back as far as possible, when it will be found that it is held very securely in position. It is very strong and simple in construction, and can hence be used with confidence in the mouths of patients with very powerful jaws. It can be easily cleansed, and Dr. Hewitt finds it very useful in practice. The measurements of the five sizes are as under :— Size 1—1⅜ inches long in centre. Size 3—1⅛ inches long in centre. „ 2—1¼ „ „ „ 4—1 „ „ Size 5—⅞ inch long in centre.		
	Gags, with Removable Pads, any size, as illustrated .. .. each	4	6
	Extra Pads for renewing .. .. per pair	0	6
	Lignum Vitæ Wood Gags, same shape as Fig. 9 and other forms—long, medium, and short .. .. each	0	9

VULCANITE GAG,

Fig. 12. WITH THICK SOFT INDIA-RUBBER PADS.

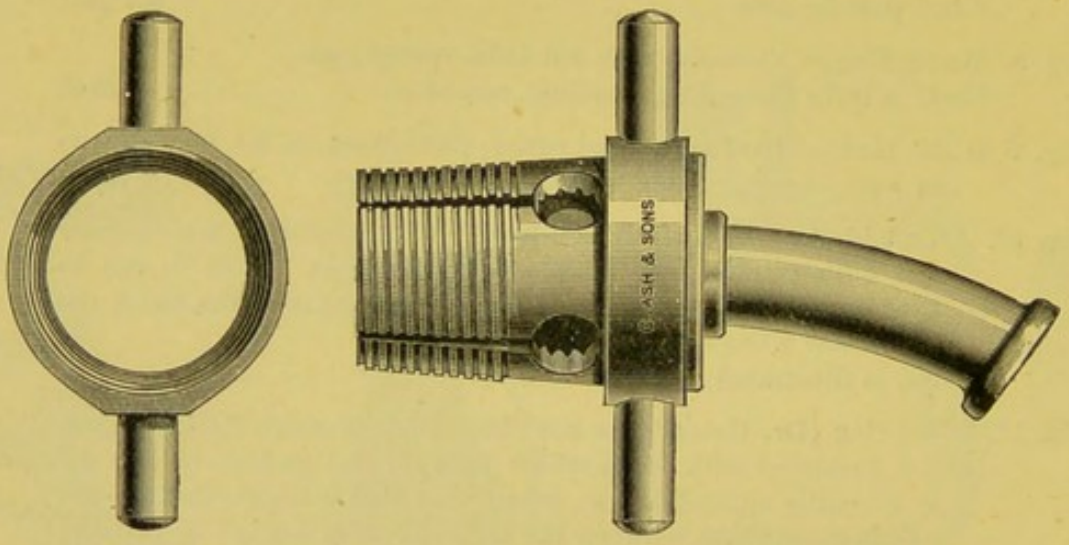


Full size.

The outline engraving shows the shape of the Gag, and the figure to the right of it the size of the Pads. It is enormously strong, and is considered very useful by Mr. Woodhouse Braine. Made in three sizes — long, medium and short.

		s.	*d.*
Price, any size ..	each	3	0

WELLER'S UNIVERSAL UNION.



This Union is made on the "clutch" principle, and will be found much better than the ordinary Union, because it can be fitted equally well on to a new screw or a screw that is worn. It meets a want in this respect.

Should a screw be on the large side, the splits in the metal permit of sufficient expansion of the double-threaded tube (it is threaded both inside and outside) for the Union to fit the screw.

On the other hand, should a screw be worn, the Union can be thoroughly tightened upon it by means of the clamping ring shown in the illustration.

	s.	*d.*
Price, complete	5	0

NITRITE OF AMYL CAPSULES.

(As recommended by Mr. Woodhouse Braine.)

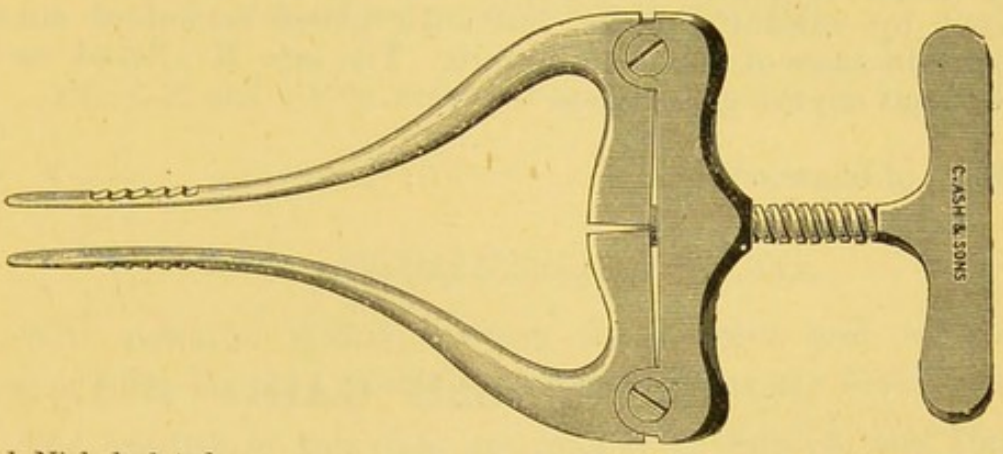
Encased in Cotton Wool and Silk, 3 minims in each.

Mr. Braine finds these capsules very effectual in case of syncope under anæsthetics. In a paper read before the Medical Society of London, Nov. 24, 1884, he remarked :—

"Should much pallor be present, or syncope appear imminent, a few whiffs of Nitrite of Amyl furnish the quickest means of restoring the heart's action, and the most convenient form for carrying it is in little glass capsules. If one of these be dropped on the floor and stamped on the fluid runs into the cotton wool, and on this being held opposite the patient's mouth the vapour is inhaled and the heart begins to beat forcibly."

		s.	*d.*
In boxes containing Twelve Capsules	**per box**	**2**	**6**

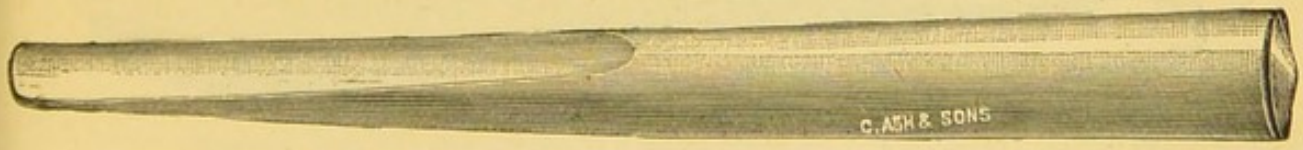
MOUTH OPENER.



	s.	*d.*
In Steel, Nickel-plated	12	6

"It is usually advisable to introduce this instrument at some point where there is a tooth deficient, but should there be no gap, it is possible with care to insinuate the thin blades between closed teeth."—**See Underwood's Notes on Anæsthetics.**

SIMPLE MOUTH OPENER.



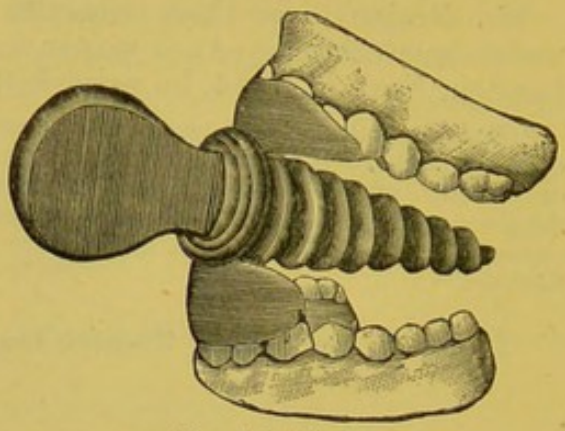
For inserting between the teeth, when the jaws are tightly closed, to gain sufficient room for the introduction of Mason's Gag.

	s.	*d.*
Price in boxwood	0	6

SCREW GAG.

(Mr. Maunders'.)

For rapidly forcing open the mouth. Mr. Salter, on page 234 of his book on "Dental Surgery and Pathology," in speaking of this appliance, says:—"Upon introducing the point" of the Gag "between the incisors or canines or præmolars, and slowly turning the instrument, it evenly and regularly progresses, separates the jaws, and, as I have thought, with quicker results than any other method."



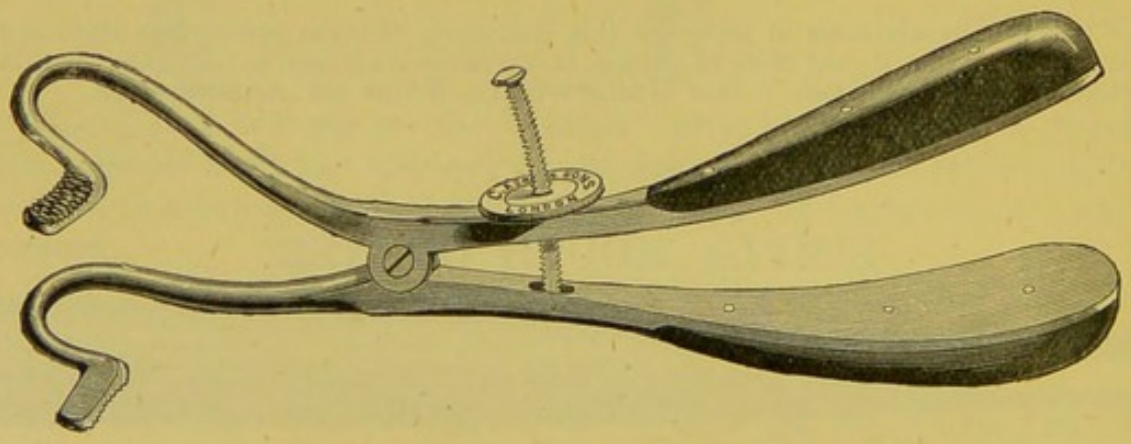
About half size.

In the illustration the Gag is shown in use in a case of partial closure, where the front teeth are protected by vulcanite plates, but such plates cannot of course be employed in cases of complete closure. The late Mr. Salter used the Gag without anything to protect the teeth.

	s.	*d.*
Made of boxwood	2	3

ADJUSTABLE GAG.

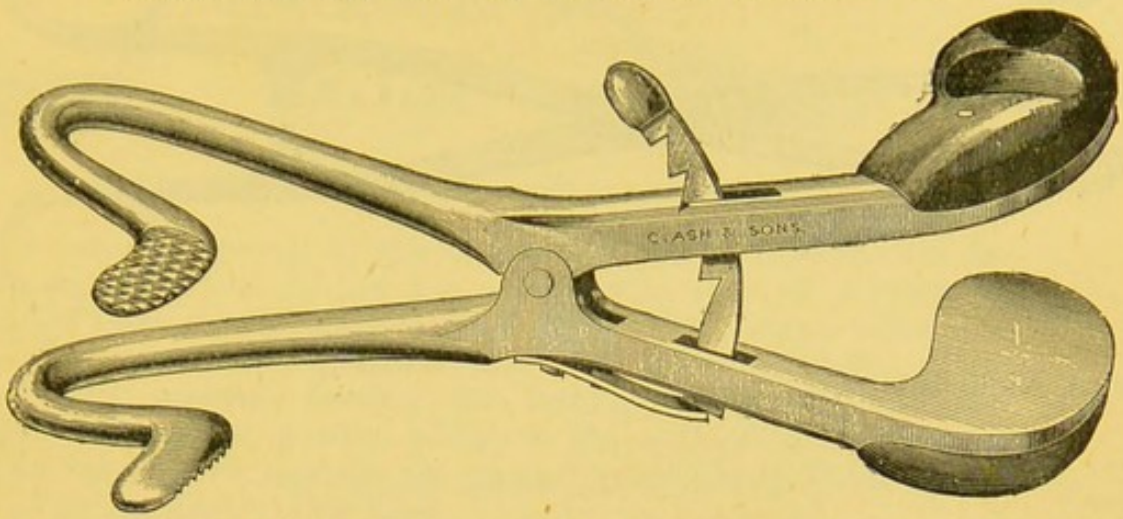
(Mr. F. Mason's.)



		s.	*d.*
In Ebony handles, beaks padded with India-rubber, bright parts Nickel-plated	long, each	16	6
" " " " "	short "	16	6

IMPROVED MASON'S GAG,

WITH DR. DUDLEY W. BUXTON'S RATCHET BAR.



Dr. Buxton claims that this modified Mason's Gag, with Hinged Ratchet Bar, can be much more rapidly applied and removed than the old form. It can easily be worked and controlled with one hand.

	s.	*d.*
Price, Nickel-plated	16	6

FERGUSSON'S GAG.

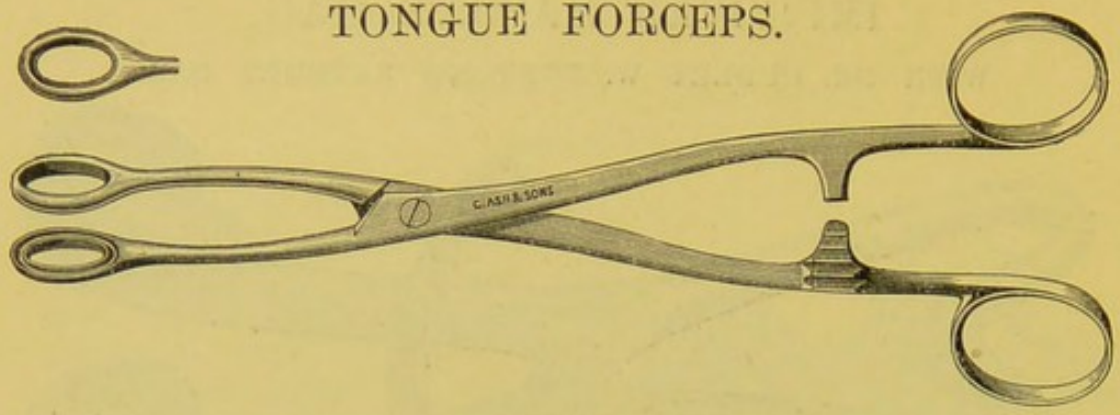
With powerful spring between the handles, and adjustable loop which holds the jaws of the instrument open at any desired point.

The handles of this Gag are similar in form to the Mason's Gag shown on the previous page, and the sliding loop which embraces both arms at the part occupied by the Ratchet Bar in the above illustration has a range of about one inch. Owing to the great rapidity with which the Gag can be worked, it is much appreciated by most Operators.

	s.	*d.*
In Ebony handles, beaks padded with India-rubber, bright parts Nickel-plated	18	0

Mason's Gag, and the two on this page, which may be described as Emergency Gags, "will be found very useful when the ordinary gag slips, and the mouth spasmodically closes, and also when the Operator desires to extract on both sides at one sitting, and success depends upon the rapidity with which the gag can be changed from one side of the mouth to the other."—**See Underwood's Notes on Anæsthetics.**

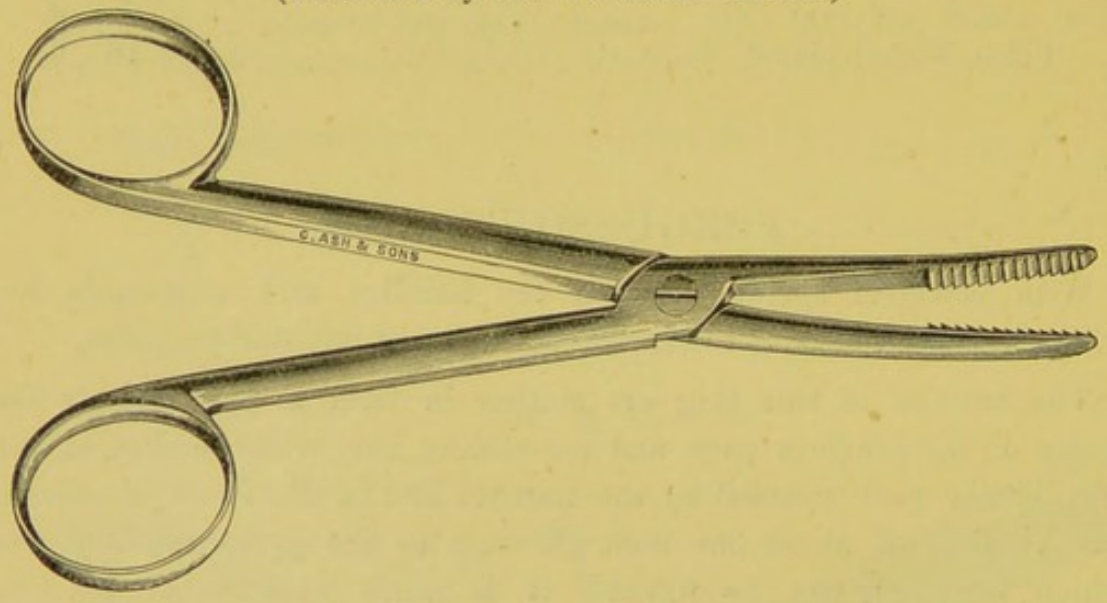
TONGUE FORCEPS.



	s.	d.
Price, Nickel-plated	12	0

TONGUE FORCEPS.

(Introduced by Mr. Woodhouse Braine.)

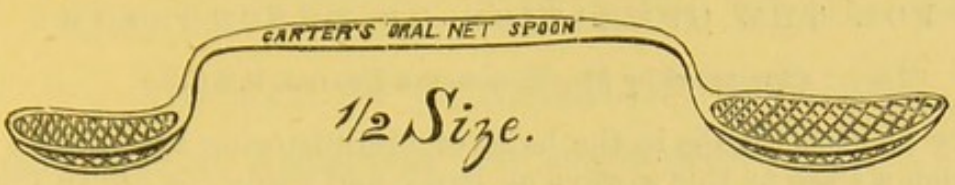


This instrument is made sufficiently strong to serve also as a mouth opener in a large number of cases.

	s.	d.
Price, Nickel-plated	9	0

"Should the breathing stop during the administration of Nitrous Oxide Gas, or any other anæsthetic, the forcible pulling forward of the tongue, and the administration of nitrite of amyl within a few seconds after unmistakable signs of something unusual in the breathing have appeared, will in almost every case remove the difficulty."—**See Underwood's Notes on Anæsthetics.**

CARTER'S ORAL NET SPOON.



For Use during Extractions under Anæsthetics.

Mr. Carter says: "Owing to the increasing use of Anæsthetics for dental purposes, a serious danger has arisen, viz., that of a tooth or stump escaping from the forceps and passing into the larynx when the patient is in a recumbent position and under the influence of an anæsthetic. The position favours its falling backwards, and the loosened sensibility of the glottis, added to the rush of the current of air during an inspiration, renders the patient particularly liable to the occurrence of an accident of this kind.

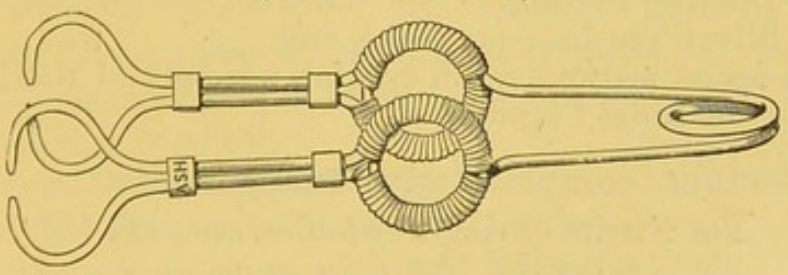
By the use of this instrument, not only may an obvious danger be avoided, but a great source of anxiety is removed from the mind of the operator."

To prevent all fear of a bowl being broken off while the spoon is in the patient's mouth, the handle is carried underneath the gauze at both ends. It thus lends support to the frame of each bowl, and makes the spoon more serviceable.

	s.	d.
Price	6	6

WOOL HOLDER.

(Mr. P. Edgelow's.)



Shown open about one-third.

For description of this useful little appliance, see pages 173 and 174 of the September, 1891, number of our Quarterly Circular.

The Holder is also made with oval bowls $1\frac{3}{4}$ inches long, for use in cases where the wool with which they are charged is required to extend over the space occupied by three or four teeth.

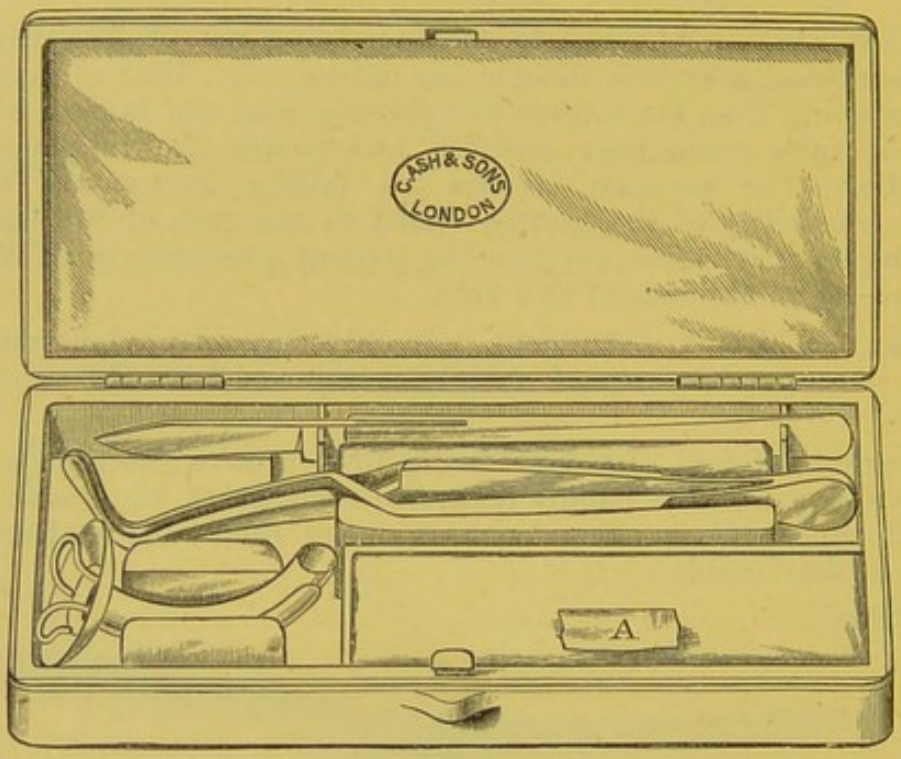
	s.	d.
Holder in steel wire, nickel-plated, as illustrated	2	9
,, ,, ,, ,, with oval bowls	4	0

EMERGENCY CASE,

FOR THE OPERATION OF TRACHEOTOMY.

(Suggested by Mr. Woodhouse Braine, F.R.C.S.)

Every Dentist who is in the habit of administering anæsthetics should have such a Case as this always at hand, and ready for use in the event of any untoward circumstance arising.*



The Case contains :—

1 Ivory-handled Scalpel,
1 Dilating Forceps,
1 Silver Tracheotomy Tube, and
A space, marked A, for holding a supply of Nitrite of Amyl Capsules.

	s.	d.
Price, in leather, complete with Instruments	28	0

For Nitrite of Amyl Capsules, see page 453.

Emergency Cases to hold the above Instruments, &c., and other needful appliances, made to order.

* A very interesting account, illustrative of the value of an Emergency Case, of an operation performed by Dr. F. Hewitt, one of the Anæsthetists at the Dental Hospital of London, is recorded in the April, 1888, number of *The Journal of the British Dental Association*. The Paper is entitled : "A case of Laryngeal Spasm under Nitrous Oxide in a Patient with old-standing Arthritis of the Lower Jaw, Cervical Vertebræ, and other parts; Laryngotomy; Remarks." The operation was so successful that "the wound completely healed in a week's time, and the patient made an excellent and uninterrupted recovery."

APPARATUS FOR MANUFACTURING AND ADMINISTERING NITROUS OXIDE GAS.

OUTFIT AS GENERALLY SUPPLIED.

Manufacturing Apparatus (see pages 460-465):

	s.	d.
Japanned Zinc Gasometer, 50 gallons capacity (see Fig. 1)	140	0
*Ash's Thermo-Regulator .. .. .. („ 3)	15	0
*Kirby's Gas-Extinguisher .. .. (see B. C. Fig. 2)	15	0
*Star Bunsen Gas Burner on Stand .. (see page 469)	3	0
Wooden Shield with Tin lining and Zinc Tray (see Fig. 2)	16	0
Three Wash-Bottles, Nos. 1, 2, 3, with fittings („)	27	0
Four Glass Flasks, each 100 ozs. capacity .. („)	6	0
Wire Hook for suspending Glass Flasks .. („)	0	6
Three India-rubber Bungs for „ .. („)	3	0
Two long bent Glass Tubes .. .. .. („)	5	0
Wooden Union for attaching to the bent Glass Tube on the third Wash-Bottle	0	6
Six feet $\frac{5}{8}$ in. India-rubber Tubing for connecting the Wooden Union and the Gasometer	6	0
*Twelve feet $\frac{5}{16}$ in. India-rubber Tubing for connecting the Thermo-Regulator with the Gas Burner, &c. ..	4	0
Nitrate of Ammonia, best quality, $\frac{1}{2}$ cwt.	50	0
Two Jars containing ditto	8	0
Proto-Sulphate of Iron in bottles, 2 lbs.	2	8
Caustic Potash in bottles, 1 lb.	2	6

Administering Apparatus (see pages 466, 467):

Two Clover's Facepieces, large and medium	40	0
Supplemental Bag G for economizing	12	6
Two-way Stopcock C	7	6
Mount D for Mohair Tubing F	1	6
Six feet Mohair Tubing, wired inside	10	0
Three simple Gags, with soft Vulcanite Pads	3	9
Complete	379	5

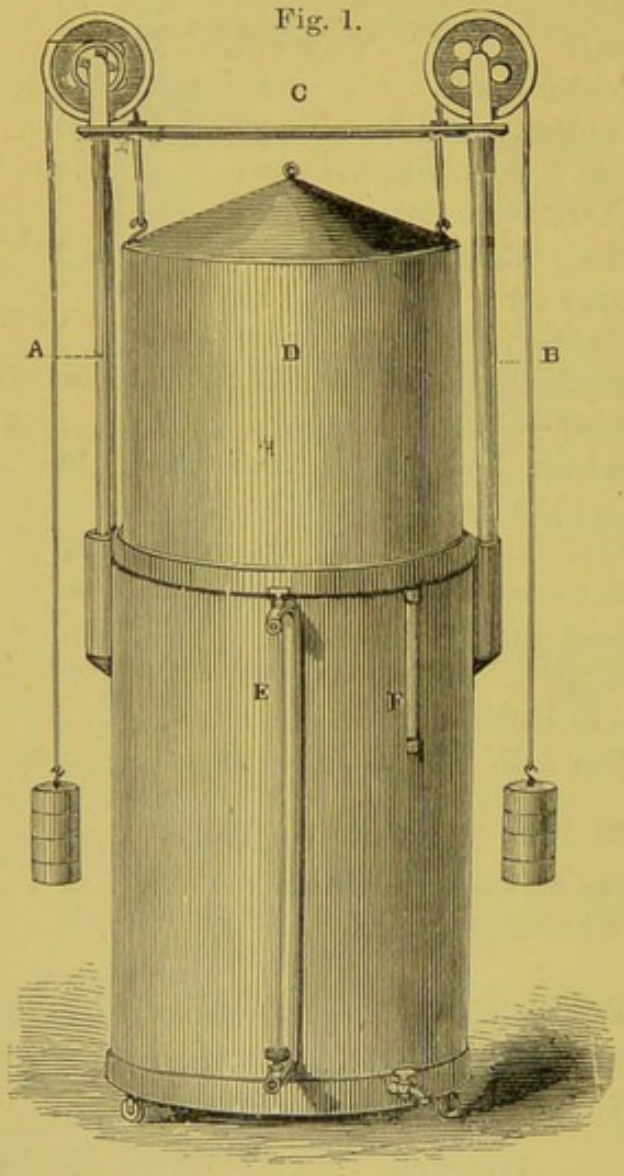
Packing Cases for above Apparatus, extra, from 30/-

* Dentists residing in places where coal-gas cannot be obtained can have the Spirit Lamp—6*s.* (shown on page 469), for heating the ammonia; then the Gas Burner, the Thermo-Regulator, Gas Extinguisher, and 12 feet of small India-rubber tubing, not being required, the total cost would be 31*s.* 0*d.* less than above. The Apparatus can be varied in any way that may be desired.

MANUFACTURING APPARATUS.

GASOMETER.

Fig. 1.



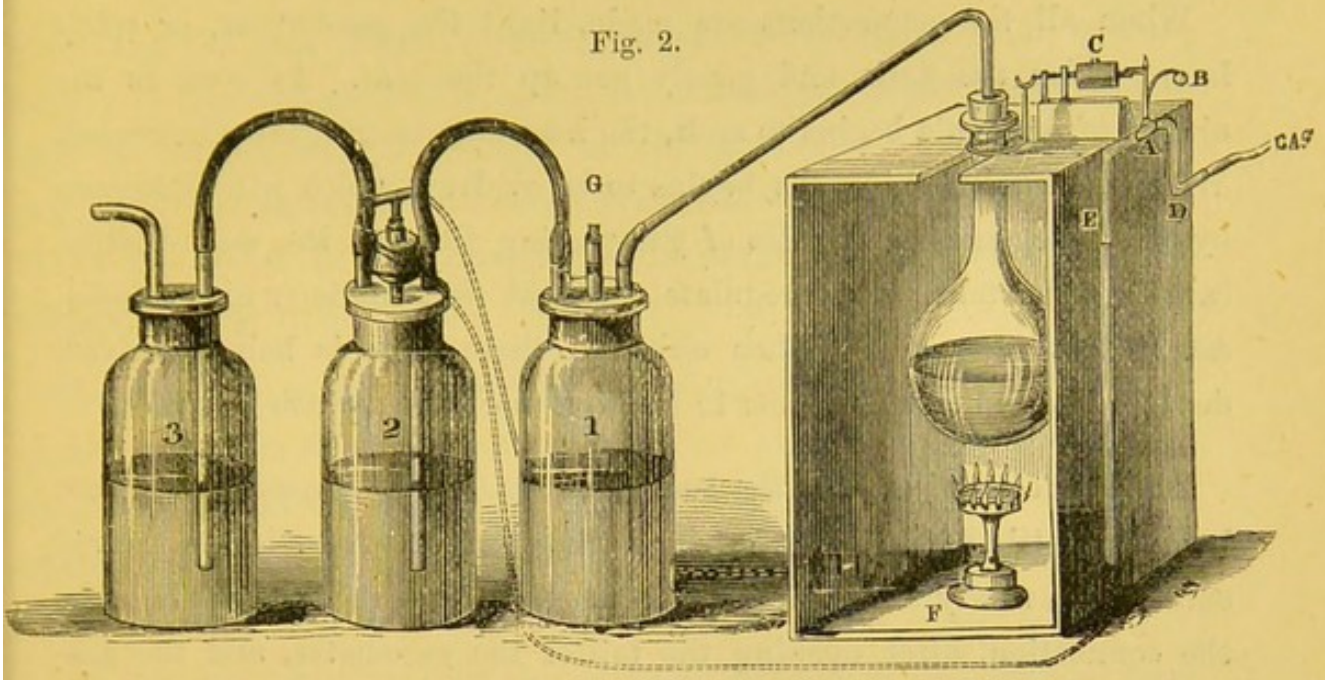
Directions for setting up the Apparatus.

Place the Gasometer, Fig. 1, on level ground, then put the tubes A and B, with the lettered ends downwards, into their respective sockets. Then put the stems of the wheels A and B into their proper holes in the cross-piece C, and drop them into the upper ends of the tubes A and B.

Then attach each cord to the hooks on the top of the gas-holder D, and after passing them over the wheels attach to the other ends their sets of weights. Then fill up the lower half of the gasometer with water to within an inch of the top of the glass tube or water-gauge F. Before using the gasometer, press down the holder as far as it will go, so as to empty it as much as possible of the atmospheric air. Then shut the top tap in pipe E, and open the bottom tap, through which the Nitrous Oxide Gas has to pass.

APPARATUS FOR GENERATING THE GAS.

Fig. 2.



Put into the flask one, two, or more pounds of nitrate of ammonia. Then suspend it inside the glazed wooden case by means of the wire cramp to the iron hook on top of the case, or to Kirby's Extinguisher B, C, Fig. 2 (described at page 464), if that is used. Then arrange the three wash-bottles in a row, connecting them one with the other, as shown in Fig. 2; then half-fill the bottle No. 1 with water, No. 2 with a solution of iron, and No. 3 with a solution of potash. The iron solution is made by dissolving three ounces of proto-sulphate of iron in a pint and a half of water. For the potash solution dissolve one ounce of caustic potash in a pint and a half of water.

NOTE.—In first applying the heat to a Glass Flask, when it is cold, there is some danger of breaking it. To overcome this danger Dr. C. H. Stokes many years ago recommended the insertion of a thin plate of sheet-iron, for a few minutes, between the Burner and the Glass Flask. Simple supports for the iron plate may be made inside the wooden shield by fixing three screws, or driving three nails, level with each other, through the tin-lining, on both sides.

When the Glass Flask is thoroughly warmed, the iron plate can be readily withdrawn with a pair of large pliers or small crucible tongs.

APPARATUS FOR GENERATING THE GAS—
continued.

When all the connections are made, light the gas-burner, or spirit lamp, under the flask, and gently get up the heat. As soon as the nitrate of ammonia begins to melt, the heat may be gradually increased. When the nitrous oxide gas begins to be evolved, which will be known by the appearance of bubbles of gas passing through the wash-bottles, care must be taken to so regulate the heat that nitric or nitrous acid, &c., is not generated. When either of these acids is being evolved, dense white fumes will appear in the first and second wash-bottles.

The connection between the last bottle and the gasometer should not be made until the nitrous oxide emanating from it will re-ignite the red embers of a newly extinguished match. As soon as it will do this, make the connection, after opening the tap of the gasometer, and the gas-holder will gradually rise out of the water until it is quite full.

The vacuum valve G (page 461) is placed in the first bottle, so that in the event of the heat being suddenly shut off from the flask, sufficient air will be admitted through it to fill up the vacuum that would otherwise draw the liquids from one bottle to the other, and lastly into the flask itself, and cause it to burst.

When sufficient nitrous oxide has been made, turn off the gas from the burner under the flask, and (if no vacuum valve is used) immediately after break the connection between the first and second bottles by slipping the india-rubber pipe off the end of one of the glass tubes, so as to prevent the vacuum forming as described above.

When first making the gas, it is absolutely necessary to generate sufficient to fill the gasholder, in order to saturate the water in the tank. Water will take up about its own volume of gas, therefore in starting a 50-gallon gasometer it will be necessary to make 50 gallons of gas, which will take about 2½ lbs. of nitrate of ammonia; the gradual descending of the gasholder will indicate the action of the water in

APPARATUS FOR GENERATING THE GAS—
continued.

absorbing the gas. Care, however, should be taken to make a fresh supply before the gasholder has quite descended, otherwise a vacuum will be formed, and the weight of the atmosphere pressing on the outside of the gasholder will crush it in, besides causing other injuries. When the water is once charged with gas, it will last many months without taking up any more.

The operation of gas-making should be concluded when the nitrate of ammonia in the flask is reduced to about six ounces, to prevent the danger of generating impure gas by the too great heat upon the smaller quantity of ammonia. By using Mr. Kirby's Extinguisher (see B, C, page 461) this danger is entirely avoided.

Two pounds of nitrate of ammonia will produce in one hour at least 40 gallons of pure nitrous oxide gas, provided constant attention is given in regulating the heat, so that nitrous or nitric acid cannot be formed. Nitrous oxide gas, when pure, should have a slightly agreeable odour, and a pleasant sweetish tase. When it tastes of copper or is pungent, it is not pure, and should not be used.

After the gas is made, it should stand in the gasometer in contact with the water for several hours before being used. Some prefer it when it is two or three days old.

The iron solution in the wash-bottle will last for some weeks, but should be renewed when a quantity of red precipitate collects at the bottom of the bottle. The potash solution will also last a long time, but should be renewed when crystals of nitrate of potash are deposited on the sides of the bottle.

The action of heat upon nitrate of ammonia is as follows:—It fuses at 226° Fahrenheit, boils at 360°, and evolves gas at from 460° to 485°; at 500°, and upwards, it gives off nitrous and nitric acids, accompanied sometimes with an explosion.

MR. S. A. KIRBY'S GAS EXTINGUISHER.

(See B, C, Fig. 2, Page 461.)

The use of this self-acting apparatus is to shut off the coal-gas from the burner when the nitrate of ammonia in the flask is reduced to six ounces. It is considered desirable never to have less than this quantity in the flask, for heat acts so rapidly upon a small quantity that, without constant watching, the temperature rises quickly to 500° Fahrenheit, and the consequence is the generation of nitrous or nitric acids, ammoniacal gases, or other impurities.

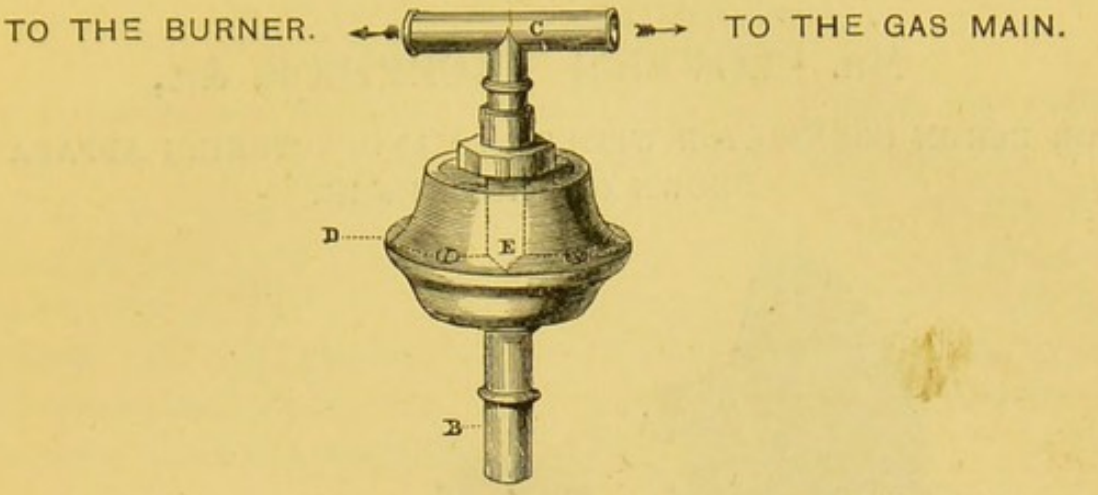
Directions.

When first starting with a new flask, put into it six ounces of nitrate of ammonia, then hang it on to the hook at the end of the apparatus by means of the flask cramp, then slide the movable weight C (Fig. 2, page 461) to the other end of the bar, until it exactly balances the flask with its contents. When this is done, fix the weight by means of the screw provided for that purpose. Then put into the flask, in addition to the six ounces, one, two, or more pounds of nitrate of ammonia, hang it again on the hook, and open the tap A of the extinguisher by bringing the projecting piece of wire on the balance handle B in contact with the projecting end of the bar on which the weight slides. Then attach a piece of flexible tubing from the gas supply pipe to the end of the tube D, and another piece from tube E to the gas-burner F;* then light the burner, and proceed with the gas-making. As soon as the contents of the flask are reduced to just below six ounces, it being lighter than the weight on the end of the lever, the weight moves downwards, and the balance-handle attached to the tap falls and shuts off the coal-gas. When once the weight is adjusted to the flask it need not be touched, so long as that particular flask lasts; but, as flasks differ in size, the weight must be set each time a new flask is used.

* If the Thermo-Regulator (Fig. 3, page 465) is used, the flexible tubing from tube E (Fig. 2, page 461) must be attached to one end of the T piece of the Thermo-Regulator, and another piece of tubing from the other end of T piece to the burner, so that the coal-gas must pass through the Regulator before it reaches the burner.

ASH'S THERMO-REGULATOR.

Fig. 3.



The use of the above invention is to regulate the supply of coal-gas to the burner, when making the nitrous oxide gas, so that the right temperature may always be kept in the flask, thus ensuring pure nitrous oxide being made, and also preventing breakages as far as possible.

Description of Regulator.

The Regulator consists of two chambers, divided through the centre by a diaphragm of india-rubber, D. Into the upper chamber is inserted a T tap, C and E, which is divided through its length, so that the coal-gas entering on one side passes down into the chamber and up the other side to the burner. Into the lower chamber is inserted a tube (open at the end) which is in direct communication with the pressure in the wash-bottle. The pressure is caused by a small plug placed in the exit tube of the second bottle, so that if the gas is generated faster than it can escape through this plug, there is a pressure in the bottle, which acts upon the Regulator, and so partially cuts off the supply of coal-gas to the burner. The T tap has a small hole through its division, which admits sufficient gas to the burner to prevent the flame being at any time entirely extinguished.

Directions for Use.

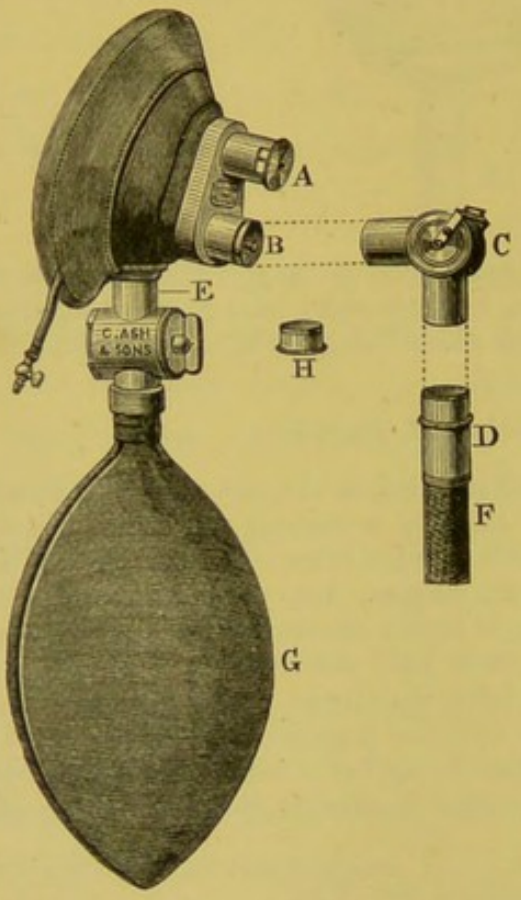
Take out the T piece or tap of Regulator and attach to one side of it (either will do) a piece of india-rubber tube from gas main, or from Kirby's Extinguisher (if that is used), and from the other side of T tap, another piece to burner, then replace the tap in its former position and press down as far as it will go. Turn on the tap of service pipe and light the gas at burner; the flame obtained with the T tap in this position is sufficient to warm up the flask; then increase the flame by gradually raising the T tap until the ammonia is melted and nitrous oxide is being generated, and after having tested the purity of the gas, as per directions on page 463, make the connection between the last wash-bottle and gasometer; then set the T tap of Regulator so that it be raised about $\frac{3}{8}$ inch. This should give a nice steady flame to burner, and the Regulator is then self-acting. At no time should the T tap be left raised so as to show the line marked on it, as it would be out of reach of the india-rubber diaphragm.

N.B.—The vacuum valve is now separated from the Regulator and placed in the first bottle, as described on page 462.

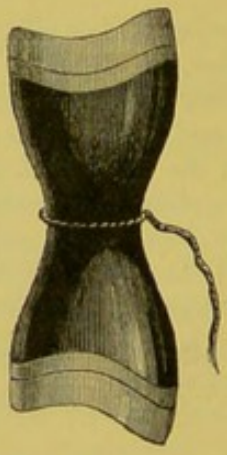
ADMINISTERING APPARATUS.

Mr. CLOVER'S FACEPIECE, &c.,

FOR USE IN CONNECTION WITH THE MANUFACTURING APPARATUS SHOWN ON PAGES 460-465.



Simple Gag.



Description.

A. Expiratory Valve.

B. Inspiratory Valve.

C. Two-way Stopcock for connecting Facepiece and Gasometer.

D. Mount attached to Mohair Tubing which leads to the Gasometer.

E. Mount-for holding either an Ether or a Supplemental Bag.

F. Mohair Tubing leading to Gasometer.

G. Ether or Supplemental Bag.

H. Cap to cover Mount E when the Ether or Supplemental Bag is not used.

ADMINISTERING APPARATUS—*continued.*

Mr. CLOVER'S FACEPIECE.

This well-known Facepiece is made of soft metal, which can readily be moulded to fit any face, covered with leather and provided with movable india-rubber pad. To Dentists residing at a distance, who cannot conveniently send their Facepieces to be repaired, it is the most suitable form, because a new pad can at any time be fitted in a few moments. It is kept in stock in two sizes (large and medium), which are found to meet the requirements of nearly every case that arises, but other sizes (small or extra large) are supplied to order.

Directions for connecting the Facepiece, &c., to the Gasometer.

First close the bottom tap on pipe E of the Gasometer, Fig. 1, shown on page 460, and slip the plain end of the Mohair Tubing over the top tap. This tap must of course be kept closed until everything is in readiness for the Gas to be administered to the patient.

Then push the tube of the Stopcock C—shown on the previous page—on to the tube B of the Facepiece and connect the Mount D to the vertical tube of the Stopcock. Having done this, the union between the Facepiece and Gasometer is complete.

After the Gag has been placed in the mouth, adjust the Facepiece, and allow the patient to breathe pure air through it for a few inspirations. This will beget confidence, and give the Anæsthetist time to assure himself that everything is in proper working order. Then close the air-hole in the Stopcock by an upward movement of the slide near C.

It is better to avoid any admixture of air during the inhalation, because it weakens the effect of the gas, and may even nullify it altogether.

When the Supplemental Bag is used to economize the gas, it is attached to tube E as shown in the illustration. After four or five inhalations of gas open the tap of this bag, and close the expiratory valve A by placing the finger upon it. This will cause the expired gas to be breathed into and from the Supplemental Bag.

APPARATUS FOR MANUFACTURING AND ADMINISTERING NITROUS OXIDE GAS.

Full List of Prices:

		s.	d.
Ammonia, Nitrate of, best quality	per cwt.	100	0
,, ,, ,, ...	per lb.	1	0
Supplied in Jars containing 7, 14 and 28 lbs. Jars charged extra: 7 lb. size, 1s.; 14 lb. size, 2s.; 28 lb. size, 4s.			
Ash's Thermo-Regulator	each	15	0
Caustic Potash, in ½-lb. bottles	per lb.	2	6
Facepieces—see pages 438—444.			
Gags ,, 450—455.			
Gas Burners—see next page:			
Fletcher's Star, without Stand	each	2	0
,, Star, with Stand	,,	3	0
Gasometers:			
Japanned Zinc, without core, 150 gallons capacity	,,	300	0
,, ,, ,, 50 ,, ,,	,,	140	0
Glass Flasks:			
50-oz. size, with flat bottoms	,,	1	0
100-oz. ,, ,, ,, ...	,,	1	6
140-oz. ,, ,, ,, ...	,,	2	3
160-oz. ,, ,, ,, ...	,,	2	6
Glass Tubes:			
Long, bent, for connecting Glass Flask with first Wash-bottle	,,	2	6
Straight, for second and third Wash-bottle	,,	1	6
Bent, for the third Wash-bottle	,,	1	3
Short, for first and second Wash-bottles	,,	0	9
Short, with Valve for first Wash-bottle	,,	2	0
India-rubber Tubing:			
Williamson's, for connecting Wash-bottles, specially made to withstand heat, ½-in. diam.	per foot	0	9
Small, $\frac{5}{16}$ inside, for connecting Coal-Gas Pipe with Thermo-Regulator	,,	0	4
Large, $\frac{5}{8}$ inside, for connecting Gasometer with last Wash-bottle	,,	1	0
Covered with Mohair, wired inside	,,	1	8
,, ,, ,, smooth	,,	2	6
India-rubber Bungs, for Flasks	each	1	0
,, ,, for Wash-bottles	,,	2	0
Kirby's Gas Extinguisher	,,	15	0

APPARATUS, &c.—*continued.*

		s.	d.
Proto-Sulphate of Iron, in ½-lb. bottles	per lb.	1	4
Spirit Lamp, for heating Flasks, &c.—see below	each	6	0
Stopcock, and Mount for Mohair Tubing	,,	9	0
Supplemental Bag	,,	12	6
Thermo-Regulator (Ash's)	,,	15	0
Vacuum Valves, in Glass Tube, for No. 1 Wash-bottle..	,,	2	0
Wash-bottles, mounted ready for use, with Glass Tubes fixed in India-rubber Bungs..	,,	9	0
Wire Hook, for suspending Glass Flasks	,,	0	6
Wooden Shield, with Tin Lining and Zinc Tray	,,	16	0
Wooden Union, for attaching to the bent Glass Tube on the third Wash-bottle	..	0	6

NOTES.

Nitrate of Ammonia.—One pound of nitrate of ammonia will yield twenty gallons of pure Nitrous Oxide Gas.

Proto-Sulphate of Iron.—The iron solution for Wash-bottle No. 2 is made by dissolving one ounce of proto-sulphate of iron in every pint of water which is put into the Wash-bottle.

Caustic Potash.—The potash solution for Wash-bottle No. 3 is made by dissolving one-third of an ounce of caustic potash in every pint of water which is put into the Wash-bottle.

Each of the Wash-bottles should be half-filled, No. 1 with clean water, No. 2 with the iron solution, and No. 3 with the potash solution.

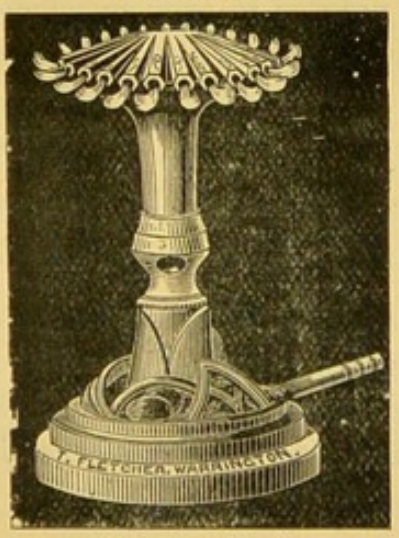
BURNERS FOR HEATING GLASS FLASKS.

STAR BURNER without Stand.

3½ inches high.

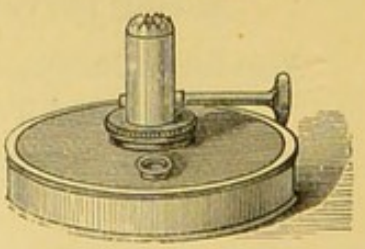
Adapted for fixing to ¼-inch supply pipe. Will work steadily with any gas supply from 2 to 8 feet per hour.

STAR BURNER with Stand.



6 inches high.

SPIRIT LAMP.



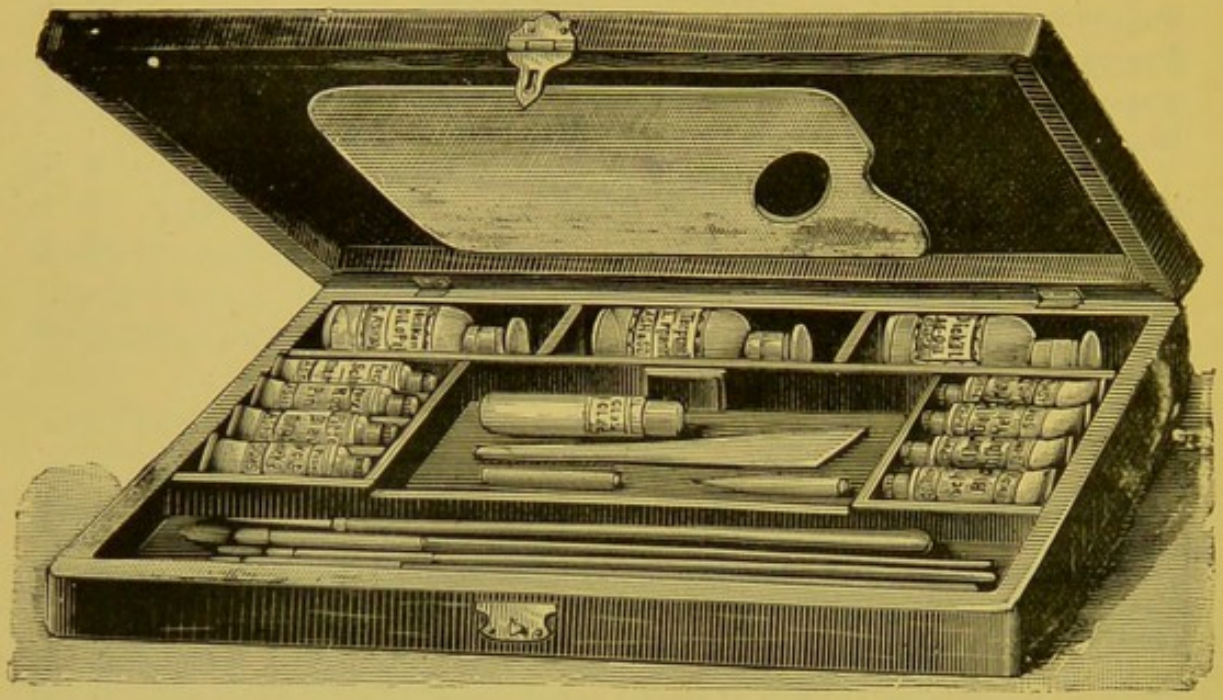
5 inches high.
5 ,, diameter.

The spirit holder of this lamp is 2 inches deep. It is intended for use in places where coal-gas cannot be obtained.

METHOD OF STAINING ARTIFICIAL TEETH,

TO MATCH EXCEPTIONAL NATURAL ONES.

(Suggested by Mr. William Dunn, Junior, Florence.)



Mr. Dunn states that "with a little attention and practice any one may soon master the initial difficulties of this painting work, and few, once having seen the advantages of the results, will again be content with the old method of using the nearest colour attainable.

Indeed, there is practically no limit to the capabilities of the materials in skilful and artistic hands."

Simple directions are enclosed in each box for—

Mixing the colours, Testing a shade, Firing the colours;

Also for imitating—

Smokers' Teeth, Gum Teeth,
Green Stains on the Teeth, Defects in the Teeth,
Gold Stoppings, &c.

Box, as illustrated, containing eight tubes of Colours, one tube Gold Precipitate, one tube Glaze, one bottle thick Oil, one bottle Oil of Cloves one bottle Spirits of Turpentine, one horn Spatula, one porcelain Pallet, one engraving Needle, one agate Point, and five Brushes.

	s.	*d.*
Price complete	12	6

LATHES, FURNACES,

BLOWPIPES, GAS-BURNERS,

VULCANIZERS, TOOLS

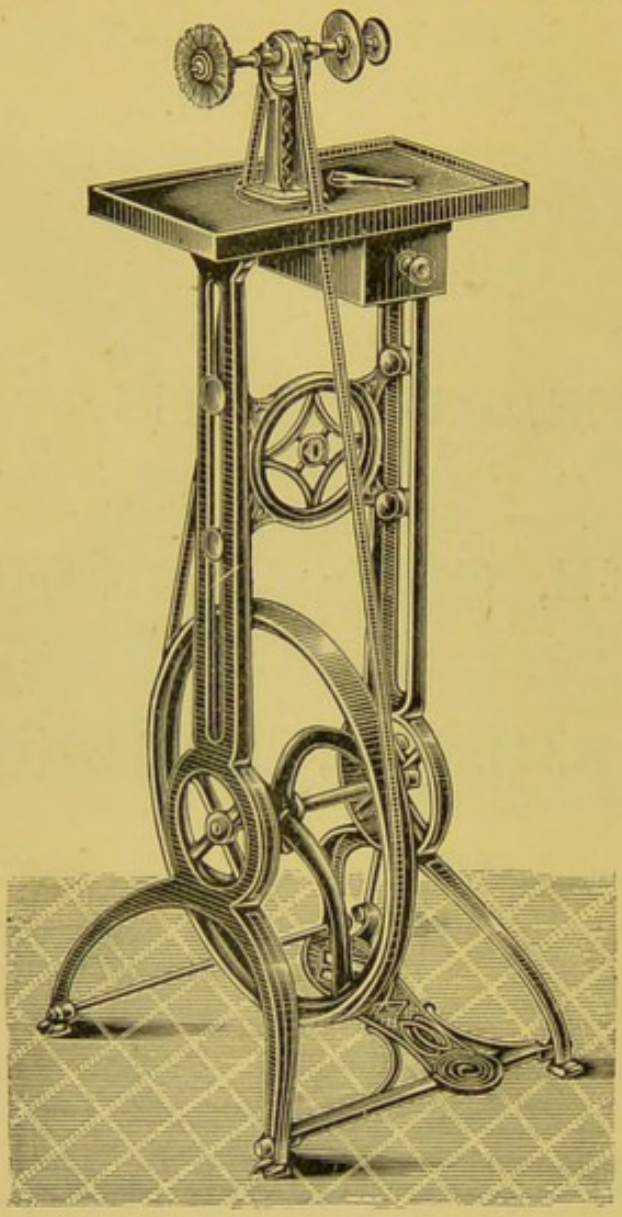
AND

GENERAL SUNDRIES

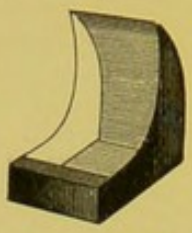
FOR THE

WORKROOM, &c.

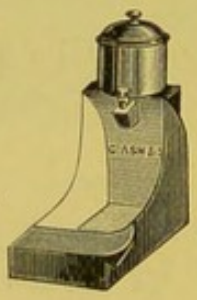
CHEAP WORKROOM LATHE.



C



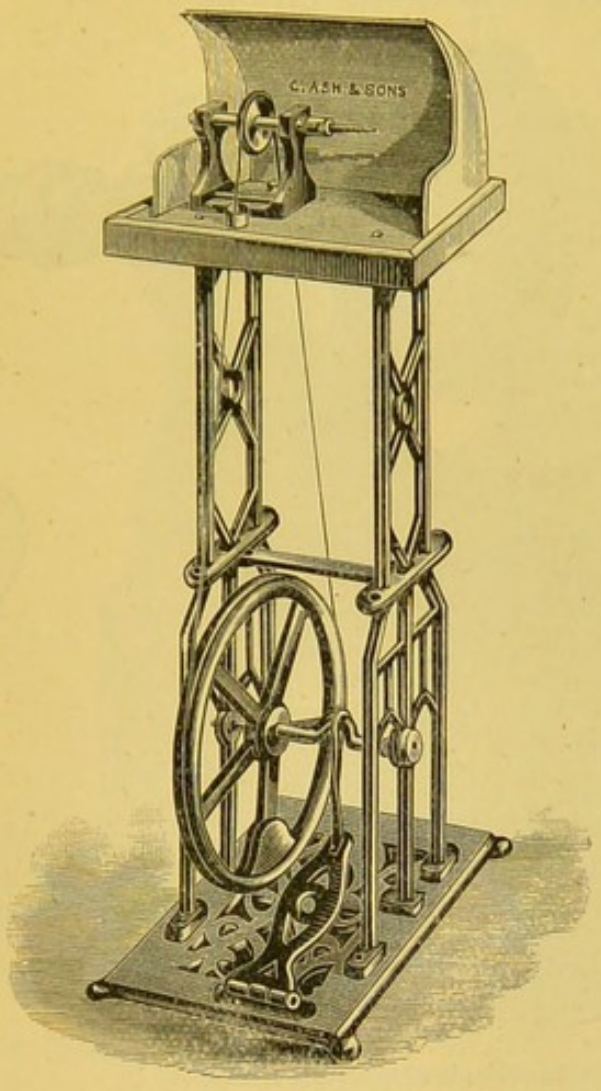
D



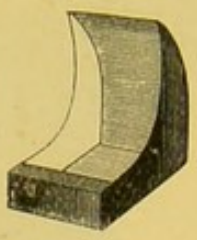
44 Inches high to top of Head.
Size of Table 14½ inches long by 12½ wide inside measurement.

	£	s.	d.
Lathe as illustrated, with three Corundum Wheels, one Brush, and one small Chuck extra for carrying the smallest size Corundum Wheels	2	18	6
Water Apparatus, consisting of Trough, Sponge Holder and Splash Guard combined. Made of zinc throughout, with Water Tank to slide from right to left; 12 inches high, 6 inches wide, and 9 inches long .. (Fig. D) extra	0	12	6
The same without Water Tank .. .. („ C) „	0	6	6

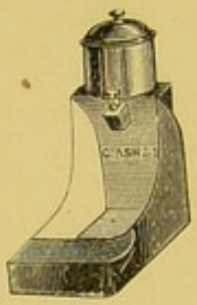
POLISHING LATHE, &c.



C



D



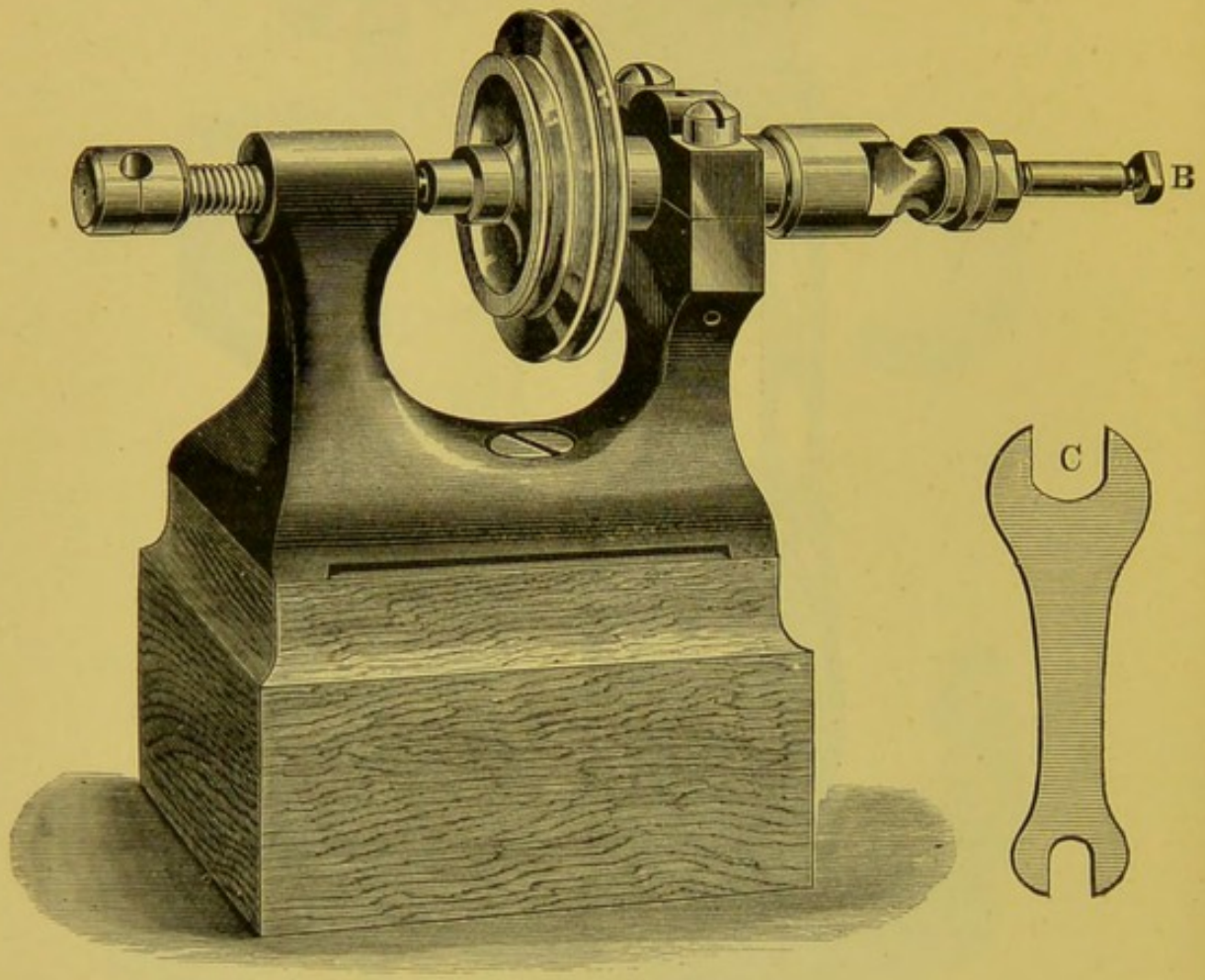
Height to top of Lathe Head, 47 inches. Size of Zinc-covered Table, 18½ inches square. Size of Base, 20 inches long by 13½ wide.

To render it perfect for its purpose, this Lathe is furnished with zinc-covered Table and zinc Splash Guard; and there is a drawer underneath the Table, as shown in the Lathe on the previous page, for holding such appliances as are not actually required while working.

	£	s.	d.
Lathe complete, as illustrated and described	5	0	0
The same, with Grinding Head shown on next page, instead of Polishing Head	5	0	0
The same, with Grinding and Polishing Head shown on page 475, instead of Polishing Head	5	10	0
Water Apparatus, consisting of Trough, Sponge Holder and Splash Guard combined. Made of zinc throughout, with Water Tank to slide from right to left; 12 in. high, 6 in. wide, and 9 in. long (Fig. D) extra	0	12	6
The same, without Water Tank .. ..(,, C) ,,	0	6	6

SINGLE LATHE HEAD,

WITH GRINDING CHUCK.



Lathe Head, about half size.
B. Grinding Chuck for two Corundum Wheels.
C. Spanner.

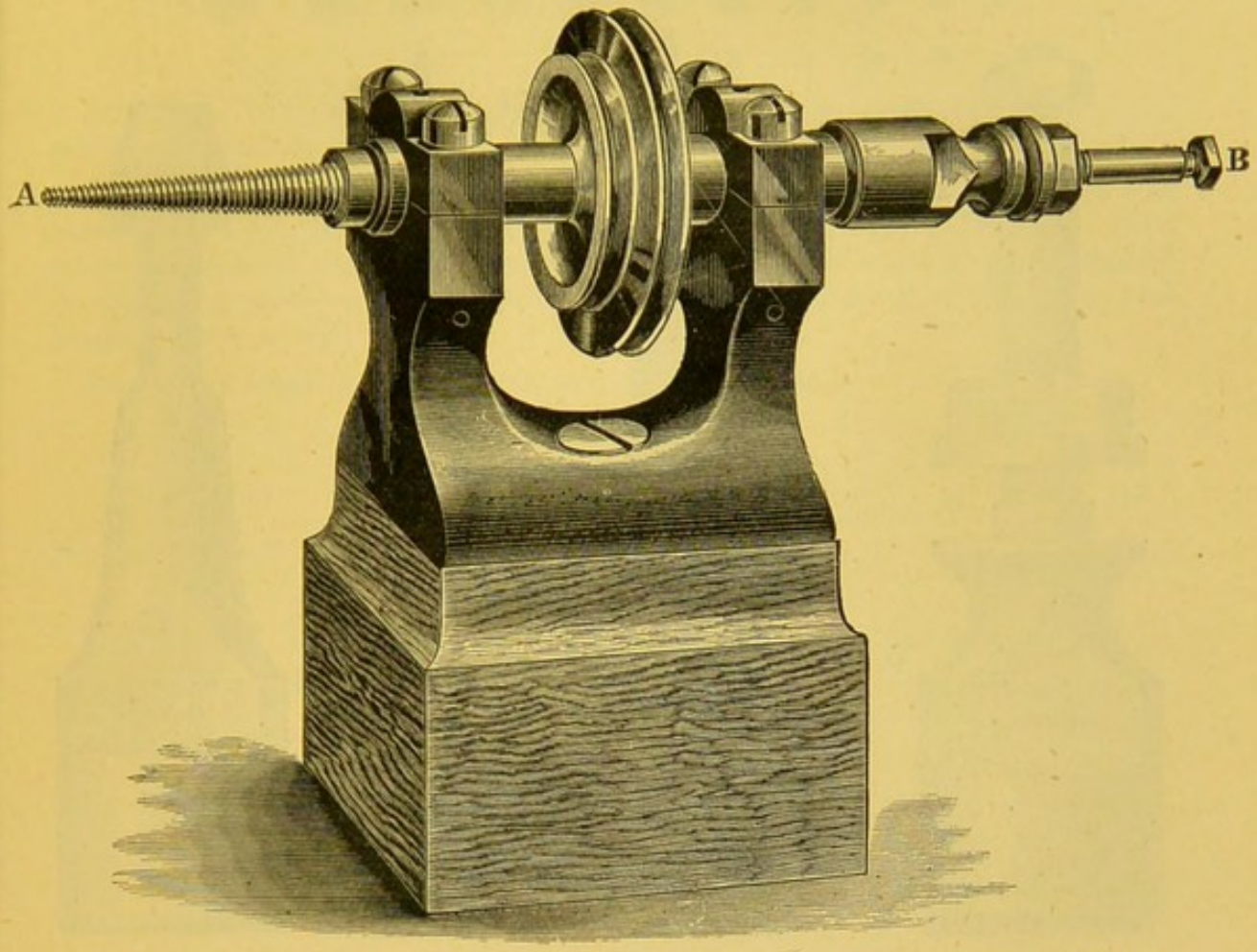
		s.	d.
Single Lathe Head with Grinding Chuck, two Corundum Wheels and Brass Spanner		30	0
The same, mounted on Stand, as shown on the previous page, but without Zinc Splash Guard and with Oak instead of Zinc-covered Table		85	0
Water Apparatus, see previous page ..	(Fig. C) extra	6	6
" " " " ..	(" D) "	12	6
Zinc Splash Guard, to fit on Lathe Table	"	9	0

For Chucks and Steel Burs and Wheels see pages 476 and 575. The Chuck for Polishing Brushes, and also the Chuck for Steel Burs and Wheels there shown, will fit the mandrel of the above Lathe Head. It can thus be used for grinding and polishing.

The small Chucks (Figs. 3 and 4, page 476) fit on the end of Chuck B, shown above, which is illustrated full size in Fig. 1 on the same page, when the brass nut is removed.

DOUBLE LATHE HEAD,

WITH GRINDING AND POLISHING CHUCKS.



A. Chuck for Polishing Brushes, &c. B. Grinding Chuck for two Corundum Wheels. C. Spanner, shown on opposite page.

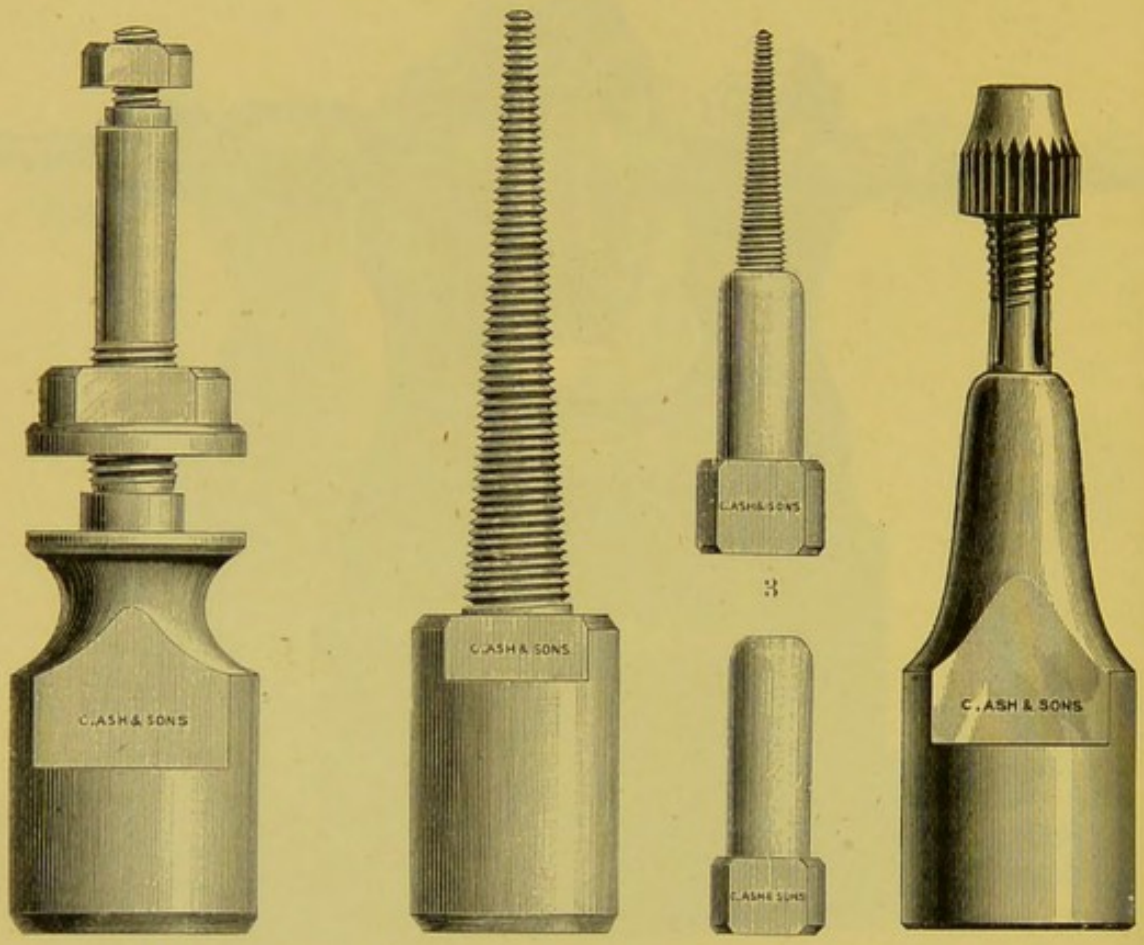
		s.	d.
Double Lathe Head, with Grinding and Polishing Chucks, two Corundum Wheels, one Polishing Brush, and Brass Spanner		40	0
The same, mounted on Stand, as shown on page 473, but without Zinc Splash Guard, and with Oak instead of Zinc-covered Table		95	0
Water Apparatus, see page 473	(Fig. C) extra	6	6
,, ,, ,, ,, ...	(,, D) ,,	12	6
Zinc Splash Guard, to fit on Lathe Table	,,	9	0

The Chuck A, for polishing Brushes, &c., on this Lathe Head is a fixture, but the Grinding Chuck B can be removed to make room for the Steel Bur and Wheel Chuck shown on page 575.

Chuck B is illustrated full size in Fig. 1 on the next page, and, as stated on the previous page, the small Chucks, Figs. 3 and 4, fit on to the end of it when the brass nut is removed.

CHUCKS FOR LATHES

Shown on Pages 473-5.



1 2 3 4 5

Full Size.

				s.	d.
Chuck to carry 2 Corundum Wheels	(Fig. 1)	each	7	0
,, ,, Polishing Brushes	(,, 2)	,,	3	9
,, ,, Steel Burs and Wheels, see page 575 ..		,,	5	6
,, ,, Small Corundum Wheels and Polishing Brushes	(Fig. 3)	,,	3	0
,, ,, Corundum Countersinks ..	(,, 4)	,,	2	3
,, ,, Engine Burs and Drills with Screw Clamp	(,, 5)	,,	10	6

Fig. 5 Chuck can be had to fit any Lathe Head; when ordering, please specify for which it is required.

Other Chucks supplied to order.

GUT FOR LATHE BANDS.

6 *7* *8* *9* *10* *11* *12* *13* *14* *15* *16*

Supplied in hanks 20½ feet long—sufficient for two bands for our workroom lathes.

There is no difficulty in furnishing hooks and eyes for any of the sizes illustrated, if they are ordered at the same time as the gut; but when extra hooks and eyes are wanted without gut, a small piece should be sent as a pattern, otherwise we cannot guarantee that the right size hooks and eyes will be sent.

Larger or smaller sizes of gut supplied to order.

Prices:

No.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
Per hank ..	5/0	4/0	3/6	3/6	2/9	2/3	2/0	1/3	1/0	0/10	0/10

		s.	d.
Hook and Eyes, any size	per pair	0	10
Leather Band for Lathes, round	,, foot	0	2

CONE-CHUCK LATHE HEAD.

(*For illustrations see next page.*)

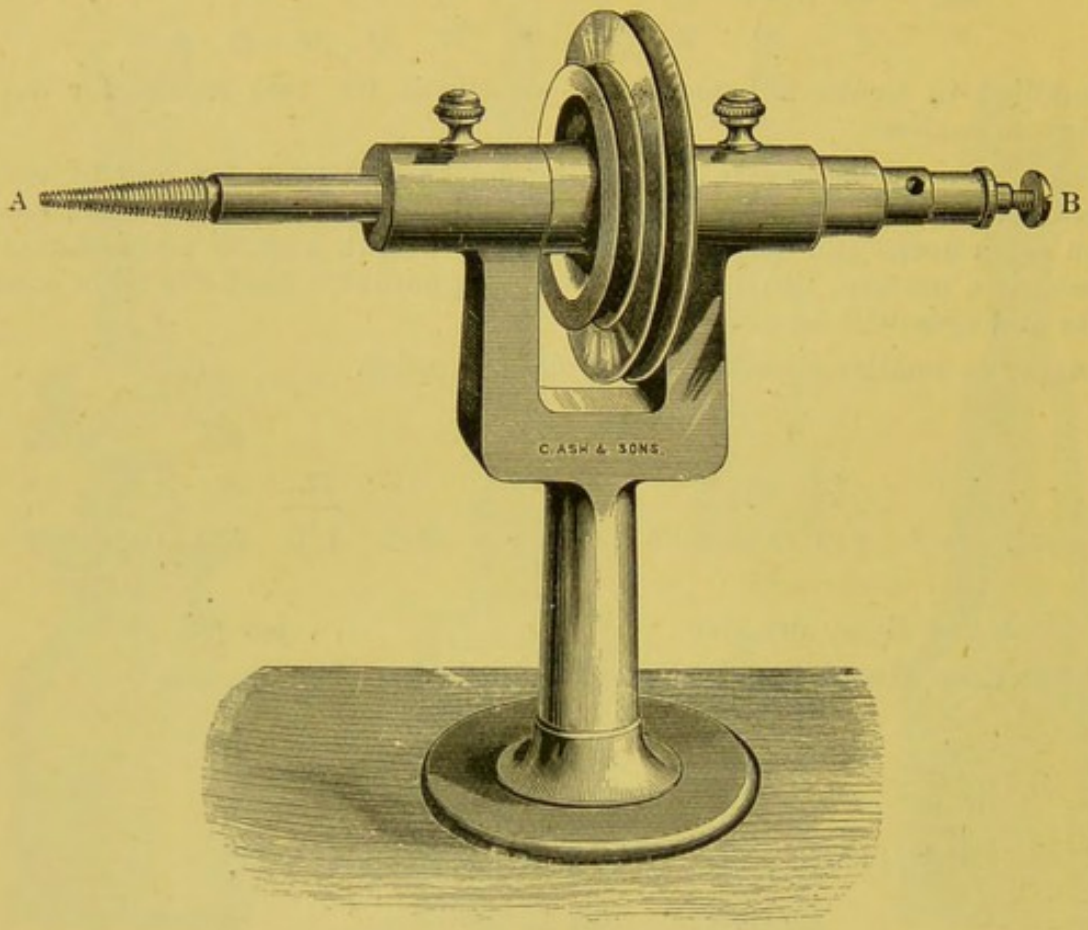
The following advantages are claimed for this Lathe Head:—

1. Chuck **A** will take polishing brushes, felt wheels, &c., of any size.
2. The Chucks, Figs. 1 to 11, facing the Lathe Head, are coned like Fig. 1, which is illustrated full size. The cone trues the Chuck, and thus ensures accuracy without trouble.
3. The grinding wheels can be rapidly mounted, the screw heads, which are the same size as the shoulders of the Chucks, clamping them quite securely.
4. The Chucks, which are all made to a standard gauge, are interchangeable, so that any number of new ones that may be ordered at any time will not only fit, but also run true on the Lathe Head.
5. A good selection of Chucks is provided for the Lathe Head to admit of each wheel being kept on the Chuck on which it is first mounted until it is worn out, and also to save the time which is usually occupied in changing the wheels.

For prices see next page.

CONE-CHUCK LATHE HEAD—*continued.*

FOR GRINDING AND POLISHING.



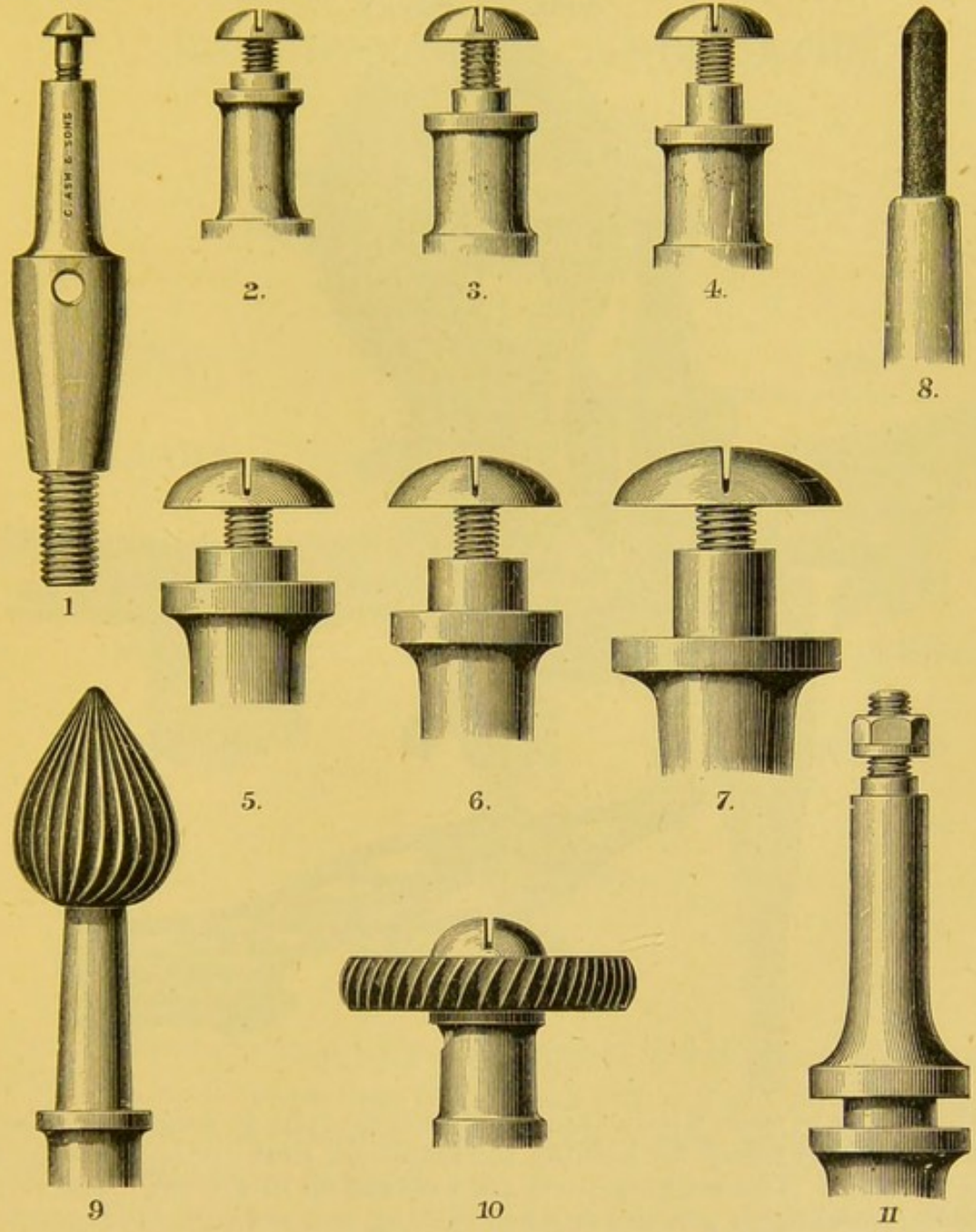
Lathe Head, half-size.

A. Chuck for Brushes.
B. Coned-Chuck for Corundum Wheels.

Prices:

			s.	d.
Cone-Chuck Lathe Head in Iron, with Chuck A for Brushes, Fig. 11 Chuck for two Corundum Wheels, and Spanner ..			35	0
Lathe Head in Gun-metal with the same Chucks, &c.			45	0
Lathe Complete, consisting of the Iron Lathe Head, Oak Tray, Iron Uprights, Driving Wheel, Treadle, Stand and Spanner			90	0
The same with the Lathe Head in Gun-metal			100	0
Chucks as shown on next page	(Figs. 1–10)	each	3	0
Chuck to hold two Corundum Wheels ..	(Fig. 11)	„	6	0
Oak Blocks, with holes for Chucks, to fit Lathe Tray, extra		„	4	0

GUN METAL CHUCKS FOR CONE-CHUCK LATHE HEAD.



1 2. 3. 4. 8. 5. 6. 7. 9 10 11

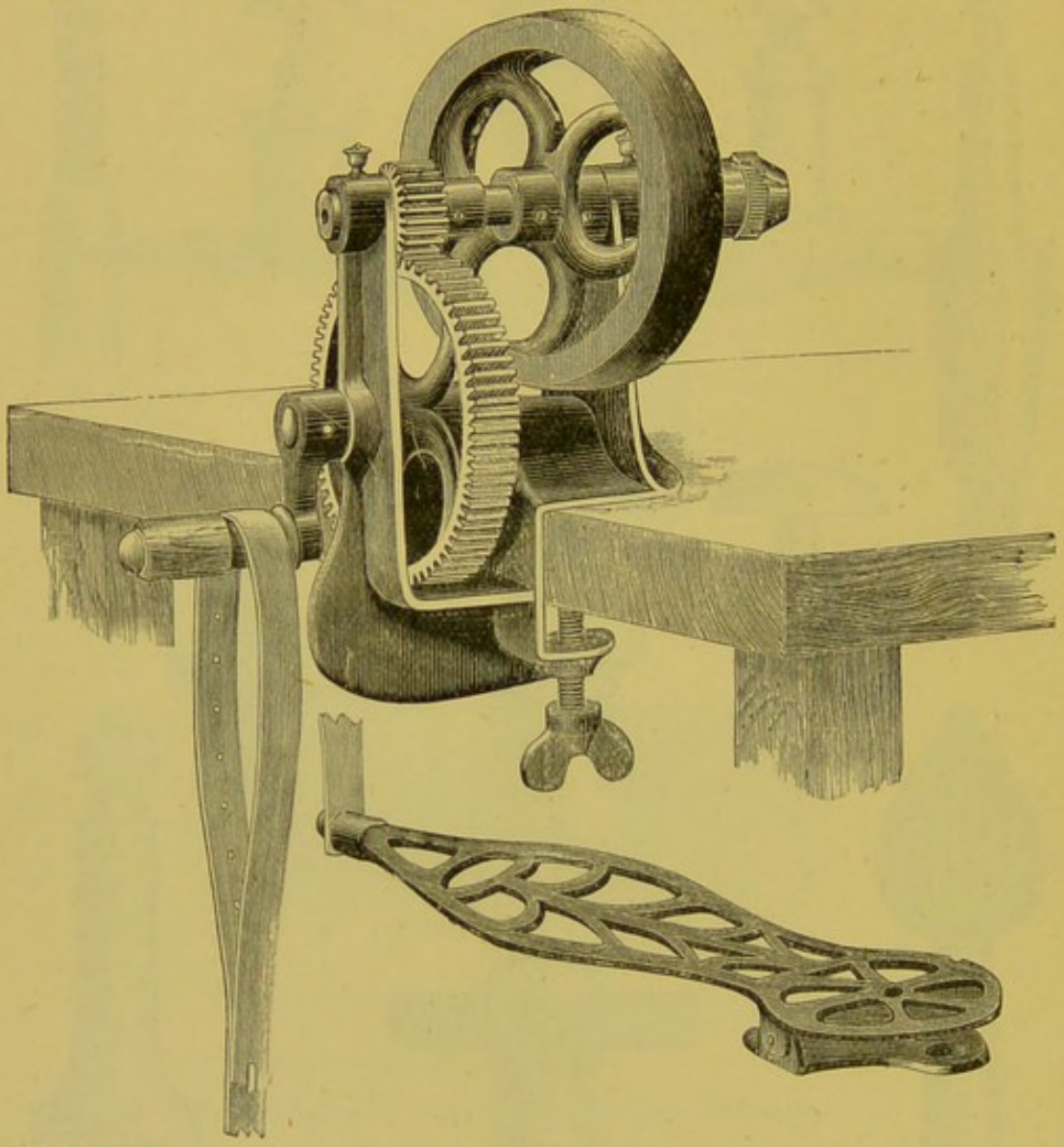
For numbers and sizes of Corundum Wheels, see page 580. The necks of the Chucks represent the size of the middle of the wheels, many of which taper slightly from the centre to the edge.

Fig. 1 Chuck takes our No. 1 Corundum Wheels (it is shown full size).
„ 2 „ „ Nos. 2 and 3 Thin „
„ 3 „ „ „ 2, 3 Thick, and 4, 5, 6 Thin Wheels.
„ 4 „ „ „ 4, 5, 6 Thick Wheels.
„ 5 „ „ „ 7 Medium Wheels.
„ 6 „ „ „ 7 Thick, and 8 and 9 Thin Wheels.
„ 7 „ „ „ 8 and 9 Thick Wheels.
„ 8 „ „ Corundum Countersinks.
„ 9 „ „ Steel Burs, Nos. 1–4. See page 575.
„ 10 „ „ Steel Wheels in three sizes „
„ 11 „ „ Nos. 3 and 7 Thin Corundum Wheels.

When ordering, please give the figures of the Chucks required

CONE-JOURNAL HAND AND FOOT LATHE.

(AMERICAN PATTERN.)



This Lathe is made with an adjustable chuck, split at both ends, which acts as a double clamp for holding the mandrels, thus giving them extra long bearings. The working parts are well shown in the cut. It is very suitable for a branch practice or when visiting, and is extremely portable, the total weight being only 8 lbs. We can recommend it as powerful enough for the heaviest work in the dental laboratory.

Lathe complete, with Treadle and Strap, Spanner and three Chucks as under :—

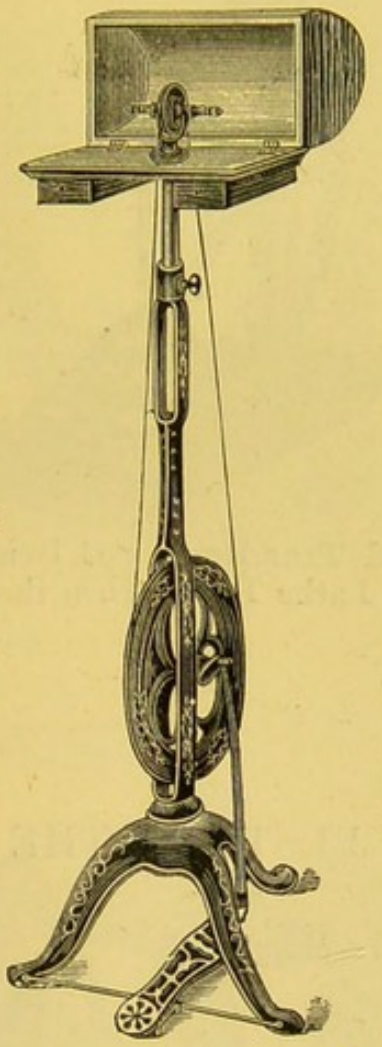
a. One to carry two of our Corundum Wheels, a medium and a small.
b. ,, ,, our largest sizes of Corundum Wheels.
c. ,, ,, Brushes or Felts, &c.

	s.	*d.*
Price	35	0
The same, minus Strap and Treadle	31	6

LARGE OPERATING-ROOM LATHE.

For LIGHT OPERATING-ROOM LATHE,

see page 90.



For DRIP-CUP and HAND REST,

see page 90.

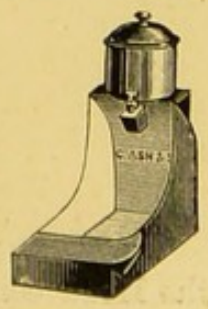
Large Operating-Room Lathe, consisting of Nickel-plated Cone-Chuck Lathe-head, as shown on page 478; Stand and Upright japanned black, relieved with ornamentation, and Walnut Table, with two Drawers underneath and Cover to match.

	£	s.	d.
Price .. .. each	6	5	0

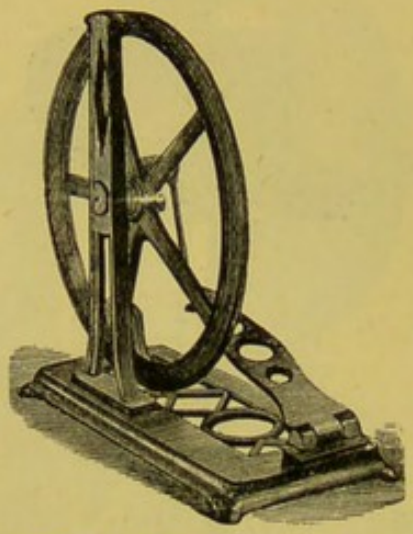
WATER APPARATUS.

With Tank and Sponge Holder; specially designed for use with the above Lathe.

	s.	d.
Price	12	6



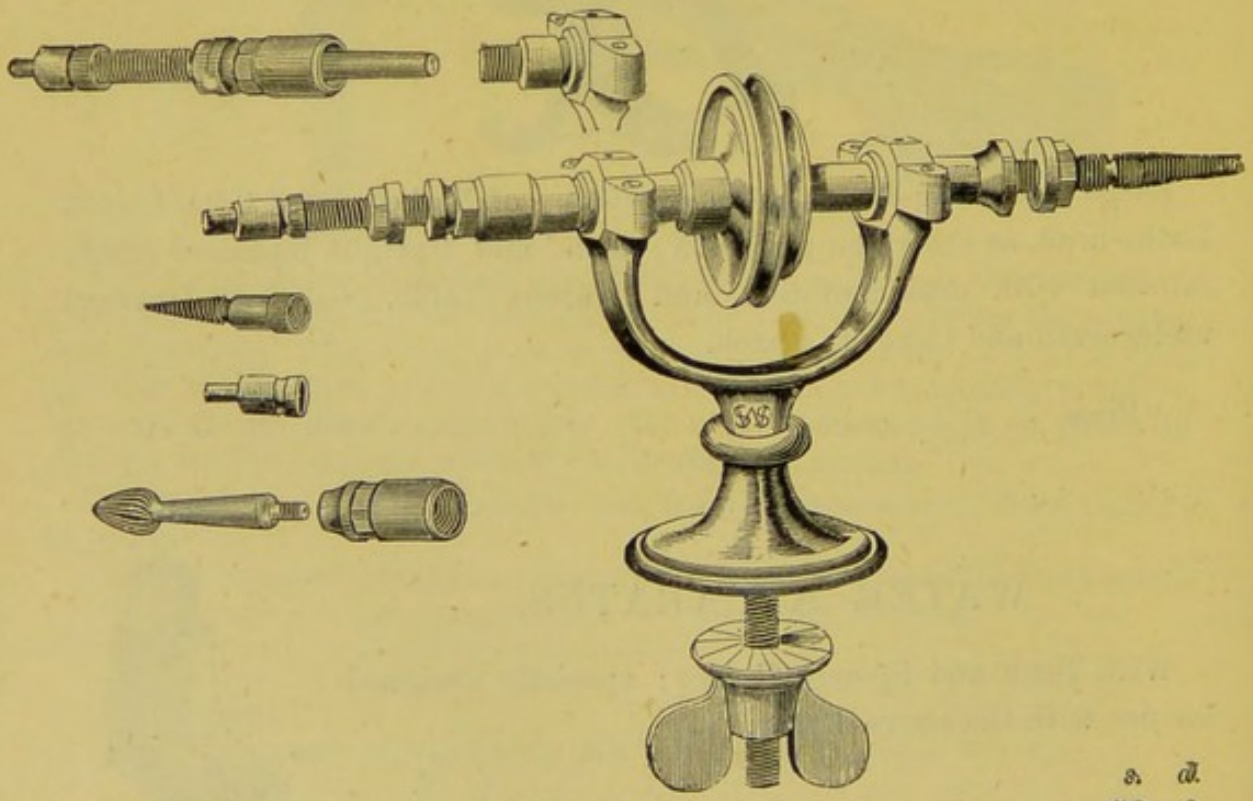
DRIVING WHEEL.



Driving Wheel and Treadle, in cast Iron, 21 in. high; 9 in. wide; 22 in. long, for driving Lathe Heads when they are fitted on the work-bench.

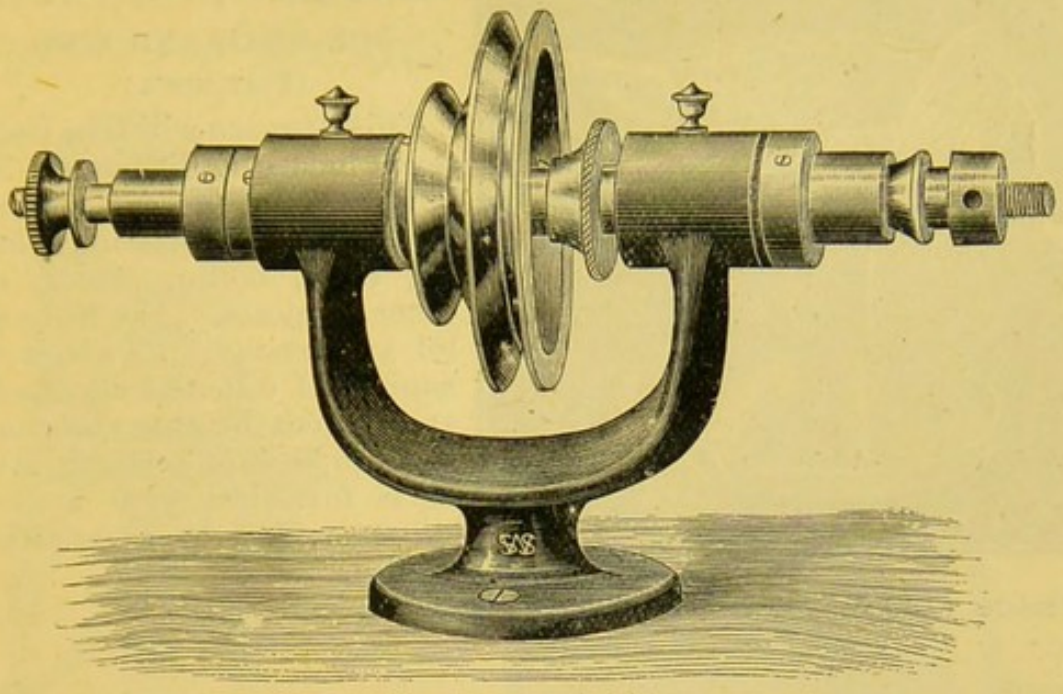
	s.	d.
Price	37	0

THE "BEST" LATHE HEAD.



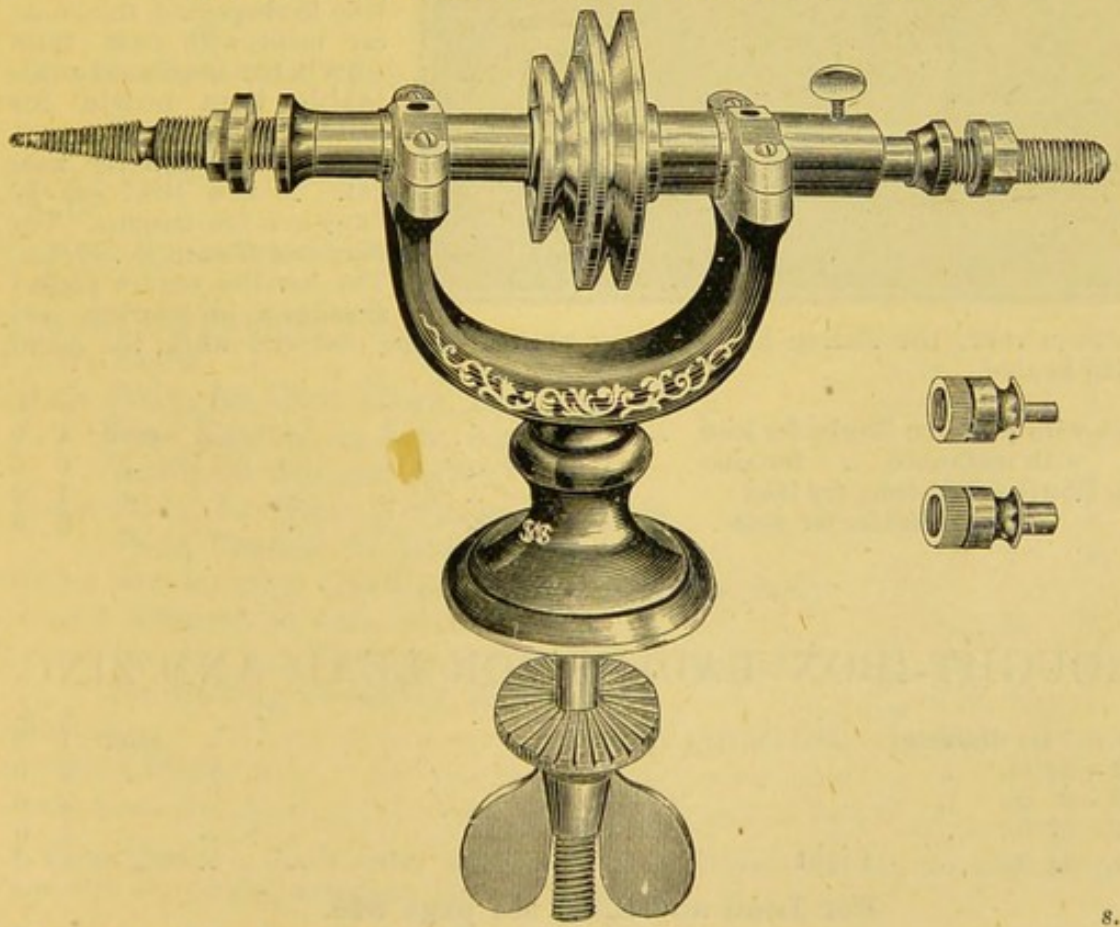
	s.	d.
Lathe Head complete, with 4 Chucks	56	0

CLUTCH LATHE HEAD.

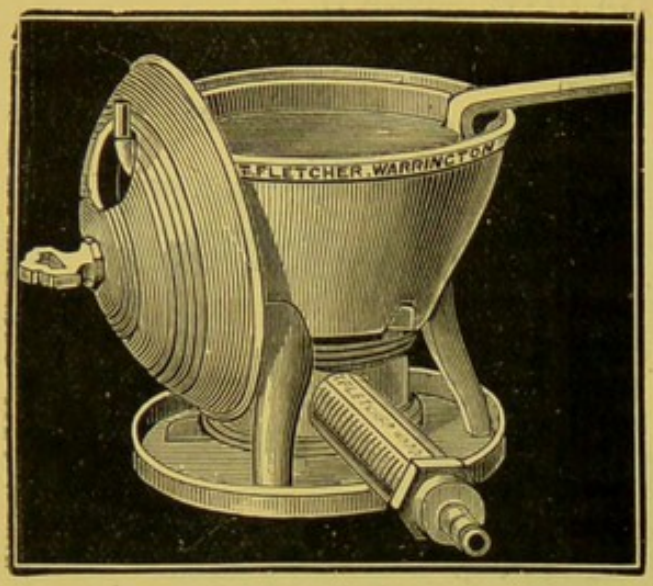


	s.	d.
Lathe Head complete, with 10 Chucks	52	0

THE LAWRENCE LATHE HEAD.



	s.	d.
Lathe Head in Iron, with Chucks as illustrated	30	0
„ in Brass „ „	40	0

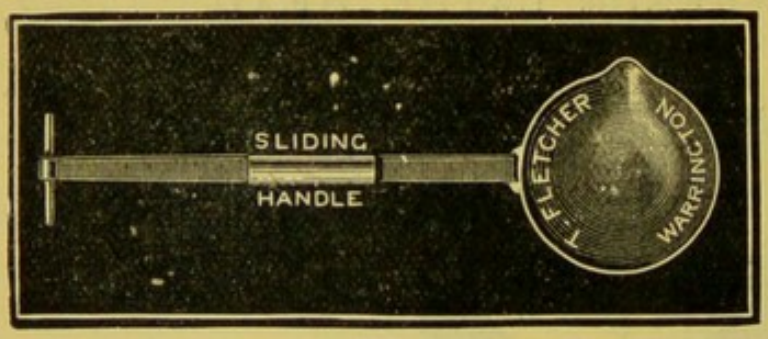


LADLE FURNACE,
FOR LEAD AND ZINC.
(FLETCHER'S.)

This Furnace will take Ladles seven inches in diameter. The burner, which is removable, can also be used for heating soldering irons, boiling water, and other purposes. The body and lid are arranged to admit the handles of different size Ladles at different heights, to enable them to be kept perfectly level. It is furnished with a metal skimmer, and hook for lifting the lid.

	s.	d.
Furnace complete, without Ladles	13	0

LADLES FOR ZINC AND LEAD.
(FLETCHER'S.)



These Ladles, which are true to shape and thickness are made with **cast-iron bowls for lead and malleable iron bowls for zinc.** The handles are bolted on, and never wear out. A new bowl can be fixed in a few minutes. The diameter of each is 7 inches. The handles ensure perfect steadiness in pouring, and are always cold; the sliding handle being pushed to the cool end while the metal is being heated.

		s.	d.
Ladles with cast-iron bowls, for lead	each	4	0
„ with malleable „ for zinc	„	6	6
Extra Bowls—Cast-iron, for lead	„	1	3
Malleable, for zinc	„	3	9

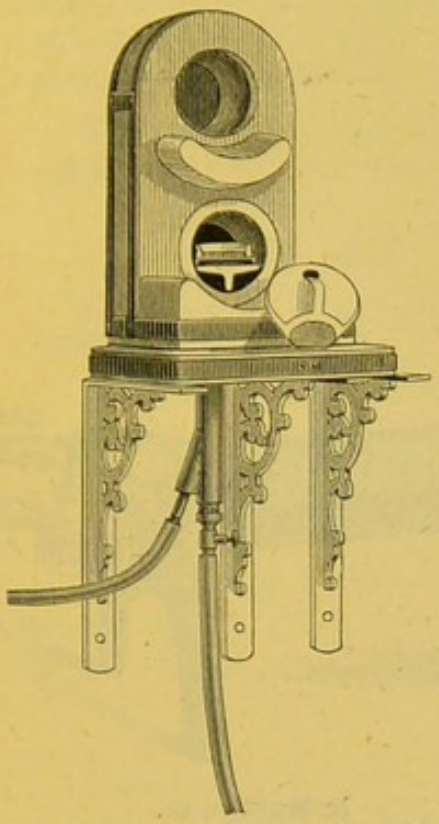
WROUGHT-IRON LADLES FOR LEAD AND ZINC.

		s.	d.
No. 1.—5 in. diameter	each	1	9
„ 2.—5½ in. „	„	2	0
„ 3.—6 in. „	„	2	6
„ 4.—6½ in. „	„	3	0
„ 4.—4½ in. „ Light	„	1	0

For Lead and Zinc, see page 548.

VERRIER'S CONTINUOUS-GUM FURNACES,

ADAPTED FOR USE WITH EITHER COAL-GAS OR AIR-GAS.



Double Furnace and Stand.

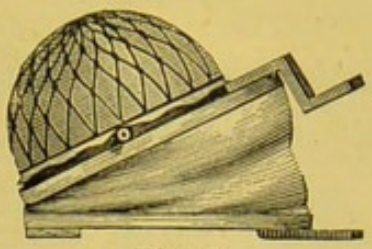


Fig. 9.

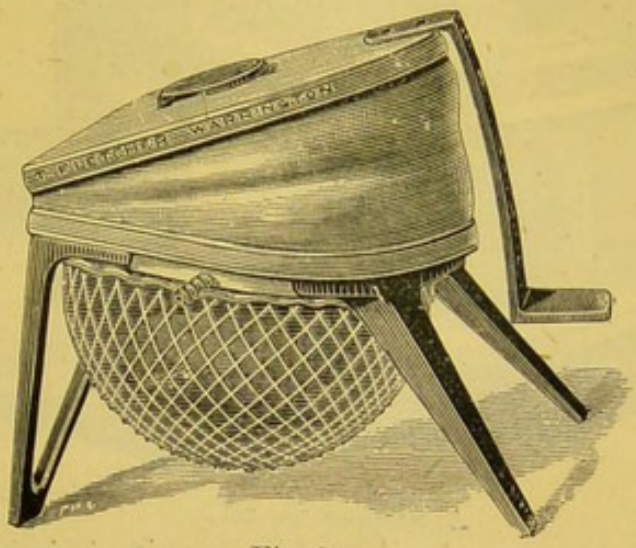


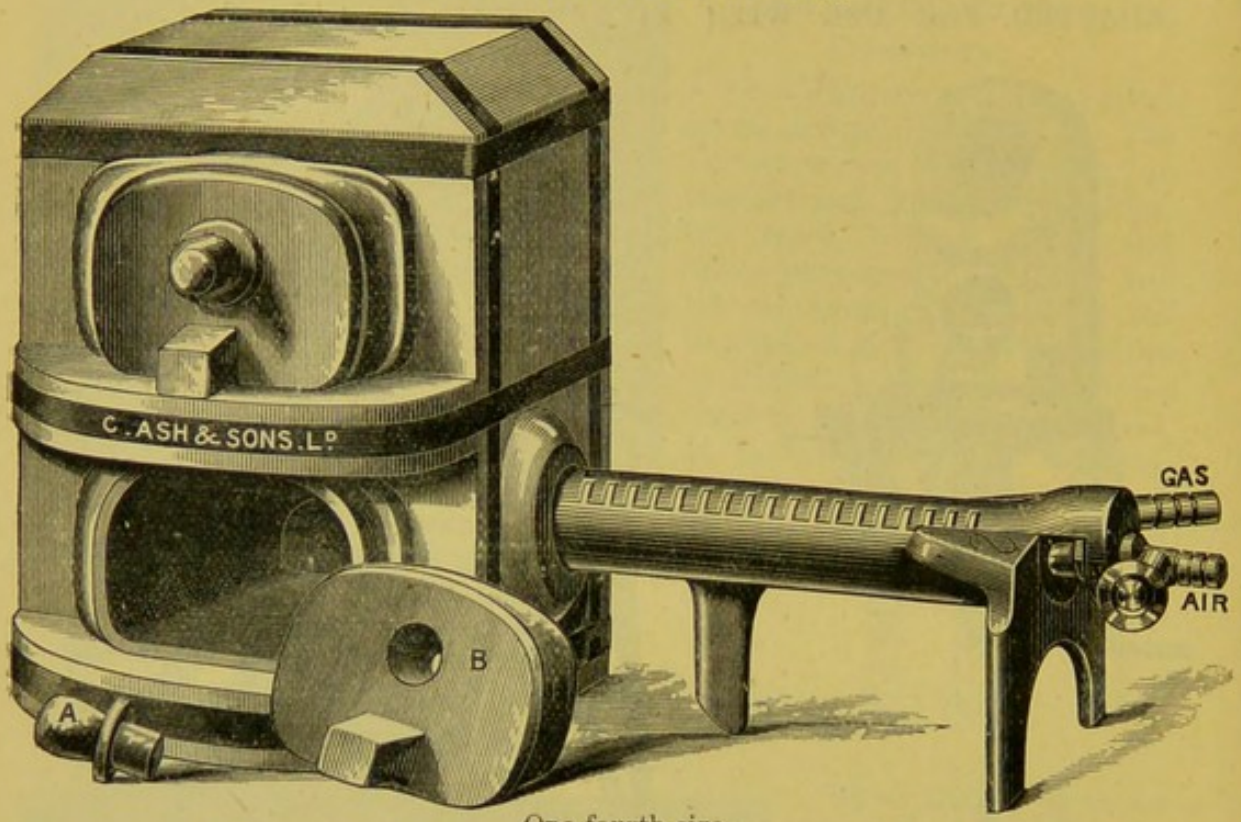
Fig. 9B.
Blowing Apparatus.

	s.	d.
Single Furnace, Burner, Muffle, Tongs, and Instructions for use	45	0
Double „ „ two Muffles „ „	60	0
Blowing Apparatus (Fletcher's), size 5 .. .. (Fig. 9)	27	0
„ „ „ „ 5 .. .. („ 9B)	30	0
India-rubber Tubing, $\frac{3}{8}$ inch .. .. per foot	0	6
Muffles, extra .. .. each	3	0
Allen's Body, for Gum Work, in oz. boxes .. .. per box.	6	0
„ Gum Enamel, in $\frac{1}{2}$-oz. boxes .. .. .. „ „	5	0
„ Teeth, in full and partial sets .. .. „ 100	48	0
* Ash's Body, for Gum Work, in oz. boxes .. .. ., box	5	0
* „ Gum Enamel, in $\frac{1}{2}$-oz. boxes .. .. .. „ „	4	0
Powder for making Mixing Liquid for Ash's Body and Enamel, in 1-oz. bottles .. .. .. „ bottle	2	6
Powder for making Fireclay, for repairing Muffles .. „ lb.	1	6
„ for making Investing Batter .. .. „ 7 lb. bag	1	6
Asbestos „ „ „ finely powdered „ lb.	1	0
Powdered Silex „ „ „ .. .. .. „ „	1	6

* These fuse at a much lower temperature than Allen's, and can therefore be used either with our own or American Teeth.—C. A. & S.

CONTINUOUS-GUM FURNACES,

FOR COAL-GAS AND AIR.



One-fourth size.

A. Stopper for door. B. Muffle door.

Size of Muffle inside, 5¾ inches long, 2¾ inches high.

	s.	d.
Double Furnace complete, as illustrated	40	0
Single „ „	30	0
Fletcher's Fig. 9 B, Size 5 Blower	30	0

This size Blower will work either of the above Furnaces.
These Furnaces cannot be used with Oxygen.

The following advantages are claimed for this form of Furnace:—

1. It can be easily managed.
2. The inlet is in such a position that uniformity of heat is secured.
3. The muffle is large and roomy, and so designed that gasing is prevented.

Its working will be familiar to those who are acquainted with Fletcher's Injector Furnace for melting metals. **It requires ½ inch clear bore tubing and tap for the gas supply, and ⅜ inch tubing for the Blowing Apparatus.**

In reference to speed of working it may be mentioned that continuous-gum work should not be fired too quickly. Half-an-hour at the very least should be allowed for each case, even when it is thoroughly well annealed. It is a mistake to attempt to do it in from eight to fifteen minutes; good work cannot be done in the time, and crazing or cracking of the gum enamel must result.

CONTINUOUS-GUM FURNACES—*continued.*

Some of the most successful operators allow from fifteen to twenty minutes for getting up the heat to fusing point, and then from twelve to fifteen minutes for perfecting the baking. Of course, no given time can be specified, as much depends upon the thickness of the piece; but this much may be said, half-an-hour should be fixed as the minimum for firing a case by all who wish to achieve satisfactory results.

We recommend the Muffles being lined with the following mixture when signs of cracking are visible:—

China Clay	10 parts.
Powdered Glass	1 „

To be mixed with water to the consistency of whitewash and applied with a brush.

MUFFLES, FIRECLAY SLABS, &c.

		s.	d.
Extra Muffles	each	4	6
„ Fireclay Slabs	„	0	9
„ Doors	„	1	9
„ Plugs	„	0	6

ASH'S GUM BODY AND ENAMEL.

This Gum Body and Enamel can be used for Continuous-Gum work, either with the Teeth of our own manufacture or with American Teeth.

Prices:

		s.	d.
Gum Body, in one-ounce boxes	per box	5	0
„ Enamel, in half-ounce boxes	„	4	0
Powder for making Mixing Liquid for Body and Enamel, in one-ounce bottles	per bot.	2	6

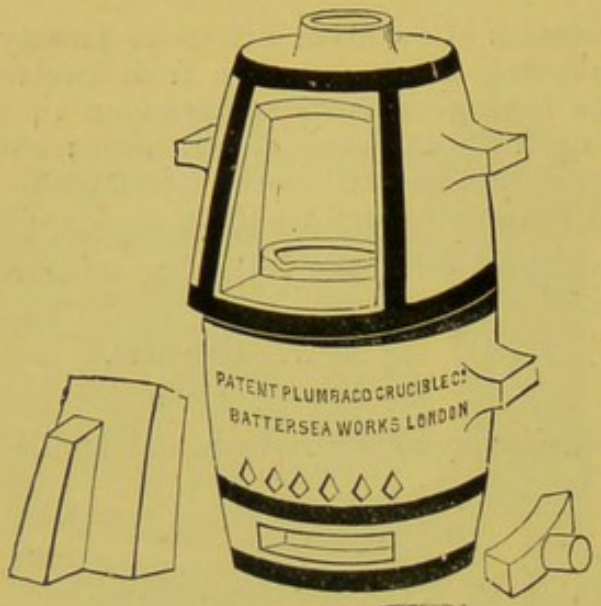
ALLEN'S GUM BODY AND ENAMEL.

		s.	d.
Gum Body, in one-ounce boxes	per box	6	0
„ Enamel, in half-ounce boxes	„	5	0

Chase's, Rose's, Tees' and other makes of Body and Enamel supplied to order.

Other Continuous-Gum Furnaces obtained to order.

DRAFT FURNACES.



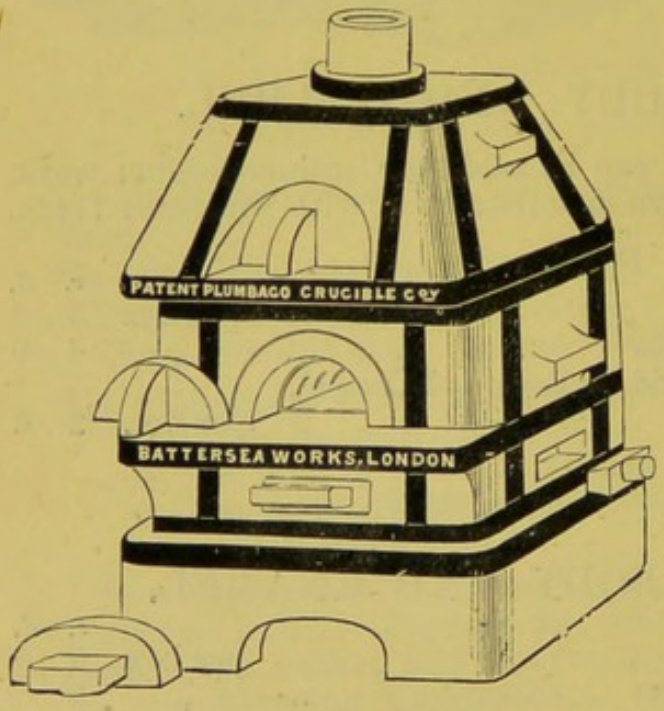
Crucible Furnace, for Melting gold, silver, &c., heated by Foundry Coke and Charcoal. Made in three sizes, to take Crucibles of 4, 8, and 12 lbs. capacity, and strengthened by iron bands.

Bars are charged extra.

Larger sizes supplied to order.

Clay Crucibles and Melting Pots of all sizes and kinds obtained to order.

		s.	d.
Furnace, 4-lb. size, 9¼ in. diameter, 17½ in. high	each	23	0
„ 8-lb. „ 9¾ in. „ 20 in. „	„	29	0
„ 12-lb. „ 11 in. „ 22 in „	„	35	0
Plumbago Crucibles—4-lb. size, each 8*d.*; 8-lb. size, each 1*s.* 3*d.*; 12-lb. size	„	1	10
Crucible Tongs	„	2	0



Muffle Furnace, for continuous gum work, &c., heated by Foundry Coke and Charcoal. Made in three sizes, large, medium, and small, strengthened by iron bands.

Larger sizes supplied to order.

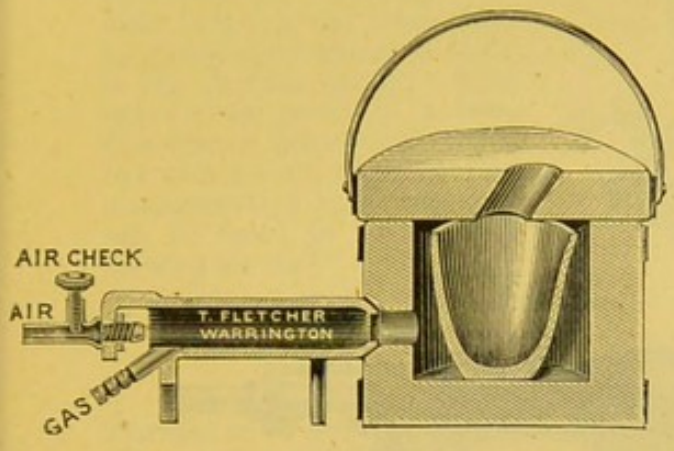
For Gum Body and Enamel, **see previous page.**

		s.	d.
Furnace, small size, 13¼ in. diameter, 25¼ in. high	each	53	0
„ medium „ 15½ in. „ 28½ in. „	„	70	0
„ large „ 17½ in. „ 30 in. „	„	94	0
Fireclay Muffles: small, each 1*s.* 8*d.*; medium, each 2*s.* 4*d.*; large ..	„	3	0
Muffle Slabs: „ „ 6*d.*; „ „ 1*s.*; „ ..	„	1	6

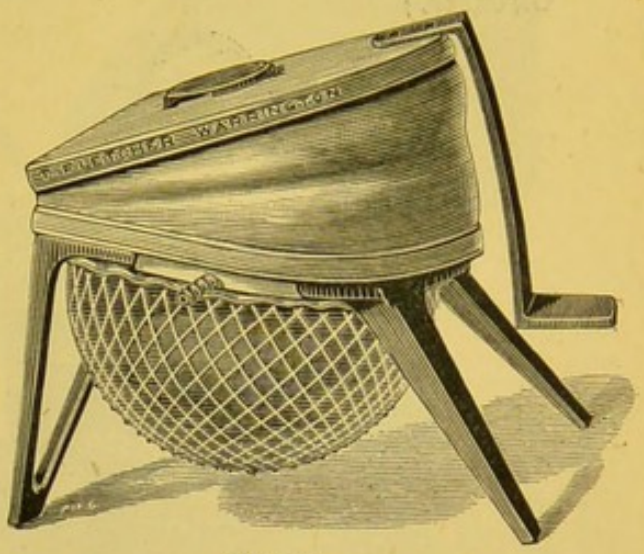
PERFECTED
INJECTOR FURNACE AND BLOWING APPARATUS.

(FLETCHER & Co.'s.)

For melting Gold, Silver, &c., works equally well with coal-gas or air-gas, and is, beyond comparison, the best and simplest gas Furnace made for ordinary use.



Furnace.



Blower.

Prices:

Sizes of Furnaces	6 oz.	2 lb.	6 lb.	12 lb.
Taking Crucibles, Nos.	00	1	3	6
	s. *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*
Furnace, as illustrated (Fletcher's, Fig. 41) ..	11 6	13 6	21 0	30 0
Blowing Apparatus („ „ 9B) ..	25 6	25 6	35 0	35 0
India-rubber Tubing	3 0	3 0	4 0	4 0
Crucible Tongs	1 6	1 6	2 0	2 0
Bow Tongs	..	..	3 0	4 0
Crucibles, Fireclay	0 1½	0 2	0 5	0 10
„ Salamander	0 3	0 4	1 0	2 0
Extra Furnace Bodies	3 6	4 6	8 6	14 0
„ „ Lids	2 6	2 6	4 6	7 0

Gas supply required.

Cubic Feet.		Inch.
6 oz. size, 7 to 30	per hour,	⅜ pipe
2 lb. „ 10 „ 40	„	⅜ „
6 lb. „ 25 „ 60	„	½ „
12 lb. „ 30 „ 70	„	⅝ „

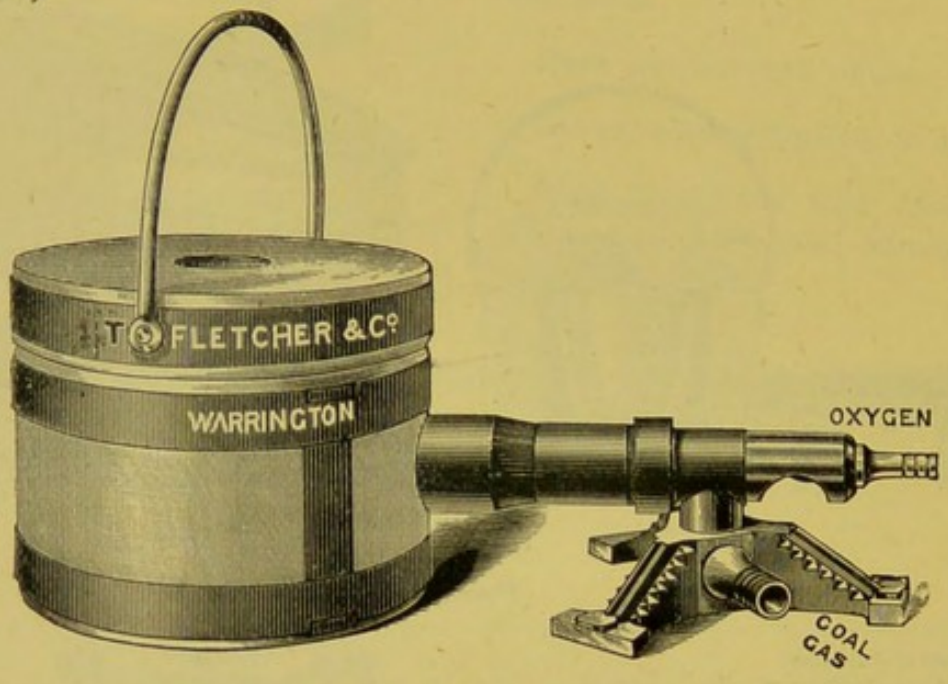
Crucibles, outside measurement.

High.		Diameter.
2	by	2¼ inches.
2⅞	„	2⅜ „
4	„	3½ „
6	„	4½ „

Fletcher's List, giving full details concerning the above Furnace, &c., sent on application.

FLETCHER'S
COMPRESSED OXYGEN INJECTOR FURNACE.

For the rapid fusion of metals and the treatment of refractory substances at all temperatures. (Full description of this Furnace will be found on page 128 of the September, 1888, number of the *Quarterly Circular*.)



Prices:

		s.	d.
Furnace and Burner to take Morgan's No. 00 Crucibles ..	..	17	6
„ „ „ No. 1 „ ..	..	19	0
Extra Furnace Bodies	each	4	0
„ „ Lids	„	2	6
Morgan's Salamander Crucibles No. 00 (6-oz. size) ..	„	0	3
„ „ „ „ 1 (2-lb. „) ..	„	0	4
India-rubber Tubing $\frac{5}{16}$-in. for Oxygen Nozzle	per foot	0	4½
„ „ $\frac{1}{2}$-in. „ Coal-Gas „	„	0	9

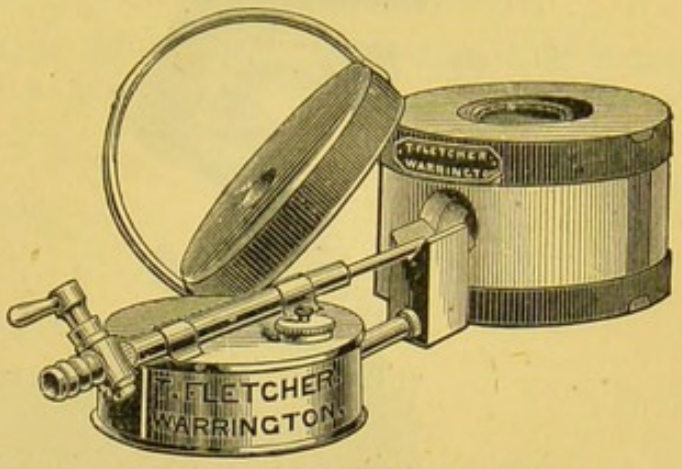
As this Furnace is entirely self-acting, a Blower is not required.

Messrs. Fletcher & Co. state:—"At present we are unable to make larger sizes owing to the difficulty of obtaining any material which will resist the power of the burner, and at the same time retain its shape and stiffness sufficiently to carry any weight of material in the crucible."

FLETCHER'S OIL FURNACE,

FOR USE WITH KEROSENE OR PETROLEUM.

In places where there is no Gas, and where Benzoline cannot be obtained, this Furnace, 6-oz. size, is recommended. It is adapted to work with a lamp burning ordinary Kerosene or Petroleum oil. In using it, the wick holder of the lamp must be placed close against the hole in the furnace casing. It is *inferior in power* to a Gas, Gasoline, or Benzoline Furnace, but with a little experience in management, ½ lb. of cast iron can be fused in 12 minutes, starting all cold.



For melting Gold, Silver, &c.

Prices:

		s.	d.
Furnace and Lamp, without Blower and Tubing	.. ..	14	6
Blower (Fletcher's), size 3	.. .. (Fig. 9)	21	0
India-rubber Tubing, smooth inside	.. .. per foot	0	6
Crucibles, size 00; Fireclay, each 1½*d.*; Salamander	.. .. .. each	0	3

INDIA - RUBBER TUBING.

			s.	d.
White,	⅜-inch diameter, any length, wired inside	.. .. .. per foot	1	0
Red,	½ „ „ „ smooth „	.. .. .. „	0	9
„	⅜ „ „ „ „ „	.. .. .. „	0	6
„	5/16 „ „ „ „ „	.. .. .. „	0	4½

FLETCHER'S FLEXIBLE GAS-TIGHT TUBE.

Messrs. Fletcher and Co. say:—

"We are now able to supply a high-class flexible Tube, which after extended tests has proved in our hands to be perfectly gas-tight and free from smell. It is covered with neat braiding, and is well finished, each length being supplied with elastic ends fitted. Any lengths supplied to order at the same price per foot. No screw unions or brass ends are required."

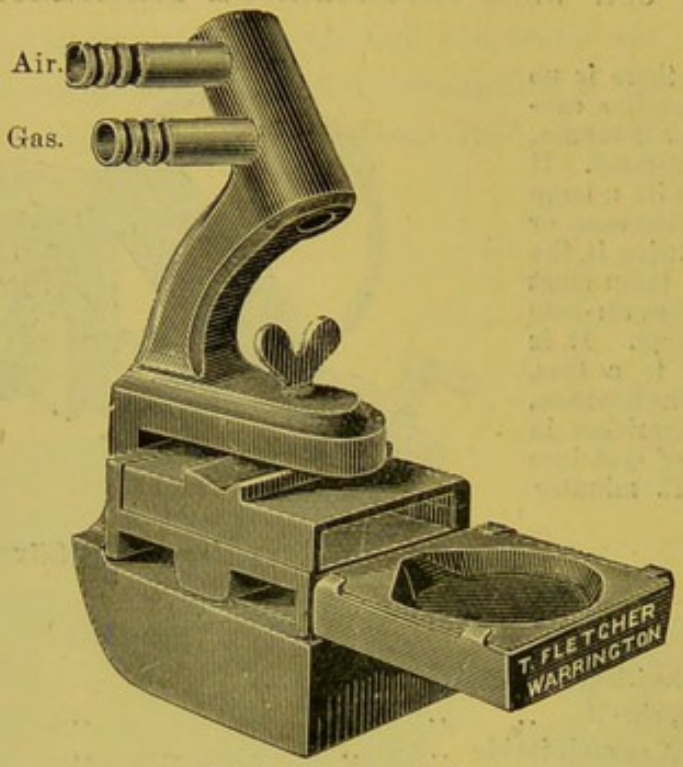
Prices:

		s.	d.
Any length, ½ inch bore	.. .. per foot	1	3
„ ⅜ „	.. .. „	0	10

Including elastic ends fitted to each length.

MELTING ARRANGEMENTS.

(Fletcher & Co.'s.)



Slightly under half-size.

For melting gold and silver rapidly, without the use of a furnace. In this arrangement the two parts of the ingot mould slide on each other, to admit of ingots of any width being cast. We find it necessary to emphasize this fact, in answer to the numerous enquiries which we receive for wire moulds. This mould serves for both plate and wire, and the Blowpipe is part of the rocking stand.

Directions for Use and Remarks.

Connect the blower to the upper tube and the gas to the lower. When the metal is melted in the shallow crucible, tilt the whole apparatus over so as to fill the ingot mould. A sound ingot can be obtained in about two minutes. Thousands of these are in use, and this arrangement is far superior to any furnace for small work. Very bulky scrap should be run into a mass in a moulded carbon block before being placed in the crucible.

Prices:

		s.	d.
Melting Arrangement, as engraved, 3-oz. size		13	6
Carbon Crucibles	each	0	2
,, ,, ...	per doz.	1	10
Fireclay ,, ...	each	0	4
,, ,, ...	per doz.	3	6
Slides to carry the Crucibles	each	0	2

No. 3 size Foot-Blower will work the above Melting Arrangement. An extra Slide is given with every half-dozen Crucibles purchased.

MELTING ARRANGEMENTS.

(Fletcher & Co.'s.)

Large Size of the form shown on the previous page.

To melt 14 ounces of silver, or 20 ounces of 18-carat gold, in five or six minutes. This requires a ½-inch gas supply and Foot Blower No. 5 size.

Prices:

		s.	d.
Large size Melting Arrangement	..	27	6
Carbon Crucibles for the same	each	0	7

IMPROVED FORM.

The same arrangement as the three-ounce size shown on the previous page, mounted on heavy swivel stand to prevent risk of pulling over, by the weight of the rubber, when not held by the hand.

Prices:

		s.	d.
Melting Arrangement, Improved form, as engraved	..	15	6
Carbon Crucibles	each	0	2
" "	per doz.	1	10
Fireclay "	each	0	4
" "	per doz.	3	6
Slides to carry Crucibles	each	0	2

An extra Slide is given with every half-dozen Crucibles purchased.

FLATTING MILLS.

Fig. 1.

Height, 13 inches.

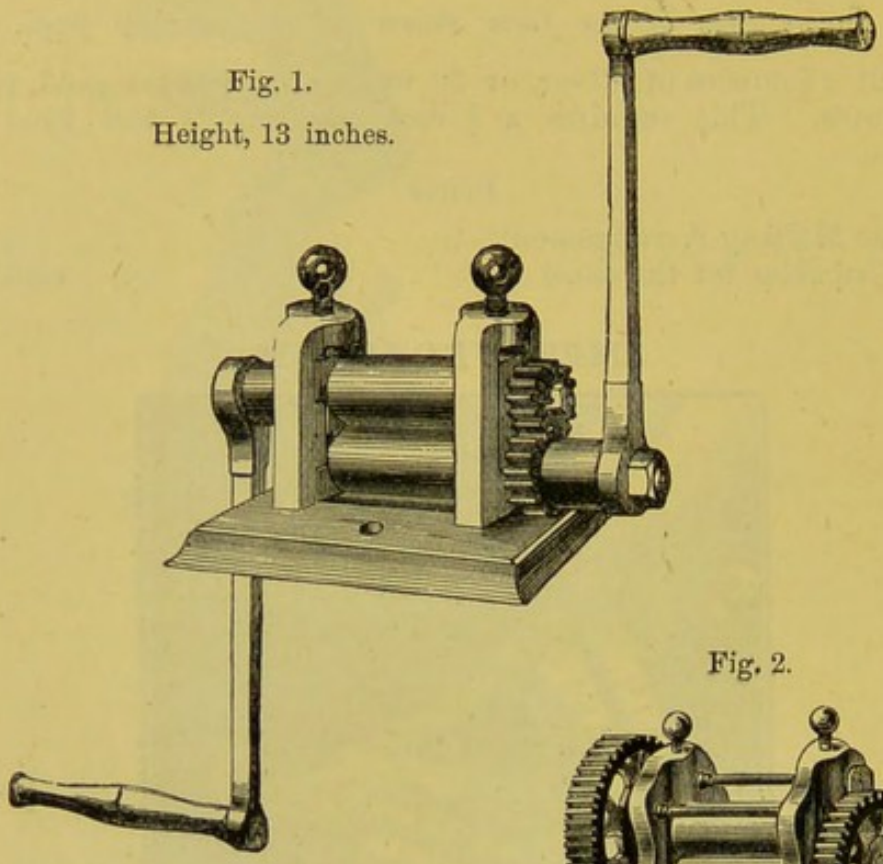
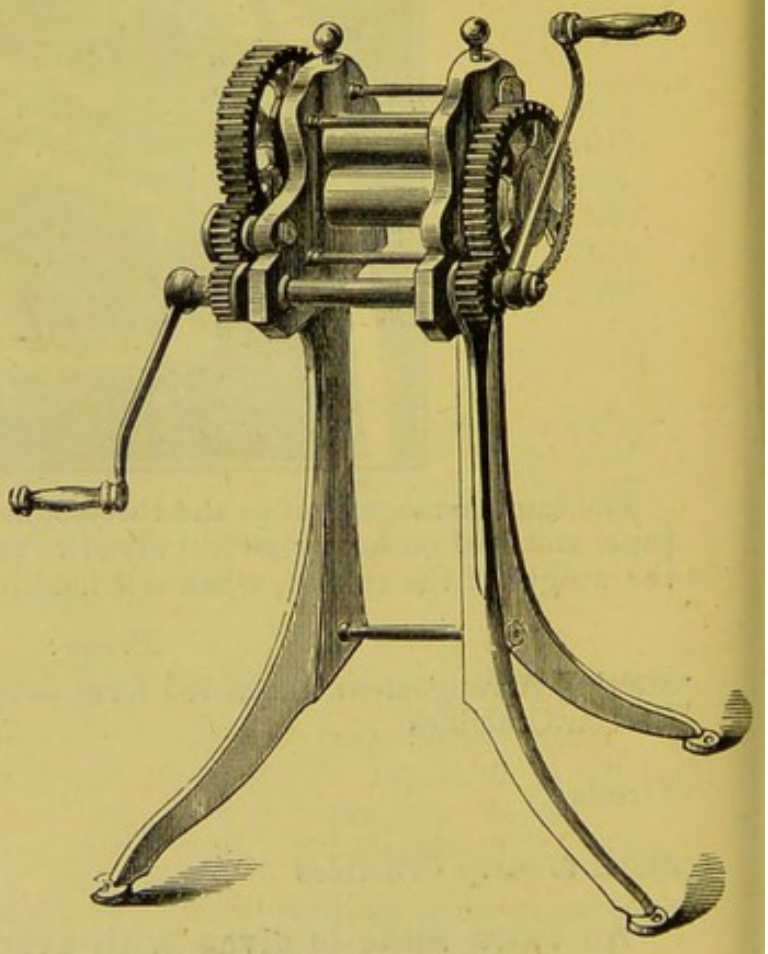
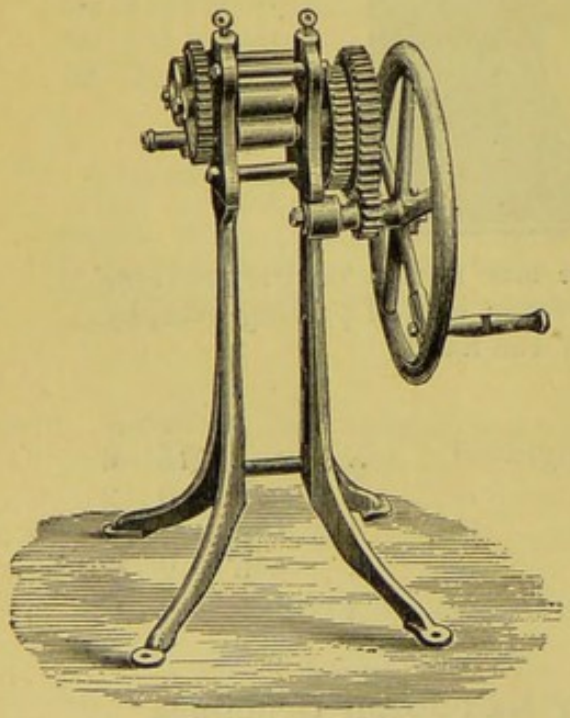


Fig. 2.



Height, 42 inches.

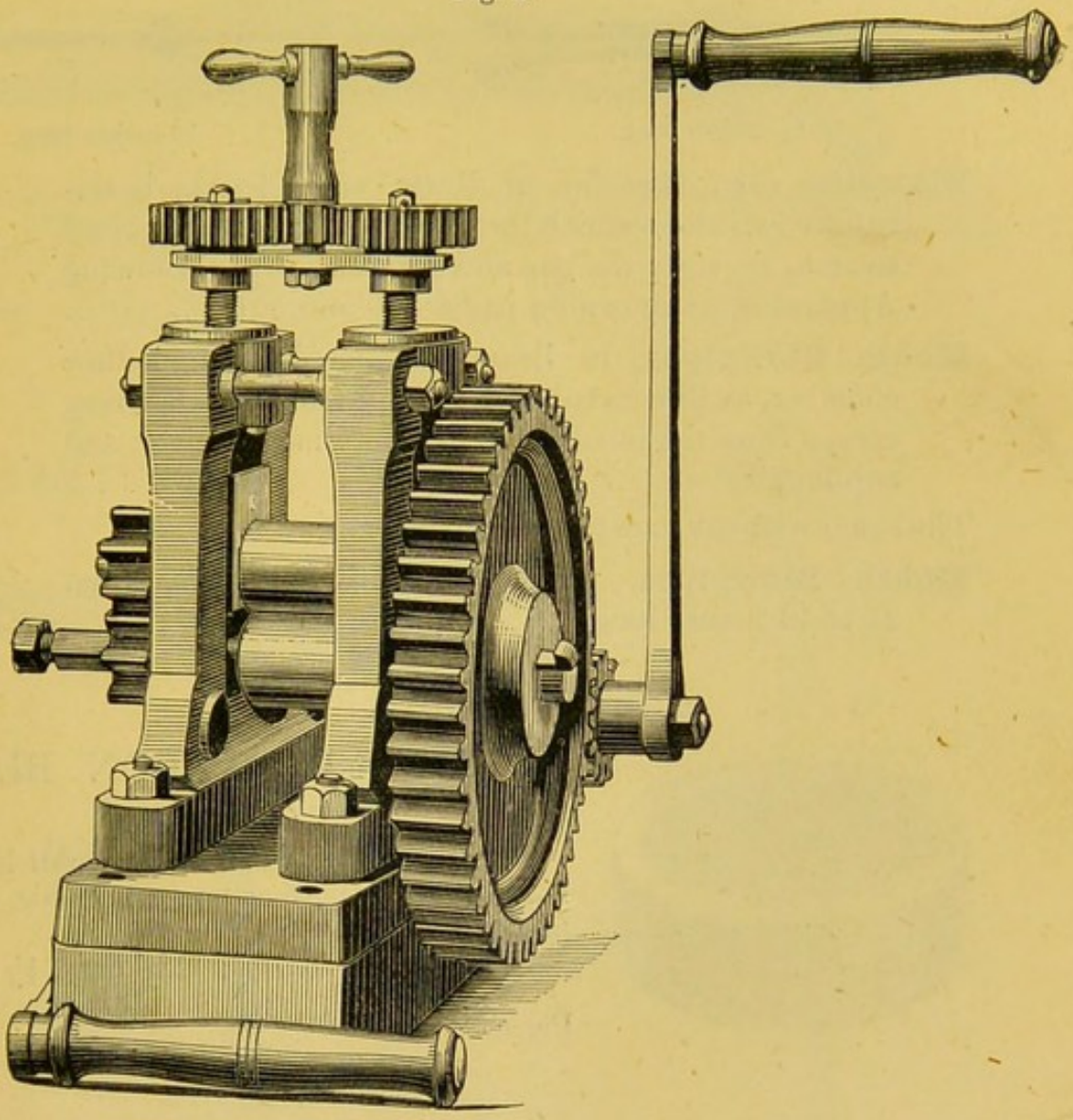
Fig. 3.



Height, 42 inches.

FLATTING MILLS—*continued.*

Fig. 4.



Height, about 21 inches.

		s.	d.
Flatting Mill, on short stand, for screwing on to a bench or block, with hardened rollers, 3 inches long by 2¼ inches diameter (without multiplying wheels), and two handles	(Fig. 1)	140	0
Flatting Mill, on iron stand, to fasten to the floor, with hardened rollers, 4 inches long by 2¼ inches diameter, double set of cog-wheels for multiplying the power, and two handles	(„ 2)	210	0
„ „ „ „ **Best quality**	(„ 2)	252	0
Flatting Mill, similar to **Fig. 2, best quality,** fitted with extra gearing and fly-wheel	(„ 3)	320	0
Flatting Mill, on short stand like Fig. 1, but with regulating handle over the top, for raising or lowering both ends of the roller at once	(„ 4)	300	0

Larger sizes supplied to order. Packing Cases charged extra.

BLOWPIPES, &c.

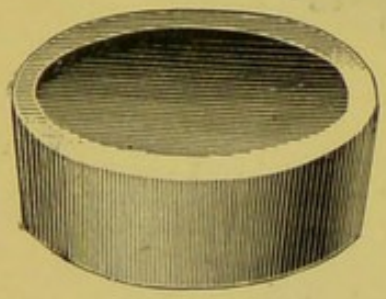
(Owen's.)

8½ inches long.

(For Mouth.)

13 inches long.

	s.	d.
Blowpipe (Mr. Owen's), in Brass, with double India-rubber valves, on which the thumb or fingers are placed so as to regulate the gas and air, used with a Blowing Apparatus, as shown on pages 500 and 501 .. .. each	5	6
Mouth Blowpipes, in Brass, lacquered, with hollow chamber, as illustrated, to hold any moisture that may escape from the mouth. With ivory mouth-piece, and two nozzles .. .. „	2	9
The same without moisture chamber .. .. .. „	1	9
Mouth Blowpipes, plain, with tinned ends, from 11 to 14 inches long .. .. per inch	0	1



MOULDED CARBON BLOCK.

(Fletcher's.)

For supporting work under small blowpipes. It is cleanly, a perfect non-conductor, and everlasting.

Diameter, 4¼ inches; thickness, 1½ inches.

	s.	d.
Price	1	6

ASBESTOS SOLDERING BLOCK.

(American No. 2.)

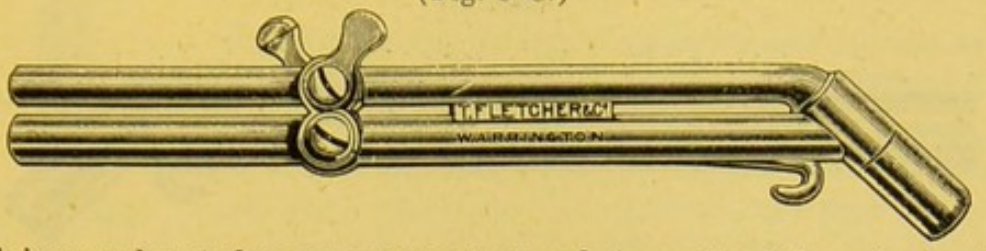
Same shape as the Moulded Carbon Block shown above.

	s.	d.
Price	2	6

	s.	d.
Soldering Coals, of compressed willow charcoal:		
Large size, with flat sides .. 2 × 2 × 6 inches per block	1	0
Small „ „ „ .. 1½ × 1½ × 5 „ „	0	6
Fine Willow Charcoal, in selected sticks, free from flaws per lb.	1	0

FLETCHER'S BLOWPIPE.

(Fig. 8 C.)

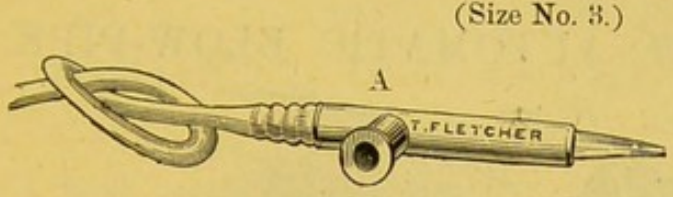


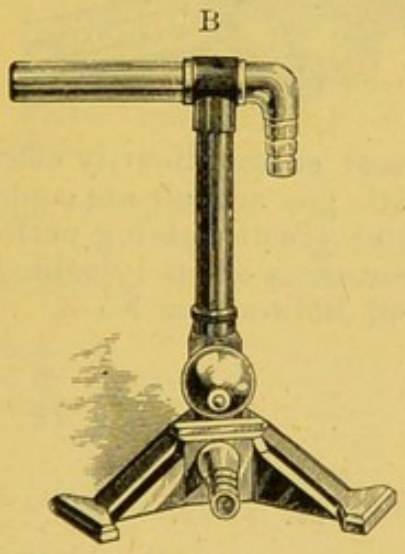
With improved central tap arrangement, gas and air supplies independent and under control of one finger. It is designed for jets not exceeding $\frac{1}{8}$-in. bore. Requires Foot Blower, size No. 3.

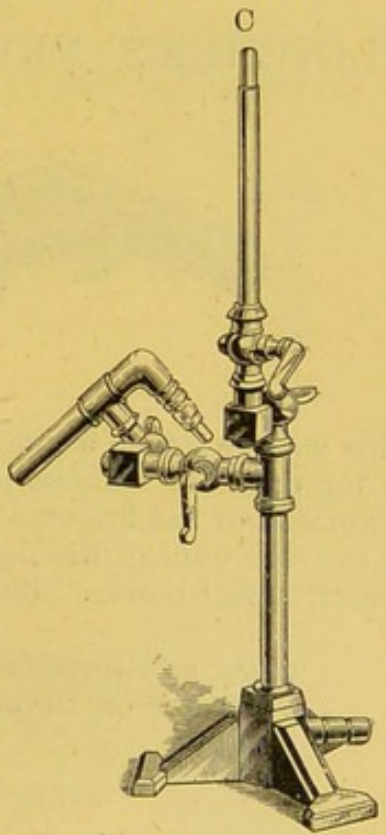
	s.	d.
Price, as illustrated	8	6
„ without Taps	5	0

FLETCHER'S UNIVERSAL BLOWPIPE.

(Size No. 3.)





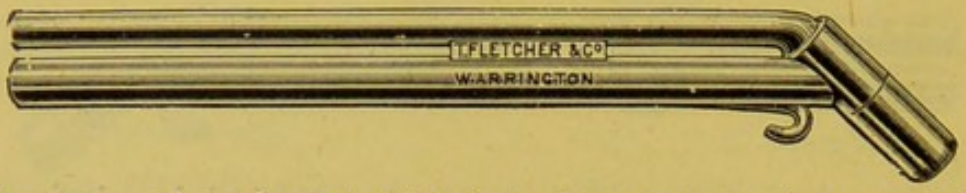


	s.	d.
A.—Universal Blowpipe Head with straight or bent air inlet for screwing on to a gaspipe. Can be used in any existing arrangement or bracket	4	6
B.—Universal Blowpipe on stand with swivel joint and straight or bent air inlet as ordered	8	6
The same with Tap for gas	10	0
C.—Universal Blowpipe with bench light and swivelling joint to blowpipe. The bench light swivels down to carry a light to the blowpipe, or *vice versâ*	16	6

Gas supply required for full power $\frac{3}{8}$-in. pipe.
Foot Blower, size 3, will work any of the above.

FLETCHER'S OXYGEN BLOW-PIPE.

(No. 7.)



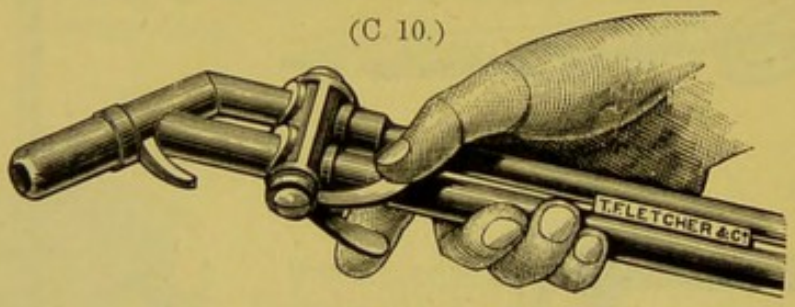
This size requires about 7 cubic feet of oxygen per hour, and ¼ inch gas supply, and will fuse a ¼ in. wrought-iron rod easily.

It is totally useless for coal-gas and air; it is specially designed for use with **compressed oxygen only.**

	s.	d.
Price	8	6

FLETCHER'S NEW AUTOMATIC BLOW-PIPE.

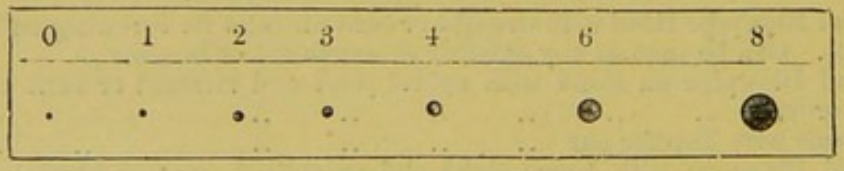
(C 10.)



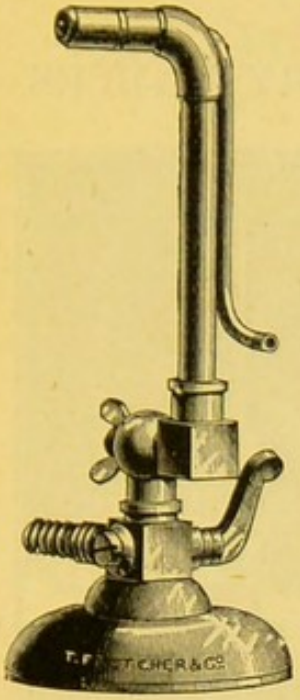
This will be found a simple and most extraordinarily efficient Blow-pipe for ordinary workshop use. Both gas and air are controlled with a movement of the finger, a few minutes' practice giving perfect mastery over the character of the flame. It consumes about 10 cubic feet of gas per hour at full power. Requires Foot Blower, size No. 3.

	s.	d.
Price, as illustrated	9	0
The same on Stand	12	6

SIZES OF BLOWPIPE JETS.



	s.	d.
Price .. .. each	0	3
India-rubber Tubing, smooth inside .. .. per foot	0	6



BLOWPIPE.

(FLETCHER'S No. 1.)

The jet of this Blowpipe is removable, and any size can be supplied for use with either mouth or foot blower. Total height, 8 inches. The flame can be directed at any angle, and can be firmly set by the wing nut shown at the back. The tap lever, when pushed backward, will turn the light out; when drawn forward, will leave a small pilot light. The stand is of brass, to prevent rust, and is heavy and perfectly steady.

		s.	*d.*
Price, as illustrated		9	6
Extra Jets	each	0	3

IMPROVED FORM OF

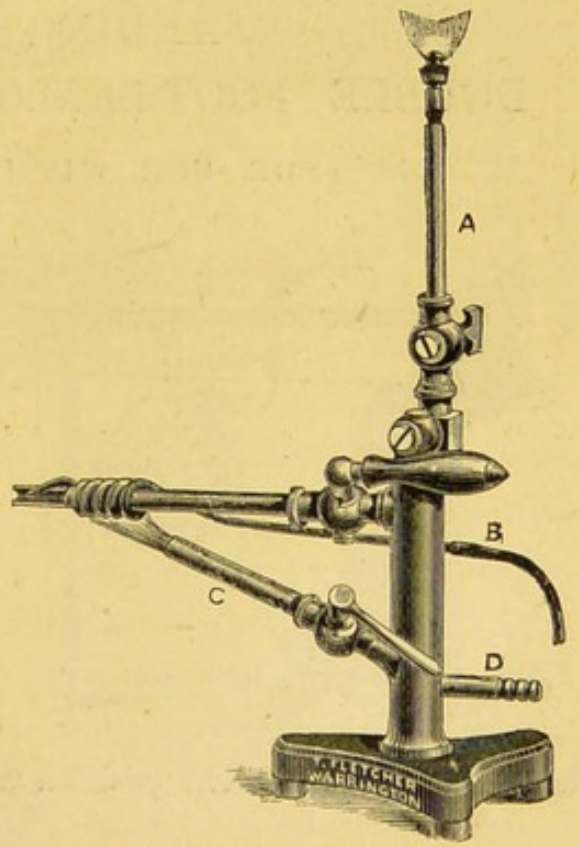
ORIGINAL HOT-BLAST BLOWPIPE.

(FLETCHER'S.) Fig. 1B.

For a large rough flame the Bunsen heater should not be used. The advantage of the hot blast shows only when a pointed flame is required having a high temperature.

The engraving shows the Blowpipe arranged with Bench Light A, but it is also supplied without.

	s.	*d.*
With Bench Light, as illustrated ..	18	6
Without „	14	0
Duplicate Coils and Jets	1	6

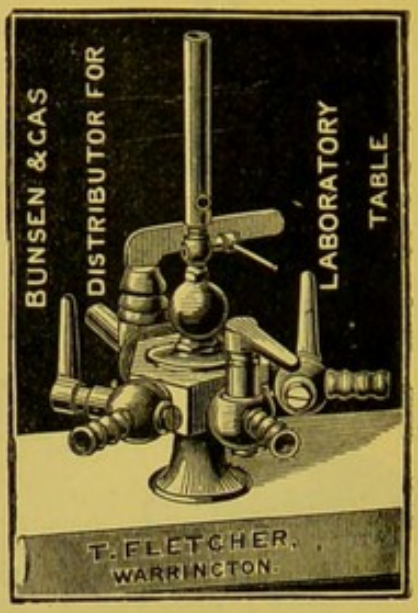


Engraving one-fifth full size.

Mr. FLETCHER says:—"I still retain my opinion, backed up by some of the best workmen I know, that the Hot-Blast Blowpipe is, above all others, *the* Blowpipe for Dentists, and that more real service will be done to Dentists by bringing it to their notice than by all the other Blowpipes put together. It can be supplied with a small tap on the air-jet, if desired, to use with Foot Blower. The bench light is in exactly the right position, and with a little flame at this, through the day the Blowpipe is practically self-lighting. It has ample power, and to spare, for any work that may be required, and can be used at one twentieth the cost of a Blowpipe worked with Nitrous Oxide and Coal-gas combined."

GAS DISTRIBUTOR FOR LABORATORY TABLES.

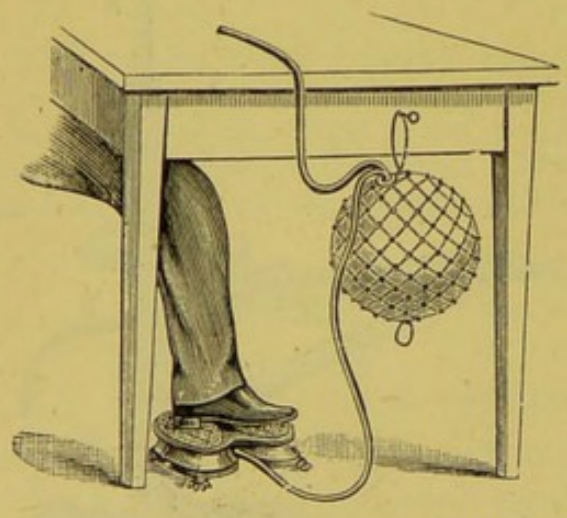
Consisting of a brass pillar, with screwed pipe to pass through the table, taking its supply from underneath. On the top of the pillar is a small jet, which may be either used as a pilot jet for keeping a constant light, or can be converted into a small Bunsen by slipping the tube on, as shown in the engraving. The taps are fitted for rubber tubes, the one engraved having three $\frac{3}{8}$ taps and one $\frac{1}{2}$ inch.



	s.	d.
Gas Distributor	12	6

STANDING'S PORTABLE DOUBLE FOOT-BELLOWS AND RESERVOIR.

(FOR USE WITH THE BLOWPIPE.)



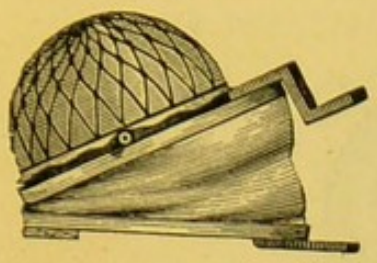
A steady and continuous blast is given by this compact little apparatus, sufficiently powerful for any blowpipe that is used for dental purposes. The double bellows is worked by a rocking motion of the foot and requires very little exertion.

As shown in the engraving, the air reservoir can be suspended by the side or underneath the work-bench in any convenient position where it is not likely to get damaged.

	s.	d.
Price, complete with India-rubber tubing, as illustrated	17	6
Large size for Furnace work	22	6

FLETCHER'S FOOT BLOWERS.

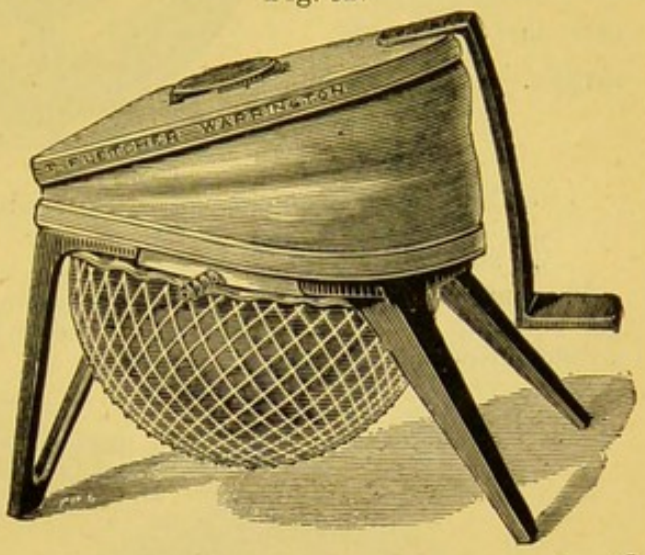
Fig. 9.



These blowers, Fig. 9, have proved themselves to be efficient, simple, strong, and able to stand hard and constant work. The pattern is now made in the following sizes:

		s.	d.
Size 3.	13 by 10 by 6½ in. deep .. each	21	0
„ 5.	15 „ 12 „ 7 „ .. „	27	0

Fig. 9B.

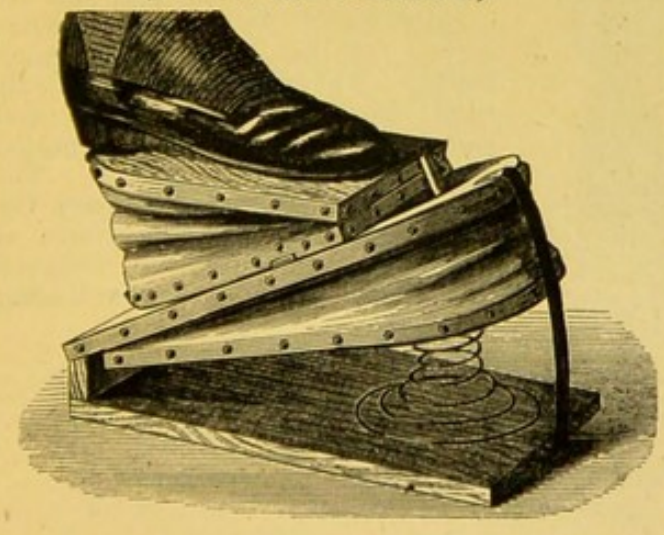


This pattern, by reversing the position of the blower, reduces the risk of mechanical injury to the disc, and does away with the necessity for a wood casing or protection. It also prevents the valve from picking up dirt from the floor, keeping the whole arrangement cleaner, and the valves in more perfect order.

		s.	d.
Size 3, same dimensions as Fig. 9 .. .. each		25	6
„ 5, „ „; „ 9 .. .. „		30	0
Rubber Discs, for size 3 .. .. each 2s.; for size 5 „		3	0
Nets „ 3 .. .. „ 1s.; „ 5 „		1	4

(Two Rubber Discs are used on each Blower.)

(Cotton and Johnson's.)



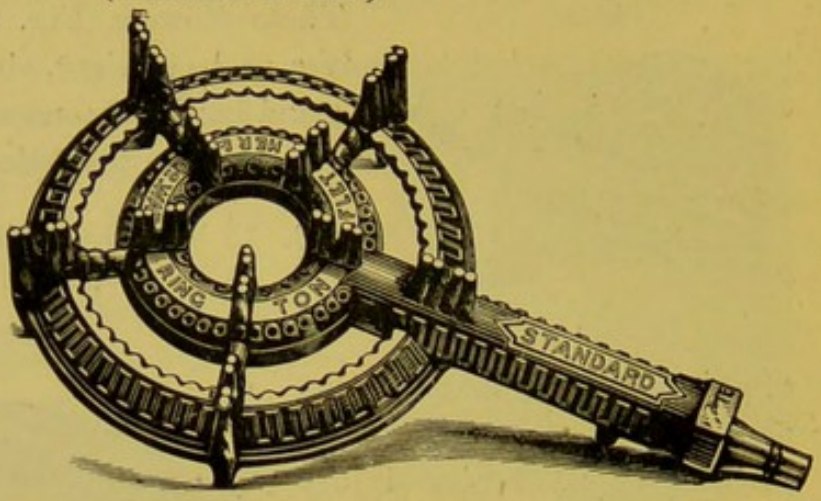
With double bellows, which, with very little pressure of the foot, keeps up a continuous blast and ensures a steady flame while soldering.

Made in three sizes:

		s.	d.
Small,	12 by 9 in. ..	18	0
Medium,	13 „ 11 „ ..	21	0
Large,	15 „ 13 „ ..	25	0

STANDARD GAS BURNERS.

(Fletcher & Co.'s.)



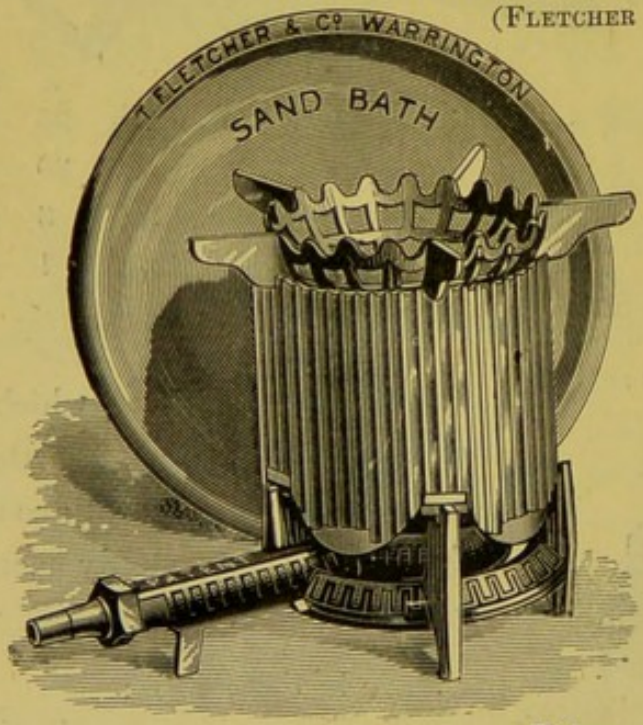
These Burners are designed as a complete series of the highest and most perfect class, in the simplest possible form, and in one single casting.

										s.	d.
No. 10.	Diameter across support for vessels				5½	in.	..	..	each	1	10
„ 15.	„	„	„	„	7	„	..	..	„	2	6
„ 20.	„	„	„	„	8	„	..	..	„	3	9

The numbers give approximately the maximum gas consumption at day pressure of gas equal $\frac{10}{10}$, and also the number of quarts of water they will boil in one hour in a light, broad-bottomed copper vessel.

LABORATORY BURNERS.

(Fletcher & Co.'s.)



Size No. 10. Height adjustable from 6½ to 7½ in. Support for flasks 4¼ in. diameter, 1¼ in. deep, and for flat vessels 6½ in. diameter.

Size No. 15. Height adjustable from 7 to 8 in. Support for flasks 5¼ in. diameter, 1½ in. deep, and for flat vessels 7½ in. diameter.

These Burners supersede the well-known Low Temperature Burners. They will stand hard wear, and are equally useful for warming pieces, drying flasks, &c., evaporating, boiling and general purposes. By employing a sand bath, glass and porcelain vessels can be heated without fear of breakage. The cylinder, as will be seen from the illustration, rests on the frame of the burner, and can be removed when the burner is wanted for boiling water, &c.

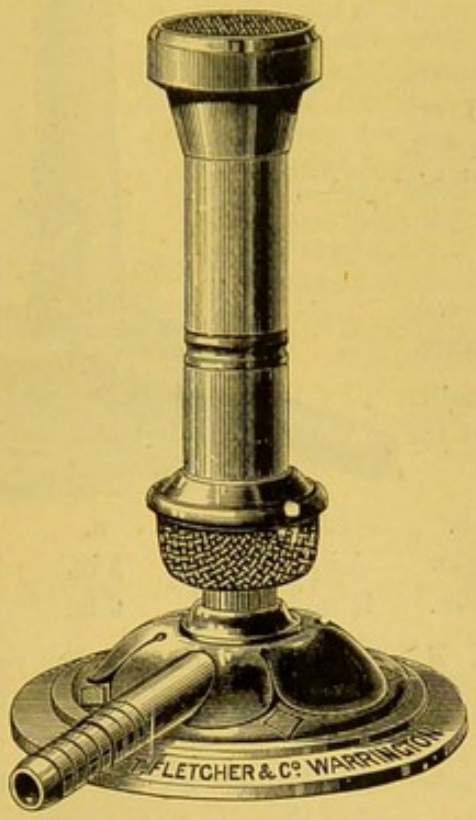
Prices:

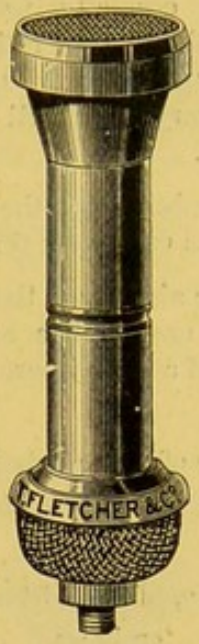
									s.	d.
No. 10 Burner, consuming from				1½	to	10	feet of gas per hour	each	6	6
„ 15	„	„	2	„	15	„	„	„	8	0
Sand Bath for No. 10—			9	in.	diameter,		1 in. deep	.. ..	„	1	3
„	„	15—10	„		1	„	.. ..	„	1	9

IMPROVED SAFETY BUNSEN.

(Fletcher & Co.'s Patent.)

FOR MODELLING, ANNEALING, AND OTHER PURPOSES.





These will be found as perfect as any upright burner can possibly be made, of the highest possible power for the size—can be turned down to the merest flicker without lighting back, and can be mounted on tubes in any form or number when very high powers are required. They are made in three sizes, all in brass polished. The number gives the maximum gas consumption in cubic feet per hour at $\frac{10}{10}$ pressure. These burners can be supplied in clusters of any number, or mounted on tubes, any shape, and with or without taps, to order.

Number	5.	10.	14.
Diameter across top of gauze	$\frac{7}{8}$ in.	$1\frac{1}{4}$ in.	$1\frac{1}{2}$ in.
Height, without stand	$3\frac{3}{4}$ in.	$4\frac{3}{4}$ in.	6 in.
	s. *d.*	*s.* *d.*	*s.* *d.*
Price, without stand	1 9	2 3	3 0
„ on brass „	3 6	4 6	5 9
„ „ „ with Tap	4 6	5 6	6 9

If placed a number together, on a tube or ring, they must be at least one-fourth the diameter of the top apart. The stand increases the total height about one inch.

SETS OF ABOVE (No. 10 Size).

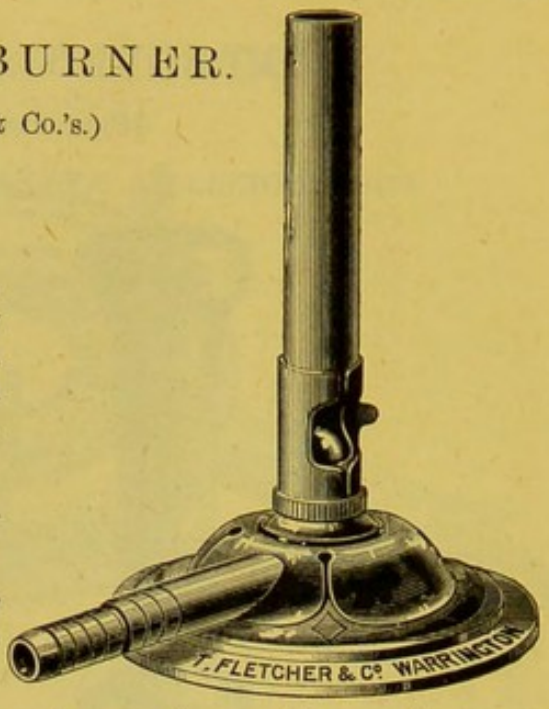
Mounted in clusters, each burning 10 cubic feet of gas per hour.

	s.	*d.*
Four burners, consuming 40 feet per hour .. .. per set	13	0
Seven „ „ 70 „ .. .. „	20	0
Twelve „ „ 120 „ .. .. „	33	6

Total height, 6 inches.

BUNSEN BURNER.

(Fletcher & Co.'s.)



FOR MODELLING AND FOR GENERAL PURPOSES.

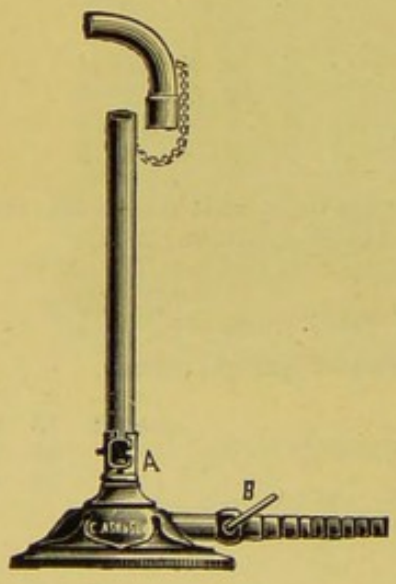
These are the ordinary brass tube Bunsen. They are correctly proportioned in every detail, and of the full theoretical power, working up to their maximum calculated duty in every case. All are screwed for $\frac{3}{8}$ in. connection.

The number gives the maximum gas consumption in cubic feet per hour at $\frac{10}{10}$ pressure.

All have air tubes; these enable the smaller sizes to be used with a blow-pipe without the necessity of a loose internal tube.

Number	3.	5.	6.	8.	12.
Size of Tube outside ..	$\frac{3}{8}$ in.	$\frac{7}{16}$ in.	$\frac{1}{2}$ in.	$\frac{5}{8}$ in.	$\frac{3}{4}$ in.
Height, without stand ..	$3\frac{1}{2}$ in.	$4\frac{1}{4}$ in.	5 in.	6 in.	7 in.
	s. *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*
Price, without Stand ..	0 7	0 9	0 10	1 0	1 6
„ on brass „ ..	2 0	2 2	2 4	3 0	4 0
„ „ „ with Tap	3 0	3 2	3 4	4 0	5 0

Heavy round brass stands only are supplied. The objectionable nature of iron stands on a laboratory table is too well-known to need any remark. The stand increases the total height about one inch. They can be supplied in clusters of 3, 4, 7 or 12 burners, or mounted on tubes in any form.



BUNSEN BURNER.

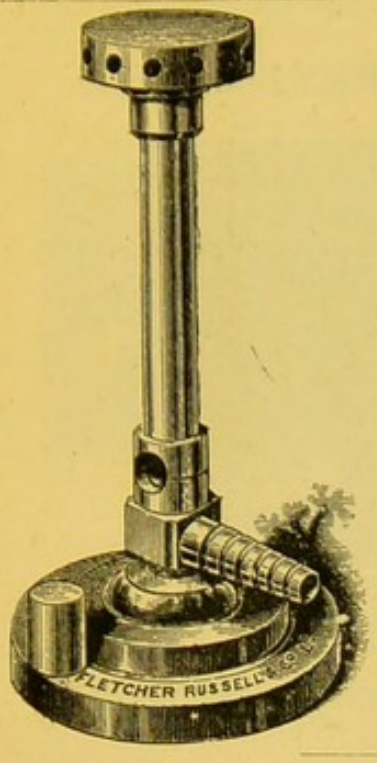
(Fletcher's No. 5 Size.)

For modelling and for general purposes, consuming about 5 cubic feet of gas per hour.

It is supplied with a bent detachable tube to prevent the drip falling on the flame when the burner is used for softening wax, or any other easily melted material.

By closing the sliding cap A, an illuminating flame can be obtained.

	s.	*d.*
Price, on brass stand, with Bent Tube	4	0
„ „ „ „ and Tap B	5	0



NEW LABORATORY BUNSEN.

(Fletcher & Co.'s.)

Messrs. Fletcher, Russell & Co. say: We have frequently been asked to make a correctly adjusted Bunsen for laboratory use, but have declined, owing to the very low price at which the common foreign burners are made. As we have, however, established a private demand for these burners, we have decided to put them on our list for the future. They are substantially made, correctly adjusted, the screws are English Standard threads, and the stand is formed with a carrier to hold the rose when not in use, so as to prevent its loss, which usually happens with the ordinary make. The roses are solid cored castings, not made out of thin parts stuck together, as is usual in the cheaper makes.

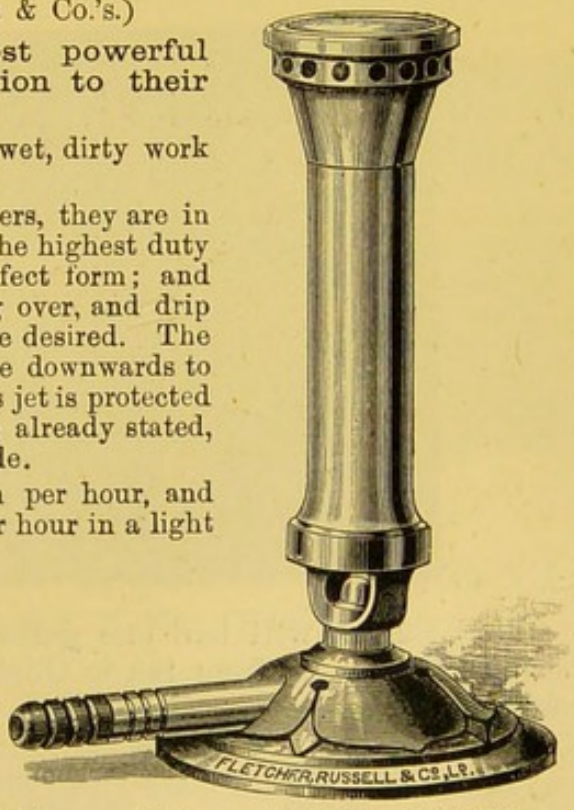
Height with rose as engraved, 5½ inches.
Gas consumption, at $\frac{10}{10}$, 4 feet per hour.

	s.	d.
Price of Bunsen without rose	1	9
Rose extra	0	9

NEW STANDARD ROSE BUNSEN.

(Fletcher & Co.'s.)

Drip-proof, Rustless, and the most powerful Burners ever designed in proportion to their size.



These burners are specially designed for wet, dirty work and are proof against drip, wet, and dust.

Like all the series of the Standard Burners, they are in every detail correctly proportioned, giving the highest duty with the simplest, cheapest, and most perfect form; and for their special work—where dirt, boiling over, and drip cannot be avoided—they leave nothing to be desired. The flame-holes are protected by a rim, and slope downwards to prevent wet running into the burner, the gas jet is protected from any falling dirt, and for their size, as already stated, they are the most powerful burners ever made.

The number gives the gas consumption per hour, and approximately the quarts of water boiled per hour in a light broad-bottomed copper vessel.

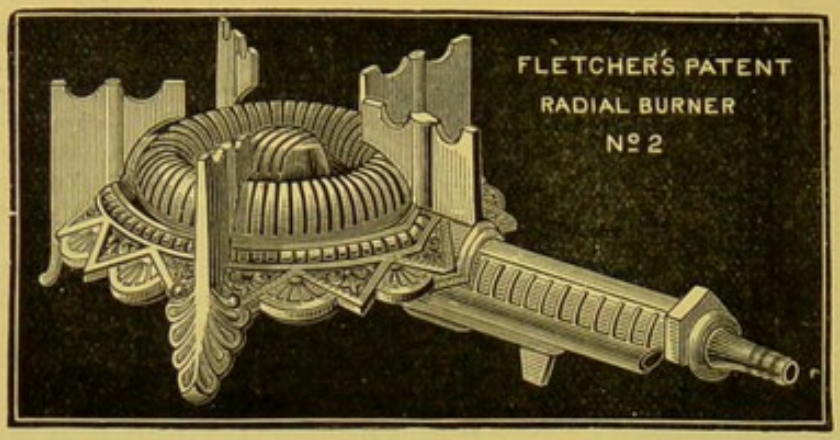
The correct distance between the top of the burner and the bottom of the vessel to obtain the best duty is ½-in.

The Burners are made of fine brass in one single casting, and can be adjusted to any quality of gas to order without extra charge.

	Height.	Diameter.	Diameter of Flame.	Price without Stand.	Price with Brass Stand.	Price with Stand & Tap.
				s. d.	s. d.	s. d.
No. 5	5 in.	1 in.	2½ in.	1 9	4 0	4 9
„ 10	6 in.	1½ in.	3 in.	2 3	4 6	5 3
„ 15	7 in.	1¾ in.	4 in.	3 0	5 9	6 6

Clusters of any number of burners for special work can be supplied of any required power.

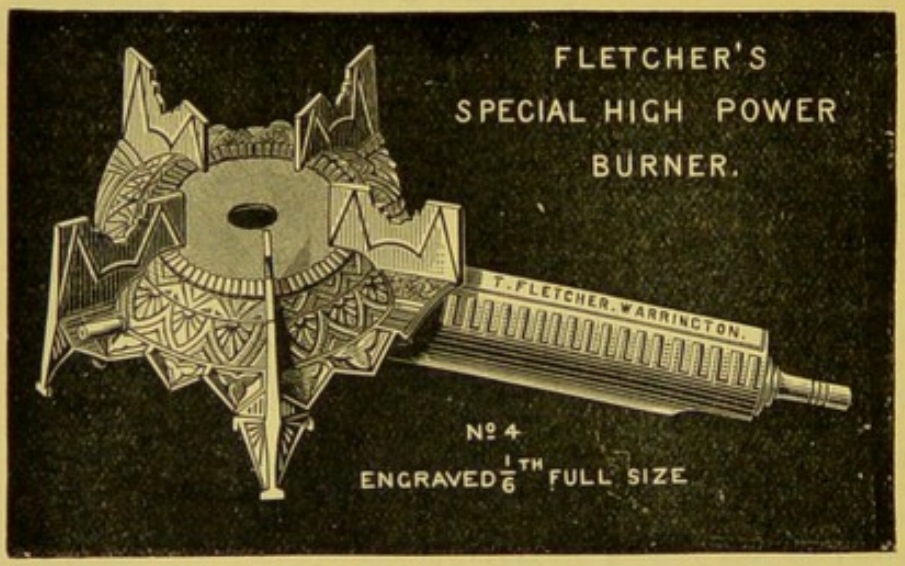
RADIAL GAS-BURNERS.



Gas consumption, small size, 12 feet; large size, 20 feet per hour.

		s.	d.
Radial Burner, as illustrated	small size	4	6
,, ,, ...	large ,,	6	6

HIGH-POWER GAS-BURNERS.



This Burner will boil one gallon of water, in a flat copper vessel, in seven minutes, or from ten to thirteen gallons per hour. Made in two sizes as under:—

	Size across the gauze.	Gas consumption per hour.	Size of pipe required.	s.	d.	With pure nickel gauze. s.	d.
No. 3.	$2\frac{3}{4}$ in. diameter	25 cubic feet	$\frac{3}{8}$ in. clear bore	6	0	8	0
,, 4.	4 ,,	40 ,,	$\frac{1}{2}$,,	8	0	11	0
,, 3,	without tripod ..	.. ..	.. .. ..	4	0	6	0
,, 4,	,, ,, ..	.. ..	.. .. ..	6	3	9	3

No. 4 is shown in the engraving.

ARGAND BUNSEN GAS-BURNERS.

Fig. 200.

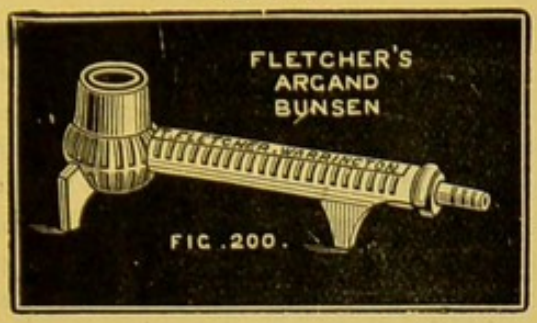
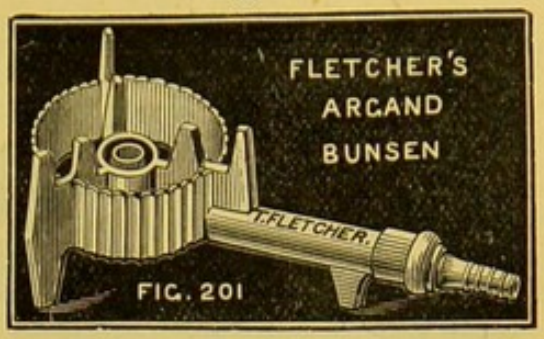


Fig. 201.



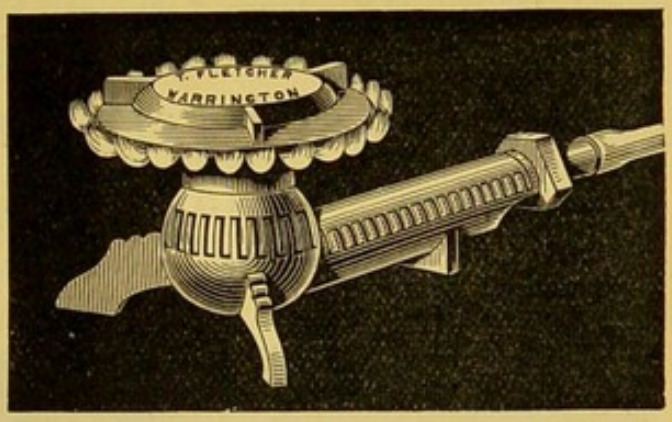
Gas consumption, either form ½ inch size, 3½ feet per hour.
„ „ ¾ inch „ 7 feet „

The sizes given are the bore of the horizontal tube. They will be found very useful for modelling and for small general work.

	s.	d.		s.	d.
Burner, without tripod (Fig. 200), small size ..	2	3	large	2	9
„ with „ („ 201), „ ..	3	0	„	3	9

DRIP-PROOF STAR BURNER.

Specially designed for wet and dirty work. It will burn steadily with any gas-supply from 2 to 14 feet per hour, and is small enough to pass through an opening 3 inches high by 4½ inches wide.



	s.	d.
Price, as engraved ..	3	6

FLETCHER'S INDESTRUCTIBLE GAUZES,

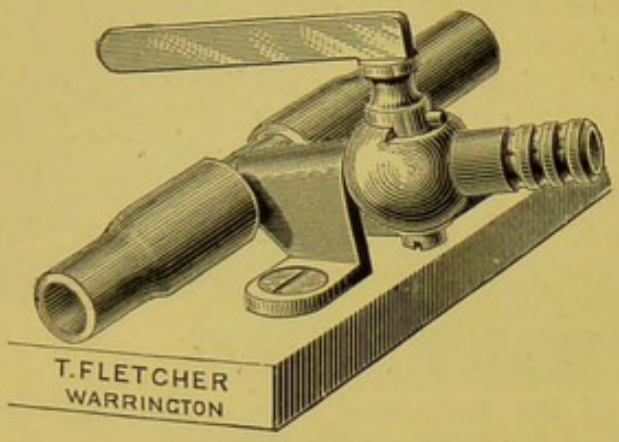
FOR HIGH-POWER AND OTHER BURNERS.

These Pure Metallic Nickel Gauzes are practically infusible and indestructible, and will be found in every respect equal to pure Platinum Gauzes, while they are only about one-tenth the cost. One gauze will last on any burner for years in continued daily hard use, in the dirtiest work.

		s.	d.
Gauzes for No. 5 Safety Bunsen Burner	each	0	3
„ „ 10 „ „ „	„	0	4
„ „ 14 „ „ „	„	0	5
„ „ 3 High-Power „	„	2	0
„ „ 4 „ „	„	3	0

GAS SUPPLY TAPS.

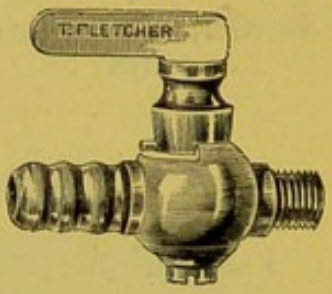
Fig. 112.



This pattern is for obtaining a supply out of the middle of a gas pipe without interfering with the other lights. To fix this, cut about three inches out of the lead pipe with a sharp knife, and connect the cross tube with short bits of india-rubber tube so as to make up the pipe as before, but with the tap leading out of it.

			s.	*d.*
Price, ⅜-inch size ..	..	each	2	0

Fig. 114.

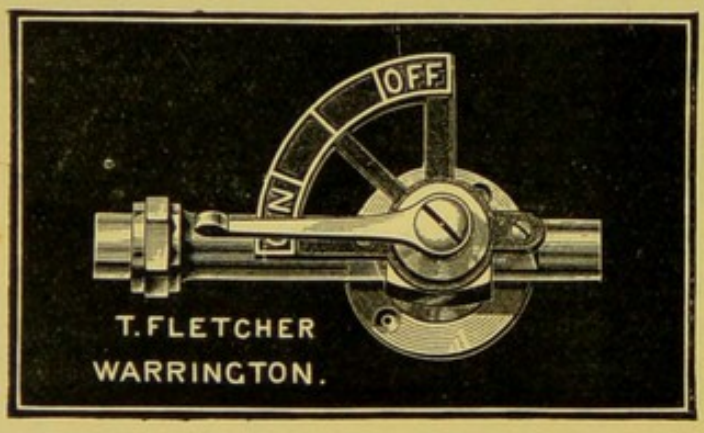


For fixing by a gas-fitter.

			s.	*d.*
Price, ⅜-inch size, brass gas	.. ..	each	1	0
„ ⅝ „ „ „	.. ..	„	2	0

QUADRANT TAPS WITH LEVER AND GRADUATED ARM,

FOR GAS-HEATING APPLIANCES.



These taps have a full bore in the plug and barrel, are thoroughly well made and finished, and in case of repairs or cleaning can be taken apart from the front or upper side, so that they may be fixed in recesses or wall boxes without risk. Anything which can possibly happen to a tap can be made good without disturbing any joint, a matter of great importance when fixed in plaster or brick walls or under floors. The taps are of the finest workmanship throughout. All are made with screw union.

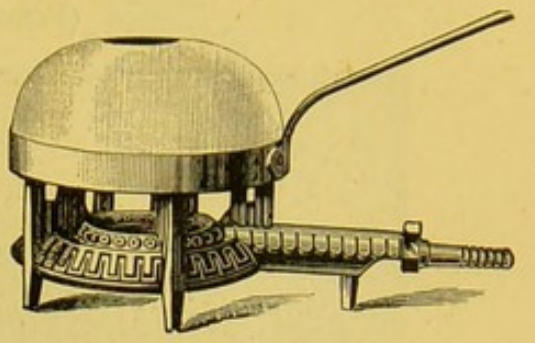
Size, with brass gas thread—	⅜-in.	½-in.	⅝-in.	¾-in.	1-in.
Price .. .. each	3/6	4/6	7/–	8/–	10/6

Other Forms of Gas Taps supplied to order.

PLATE DRYER AND HEATER.

(Fletcher & Co.'s.)

This consists of a porous fireclay dome, resting on one of Fletcher's No. 10 standard burners. Size of dome inside, 4 in. diameter, 2 in. deep. It will take work up to 3 inches diameter, and will heat a block of iron over 1 lb. weight to clear redness with the ordinary burner as engraved, without the assistance of a blowpipe or blast of air.

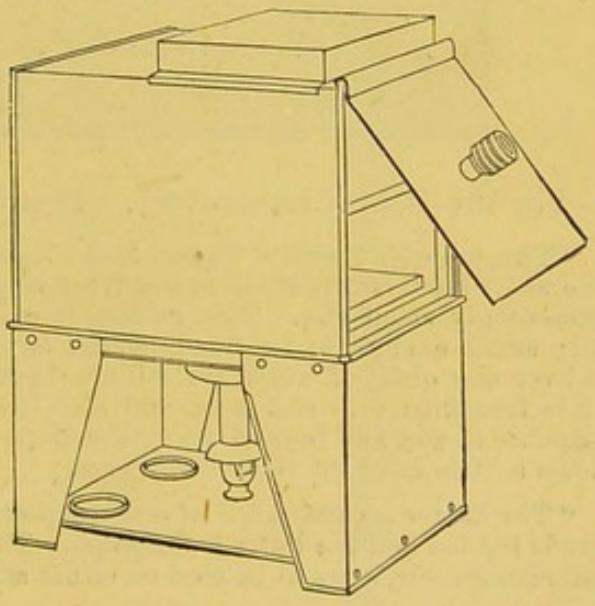


Prices:	*s.*	*d.*
Burner	1	10
Fireclay Dome, with handle	4	0
Complete, as illustrated	5	10

DRYING OVEN WITH WATER JACKET.

(Fletcher & Co.'s)

Specially designed for Dentists' use; size, 6 inches wide, 5 inches high, 8 inches deep, clear inside measure. It is made of heavy copper throughout, riveted and seamed, and will stand heavy continuous work. It has a hanging door, two sliding shelves of copper, and a plate over the water filling hole, of tinned copper, hammered and polished, for warming rubber for packing.



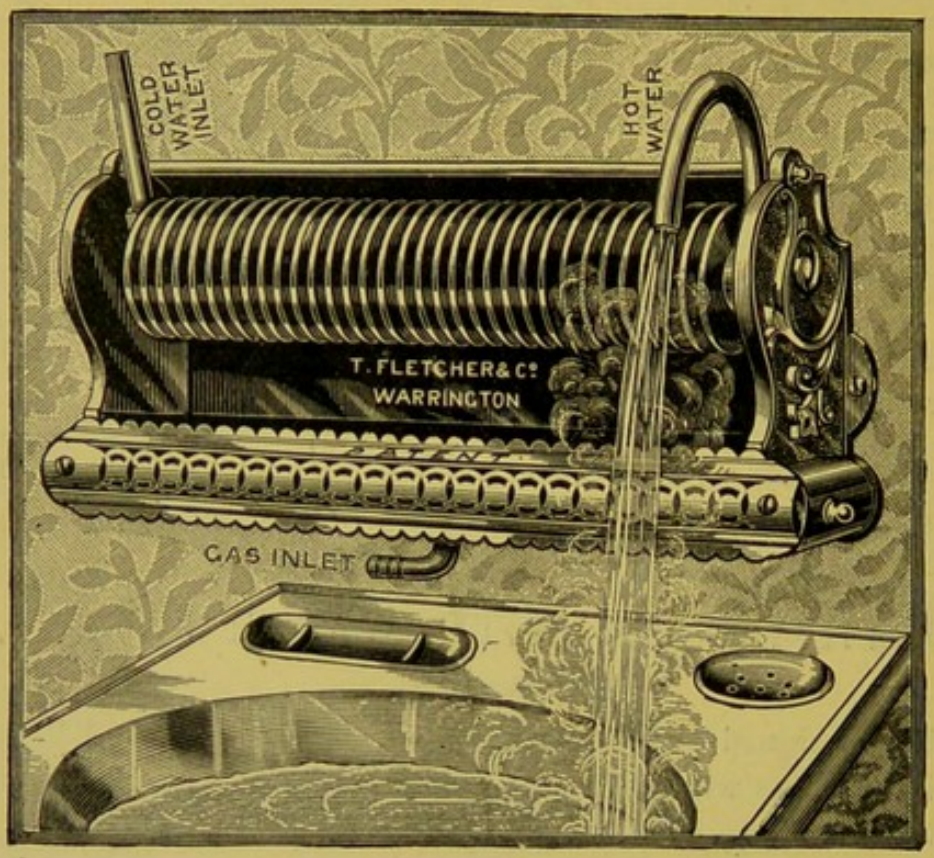
	s.	*d.*
Price complete, with Burner and Copper Stand ..	42	6

Smaller sizes of this Drying Oven may be had to order at the above price, and larger sizes at a small additional cost. They are made in the most substantial manner possible. Cheap or lightly made water jacketed ovens are worse than useless for permanent service, being constantly out of order.

INSTANTANEOUS WATER HEATER.

HORIZONTAL PATTERN.

(Fletcher & Co.'s.)



For the Dental Laboratory. Messrs. Fletcher & Co. say:—

"The use of Fletcher's Patent Solid Webs for conducting the heat of the burner to the water renders it possible to construct very powerful and efficient water-heaters of an exceedingly small size. This pattern is only 14 inches wide, and 6 inches high over all; small enough to be fixed behind any lavatory without inconvenience. It will deliver one quart of water per minute, heated from 60° to 125° Fahr. (scalding hot). It is free from drip and mess, and also from smell, unless worked with an excessive pressure of gas, and beyond its intended power; in this case the tap should be turned down a little until the smell disappears.

"The heater is constructed of solid copper, and is therefore not liable to injury if the gas is lighted and the water is forgotten. The water inlet and outlet screw in, and are interchangeable, so as to be used on either side as convenient."

There is no need for a separate water-connection to be made; if the inlet pipe be joined to the supply tap, cold water can be obtained through the heater by either omitting to light the burner or turning it out if lighted, when warm is not wanted.

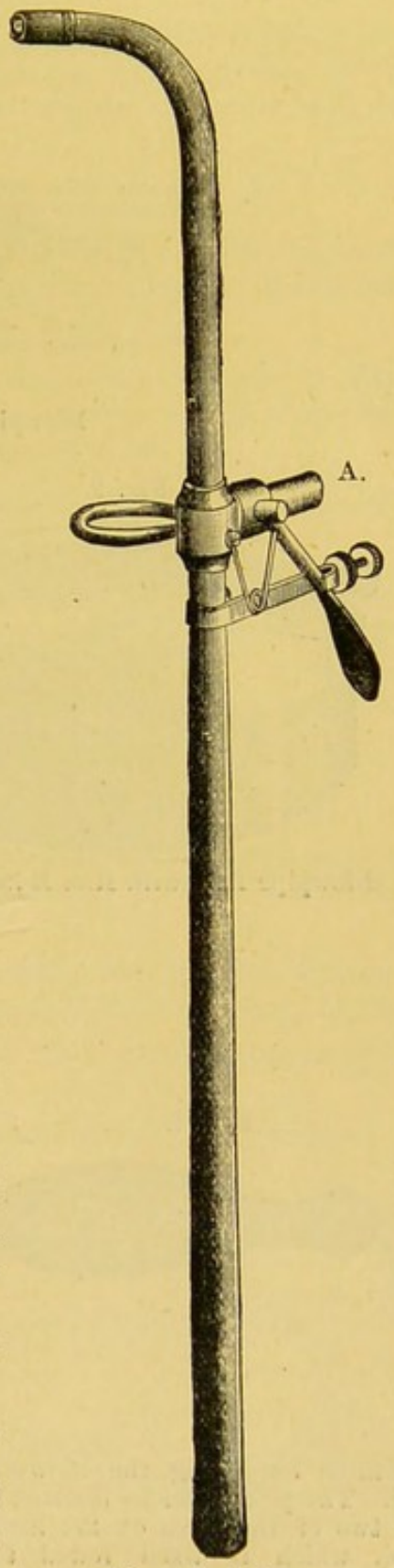
	s.	*d.*
Price	30	0

Note.—A special pattern is made for flask washing, which gives a steady fine stream of water, nearly boiling—price same as above.

MELOTTE'S SOLDERING APPLIANCES.

BLOWPIPE.

Fig 1.



About half-size.

This Blowpipe is designed for use wherever there is a gas supply.

The gas is received from the ordinary gas burner through a rubber tube attached to the Blowpipe at A., where a patent spring-lever valve affords perfect regulation of the flame, or by means of the thumb-screw and jam-nut the valve may be set at any point, giving the very least or greatest flow.

Air is supplied at the end by the mouth or by the foot-bellows; or nitrous oxide gas under pressure, which may be obtained at all dental depôts, can be used at a trifling expense for an oxy-hydrogen flame.

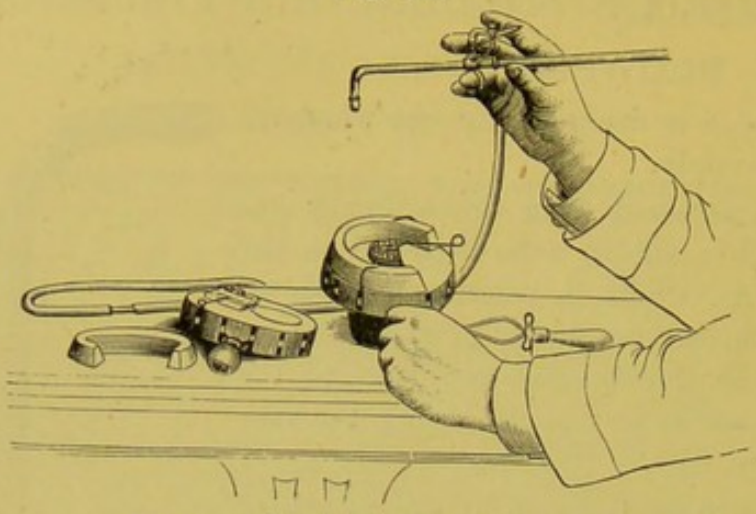
The gas and air are conveyed to the flame end of the Blowpipe by separate tubes (the air tube being in the centre), and there mingle. Both the inner and outer tips are removable. The ring shown in the illustration is useful in holding the Blowpipe, or for hanging it up, or for keeping the flame from the table when not in use.

The special merits of this Blowpipe are:

1. It is always ready for use, and saves gas, *as all the gas is utilised;* in this item alone it will pay for itself in a short time.
2. As the flame moves with the Blowpipe, it can readily be inserted, and soldering done, in places inaccessible with the ordinary mouth Blowpipe and separate gas jet.
3. It is the cheapest and best Blowpipe for the many wants of the dentist.

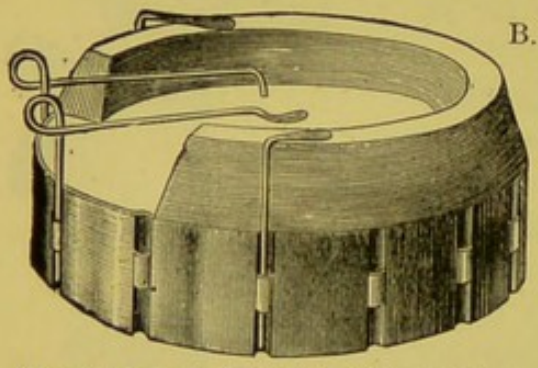
		s.	d.
Price, Nickel-plated throughout, complete with Rubber Tubing	..	14	0
Extra Air Tips, large	each	0	8
„ „ small	„	0	4

Fig. 1A.



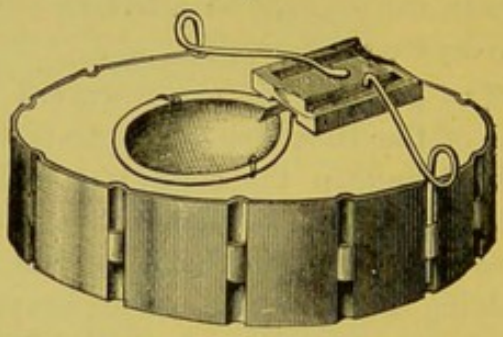
Blowpipe, Blowpipe Pad, &c., complete.

Fig. 2.



Blowpipe Pad, with Rim B in position.

Fig. 3.

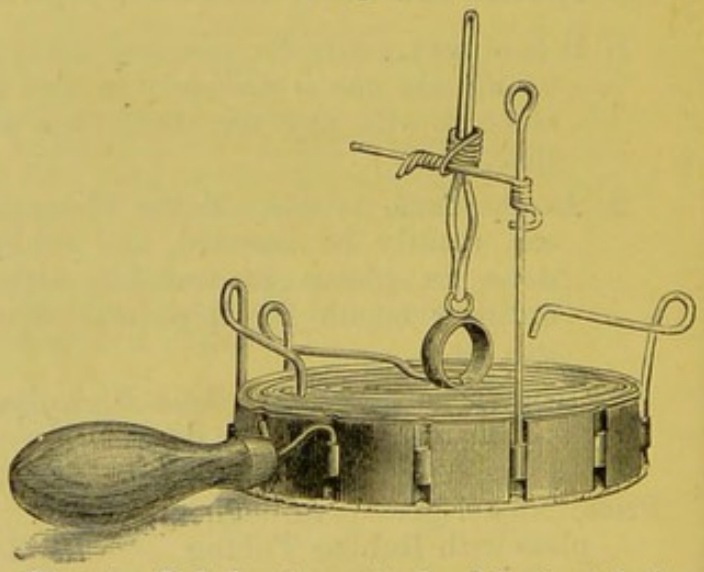


Blowpipe Pad, with Ingot Mould and Crucible.

Fig. 4.

Handle for lifting the Blowpipe Pad. The points can be inserted in any two of the loops on the metal band, which is fixed round the asbestos.

Fig. 5.



Blowpipe Pad, showing vertical and horizontal wires which support the clamp that holds a band while it is being soldered.

MELOTTE'S SOLDERING APPLIANCES—*continued.*

BLOWPIPE PAD.

The Blowpipe Pad is about 4½ inches in diameter, and is made of layers of asbestos, arranged in such a manner that the two soldering surfaces are a perfect cushion into which pins can be readily thrust to hold small articles while being soldered.

The Handle, Fig. 4, is detachable.

The surrounding metal band, which is nickel-plated throughout, is provided with loops or holes for the reception of the hooks on the handle Fig. 4, and the spring clamps shown in Figs. 2 and 3.

The Pad is reversible, one face having a depression, shown in Fig. 3, for a crucible, for use with the ingot mould, shown in the same figure, which has three matrices of different shapes and sizes.

A Removable Rim, made of asbestos, shown in Fig. 2, is also provided, which is very useful for confining the heat.

Fig. 5 shows a Clamp, which has been introduced by Dr. Melotte, to make the appliance more complete. No extra charge is made for this addition.

The Pad has several points of merit:—

1. It is clean and very durable, which cannot be said of charcoal.
2. It is better than charcoal on account of its uniform surface and the facility with which articles can be fastened upon it, with clamps or pins, for soldering.
3. It provides a means to the dentist of readily melting his filings and scraps of gold, silver, and other metals, and thus utilizing them.
4. The clamping devices save much time and annoyance in getting articles fastened for soldering.
5. No other Asbestos Pad has the pinning and yet durable surface.
6. It will last for years and improve with use.

Prices:

		s.	d.
Blowpipe Pad with Removable Rim, Ingot Mould, Crucible and five Clamps, complete		8	0
Parts separately:			
Pad with Removable Rim and five Clamps		6	0
Crucibles	per ½ dozen	2	0
Ingot Moulds	each	2	0
Removable Rims	„	1	0

MELOTTE'S SOLDERING APPLIANCES—*continued.*

SOLDERING TWEEZERS.

Fig. 6.

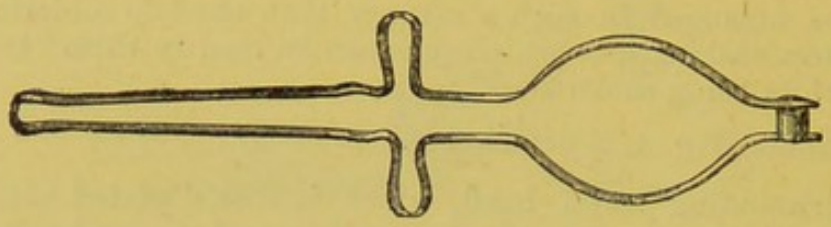


Fig. 7.

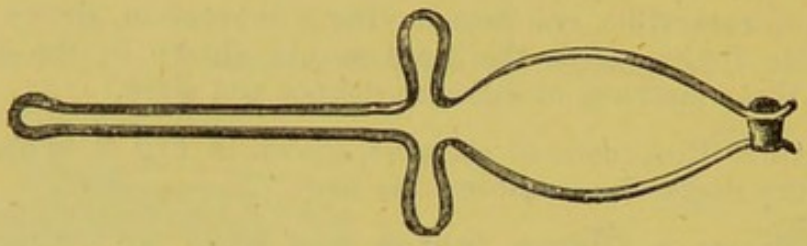
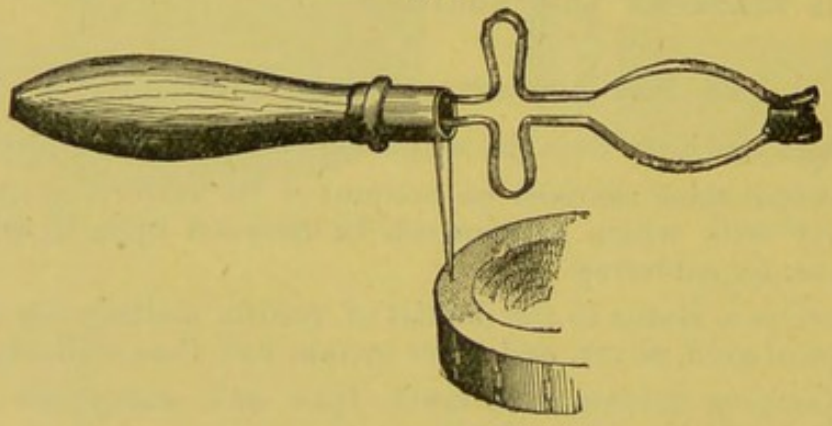


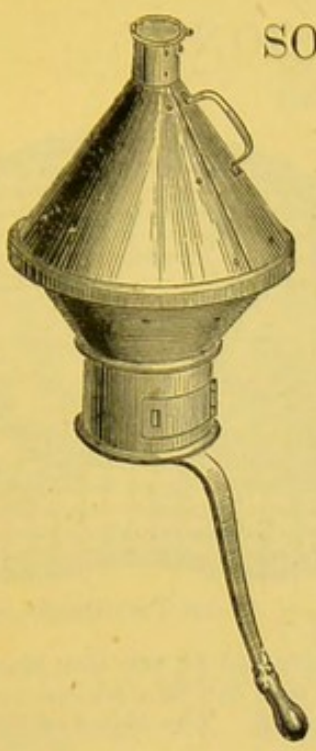
Fig. 8.



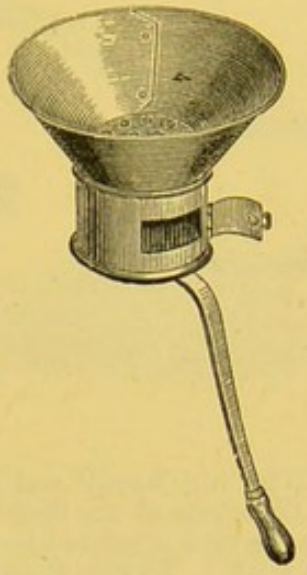
The Soldering Tweezers, shown in Figs. 6, 7, and 8, are for holding gold collar crowns and caps while being soldered. They have loops in the arms. These loops facilitate placing the tweezers in and removing them from the handle, and afford a ready means of rotating or changing the position of the work under the blowpipe flame. The slight pressure required to hold the work is secured by pushing the shanks into the handle, the spur of which may then be fixed in the pad or in a piece of charcoal, etc. The left hand is then free to manipulate the solder while the blowpipe is directed in the right hand as usual. The handle will grip the shank of any of the tweezers.

	s.	*d.*
Price per set of three Tweezers and one Handle ..	4	0

SOLDERING PAN.



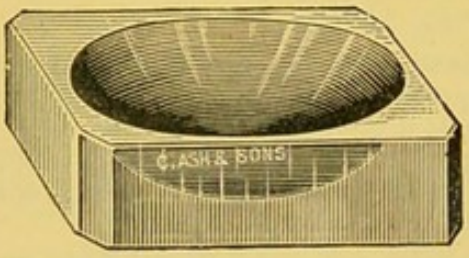
In sheet iron, with cover, for gradually warming up pieces with mineral teeth before soldering, and also for gradually cooling them afterwards.



10 inches high, 6½ diameter.

		s.	d.
The handle has a loose pivot, to allow the pan to revolve	each	7	0
Soldering Compo, silver sand and plaster	per lb.	0	4

GLASS BORAX SLAB.



		s.	d.
Made of pure white glass, ground inside the cup part		1	0
Stone Borax Slabs, small	each	1	0
„ „ large	„	1	4
Borax, in lumps	per lb.	1	3
„ „	per ¼ lb.	0	4

SUTTON'S WORKROOM TONGS.

For lifting and carrying about articles that are too hot to be touched by the hand.

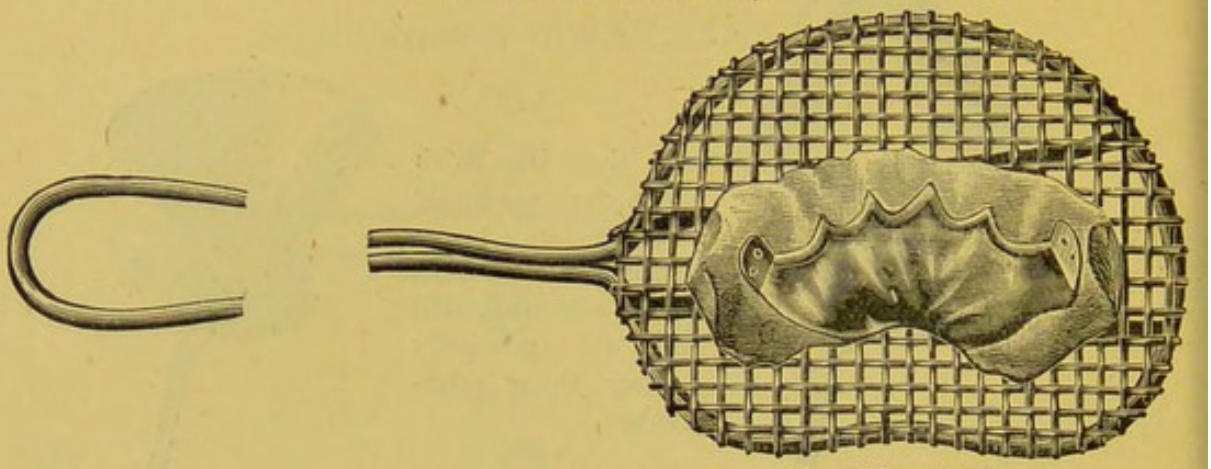
		s.	d.
Made from sheet steel	each	1	0

SUTTON'S ZINC MODEL TONGS.

		s.	d.
Price	each	3	0

SOLDERING SPOON.

(Mr. A. K. Brittan's.)



About Two-thirds size.

With wire handle and gauze bowl, supported underneath by two iron stays.

The shape of the Spoon is so convenient that any case can be soldered upon it, and when the case is red-hot the handle remains perfectly cool. The object of the two iron stays is:— 1. To give strength to the Spoon;

2. To keep the case a little off the stove when a gauze stove is used; and
3. To receive the blows which are given when the case is tapped on the bench, as presently to be described.

Mr. Brittan says: My method of using the Spoon is as follows: The teeth or bands having been waxed to the plate ready for inserting in plaster and sand, I mix this as usual, put sufficient for the case on the gauze of the Soldering Spoon, and insert the case. Should I be in a hurry, I put the Spoon over a low flame *at once* to hasten the setting, and when the case is red-hot I solder. The advantages of my plan are these:—

a. **A great saving of time.**

b. **I have no need of a clumsy charcoal slab.**

Sometimes even skilful mechanics let the case fall from the charcoal, and it sometimes falls after it has been heated, when the case is removed from the stove. Such mishaps are impossible with the Soldering Spoon, for the case can be put in any position without the blow-pipe being stopped, in fact it cannot fall if the Spoon be turned upside down.

c. **The plaster and sand mixture does not crack in the Spoon.**

Various methods have been tried to prevent plaster cracking when it is made red-hot. Dr. Richardson, in his work, suggests putting a piece of metal round the plaster. I have used my Spoon a great many times, and have never seen a sign of a crack in the plaster. Even if it did crack the parts would be held in correct position.

d. **I find that by means of the Spoon I can do work with more ease, comfort and certainty** than by any other method, and I am convinced that others who try the Spoon will say the same after they have used it a few times. I have tested it severely, and failed to discover a single drawback in it.

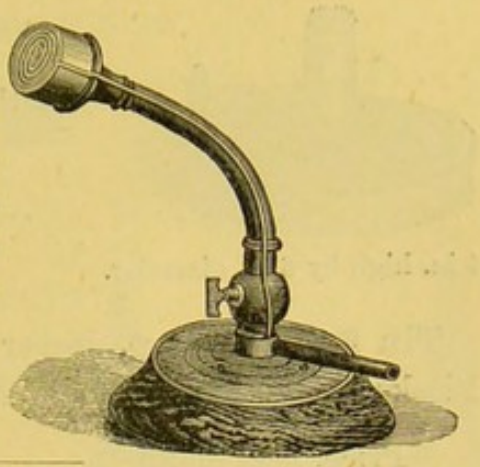
To remove the case from the Spoon. Let the case cool, *place it in water for a few moments*, and then tap the spoon lightly on the bench—this is all that is necessary.

It is well known that after a mixture of plaster and sand has once been made red-hot, it will fall to pieces if it be put into water.

		s.	*d.*
Price of Soldering Spoon		2	0
Extra gauzes for renewing	each	0	6

GAS SOLDERING LAMP.

(Mr. Owen's.)

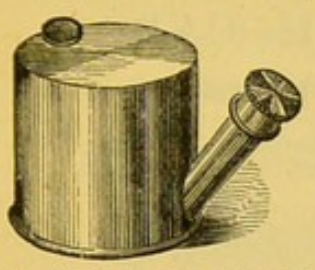


Useful also for modelling, &c.; consisting of a mahogany stand with bronzed pipe, and large wire coil burner; it has also a fine tube at the side, so that the flame may be turned down to a small jet, in order to save the gas at intervals when the lamp is left for other work, &c. Height, 8 inches.

	s.	d.
Price	7	6

SPIRIT-LAMP,

FOR SOLDERING, MODELLING, &c.



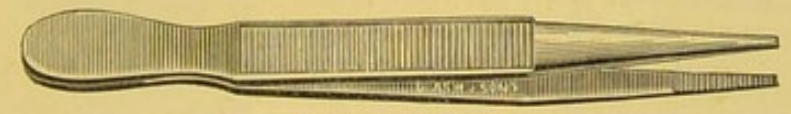
3½ in. high by 3 in. diameter.

Brass Spirit-Lamp, with screw caps, for soldering, &c. It is substantially made, and well finished, and will be found very useful when travelling, the screw caps serving effectually against waste of the spirit.

	s.	d.
Price	6	6

SOLDER TWEEZERS.

Fig. 1.



4¾ inches long.

„ 2.

4¾ inches long.

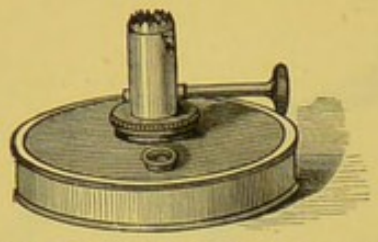
„ 3.

4¼ inches long.

Prices:

		s.	d.
Solder Tweezers	(Fig. 1) each	0	10
„ „	(„ 2) „	0	9
„ „ Blunt, 4¼ inches long	.. „	0	6
„ „ Pointed, 4¼ „	.. „	0	6
„ „	(Fig. 3) „	0	4

TIN SPIRIT LAMP.



4 in. high by 6 in. diameter.

With regulating wick-holder, suitable for heating Vulcanizers, and for soldering, &c.

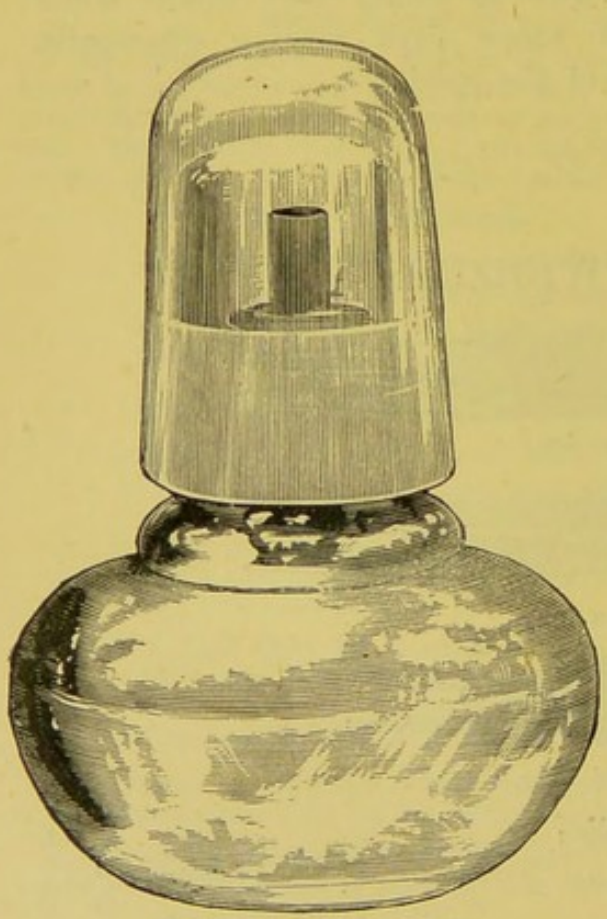
	s.	d.
Price, best make	6	0

Tin Spirit Lamp, deeper than the above, suitable for heating Glass Flasks containing ammonia, &c., and for soldering, &c.

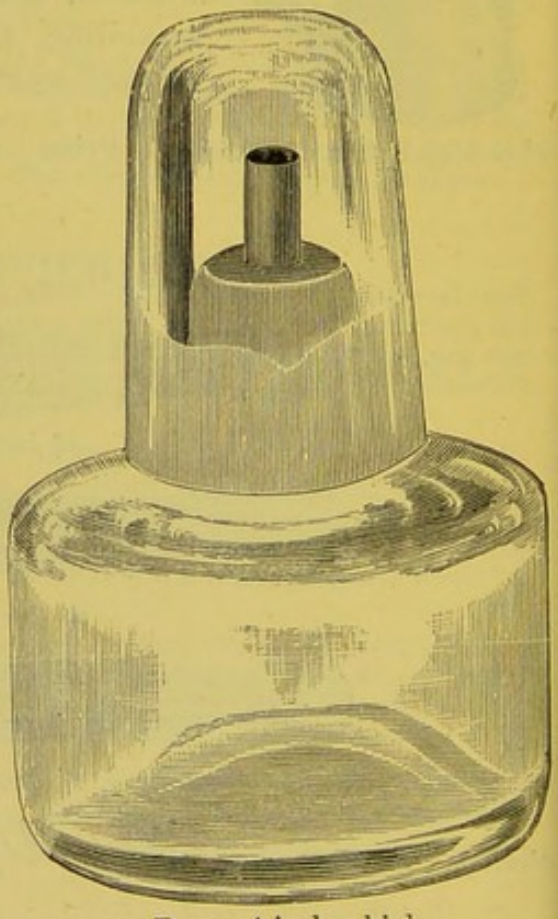
	s.	d.
Price, best make	6	0

GLASS SPIRIT LAMPS WITH CAPS,

FOR MODELLING AND FOR GENERAL PURPOSES.



Shallow—4 inches high.

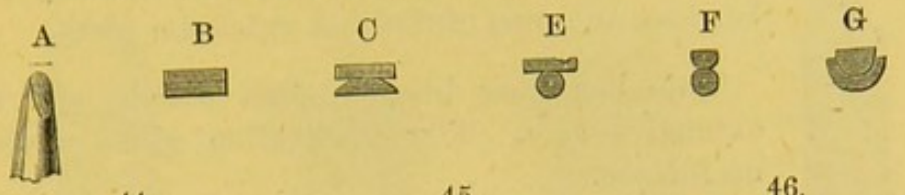


Deep—4 inches high.

		s.	d.
Price, either kind	each	1	6

PLIERS.

FORMS OF THE VARIOUS NOSES.



A to F are made in three sizes, 4, 4½ and 5 inches long.

They are thus named:—

A—Flat pointed (Fig. 44).

A—Snipe nose.

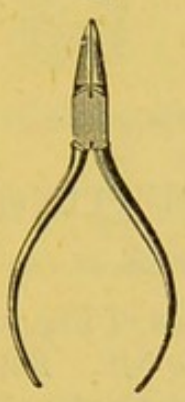
B—Flat, broad nose.

C—Flat and half round.

E—Flat and round.

F—Round (Fig. 45).

44.



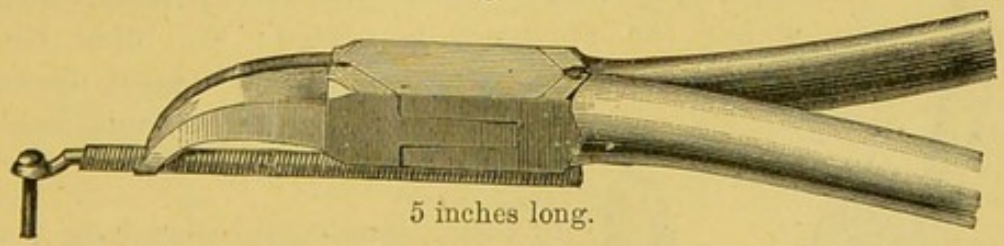
45.

46.

		s.	d.
Pliers, any size or kind, black—A to F	each	1	3
„ „ „ polished—A to F	„	1	6
„ **with one oval and one hollow chop,** 5 inches long, form G.	„	2	6
„ **grooved, for roughing pins,** 5 inches long (Fig. 46)	„	2	0
„ „ **for holding pins,** 5 inches long ..	„	1	6

SPRING AND SWIVEL PLIERS, &c.

Fig. 51.



5 inches long.

		s.	d.
Spring Adapting Pliers (Mr. Edwards'), used for forcing springs on to the tangs of swivels, or for pulling them off without injuring the springs, bright all over (Fig. 51)	each	2	9
Swivel Pliers (Mr. Miles'), for reducing the tangs of swivels when too large for the springs	„	2	3
India-rubber Tubing, red, for fitting over springs to prevent friction in the mouth	per foot	0	3

PIN-ROUGHING AND BENDING PLIERS.

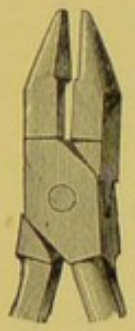
With very fine noses, &c., for cutting, roughening, and bending the pins of flat and vulcanite teeth.

This has long been a stock article, and has had a very extensive sale. The illustration gives a clear idea of its usefulness.

		s.	d.
Price, 6 inches long	each	4	6

COMBINED PLIERS AND CUTTING NIPPERS,

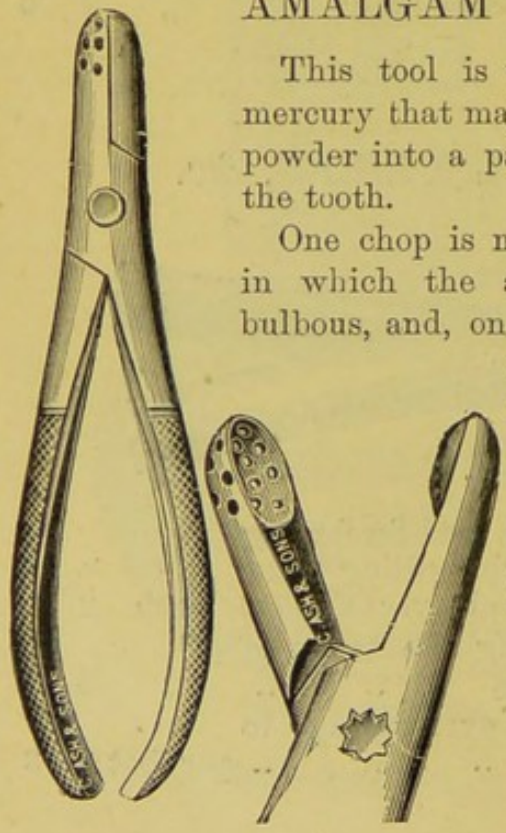
WITH FLAT NOSES.



This useful tool is a combination of Fig. 48 Cutting Nippers and form A Pliers shown on page 519. Being made in bright steel, it will be found equally suitable for either the Operating Room or the Laboratory.

		s.	d.
Price in bright steel, 4½ inches long ..	each	2	6

AMALGAM SQUEEZING PLIERS.



This tool is very useful for removing any excess of mercury that may be employed in converting the metallic powder into a paste, ready for insertion in the cavity of the tooth.

One chop is made in the form of a perforated spoon, in which the amalgam is placed; the other chop is bulbous, and, on being pressed into the spoon, ejects the mercury through the perforations and from the sides.

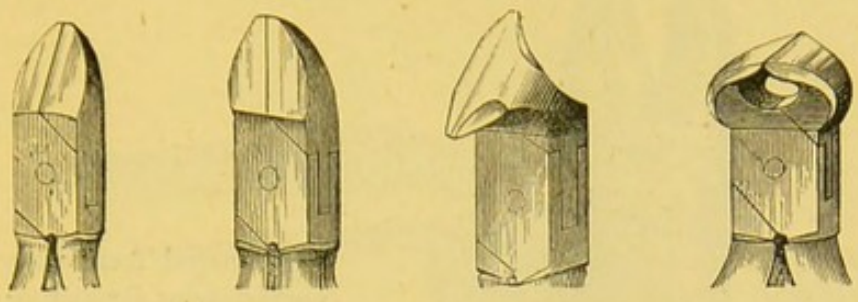
	s.	d.
In black handles, 6 inches long ..	5	0

Pliers for the Operating Room, length 5½ inches, with long flat tapered beaks. In bright steel, highly polished and nickel-plated .. .. .. each

s.	d.
4	3

CUTTING NIPPERS.

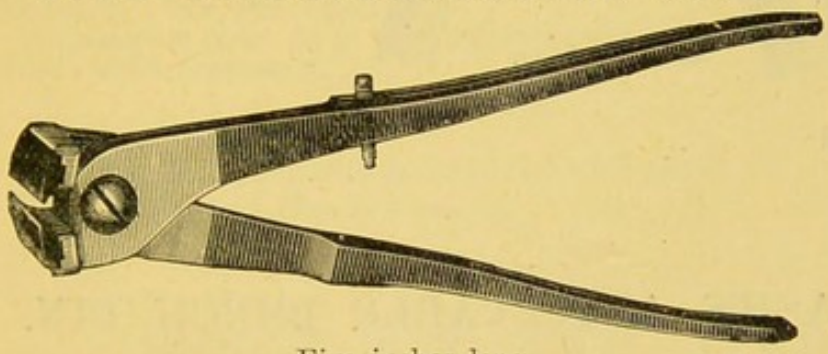
47. 48. 49. 50.



		s.	d.
Cutting Nippers, bevelled, 4½ and 5 in. black ..	(Fig. 47) each	2	3
,, ,, flat, 4½ ,, 5 in. ,, ..	(,, 48) ,,	2	3
,, ,, side, 4½ ,, 5 in. ,, ..	(,, 49) ,,	2	3
,, ,, top, 4½ ,, 5 in. ,, ..	(,, 50) ,,	2	3
Any of the above in bright steel	extra	0	6

CUTTING NIPPERS,

WITH INTERCHANGEABLE JAWS.



Five inches long.

These Nippers are simple, strong and durable, and will effectually cut steel wire, 2 mm. in diameter, or soft wire 3 mm. in diameter without breaking.

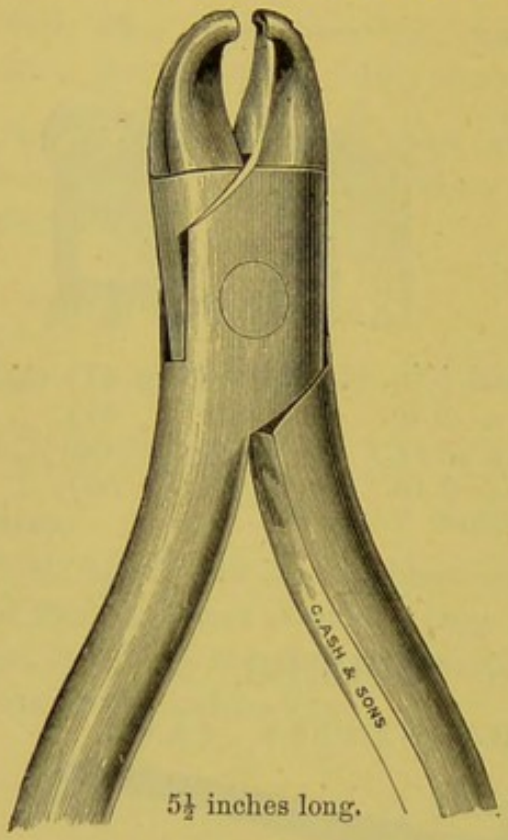
They are as light and handy as the ordinary cutting Nippers, and being made of the best steel will stand any fair strain to which they may be subjected. The jaws are cut out of cast steel of uniform quality, and as they do not require to be subsequently tempered, the danger of leaving them too soft or making them too hard is avoided.

It is a very useful tool for cutting mineral teeth, when it is necessary to reduce the length for any special case, and many dentists use it for this purpose.

Prices:

		s.	d.
Cutting Nippers, complete, as illustrated	each	3	0
Extra Jaws for the same	,,	1	0
Extra Screws for securing the jaws in position	per doz.	1	0

ROUND-NOSE NIPPERS.



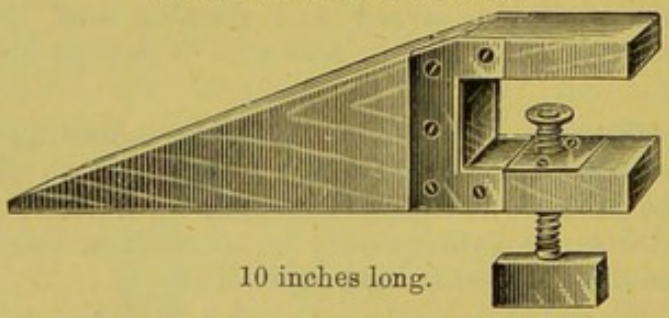
5½ inches long.

Improved form with curved chops, for cutting off pins inside plates. It is a most useful tool for reaching in places that are difficult of access.

	s.	d.
In bright Steel	4	6

ASH'S ADJUSTABLE BENCH PIN,

WITH BRASS MOUNTS.



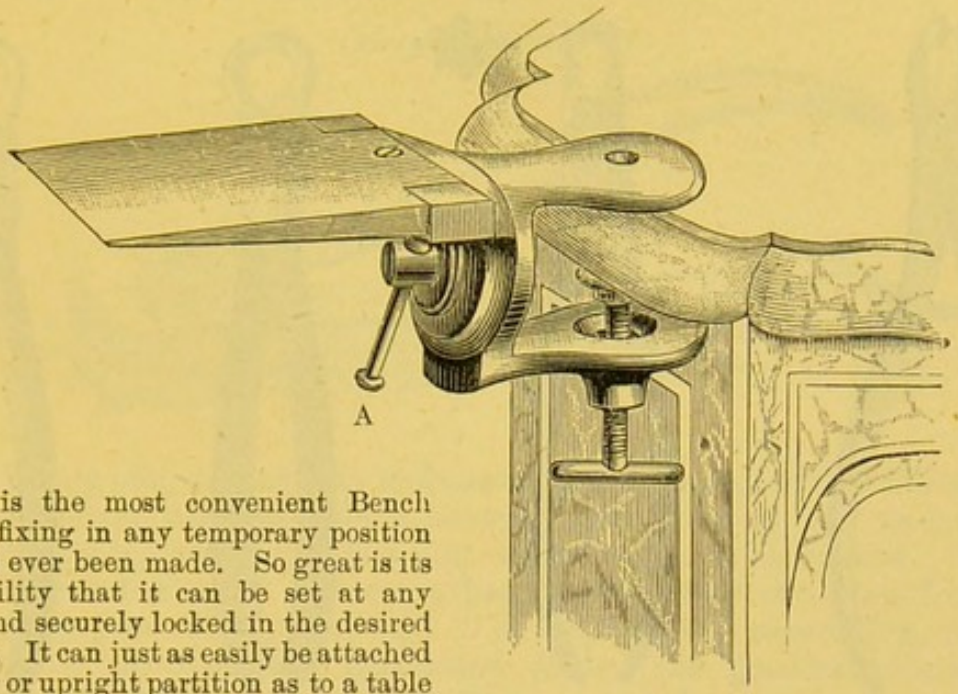
10 inches long.

This appliance has been used for many years by several dentists for whom we have made it from time to time, and has given much satisfaction. It can be screwed on to any table or board, and when the Pin is worn out the Mounts can be fitted to a new one without difficulty. Made in two forms as under:—

		s.	d.
Best quality	each	7	6
Second „	„	6	0
Board or Bench Pins, beech wood	„	0	3

REVOLVING BENCH PIN,

FOR THE OPERATING ROOM, OR WHEN VISITING.



This is the most convenient Bench Pin for fixing in any temporary position that has ever been made. So great is its adaptability that it can be set at any angle, and securely locked in the desired position. It can just as easily be attached to a door or upright partition as to a table or work-board. The Pin revolves all round the clamping lever A, so that its movements are in no way hampered by the metal frame which supports it.

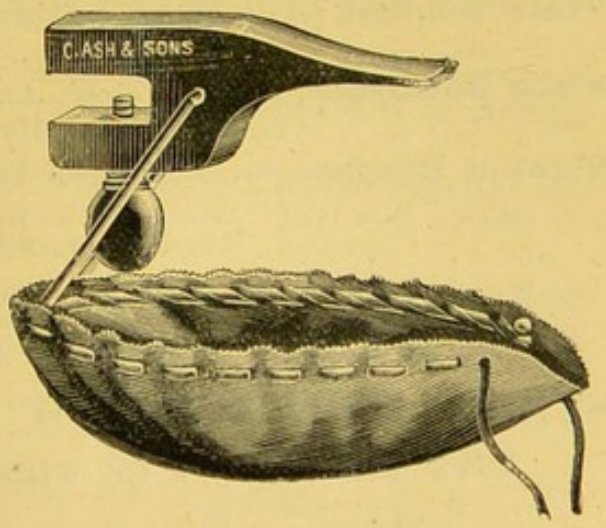
Prices:

		s.	d.
Revolving Bench Pin with metal parts Nickel-plated		9	6
Extra Beech-wood Pins for renewing	each	0	6

BENCH PIN AND APRON,

FOR THE OPERATING ROOM.

(Designed by Mr. H. Apperley, of London.)



This device can be attached to the Slab of a Cabinet or to the top of a Table, or to any available board in the Operating Room. It is nicely finished and presents a very neat appearance, and Mr. Apperley has found it most useful in practice.

	s.	d.
Price complete, as illustrated ..	18	0

PLATE CUTTERS, &c.

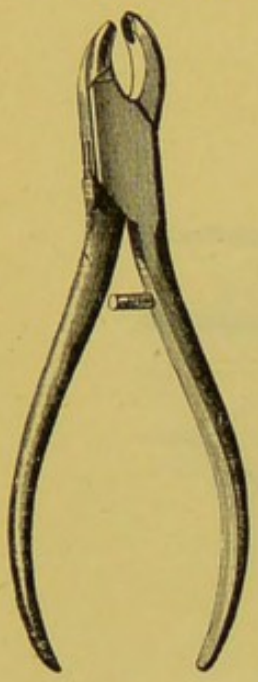
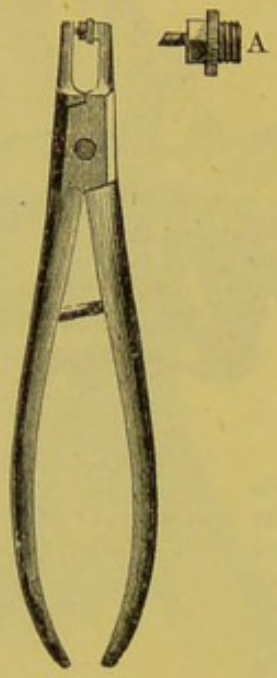


Plate Cutters.

6⅜ inches long.



Pin Nippers.

6½ inches long.

Plate Benders. (Upper).

7¼ inches long.

Plate Benders. (Lower).

7¼ inches long.

	s.	d.
Plate Cutters (Stubs'), with round noses, large, medium, or small .. .. each	5	0
Pin Nippers, improved, for punching metal backings for flat teeth, with 6 pins .. .. ,,	5	6
Pins for ditto, extra .. .. per doz.	1	0

These Pin Nippers are so arranged that the pin can be renewed as often as necessary. This is accomplished by merely unscrewing the movable socket A, and dropping in the pin from the back. The pins are flattened at the opposite end, to prevent them turning round or falling through, and when the socket A is screwed home in the head of the nippers the pin is perfectly secure.

	s.	d.
Plate Benders (American pattern), for upper plates .. each	5	6
,, ,, ,, ,, lower ,, .. ,,	5	6
Plate Burnisher, polished steel, double ended .. .. ,,	1	6
,, ,, in wooden handle .. .. ,,	0	10
Scratch Brushes, brass wire, for Lathes, coarse .. .. ,,	2	0
,, ,, ,, ,, fine .. .. ,,	2	6
,, ,, ,, for Hand, coarse .. .. ,,	1	0
,, ,, ,, ,, fine .. .. ,,	1	3

STEEL WIRE SCRATCH BRUSHES FOR LATHE.

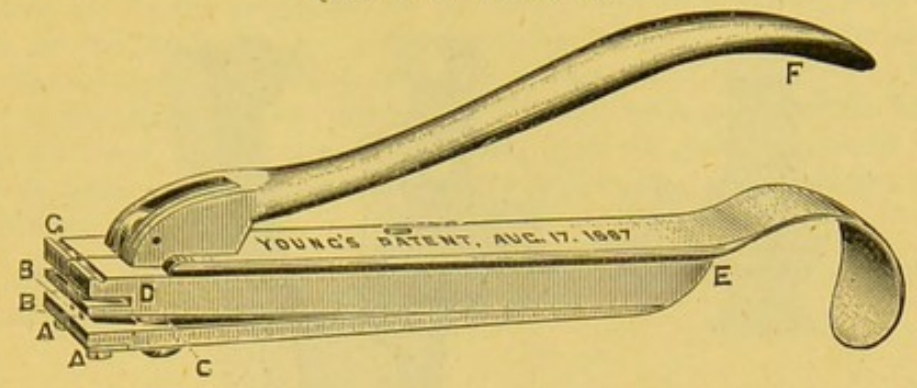
WITH THREE ROWS OF WIRE. Diameter of Brush, 3¼ inches.

	s.	d.
Price .. .. each	3	6

PATENT ADJUSTABLE PERFORATORS,

FOR PUNCHING TWO HOLES AT ONCE.

(Mr. J. C. Young's.)



Mr. Young claims that this tool secures, rapidly and with mathematical precision, exact correspondence between the holes in the metal plate used for backing teeth, and the pins of the tooth to be backed. It provides also for the quick and easy disengagement of the plate from the perforating pins after punching. The difficulty of separating, without twisting or injuring the perforated plate (the greatest obstacle to punching two holes at once), is entirely removed.

The risk of fracture in backing teeth is reduced to a minimum.

No measuring is required. The tooth is its own gauge, virtually punching its own holes.

Method of Using.

Holding the perforators in the right hand—like an ordinary pair of pliers—so that the end of the upper lever F rests loosely in the palm, the fingers and thumb readily grasp the lower lever E. The tooth to be backed is taken in the left hand, and one of the pins placed in the nearest punch-hole in groove G. Holding the tooth down with the thumb, the punch-holes are then slowly moved apart by pressure at E, taking special care at the time not to have the slightest pressure on the top lever F, or the jaws will not separate easily; the second pin of the tooth will slip into the second punch-hole immediately they come opposite each other, and the perforating pins are now fixed in position for punching.

Retaining the tooth in its position, the metal backing is placed in the slotted recess D, immediately under the tooth, and the holes are punched in it by pressing down the lever F.

Whilst perforating, the plate is easily held in position with the left hand, and the thumb placed over the tooth prevents its being jerked out. The tooth should be removed *before*, and the plate *after*, relieving the pressure at F.

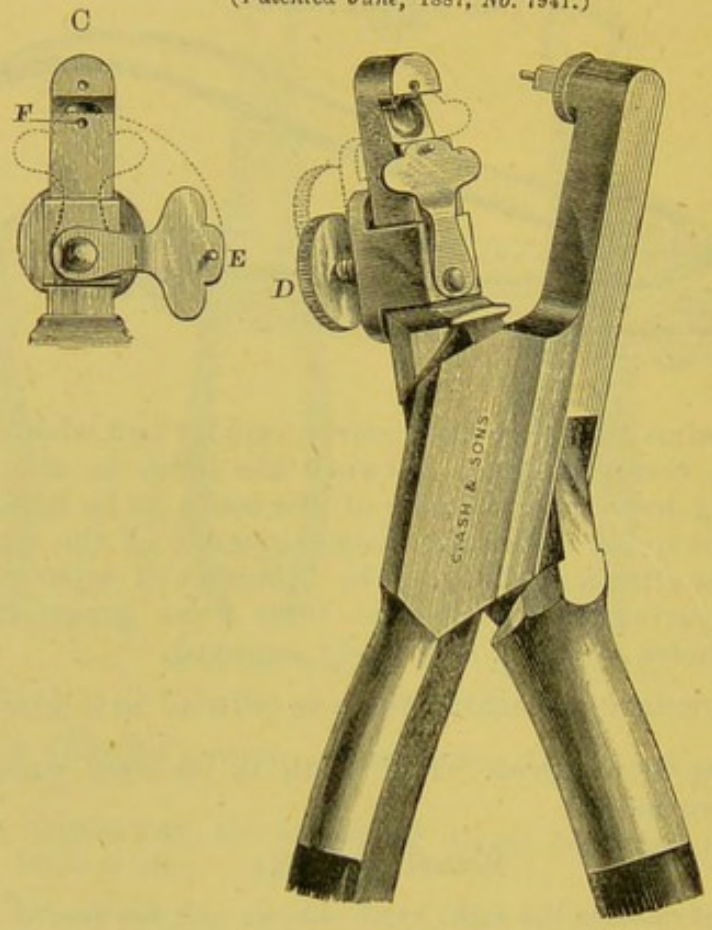
The holes in intermediate plate C support and stiffen the pins B B, and their breakage in use is almost impossible. Should it be necessary, however, to replace the pins, it can be done with the greatest ease by taking out the screws A A and removing the back.

		s.	*d.*
Price		15	0
Extra Pins	per doz.	2	0

PERFECTED PIN-HOLE NIPPERS,

FOR PUNCHING METAL BACKINGS FOR FLAT TEETH.

(Patented June, 1887, No. 7941.)



Description:

C. Adjustable sliding gauge with spring guide pin E and measuring hole F.

The illustration on the right hand side shows the upper part of the tool, full size, with the adjustable sliding gauge in position and the set screw D by which it is controlled.

The latest addition that has been made to this useful tool is the adjustable sliding gauge C, by means of which the distance between the pins on the tooth can be accurately measured and faithfully transferred to the metal plate, no matter how near together or how far apart the pins may be.

The cutting pin can be renewed as often as is necessary by merely unscrewing the removable socket which holds it, and dropping in the pin from the back. The pins are flattened at the opposite end, to prevent them turning round or falling through the socket. When the socket is screwed home in the head of the Nippers the pin is perfectly secure.

PERFECTED PIN-HOLE NIPPERS—*continued.*

Directions for Use.

Lift the guide pin by the projections on the spring and turn it away from the beak, as shown in the illustration C. After punching the first hole in the metal backing, release the set screw D, take the tooth and fit one pin in the measuring hole F, and the other in the cutting hole in the head of the tool, holding it with the beaks while fixing the set screw. Then remove the tooth, push the guide pin back into the measuring hole, place the hole already made in the plate over the guide pin, and punch the second hole.

The result will be that when the tooth is placed on the metal backing the pins will be found to fit exactly in the two holes.

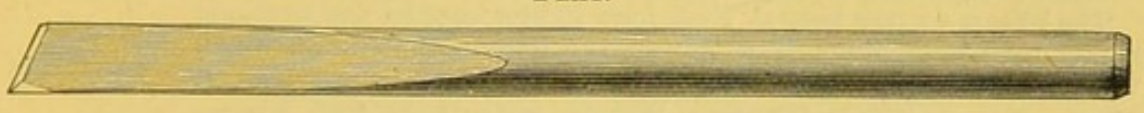
Prices :

		s.	*d.*
Perfected Pin-Hole Nippers, complete with 6 Pins ..		9	0
Extra Pins	per doz.	1	0

PLATE PUNCHES.

These punches are used for forcing metal plates close to the necks of the teeth while on the metal casts. They are made in three widths — broad, medium, and narrow. The illustrations show the medium width.

FLAT.



THIN OVAL.

HOLLOW.

		s.	*d*
In polished Steel	each	0	9
„ Brass	„	0	6
Steel numbers for stamping metal plates, per set of nine		4	6
Steel numbers or letters, to order, per number or letter from		0	6

PERFORATORS, CLASP BENDER AND SHEARS.

Plate Shears. Crown Shears.

Perforators. Clasp Bender.

7½ inches long.

7 inches long.

Right side.

7 inches long.

Perforators for punching Metal Plates for Tube Work. *s.* *d.*

In polished Steel, with plain handles, and six Pins .. each 6 6

Pins for the same, extra .. .. per doz. 1 0

This Tool can be had **to order,** at the above price, with socket to take the same size pins as the Pin Nippers shown on page 524.

Clasp Bender, with one oval and one hollow chop .. each 5 0

Plate Shears (Stubs'), curved, 7 in. and 8 in. long .. „ 4 6

„ „ straight, 7 in. and 8 in. long .. „ 4 0

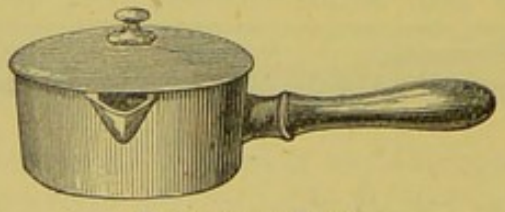
Made in right and left sides, see illustration.

The Shears we now keep in stock have lighter handles and narrower blades than those formerly supplied—two important features, which we know from our own experience will be appreciated.

Plate Shears for Crown Work, with very fine blades and light handles .. .. curved each 2 6

„ „ „ „ straight „ 2 0

BOILING PANS.



Porcelain Pan.

s. *d.*

Boiling Pans, Porcelain, 3½ in. diameter .. .. each 2 9

„ **Copper, oval,** 6 in. by 3½ in. .. .. „ 2 0

„ „ **round,** 4 in. diameter .. .. „ 2 0

SCREW PLATE, BEAK IRON, &c.

Screw Plate.

6 inches long.

Beak Iron.

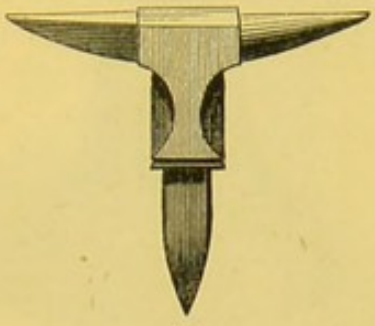
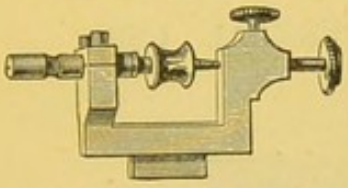


Plate Gauge.

5¼ inches long.

		s.	d.
Screw Plate (Stubs'), notched, with six taps	each	5	3
Beak Irons, large size, width of face about 1 inch ..	„	4	6
„ medium „ „ ⅞ „ ..	„	3	6
„ small „ „ ¾ „ ..	„	2	6
Plate and Wire Gauge, small sizes, 1 to 20	„	5	6

Drilling Tool.



5 inches long.

Drill Stock.

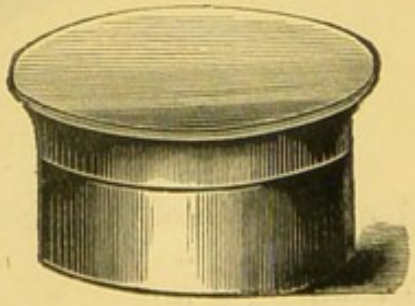
3¼ inches long.

		s.	d.
Drilling Tool, with Steel Rest, Vice Stock and Thumb Screw — not shown in the illustration — to carry Broach Drills of any size	each	7	6
Drills for the same, with round stems	per doz.	2	6
Drill Stocks, large, medium, and small bore	each	1	8
Broach Drills for the same, large, medium, and small	per doz.	2	4

BOXES FOR METAL SCRAPS.

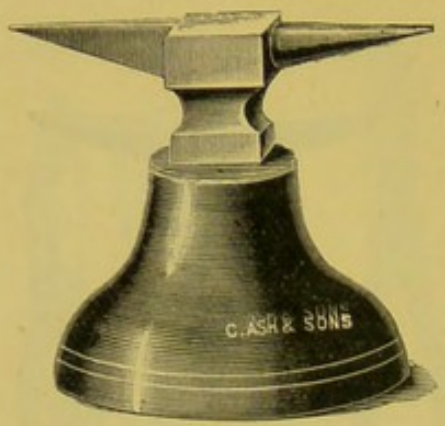
In Japanned Tin, Circular, with Sifters.

	s.	d.
Made in three sizes—3¼ in. diameter, each	1	3
„ 4 in. „ „	1	6
„ 4½ in. „ „	1	9



LIGHT ANVILS,

FOR CROWN WORK, &c.



About half-size.

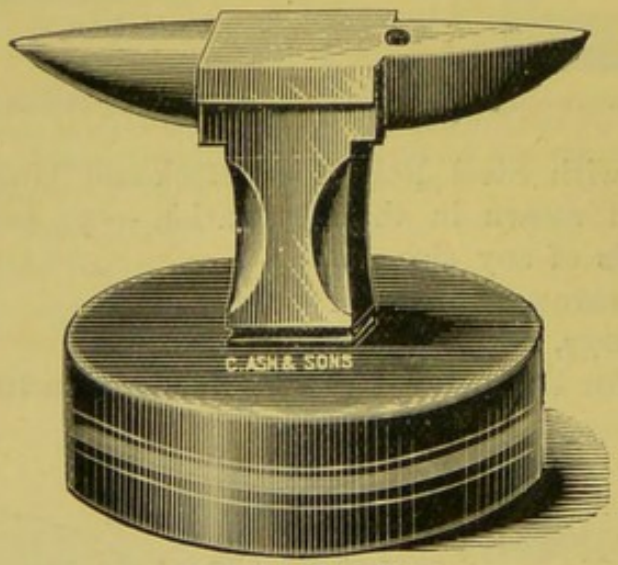
The bright part is nickel-plated, and the base on which it is mounted is japanned.

		s.	d.
Price	each	3	6

BEAK IRON ON STAND,

FOR CROWN WORK AND GENERAL USE.

(Stubs'.)

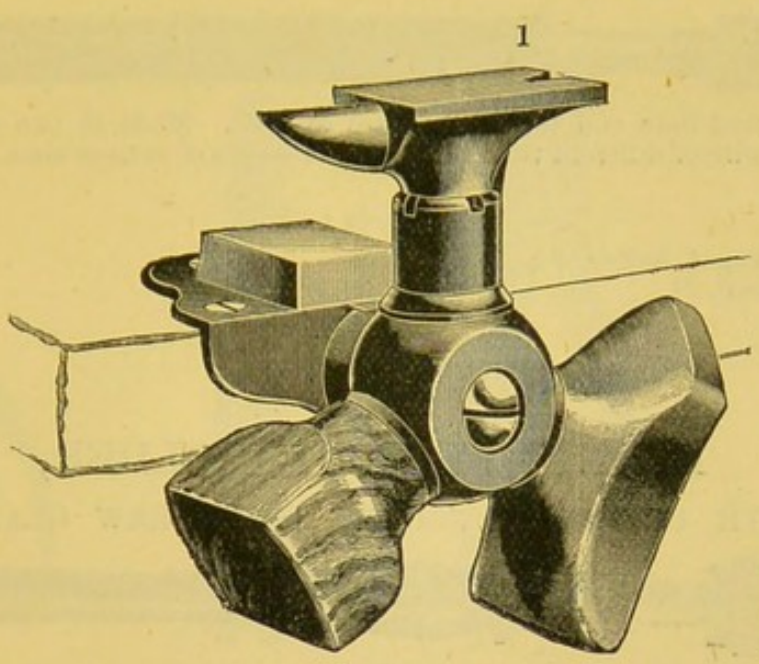


Half-size of medium.

Supplied in the following sizes:—

		s.	d.
Large, width of face about 1 inch	each	6	0
Medium, " " $\frac{7}{8}$ "	"	5	3
Small, " " $\frac{3}{4}$ "	"	4	6

MELOTTE'S PATENT REVOLVING COMBINATION BENCH BLOCK.



About half-size.

Description.

No. 1 is a nicely finished *case-hardened* Steel Anvil, which may be instantly revolved and stopped on quarters. In any of the positions it is firm and solid for use.

No. 2 is a Rubber Block, held by friction on its arm, and can be readily turned to any position. This rubber, being slightly elastic, is a most suitable filing bed for small articles of any material, without risk of scratching or defacing polished surfaces.

No. 3 is a Wooden Block held on its arm by a rubber friction device, which can be turned round to any position desired. It offers a more rigid filing surface than rubber, and at the same time admits of making any grooves or notches desired in filing.

The three-armed hub is revolved by pulling out slightly, and is automatically held perfectly firm and solid in any of the three positions.

This revolving combination feature will be found very valuable in actual use, and will save much time in working on small articles; for example, in filing and riveting.

The Bracket also affords a hammering surface.

Prices:

		s.	*d.*
Bench Blocks complete as illustrated		10	6
Parts separately for renewing :—			
Brackets	each	2	1
Anvils	„	4	2
Rubber Blocks	„	1	6
Wooden „	„	0	8

WIRE AND BROACH HOLDERS,

WITH SPLIT-CHUCK AND SCREW CLAMP.

They are pierced from end to end, and are durable. Made in two sizes, large and small, to carry wire of different thicknesses and broaches of various sizes.

Prices:

	s.	d.
No. 1, large, 4 inches long	1	0
„ 2, small, 3⅜ „ „	1	0

EBONY BROACH HOLDER,

WITH UNIVERSAL SOCKET AND SCREW CLAMP.

Full size.

This is one of the most useful Broach Holders that we have ever seen. There is a hole right through the handle, that admits the broach, which can thus be made long or short as desired and kept thoroughly under control.

The tangs should be removed from the largest sizes of broaches, and, to avoid straining the universal socket, it is advisable to fix the broach in the Holder by passing the point through the hole in the handle and drawing it up through the socket as far as necessary.

It will also serve as a Nerve Instrument Holder.

	s.	d.
Price .. .. each	1	6

Broach Handles, bone, with screw socket .. .. each	0	4
„ „ ebony .. .. „	0	3
„ „ wood .. .. „	0	1
Broaches, Stubs', all sizes .. .. .. each 2½*d.*; per doz.	2	4

TOOTH HOLDER.

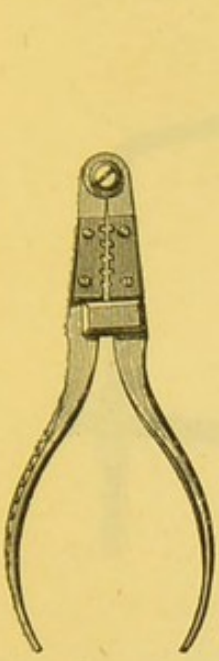
5 inches long.

For holding mineral teeth when grinding. It is equally useful for teeth with vertical or horizontal pins, the T-shape slot being designed to take both.

	s.	d.
In bright steel, wooden handle .. .. each	1	3

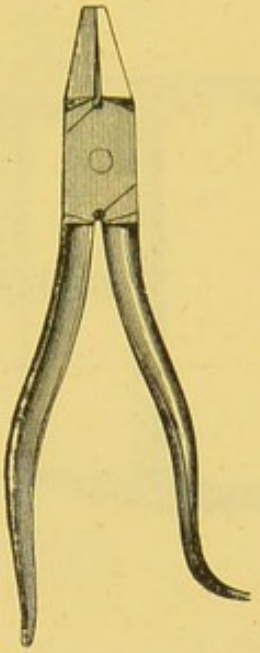
TOOLS—VARIOUS.

Screw Die. Sliding Tongs. Drawing Tongs. Drill Bow



5¾ inches long.

5¼ inches long.

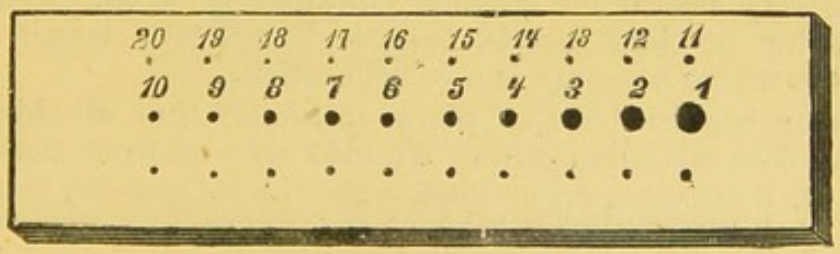


7 inches long.

		s.	d.
Screw Die to open, with plates to unscrew, &c., and set of Taps, various sizes		24	0
Sliding Tongs, with round, oval, or vice chops ..	each	3	0
Drawing Pliers or Tongs	„	3	0
Drill Bows, spring steel, with ratchet screw	„	5	0
Gut for Drill Bows, thick, medium, thin ..	per hank	0	2½

DRAWPLATES.

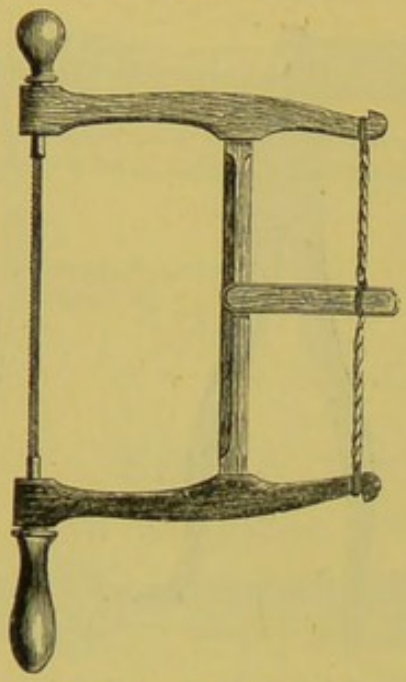
BEST QUALITY.



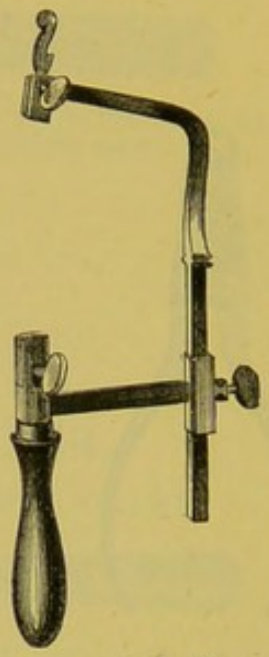
			s.	d.
Draw Plates, for round wire, 20 holes, small sizes ..	each		4	0
„ „ 30 „	„		5	6
„ for half-round 20 „	„		6	0
„ „ 30 „	„		8	0
„ for square wire obtained to order.				

SAW FRAMES AND SAWS.

Bow Saw Frame.



Piercing Saw Frame.



		s.	d.
Bow Saw Frames, various sizes	each from	3	0
Saw Blades for the same	,,	0	6
Piercing Saw Frames, best quality	each	3	9
Blades, narrow to broad, fine to coarse cut ..	per gross	3	0
,, ,, ,, ,, ..	,, doz.	0	4
Circular Saws for Lathes, 1 to 4 inches diameter	,, inch	1	0

Files for sharpening Saws supplied to order.

SPIRAL TWIST FRET SAW.

This saw is adapted for cutting wood and metal, and can be used either in the saw-frame or fret-machine.

It is very useful for cutting vulcanite or wood, but not so good for cutting precious metals, because it makes a larger slit than is desirable where economy is a consideration.

It is so constructed that the teeth project from all sides—*see illustration.* The advantages thus obtained are said to be that—

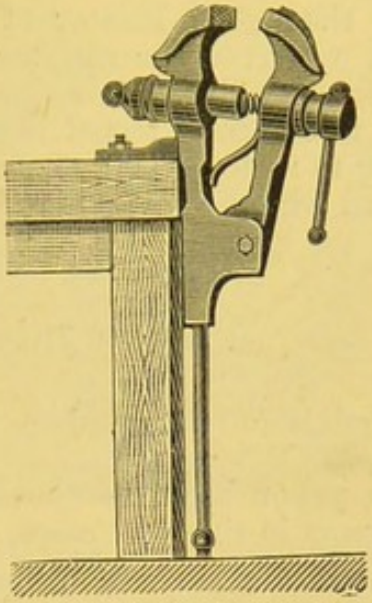
1. It will cut in any direction, so that it is not necessary to turn the work.
2. It never sticks fast, but constantly frees itself.
3. It is stronger than any other saw.
4. It retains its cutting powers longer.
5. It cuts more rapidly than any other.

It is made in the following seven sizes, 00, 0, 1, 2, 3, 4, 5—No. 00 being the smallest, and No. 5 the largest size. The four smallest sizes are the most suitable for dentists.

		s.	d.
Price, any size	per doz.	0	6

VICES.

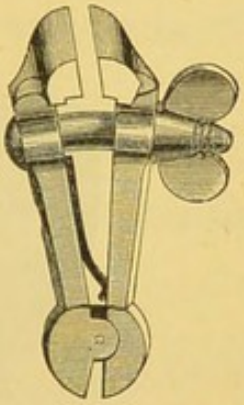
TAIL VICE.

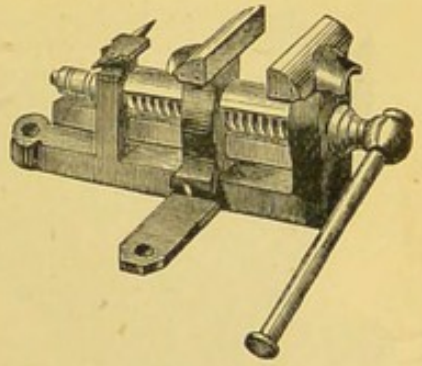


		s.	d.
Tail or Leg Vices, various weights	each from	10	6

When ordering, please state weight required.

PIN VICE. HAND VICE. HORIZONTAL VICE.





4½ inches long.

		s.	d.
Pin Vices, Stubs', all Steel, with hole through handle ..	each	5	0
Hand Vices, 4 in. long, width of chops about 1¼ in. ..	,,	3	0
,, 4½ in ,, ,, ,, 1½ in. ..	,,	3	9
Horizontal Vices, to fix on bench, weight, from 3½ lbs. ..	from	23	6

When ordering, please state weight required.

PLASTER OF PARIS,

SPECIALLY PREPARED FOR DENTAL PURPOSES.

Knowing as we do that good Plaster of Paris is of the utmost importance to dentists, we give the strictest attention to each kind which we supply, and this enables us to recommend it with the fullest confidence. Every lot is carefully tested before it is offered for sale, and it is very gratifying to us to be able to state that our Plaster gives general satisfaction to all who use it, both at home and abroad.

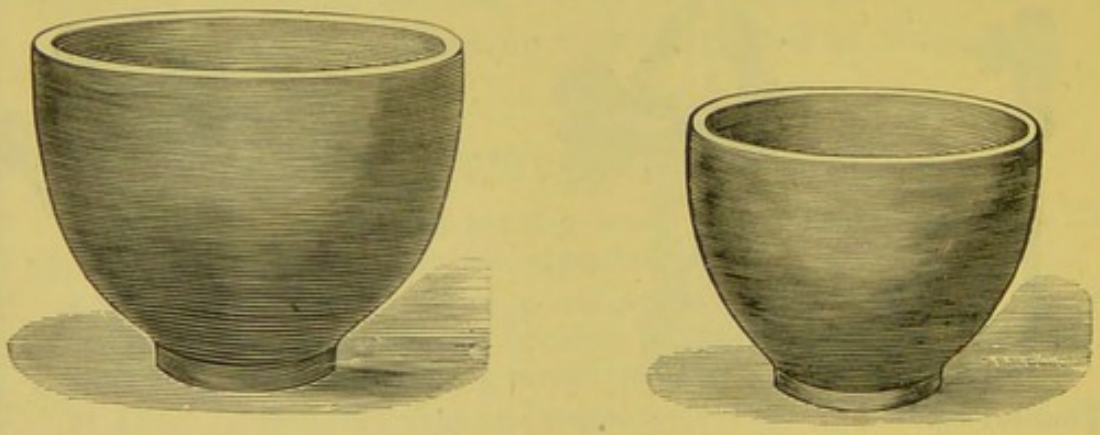
Prices :		Per bag.		Per cwt.	
		s.	*d.*	*s.*	*d.*
Fine for Models	In 7lb. paper bags	0	6	5	6
Superfine for Models	„	0	9	9	6
Extra superfine for Models and Impressions	„	1	0	12	6

Plaster of Paris in paper bags, as above, wrapped in waterproof paper and packed for export in tin-lined cases, supplied to order.

Dentists residing abroad and in the Colonies will find this much cheaper than the Tins mentioned on the next page, if they can keep the Plaster in a dry place when they receive it.

Plaster of Paris in barrels supplied to order.

RUBBER BOWLS FOR MIXING PLASTER.

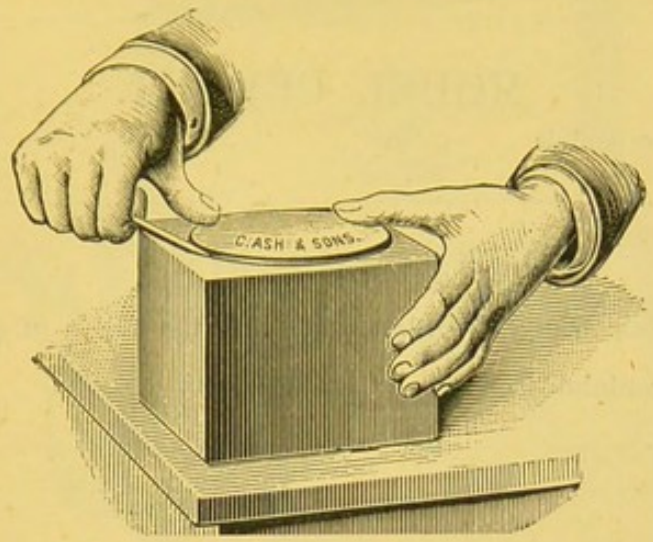


These bowls are made of soft rubber about one-eighth inch thick. The principal advantages in their use are: They cannot be broken; their sides can be pressed together so as to form a lip or spout for pouring out soft plaster; the plaster that remains in them and becomes set can be thoroughly crushed and removed by squeezing the sides of the bowls together.

		s.	*d.*
Small Plaster Bowls, 4 in. diameter by $2\frac{3}{4}$ in. deep inside ..	each	2	6
Large „ $4\frac{1}{2}$ in. „ by $3\frac{1}{2}$ in. „ ..	„	3	4

PLASTER OF PARIS FOR EXPORT,

IN TINS WITH PATENT SELF-OPENING LIDS.



All our Plaster Tins are now fitted with the Patent Self-opening Lid. This Lid is so constructed that it can be removed and replaced any number of times without becoming loose, and it fits the Tin so perfectly that the air is excluded from the Plaster, which can thus be kept good for any length of time.

To open the Tin, lever up the Lid, as shown in the illustration, with the side of a screw-driver, or other suitable tool.

Prices:

		s.	d.
Plaster of Paris, extra superfine, in 2 lb. Tins, per tin		0	9
,, ,, ,, ,, **7 lb.** ,, ,,		2	0
,, ,, ,, ,, **14 lb.** ,, ,,		3	9
,, ,, ,, ,, **28 lb.** ,, ,,		6	0

Fine and Superfine Plaster supplied in Tins to order.

PLASTER KNIVES.

ON BOARD. FOR HAND.

16 inches long.

7 inches long.

	s.	d.
Plaster knife on board for trimming models, &c. .. .. each	5	6
,, for hand ,, ,, ... ,,	0	9

STEARINE.

		s.	d.
For hardening plaster models	per lb.	1	3

MODEL CEMENT.

		s.	d.
For mending plaster models	per stick	0	2

PLASTER PINS.

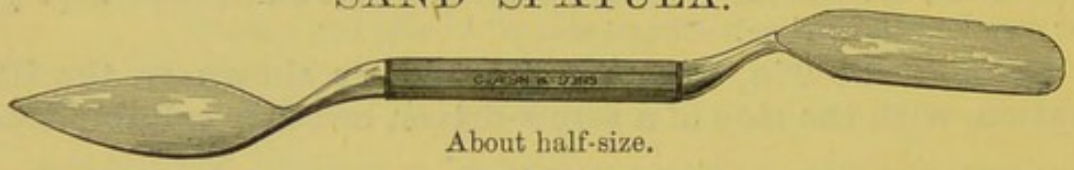
In bright metal, crimped, for strengthening the teeth of plaster models.

		s.	d.
Supplied in boxes containing one gross	per box	0	8

CASTING SAND.

		s.	d.
Specially prepared for dental purposes	per 14 lb. bag	1	4

SAND SPATULA.



About half-size.

		s.	d.
Spatula for mixing casting sand, &c.	each	2	0

PUMICE POWDER.

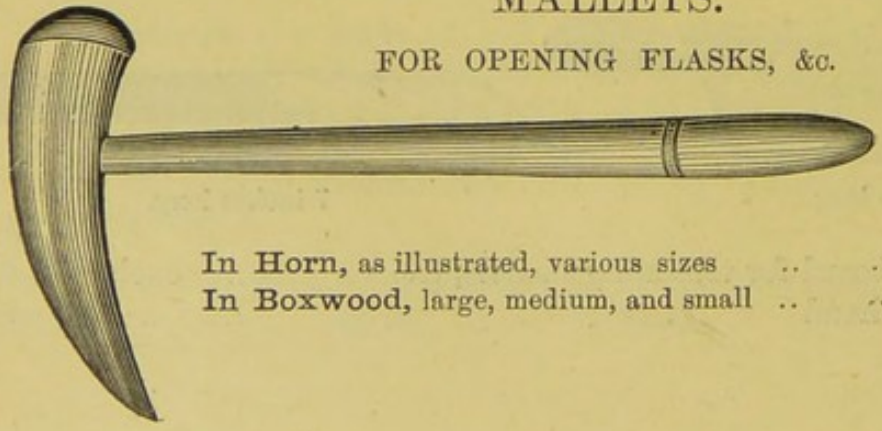
		s.	d.
Superfine, in paper bags	per lb.	0	6
Fine, „	„	0	4
Coarse, „	„	0	3

Less 10 per cent. in 7-lb. lots.

Pumice Powder supplied in Tins to Order.

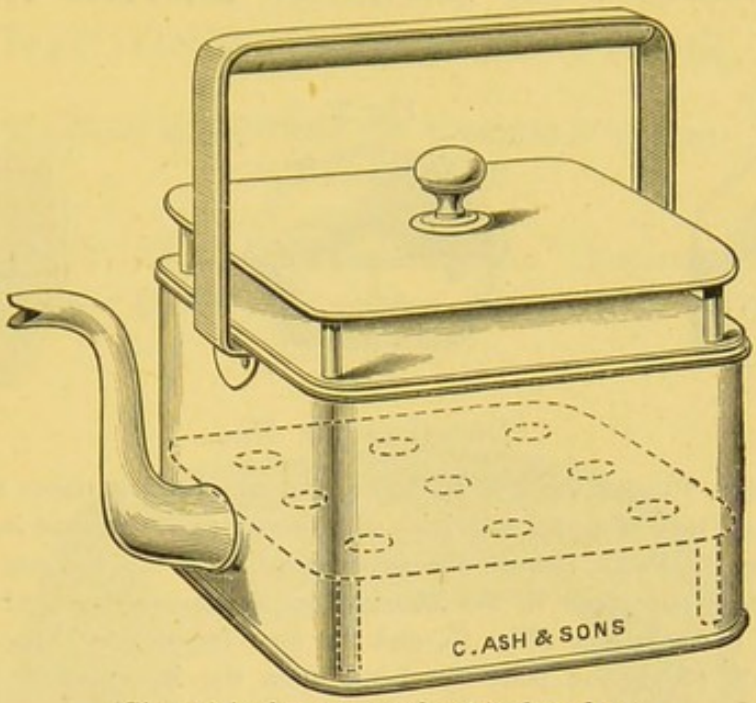
MALLETS.

FOR OPENING FLASKS, &c.



		s.	d.
In Horn, as illustrated, various sizes	each	1	6
In Boxwood, large, medium, and small	„	0	9

McCARTHY'S PACKING KETTLE.



Size: 8 inches square by 5 inches deep.

This apparatus is intended for boiling water, heating flasks, and warming rubber for packing. On the lid there is a raised platform of tin, one inch high, for holding the pieces of rubber which are to be softened ready for packing. Inside the Kettle there is a stage, which is pierced with holes, and supported on legs, for holding the flasks to be heated. It is claimed that with this Kettle work can be done better, in a cleaner manner, and more quickly than usual—only from twenty to thirty minutes being required to flask and pack a set—that it is a most useful apparatus for the workroom, that it supplies a long-felt want, and that it is very durable. The body of the Kettle and the stage are made of stout copper, and the lid of tin.

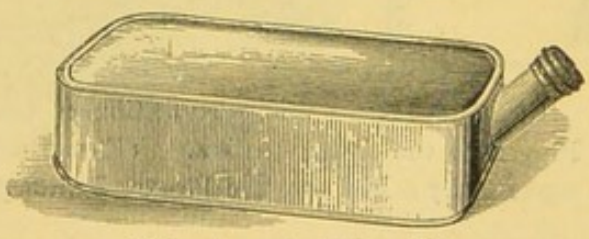
	s.	*d.*
Price	18	0

Larger sizes made to order.

HOT-WATER PLATE.

For softening Dental Rubber previous to packing. Made of block tin, with screw-capped opening for the water.

"Moist heat is preferred for softening Rubber, as dry heat is liable to injure it by overheating."—GILBERT.



10 in. long by 7 in. wide.

	s.	*d.*
Price	4	6

FLASKS FOR MAKING METAL DIES.

(Bailey's.)

Fig. 1.

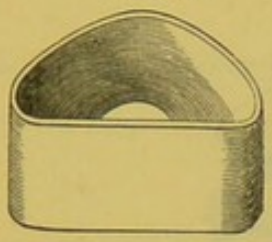
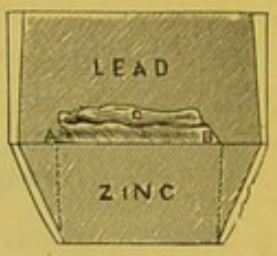


Fig. 2.

Fig. 3.



Directions for Use.

Place a shallow Plaster Cast, A B C (Fig. 3), on a level surface; turn over it the lower half of the Flask (Fig. 1), with joint side down; pack the sand in it, and level off the top; turn up the Flask, remove the superfluous sand, tap the cast lightly, when it can be easily lifted out; pour in the Zinc; when the impression is filled, place over it the upper half of the Flask (Fig. 2), and fill up immediately; knock out the sand, invert the whole Flask, and pour the Lead upon the Zinc; when cooled, part and remove the Flasks, and with a few sharp blows at the joint the Dies will separate.

Figs. 1 and 2 constitute the Flask, which is made in two sizes, large and small.

	s.	*d.*
Price, either size	2	0

MOULDING FLASK.

(Hawes'.)

Fig. 1.

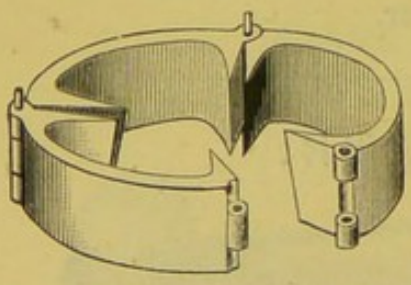


Fig. 2.

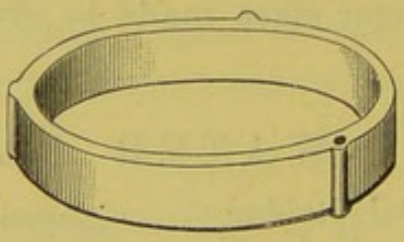


Fig. 3.

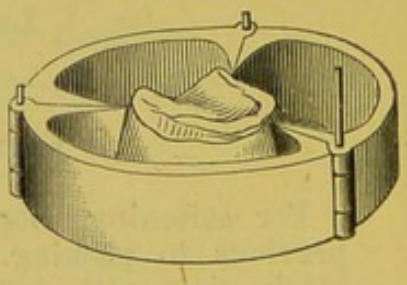


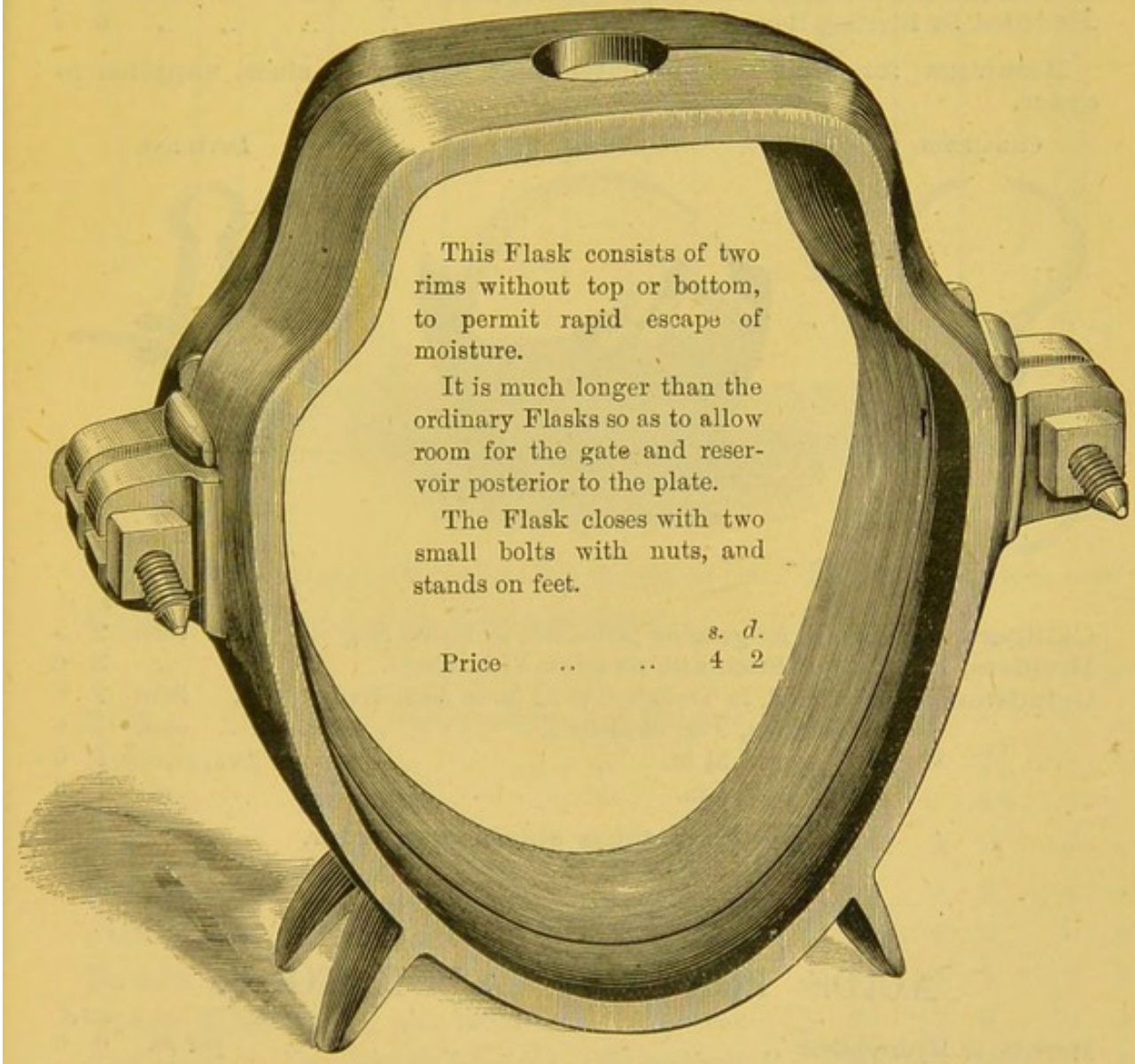
Fig. 1 represents the lower section of the Flask, slightly opened, to show the Joints. Fig. 2 is the upper section. When ready for use, the lower section is closed and confined by a Pin, and the Plaster Model placed in it, as represented in Fig. 3.

	s.	*d.*
Price complete	12	6

WESTON'S IMPROVED FLASK,

FOR USE IN MAKING DENTURES OF WESTON'S METAL AND OTHER FUSIBLE ALLOYS.

A full description of the "Metallo-Plastic" Process will be found in Chapter XV. of "Harris's Principles and Practice of Dentistry."



This Flask consists of two rims without top or bottom, to permit rapid escape of moisture.

It is much longer than the ordinary Flasks so as to allow room for the gate and reservoir posterior to the plate.

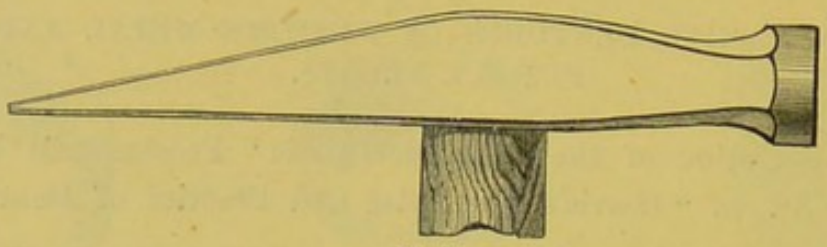
The Flask closes with two small bolts with nuts, and stands on feet.

	s.	*d.*
Price	4	2

	s.	*d.*
Weston's New Metal for Lower Dentures, in 2 oz. packets, per pkt.	4	2
„ Solder .. .. per oz.	4	2

TOOLS—VARIOUS.

RIVETING HAMMER.

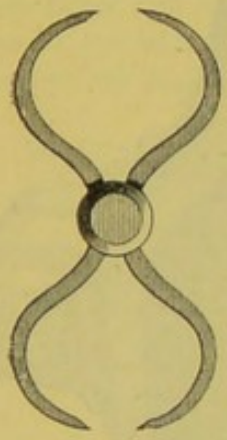


Medium size.

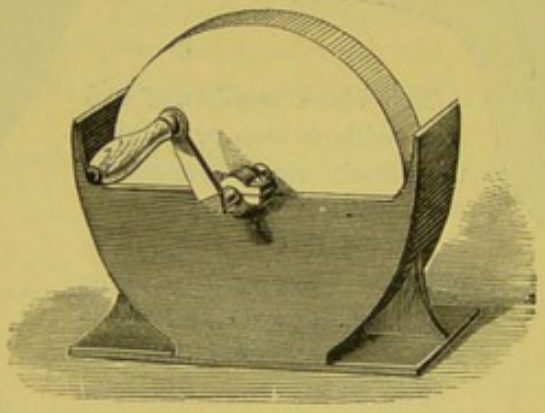
		s.	d.
Riveting Hammers, pointed, large, medium, small	each	1	6
Handles for Riveting Hammers	„	0	4

Hammers for striking up plates, and Anvils all sizes, supplied to order.

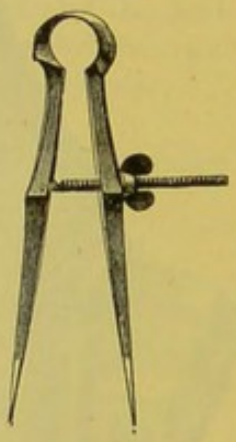
CALLIPERS.



GRINDSTONE.



DIVIDERS.



		s.	d.
Callipers, bright Steel, for gauging plates, &c., 3½ inches long	each	2	3
Dividers, bright spring Steel, with set screw, 4½ in. long	„	3	0
Grindstones, for Hand, in Trough, 6 to 12 in. in diameter	from	7	0
„ **for Lathes,** 3 in. diameter	each	1	6
„ „ 3½ in. „	„	1	6
„ „ 4 in. „	„	1	6

Other Grindstones obtained to order.

ACIDS FOR THE LABORATORY.

		s.	d.
Muriatic or Hydrochloric	per lb.	0	6
Nitric	„	1	0
Sulphuric	„	0	6
Bottles are charged extra	each	0	6

N.B.—We do not export these Acids.

SCULPTORS.

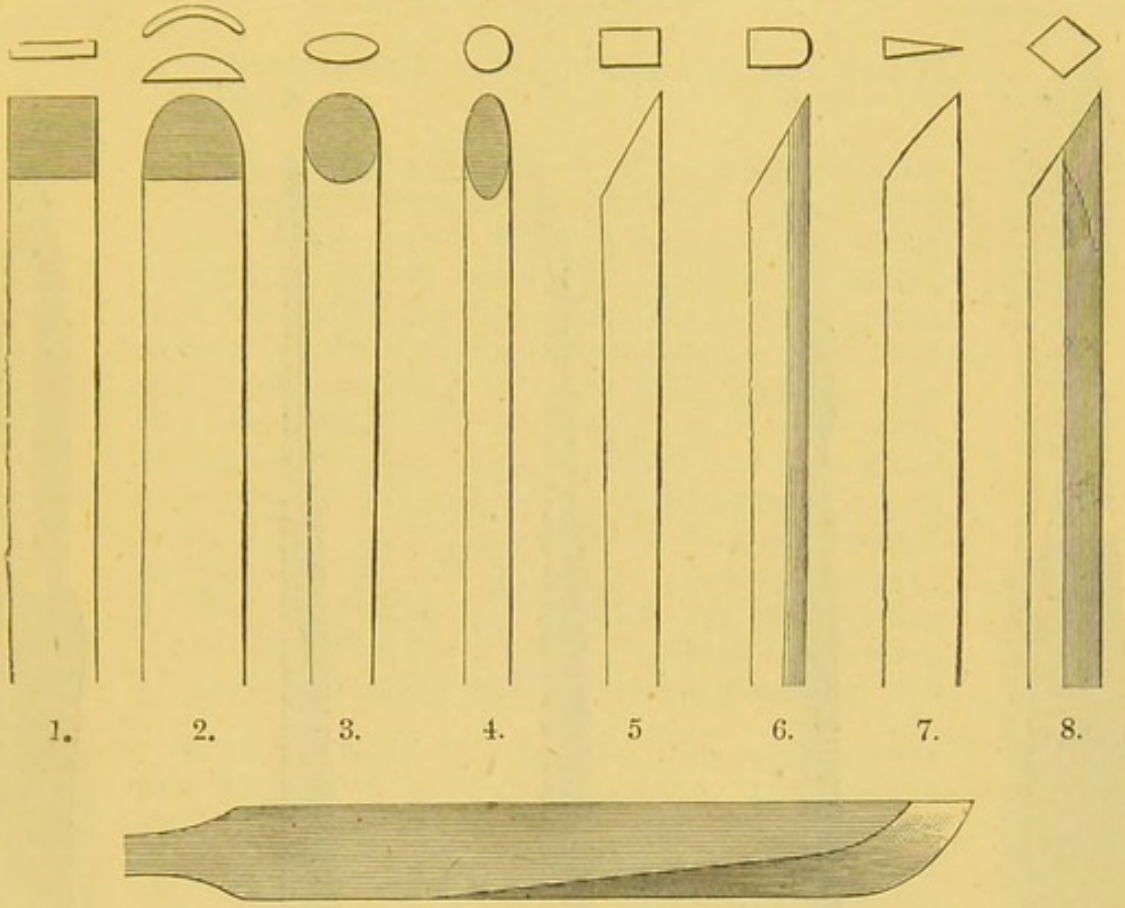
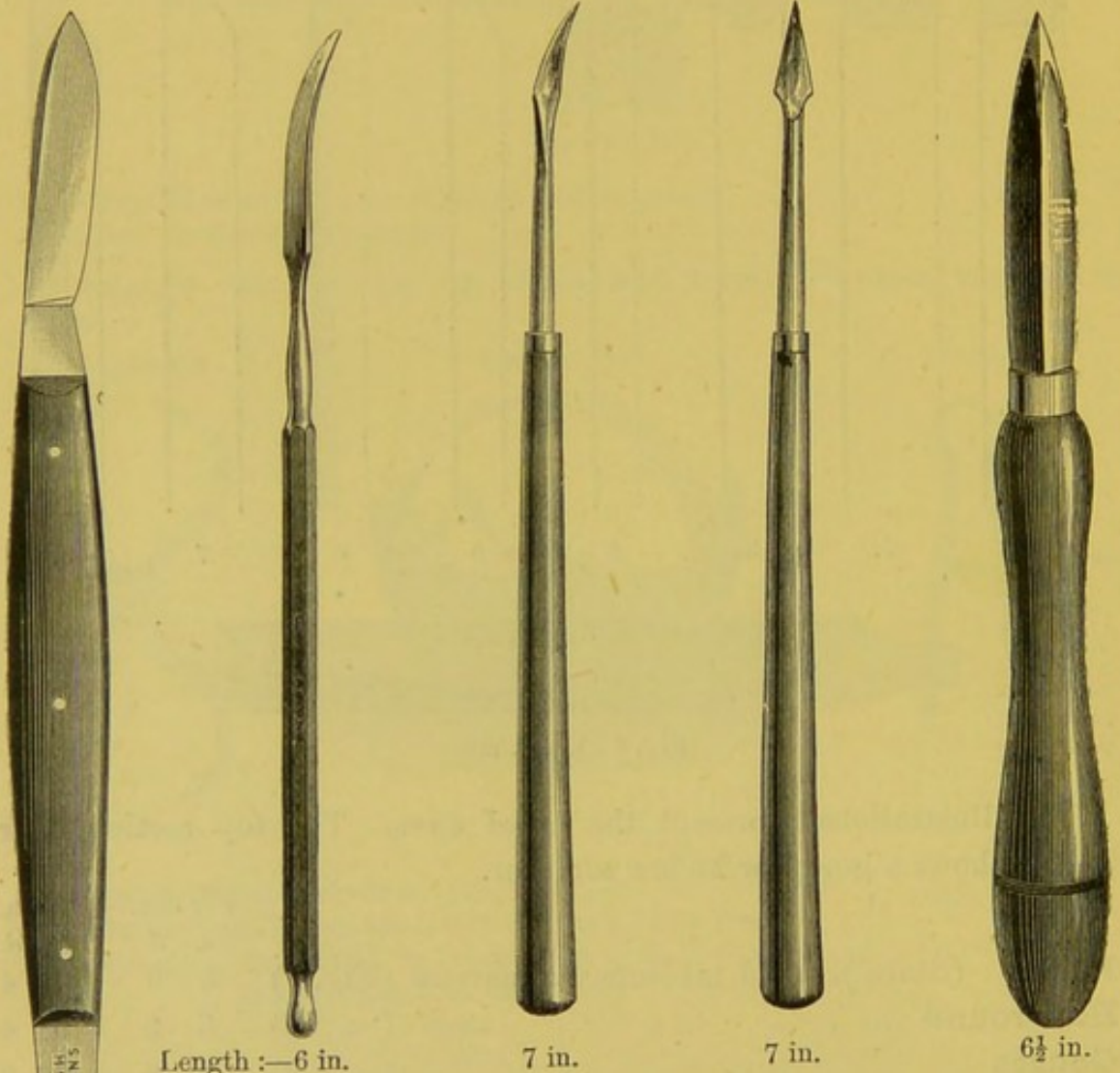


Fig. 9 (Right side).

The illustrations represent the broad sizes. The top section, over Fig. 2, shows a gouge or hollow sculptor.

		Per doz.		Each.	
		s.	*d.*	*s.*	*d.*
Flat	(Stubs'), broad, medium, and narrow (Fig. 1)	3	9	0	4
Half-round	,, ,, ,, ,, (,, 2)	3	9	0	4
Gouges	,, ,, ,, ,, (,, 2)	5	6	0	6
Oval	,, ,, ,, ,, (,, 3)	3	9	0	4
Round	,, ,, ,, ,, (,, 4)	3	9	0	4
Flat Edge	,, ,, ,, ,, (,, 5)	3	9	0	4
Round Edge	,, ,, ,, ,, (,, 6)	3	9	0	4
Sharp Edge	,, in one width, as illustrated (,, 7)	3	9	0	4
Gravers	,, broad, medium, and narrow (,, 8)	3	9	0	4
Bevelled, Knife edge, in right and left sides (,, 9)		5	6	0	6
Wooden Handles for Sculptors, round, half-round, and pear-shaped		per doz.		1	0

MODELLING AND PACKING TOOLS, &c.



Length :—6 in. 7 in. 7 in. 6½ in.

7 in.

			s.	d.
Wax Knife (Dr. Fahnstock's)	(Fig. 1)	each	1	6
Wax Spatula, Steel, single ended	(„ 2)	„	1	0
„ „ „ double ended	..	„	1	4
„ „ „ (Mr. Biss's)	..	„	1	9
Vulcanite Packer, in Ebony handle, curved ..	(Fig. 3)	„	0	9
„ „ „ straight ..	(„ 4)	„	0	9
Bayonet Scraper, for Gold or Vulcanite work, polished steel, in Ebony handle	(„ 5)	„	2	0

MODELLING AND SOFT-SOLDERING TOOL.

(Dr. P. Ladmore's.)

Modelling Tool.

Full size.

For waxing-up and soft-soldering this tool is invaluable.

Dr. Ladmore says: "I find it useful for many purposes in the work-room, such as rubbing down the unequal parts when waxing-up a piece, smoothing rubber when packing on the model, and for soft-soldering. By fixing the rubber tubing to the bulbous connection on the lower end, and attaching to an ordinary gas jet—the smallest supply will be found sufficient to work it efficiently—and using a flame not more than an eighth of an inch long, the soldering bit will become hot enough to melt wax or smooth dental rubber. A flame from half to three-quarters of an inch in length will readily run soft solder, which is useful when making special impression trays, or doing any work of a similar nature.

When a piece is waxed-up, the soldering-bit can be slipped out of the socket; and with a small flame, an eighth of an inch long, the tool can be used for finally smoothing the surface of the wax by applying the flame like a paint brush."

		s.	d.
Price	each	3	0
India-rubber Tubing	per foot	0	4

WAX SPATULA AND BURNISHER.

(Dr. P. Ladmore's.)

Dr. Ladmore finds this very useful in practice. The Burnisher is designed for working the sheet lead on the model when preparing a pattern for a metal plate; it will also be found useful, if warmed, for smoothing wax. The Spatula, on account of its novel shape, forms an excellent wax knife.

		s.	d.
Price	**each**	**1**	**9**

Spatula, &c.

Full size.

MODELLING WAX.

(C. Ash & Sons'.)

First quality. Made from the purest wax obtainable. It is very tough and makes good firm models. Supplied in ½ lb. packets, in two colours, Pink and Brown.

		s.	d.
Price either colour	per lb.	5	0

Second quality. The colour is a delicate Pink. Prepared in thin sheets, and supplied in ½ lb. packets.

		s.	d.
Price	per lb.	3	0

Paraffin wax, Pink, thin sheets, in ½ lb. boxes ..	per lb.	3	0
„ „ „ **round sticks** „ „ ..	„	3	0

WHITE PARAFFIN WAX IN STICKS.

We are prepared to supply this *to order*, at the same rate as the pink, on condition that not less than one pound is taken at a time. Put up in ½ lb. boxes.

		s.	d.
Price	per lb.	3	0

PINK MODELLING COMPOSITION,

FOR VULCANITE WORK.

This very much resembles pink modelling wax, and being nice and tough is well suited for the purpose for which it is intended. Supplied in 1 lb. packets.

		s.	d.
Price	per lb.	2	6

GUTTA-PERCHA FOR BASE PLATES.

(AMERICAN.)

		s.	d.
In thin sheets, put up in 1 lb. packets	per lb.	9	6

CAMEL-HAIR PENCILS OR BRUSHES.

Large size.

Supplied in large, medium, and small sizes.

		s.	d.
Price, any size, or assorted	per doz.	1	0

APPARATUS FOR DUPLICATING PLASTER MODELS.

(Mr. WHITEHOUSE'S.)

This apparatus has been considerably improved by the introduction of a waterproof solution, which is used for coating the mould in the gelatine composition, before the duplicate plaster model is poured into it.

		s.	d.
Duplicating Apparatus, complete, with directions for use	..	10	6
Extra Gelatine Composition	per pkt.	3	6
„ Waterproof Solution	„ bot.	1	6
„ Clay	„ box	1	0

GLASS TUBES,

FOR HOLDING DENTAL SPECIMENS.

Similar to those used for exhibiting the specimens at the Meeting of the British Dental Association in Dublin.

Supplied complete with corks in two sizes as under:—

Large, 3 inches long by $\frac{3}{4}$ in. diameter.
Small, 3 „ „ $\frac{11}{16}$ „ „

		s.	d.
Price, either size	per doz.	2	6

ASH'S CIRCULAR POLISHING STONES FOR LATHES,

FOR POLISHING MINERAL TEETH AFTER GRINDING.

		s.	d.
Large	each	1	0
Small	„	0	9

ARTICLES—VARIOUS.

		s.	d.
Casting Rings, Iron, $5\frac{1}{2}$ in. diameter	each	1	9
„ „ 5 in. „	„	1	6
„ „ 4 in. „	„	1	3
Casting Die Rings, Iron, $4\frac{1}{2}$ in. diameter	„	2	6
„ „ 4 in. „	„	2	3
Gum Shellac	per lb.	3	0
Iron Wire, thin, for binding	per hank	0	2
„ medium, for pins; thick, for cramps ..	„	0	$1\frac{1}{2}$
Vermilion	per oz.	0	8
Water of Ayr Stones, in slips, for polishing, large ..	per doz.	1	0
„ „ „ „ small ..	„	1	0

METALS—VARIOUS.

		s.	d.
Aluminium, obtained to order at current price.			
Babbitt's Metal, for making Dies	per lb.	2	0
Bismuth, obtained to order at current price.			
Copper, fine, in grain .. .. .. per oz., 3*d.*	„	2	0
Lead (price fluctuates) .. .. .. per cwt., 24*s.*	„	0	3
Lead in thin sheets, for patterns, &c.	„	0	7
Mercury, for Amalgams, *see* page 31.			
„ **common**, for Vulcanizers and Batteries ..	„	5	0
Nickel, plate and wire, obtained to order.			
Soft Metal, for Vulcanite work	„	2	9
Soft Solder	per piece	0	2
Spence's Metal, sulphide of iron, for models, *see* page 569.			
Tin in Bars (price fluctuates)	per lb.	1	4
„ **in Grain** „ „	„	1	6
„ **in Foil**, for Vulcanite work	„	3	6
„ „ „ „ American, No. 60	per book	2	6
Weston's Metal and Solder, *see* page 541.			
Zinc (price fluctuates) .. .. .. per cwt., 34*s.*	per lb.	0	4

Other Metals supplied to order.

SCALES AND WEIGHTS,

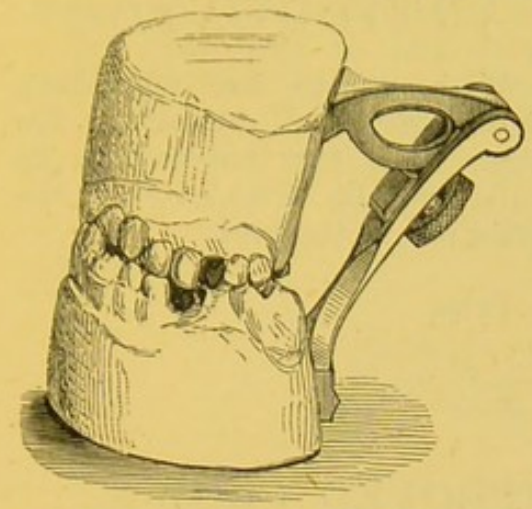
FOR WEIGHING PRECIOUS METALS, &c.

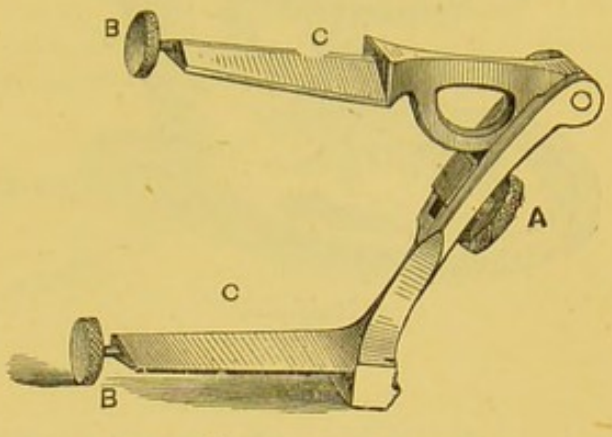
		s.	d.
Scales, with Pillar, Beam, &c., to fold and pack in the drawer of the mahogany stand ..	10 in. by 5 in.	24	0
„ „ „ „	8 in. by $4\frac{1}{4}$ in.	20	0
„ common, in Oak box	9 in. by $4\frac{1}{2}$ in.	10	6
Sets of Cup Weights, Troy	1 oz. to $\frac{1}{10}$ per set	2	9
„ „ „	2 ozs. to $\frac{1}{10}$ „	3	3
„ „ „	3 ozs. to $\frac{1}{10}$ „	3	9
„ „ „	5 ozs. to $\frac{1}{10}$ „	5	0
„ „ „	10 ozs. to $\frac{1}{10}$ „	7	6
Sets of Weights, Decimals of the ounce troy ·5 to ·001	„	4	0
„ „ Drachms and Scruples	„	1	6

Other Scales and Weights obtained to order.

ARTICULATORS.

(Graham and Wood's Improved.)



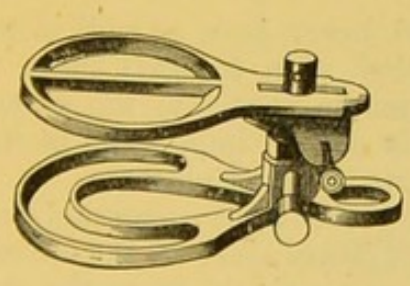


The superiority of this Articulator over others consists in the very little trouble involved in first attaching the models to the frame. Once fixed, they can be removed as often as may be desired, and when done with, taken off the frame, tied back to back, and put away in some convenient place ready for use at any time. The models can always be replaced on the frame with perfect accuracy, should repairs be necessary, or a duplicate set of teeth required, by simply sliding them over the bars C, and securing them in position by the pins B. The engraving on the left-hand side shows the models attached to the Articulator. It is supplied with directions for use.

It is simple in construction, easily worked, and very convenient, while the large sale which it has had is a very gratifying proof of its utility.

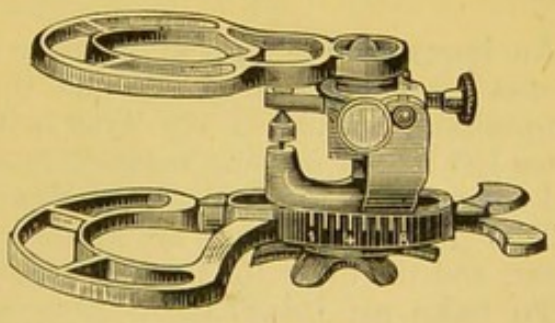
	s.	d.
Price	8	0

Snow & Lewis's.



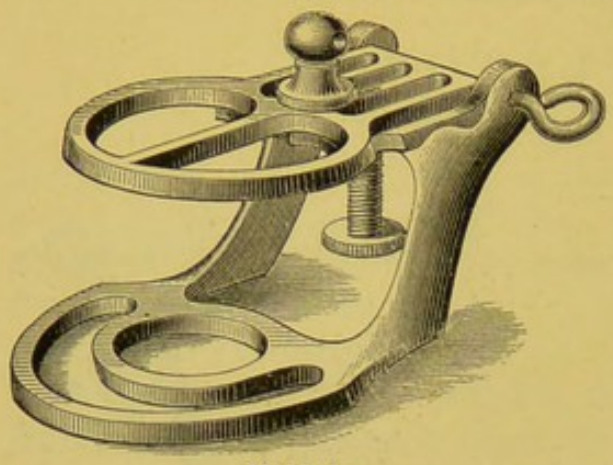
5 inches long.

Hayes'.



5 inches long.

		s.	d.
Articulator (Snow & Lewis's), in brass, lacquered, with hollow pillar and set screw for regulating the height, &c. ..	each	8	0
Articulator (Hayes'), in brass, lacquered, having all the motions of the jaws, and a hinge, so that the two halves when opened at right angles can be separated	,,	10	0



Half-size.

PLAIN-LINE ARTICULATOR.

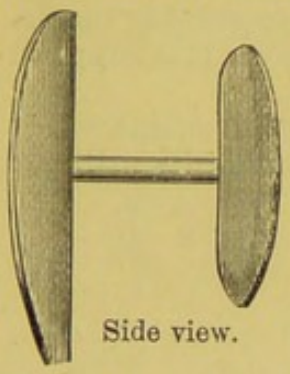
With screws for regulating the height and adjusting the bite. The two halves can be separated by withdrawing the brass pin at the back.

	s.	d.
Price	3	9

CROWN TRAY AND IMPROVED CROWN ARTICULATOR.

(Mr. R. S. Parris's.)

By means of the Tray here illustrated, Fig. 1, the time required for taking impressions and casting models, for crowns and bridges of one or two teeth, is considerably shortened.



Side view.

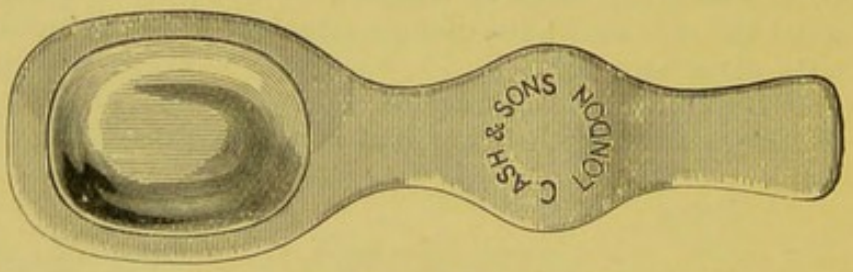


Fig. 1. Full size.

An impression of part of both the upper and lower jaws, as well as the correct bite, is taken at one and the same time with a small piece of composition, the bar of the Tray being designed to pass into the vacant space left by the missing tooth or crown. This double impression is cast and mounted on the Articulator, Fig. 2, with one batter of plaster.

Two Impression Trays are necessary—one for the right upper and left lower, and the other for the left upper and right lower sides of the mouth.

To take an impression, place a piece of composition, about the size of a small walnut, round the bar of the selected Tray—the Tray should be warmed to make the composition adhere; put the bar of the Tray across the vacant space where the tooth is missing, and tell the patient to close the jaws. The Operator can see whether the patient is biting correctly by watching the front teeth.

A very sharp impression is thus obtained, the closing of the upper and lower teeth forcing the composition into all the interstices and

bringing out the opposing cusps exactly in their correct positions, a point which is so necessary in crown work to secure accurate results.

Before casting, copper amalgam may be packed into the impressions of the cusps, which will prevent them being rubbed while fitting the crown.

To cast and at the same time mount the model on the Articulator:—First tap plaster into both the upper and lower sides of the impression, then place the articulator on a flat surface and build up plaster over the lower arm A.

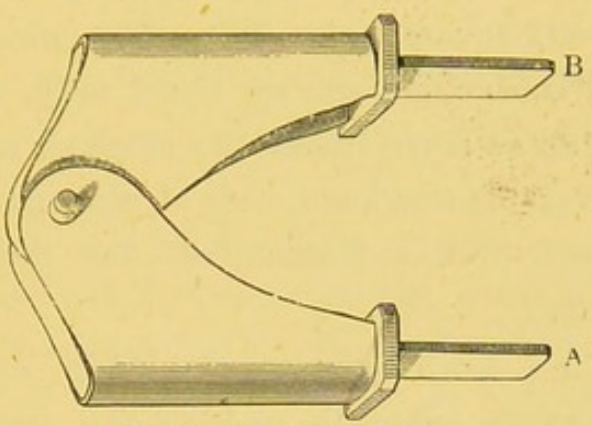


Fig. 2. Two-thirds size.

When this is done, place the Tray with the handle pointing outwards, or, if preferred, sideways, on the top of the plaster covering the lower arm; then build plaster over the top arm B, and bevel it off level with the shoulder which is at right angles to the arm. A piece of glass laid on produces a nice smooth surface. When the plaster has set, remove the composition, trim the casts, and you have an exact representation of both the upper and lower sides of the mouth correctly articulated.

Fig. 3 shows the Articulator, with the casts on the arms, and the Copper Amalgam used for giving strength to the cusps, &c.

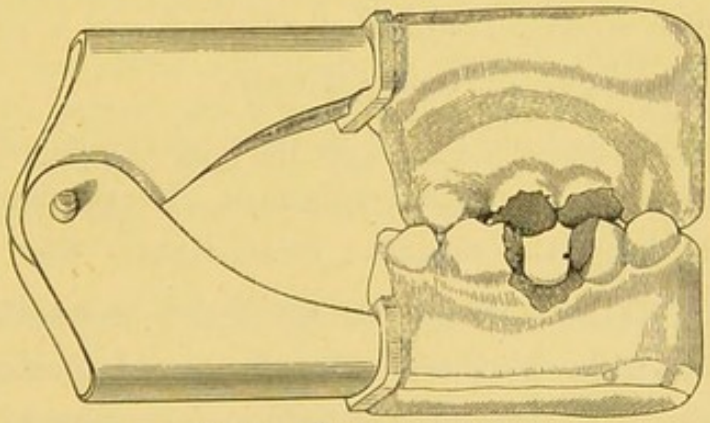


Fig. 3. Two-thirds size.

It occupies almost less time to do the work than it takes to describe the method of doing it.

Prices:			s.	d.
Articulator, Nickel-plated	.. .. ..	each	4	0
Impression Trays „	.. .. (set of two)	„	1	9

WROUGHT-COPPER VULCANIZERS.

(C. Ash and Sons'.)

In order to prevent, as far as possible, the recurrence of explosions, so dangerous to human life, we have for many years past been manufacturing Vulcanizers which are estimated to bear upwards of 1,000 lbs. pressure upon every square inch. These Vulcanizers are made under our most careful supervision, and are tested before leaving our manufactory to 600 lbs., or seven times the pressure required for perfect vulcanization. The chambers are made of **wrought copper**, nearly a quarter of an inch thick, and strengthened at the top with a strong copper band or ring.

The cover is held down by means of a centre screw * and a strong **wrought-iron cramp**, which is made to clip the under part of the strong copper ring that is securely fastened to the chamber; the cramp is made to turn back, in order to facilitate the removal of the cover and flasks.

The thermometer registers up to 350° Fahrenheit, and the small fusible metal plug inserted in each cover will only blow out when that degree of heat is exceeded.

A temperature of from 310° to 320° Fahrenheit is sufficient to vulcanize any rubber when a Thermometer is used, and a pressure of from 95 to 105 lbs. when a Steam-Gauge is used.

The india-rubber packing should be thoroughly chalked on the surface every time it is used, to prevent adhesion. It requires to be renewed occasionally, to keep the chamber steam-tight. The stands of the Vulcanizers are available for either a gas-burner or a spirit-lamp.

The tube in which the thermometer is placed should be half-filled with mercury, so as to surround the bulb and thereby insure a correct register of the heat.

* "One may with some confidence assert that there are few who have had experience of the working of the *centre screw* Vulcanizer who would willingly use one of any other design. In effectively doing its work it equals, if it does not *excel*, all others, and the facility with which it is fixed and unfixed is an obvious advantage."—*Hunter.*

If a safety valve is attached to the Vulcanizer, the valve and plug should be wiped each time with a clean oily rag, as the least particle of dirt will allow the steam to escape, and so spoil the work.

The Vulcanizers are made in five sizes, with the inside boiler measurements noted on the following pages.

Each Vulcanizer consists of Stand and Chamber as illustrated; Thermometer or Steam-Gauge; Gas-burner or Spirit-Lamp; Spanner and Packing-remover, &c.; but **Flasks are charged extra.**

Printed directions for using Gartrell's Patent Steam-Gauge will be found on page 557.

If wet plaster only is used for the generation of steam, the quantity contained in two Flasks will be found sufficient, but if only one Flask is put in the Vulcanizer a lump of wet plaster should be added. When free water is employed a quarter of a pint is sufficient for all our wrought-copper Vulcanizers. We may, however, add that we consider wet plaster far preferable to free water when the Vulcanizer is in good order. If the Vulcanizer be faulty, wet plaster will not serve the purpose, nor can any given quantity of water be mentioned which would be uniformly suitable.

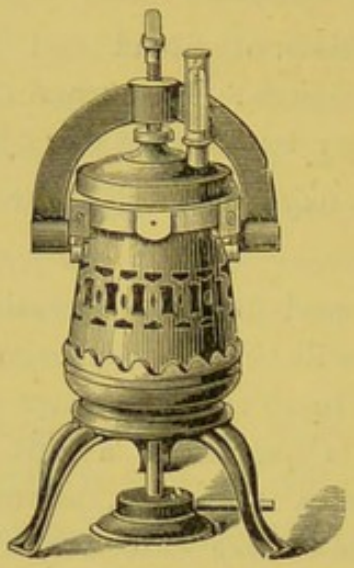
In addition to the Fusible Plug which we fix in the lid of our wrought-copper vulcanizers, we now fit a second plug in the side of the chamber, which will not fuse until a higher temperature is reached than is ever required for vulcanizing dental rubber.

Judging from the many inquiries we receive, there seems to be a growing desire to curtail the time recommended for vulcanizing the various kinds of rubbers, and we fear that a large percentage of the failures which occur are due to careless and hurried heating of the vulcanizer.

To obtain satisfactory results, it is most important that the heat should not be got up too quickly for the first half-hour, and, from numberless experiments that we have made, we find that seventy-five minutes at 315° Fahrenheit, **after the heat has been very gradually raised to that point,** are the best time and temperature that can be employed for producing the greatest possible amount of strength and elasticity in the rubbers of our manufacture.

CLAUDIUS ASH AND SONS, Limited.

PORTABLE
WROUGHT-COPPER VULCANIZER,
FOR ONE FLASK.
(C. Ash and Sons'.)



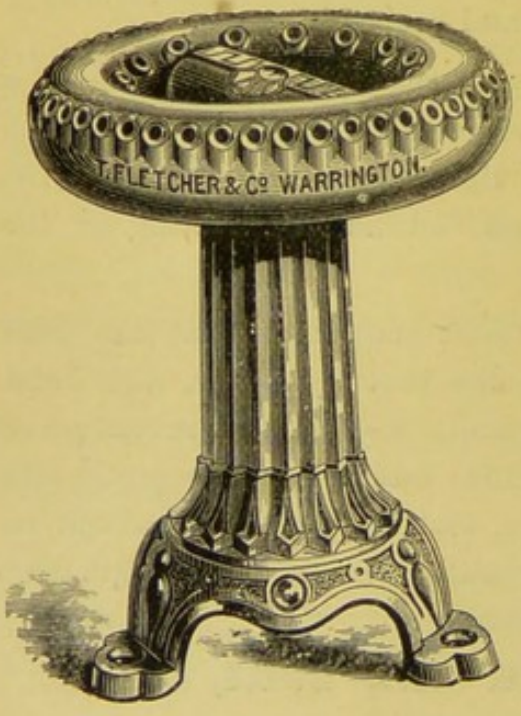
Boiler.
Inside Measurement:
$3\frac{3}{4}$ inches deep.
$4\frac{3}{8}$ „ diameter.
Height, 18 inches.
Weight, 18 lbs.

This Vulcanizer is equal in strength and safety to our larger Portable Vulcanizers. It is adapted for Gas or Spirit, and will be found very useful for single cases.

Prices:

	s.	d.
Vulcanizer, with Gas Burner (or Spirit Lamp), Thermometer, Spanner, Packing Remover, and 6 Fusible Plugs	70	0
The same, with Simple Pressure Gauge instead of Thermometer	85	0
„ „ with Gartrell's Gauge, for Gas only „ „	97	6

Flasks are charged extra.



STANDARD STAR BURNER,
No. 15, FOR VULCANIZERS, &c.
(Fletcher & Co.'s.)

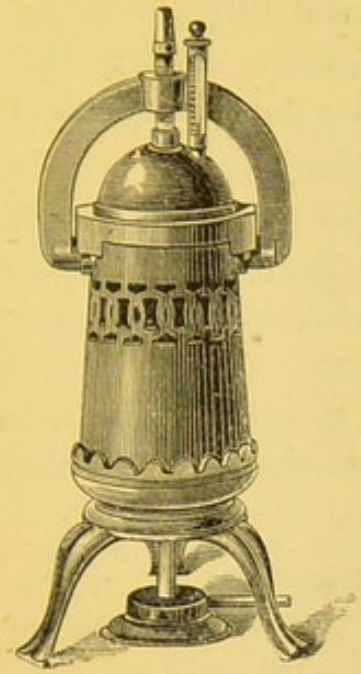
This Burner is well suited for heating Vulcanizers, &c. It is perfect in every detail of form and construction, both sides of the flame being ventilated to render it quite free from disagreeable smell in use. Height over all, $5\frac{1}{4}$ inches; diameter of ring, 4 inches.

	s.	d.
Price, with horizontal gas inlet and nipple for rubber tube	3	3

PORTABLE
WROUGHT-COPPER VULCANIZERS.

(C. Ash and Sons'.)

With Thermometer.



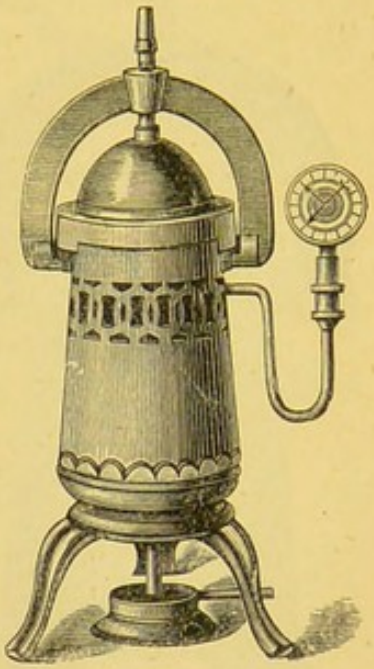
Boiler Inside Measurement.

	Deep.	Diameter.
Small ..	$5\frac{1}{8}$	$\times 4\frac{1}{4}$ inches.
Medium	$7\frac{3}{4}$	$\times 4\frac{1}{4}$,,
Large ..	$9\frac{1}{2}$	$\times 4\frac{3}{4}$,,

Full Height of Vulcanizers:

Small ..	$21\frac{1}{2}$	inches.
Medium ..	24	,,
Large ..	$26\frac{1}{2}$	,,

With Steam-gauge.



	Small. To hold 2 Flasks.		Medium. 3 Flasks.		Large. 4 Flasks.	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*
With Thermometer for Gas	105	0	110	0	130	0
,, ,, for Spirit	105	0	110	0	130	0
,, simple Steam-gauge, for Gas ..	120	0	125	0	145	0
,, ,, ,, for Spirit ..	120	0	125	0	145	0
,, Gartrell's Gauge, for Gas only ..	132	6	137	6	157	6
Vulcanizers fitted with Tap for blowing off steam, extra each					7	6
,, ,, Safety-valve			,, ,,		17	6

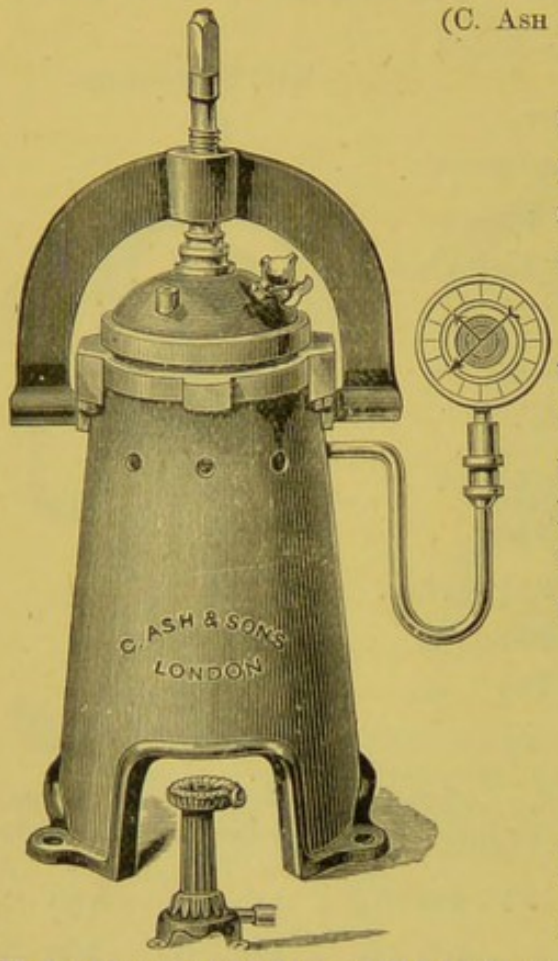
Extra Parts:

Thermometers	each	7 6
Tubes and Scales for Thermometers	,,	4 0
India-rubber Collars	,,	0 2
Fusible Plugs	per doz.	2 0
Double-ended Spanners	each	1 3
Wick for Spirit Lamp	per 3 yards	0 1

For Flasks suitable for these Vulcanizers, see pages 563–567.

EXTRA LARGE
WROUGHT-COPPER VULCANIZER.

(C. Ash and Sons'.)



Wrought-Copper is the safest and most reliable metal that can be employed for Vulcanizers, and will stand more wear than any material with which we are acquainted.

The Vulcanizer here illustrated **is tested to 600 lbs., but estimated to bear upwards of 1,000 lbs. to the square inch. It will last a lifetime, and is large enough to take the largest size dental flasks that are made.**

Dimensions :

Boiler (inside measurement) :—
$5\frac{3}{4}$ inches diameter.
10 „ deep.
Full height of Vulcanizer, $25\frac{1}{2}$ inches.

Prices :

	£	s.	d.
Vulcanizer with Steam Tap, Thermometer, Spanner, Packing Remover, and Gas Burner	8	15	0
The same with Gartrell's Gauge instead of Thermometer ..	10	2	6

The Vulcanizer can be had to order with Stand and sheet-iron Jacket, as shown on the previous page, at 10*s.* less than the above prices.

Flasks are charged extra.

STANDS, &c., FOR VULCANIZERS.

(*Shown on pages 554 and 555.*)

	s.	d.
Jacket and Tripod Stand for Three-Flask Portable Vulcanizer	10	6
Separately—Jacket	6	0
„ Tripod Stand	4	6
Jacket and Tripod Stand for Two-Flask Portable Vulcanizer	9	6
Separately—Jacket	5	0
„ Tripod Stand	4	6
Jacket and Tripod Stand for One-Flask Portable Vulcanizer	7	6
Separately—Jacket	3	0
„ Tripod Stand	4	6

STEAM-PRESSURE AND GAS-REGULATING GAUGE,

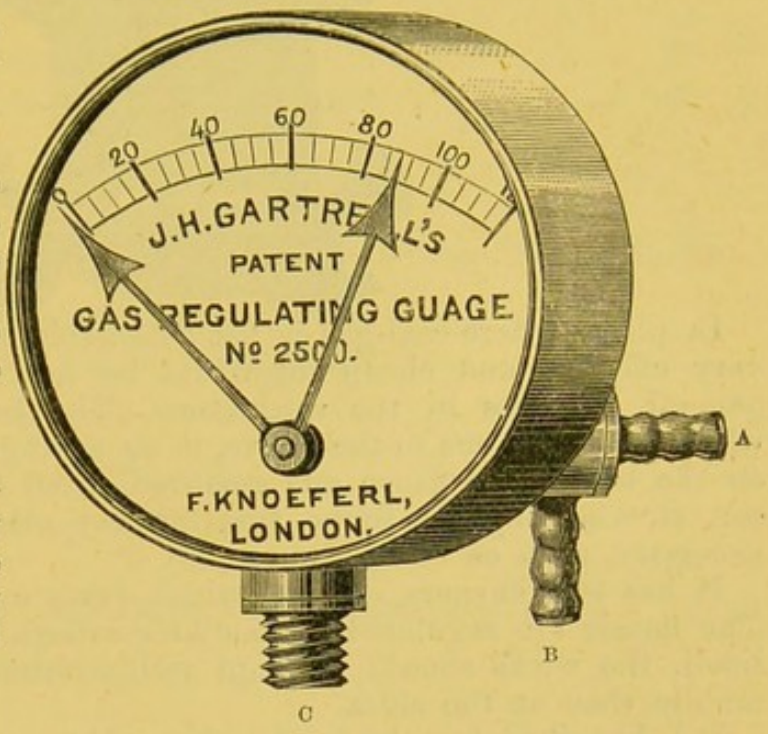
FOR VULCANIZERS—IMPROVED FORM.

(Mr. J. H. Gartrell's.)

The novel features originated with this invention are:

1. Attaching to the back of a steam-gauge a gas-chamber in which a regulating valve works, forming a combined gauge and gas regulator in one instrument.

2. The method of adjusting the valve by hand on a dial for the regulation of the supply of gas at any desired temperature.



Directions for Use.

The Syphon secured to Vulcanizer is filled with water when first used, but is unnecessary afterwards. (The Gauge is attached to the Syphon by means of the screw C.) It should be seen also that sufficient water is in the Vulcanizer. The rubber tubes are attached to the two pipes A and B of gas chamber at back of gauge — the gas supply to A and burner supply to B. To set the gauge, the red hand is adjusted to the heat or pressure desired to work at, by turning round the gas chamber. When the blue hand has advanced till it is nearly over the red hand, the gas will be automatically regulated to maintain the heat at the set point. **The precaution should be observed, in setting the red hand when the gauge is at work, not to attempt to turn it to the left, or backwards past the blue hand, as this would force the blue hand backwards, and be liable to disarrange the working parts.**

For vulcanizing thick rubber pieces, the regulator or red hand may be set at 70 or 75 lbs. pressure, and the heat got up ordinarily to that point. The red hand can then be set forward to 95 or 100 lbs. pressure, and the heat raised slowly to the vulcanizing point. This method will prevent the thickest pieces from becoming porous.

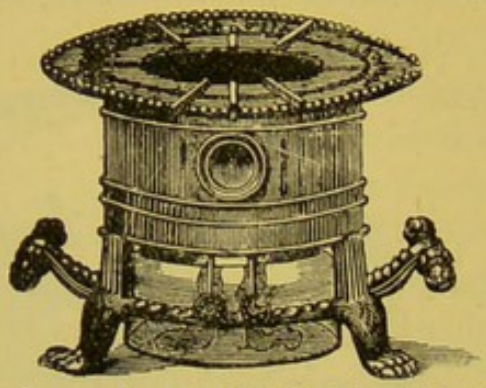
Mr. Gartrell says: After considerable use the Bourdon tube may get strained a little, and it will then be necessary to vulcanize at 105 or 110 lbs. pressure by the dial.

Prices:

		s.	d.
Gauge complete with Syphon		35	0
Extra Syphons	each	2	6
„ „ with Steam-cock	„	5	0
Simple Pressure Gauges	„	22	6
Extra Syphons	„	2	6
Alarm Clocks for attaching to Vulcanizers	„	15	0

PARAFFIN STOVE,

FOR HEATING VULCANIZERS.

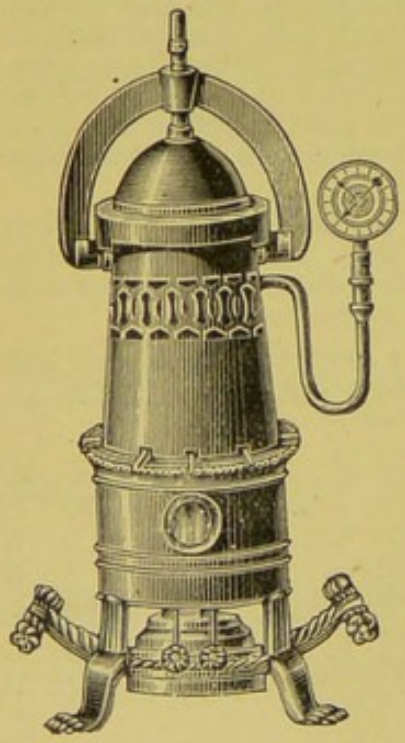


In places where coal-gas is not obtainable, this Stove will be found a very effectual and cheap substitute for heating Vulcanizers and for general purposes in the workroom. The jacket of the Vulcanizer, when we adapt one to the Stove, is so arranged that it can be placed on the top of the Stove and removed when the Vulcanizer is not in use, thus setting the Stove free for any other purpose that may be necessary, such as boiling water, &c.

It has two burners, each of which takes a flat wick $2\frac{3}{4}$ inches wide. The flames are regulated by the wick-raisers. To prevent smoke and smell, the wicks should be kept well-trimmed and left fuller in the middle than at the sides.

It holds about two-thirds of a pint, which quantity serves for nearly four hours, or long enough for two vulcanizings, starting all cold.

Prices :		*s.*	*d.*
Stove as illustrated, with wicks		9	0
Extra wick	per yard	1	0



VULCANIZER,

MOUNTED ON PARAFFIN STOVE.

This illustration shows the above stove, with a Vulcanizer mounted on it. As will be seen, slits are made in the Vulcanizer jacket to keep it and the chamber firmly and steadily in position.

In reference to the power of the burner, we find it will run up the heat to 315° Fahrenheit in twenty minutes, starting all cold. This is ten minutes quicker than we recommend for getting up the heat to that temperature, so that it is advisable not to start vulcanizing with the burner at full power.

For Prices see next page.

PORTABLE WROUGHT-COPPER VULCANIZER,

MOUNTED ON PARAFFIN STOVE.

(C. Ash and Sons'.)

	s.	d.
For one Flask, with Thermometer	70	0
Ditto, with Steam Gauge instead of Thermometer	85	0

PORTABLE WROUGHT-COPPER VULCANIZERS,

IN VARIOUS SIZES AS UNDER,

MOUNTED ON PARAFFIN STOVE.

(C. Ash and Sons'.)

	s.	d.
Small, to hold two Flasks, with Thermometer	105	0
Medium „ three „ „ „	110	0
Large „ four „ „ „	130	0
Any of these with Steam Gauge instead of Thermometer, extra	15	0

EXTRA LARGE WROUGHT-COPPER VULCANIZER,

MOUNTED ON PARAFFIN STOVE.

(C. Ash and Sons'.)

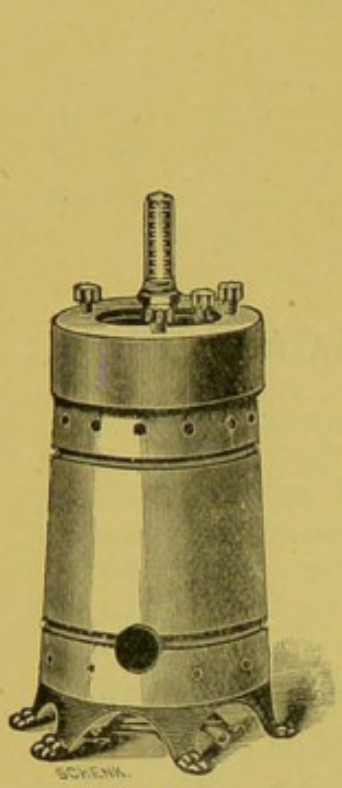
	s.	d.
To hold two of the largest Flasks made with rings and thumb screws, or three of the largest with bolts and nuts or clamps and wedges, with Thermometer	155	0
Ditto, with Steam Gauge instead of Thermometer ..	170	0

Extra parts for the above Vulcanizers :—

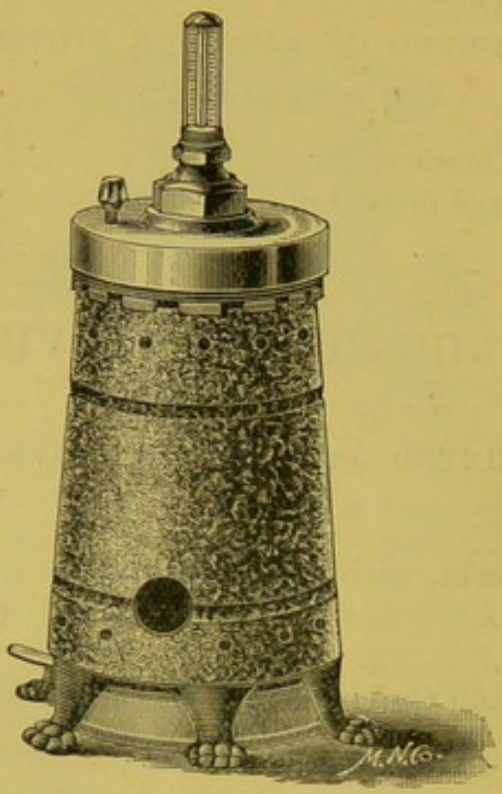
Thermometers	each	7	6
Tubes and Scales to fit Thermometer Cases	„	4	0
Fusible Plugs	per doz.	2	0
India-rubber Collars for Portable Vulcanizers ..	each	0	2
„ „ „ for the Extra Large „ ..	„	0	3
Double-ended Spanners for Portable „ ..	„	1	3
Packing Remover	„	0	6

Each Vulcanizer as priced above consists of Wrought-copper Chamber, Iron Jacket, Paraffin Stove, Thermometer or Simple Steam Gauge, Spanner, and Packing Remover, but **Flasks are charged extra.**

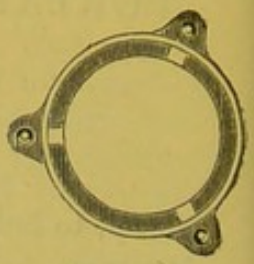
AMERICAN VULCANIZERS, &c.



HAYES'.



WHITNEY'S.



WRENCH AND BED PLATE.

Prices:	1 Flask.		2 Flask.		3 Flask.	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*
Hayes' Iron-Clad, for Gas, Spirit, or Kerosene ..	54	0	63	0	70	0
Whitney's Copper „ „ „ ..	50	0	58	6	67	0

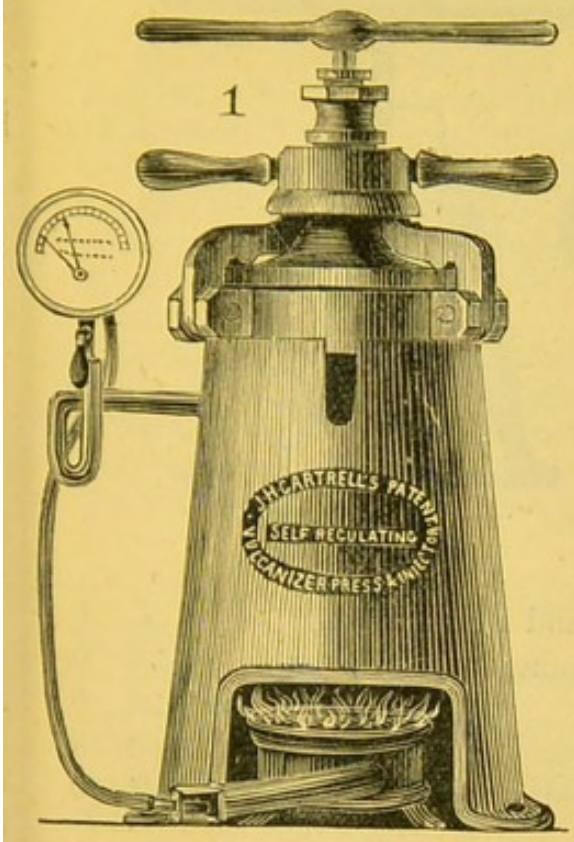
The above prices include Flasks.

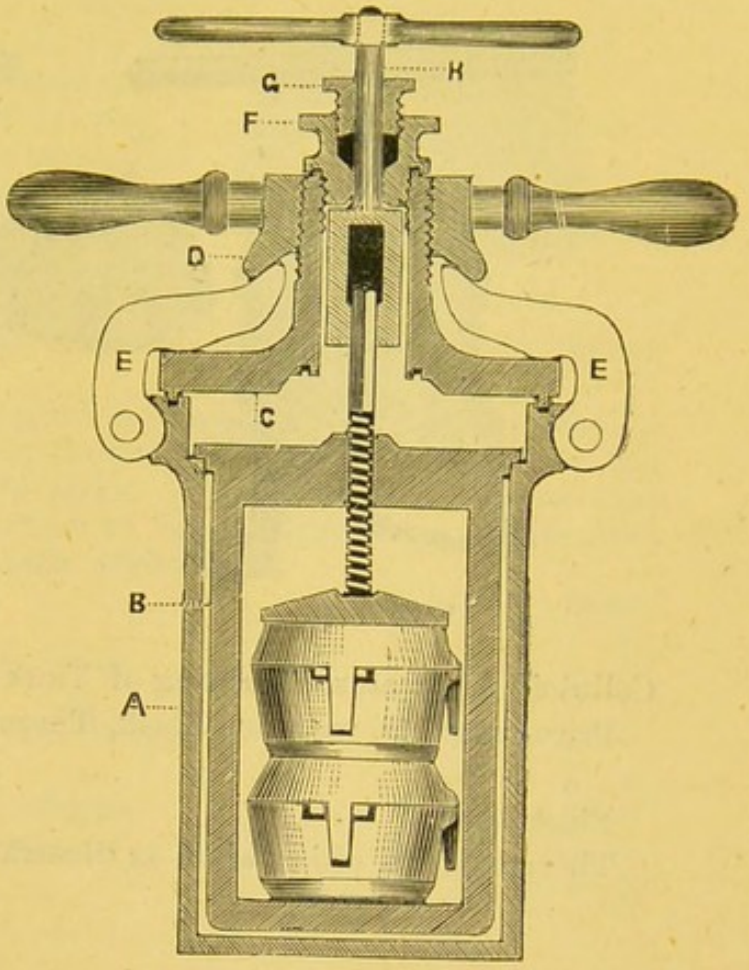
Extra parts:—	*s.*	*d.*
Alcohol Lamp, for Vulcanizers .. .. each	3	0
India-rubber Packings, endless, for Hayes' Vulcanizer .. .. per doz.	5	0
„ „ „ Whitney's „ .. .. „	4	0
Gas Laboratory Lamp .. .. each	3	0
„ „ with Spider .. .. „	4	0
Safety Discs, in packages of one dozen, with washers .. .. per pkt.	2	0
Thermometers, Nickel-plated .. .. each	8	0
Tubes and Scales, for Thermometers .. .. „	3	6
Union Kerosene Stove, for Vulcanizers .. .. „	6	3
Wrench for Hayes' or Whitney's Flasks .. .. „	0	7½
„ for Whitney's Vulcanizer, double-ended .. .. „	1	0
Wrench and Bed-Plate for Whitney's Vulcanizer .. .. „	3	3

The Bed Plate, shown in the engraving, is usually fastened on the work bench, in which a hole is cut for the Vulcanizer to pass through. Should it be thought undesirable to cut the bench, a **Raised Bed Plate on legs, deep enough to receive the Vulcanizer**, can be had, price 6/3.

VULCANITE AND CELLULOID APPARATUS.

(Mr. Gartrell's)



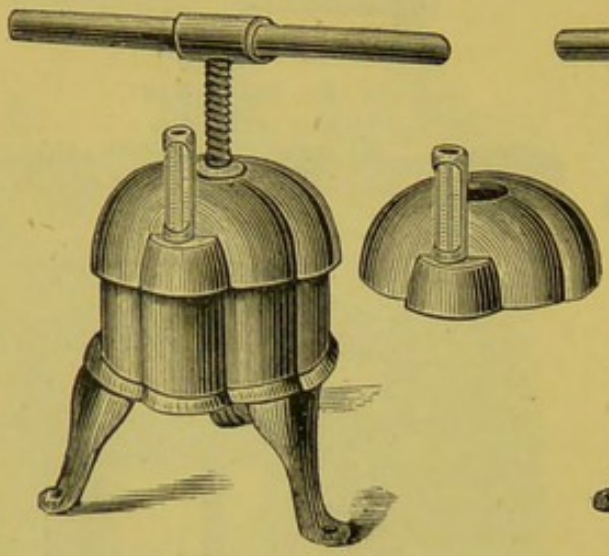


	s.	d.
Improved Two-Flask Vulcanite and Celluloid Apparatus, with Patent Gas-Regulating and Steam Pressure Gauge, **without Flasks**	165	0
Extras for ditto:—		
Flasks in Bronze .. .. each	6	0
Asbestos Yarn Packing, in $\frac{1}{4}$-lb. balls .. .. .. per ball	1	9
Thermometers .. .. each	7	6
Clamp for two Flasks with Plate and Tripod, if supplied separately	10	6

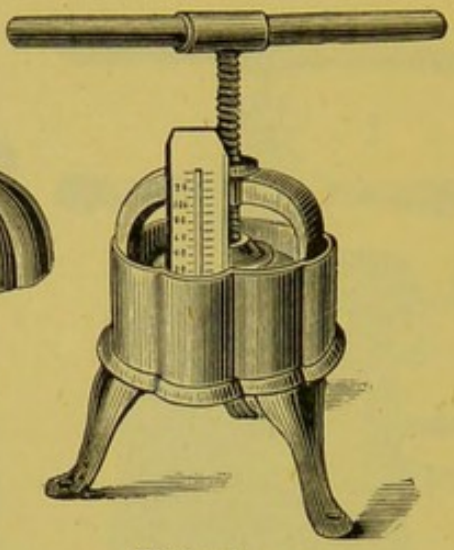
Note.—We desire it to be distinctly understood that, as we only test Vulcanizers of our own manufacture, we cannot hold ourselves responsible for the strength and safety of any other which we may supply. This statement is made without prejudice.

SIMPLE CELLULOID APPARATUS,

FOR OIL OR GLYCERINE.



With cover.



Without cover.

Celluloid Apparatus, consisting of Tank and Flask Press.	s.	d.
Price complete, with one Flask, Thermometer and Cover ..	24	0
" " " " without Cover	20	0
Flasks extra .. .. each	4	0
Thermometers, either kind, as illustrated .. .. "	4	9

CELLULOID PLATES.

Sizes and Prices:

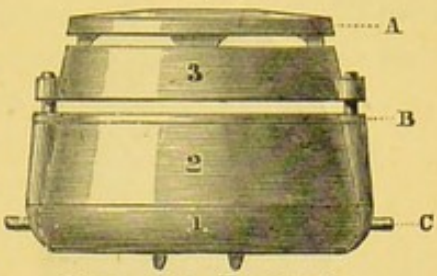
Sizes.	1¼	2	2¼	3	3¼	4	4¼	5	5¼	6	6¼
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Uppers	..	..	..	0 8	0 10	0 9	0 11	0 11	1 0	1 1	1 2
" "A" ..	..	..	..	0 11	1 0	1 0	1 2	1 3	1 3	1 7	1 9
Lowers	0 6	0 6	0 8	0 7	0 10	0 10	1 1	..	..	..	..
Plumpers	..	..	..	1 1	..	1 6	..	1 9	..	1 5	..

Sizes.	5	6	7	8	9	10
Partials	0 4	0 5	0 6	0 8	0 7	0 9

Other Celluloid Apparatus supplied to order.

FLASKS, FOR VULCANITE WORK.

Fig. 89.



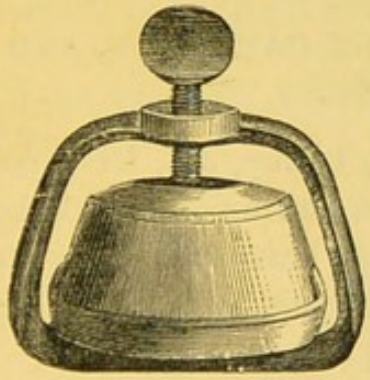
Bell and Turner's.

This Flask is made in three sections (Nos. 1, 2, 3), after a pattern designed by Messrs. Bell and Turner, and is constructed for the purpose of avoiding the evil complained of in the old kinds—viz., that of leaving a stratum of vulcanite between the two halves of the mould, and thus altering the articulation of the piece; and not only this, but causing often a derangement of the arch or position of the teeth, through the difficulty of getting the two halves of the mould to shut down in their proper position.

By the use of the intervening plate B (the invention of Mr. Bennett), an exact facsimile of the palate of the patient can be produced upon the external surface of the vulcanite piece. It is considered by some that this improves the general appearance of the artificial piece, and enables the wearer to articulate with greater distinctness.

		Large.		Small.	
		s.	*d.*	*s.*	*d.*
In Gun-metal, with Wrought-iron Ring ..	each	11	0*	9	0*
In Iron ,, ,, ,, ..	,,	8	0*	7	0*
In Gun-metal, with Iron Clamp and Wedge ..	,,	10	6*	8	6
In Iron ,, ,, ,, ..	,,	7	6	6	6
Wrought-iron Rings and Thumb-screws ..	,,	3	6	3	6
Wrought-iron Clamps with Wedges	,,	2	0	2	0
Gun-metal Plates B	,,	1	0	1	0

Fig. 90.



Ordinary form.

This Flask is shown with a wrought-iron Ring and Thumb-screw, and like Fig. 89, the sizes marked * will not go in the **Portable** Vulcanizers.

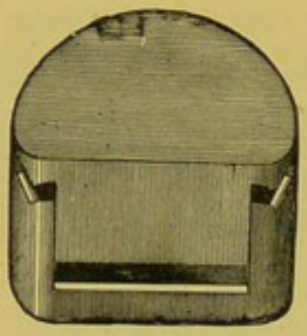
When ordering extra Flasks, it is always advisable either to give the name or the inside diameter of the Vulcanizer for which they are intended.

		Large.		Small.	
		s.	*d.*	*s.*	*d.*
In Gun-metal, with wrought-iron Ring ..	each	8	0*	7	0*
In Iron ,, ,, ,, ..	,,	7	0*	6	6*
In Gun-metal, with Iron Clamp and Wedge ..	,,	7	6	6	6
In Iron ,, ,, ,, ..	,,	6	6	6	0
Wrought-iron Rings and Thumb-screws ..	,,	3	6	3	6
Wrought-iron Clamps with Wedges	,,	2	0	2	0

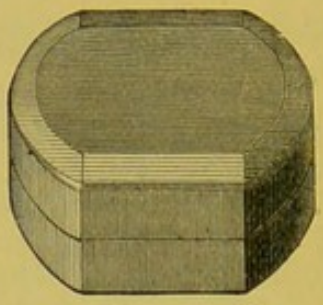
Flasks marked thus * will not go in the Portable Vulcanizers.

FLASKS, FOR VULCANITE WORK.

HATFIELD'S.



BERLIN PATTERN.



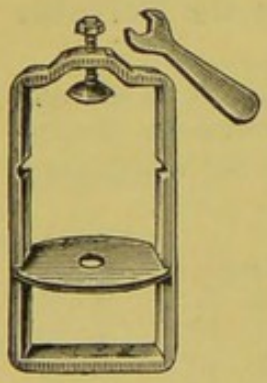
Mr. Hatfield's and the Berlin pattern Flasks are intended for use with clamps, &c. The Clamps are made with slots, and furnished with iron plates, which can be shifted from one slot to the other, thus admitting of one or more flasks being used in the same clamp—*see below.*

	Iron.		Gun-metal.	
	s.	*d.*	*s.*	*d.*
Hatfield's, as illustrated	5	0	7	6
Berlin pattern ,, ...	5	0	7	6
Wrought-Iron Clamp and Wedge for any of the above .. .. extra	2	0		

Both Flasks will fit our Portable Vulcanizers.

WROUGHT-IRON CLAMPS,

WITH NUTS AND SPANNERS FOR USE WITH HATFIELD'S AND BERLIN PATTERN FLASKS.



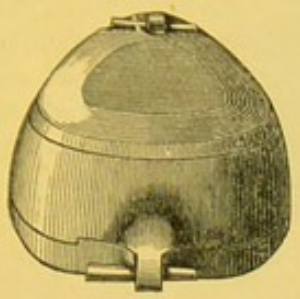
The illustration shows the Clamp, &c., for three Flasks. As Hatfield's and the Berlin pattern Flasks differ in size, the same Clamps are not suitable for both; **therefore when ordering be careful to state for which Flask they are required.**

Prices:

	Clamp. &c.		Complete with Iron Flasks.		Complete with Gun-metal Flasks.	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*
Clamp and Spanner for one Flask	3	3	8	3	10	9
Clamp, Plate and Spanner for two Flasks	5	0	15	0	20	0
Clamp, Plate and Spanner for three Flasks	8	0	22	6	30	0

FLASKS FOR VULCANITE WORK.

(Mr. Jordan's.)



We have lately revised the sizes of these Flasks, the extra large mentioned below being the same size as Bell and Turner's largest size.

Prices :	Iron. s.	Iron. d.	Gun-metal. s.	Gun-metal. d.
*Extra Large	–	–	9	0
Large	4	6	–	–
Medium	4	0	6	0
Small	3	6	5	6

* **This will not go in our ordinary Portable Vulcanizers, but all the other sizes will.**

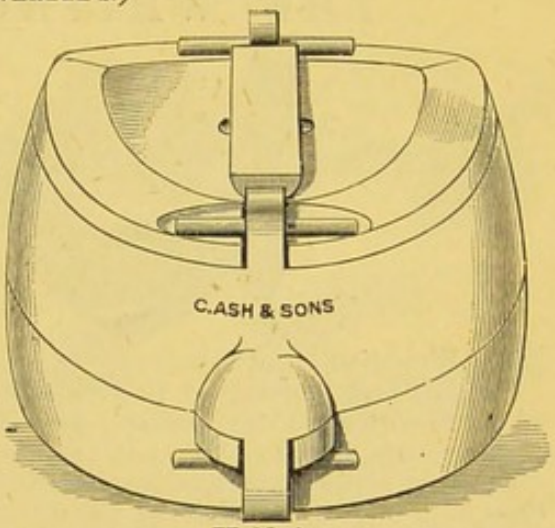
IMPROVED PIN FLASK.

(Mr. A. W. Overell's.)

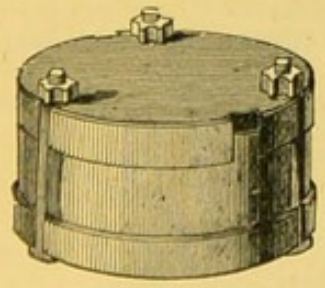
This Flask is as large as it can be made for our Portable Vulcanizers, and is specially adapted for wide lowers.

By means of the lug on the lid, which is undercut to admit of being readily grasped with a suitable tool, it can be easily withdrawn from the Vulcanizer.

	s.	d.
Price, in Gun-Metal ..	9	6
„ in Iron	5	6



Half size.



Lewis's.

LEWIS'S FLASKS,

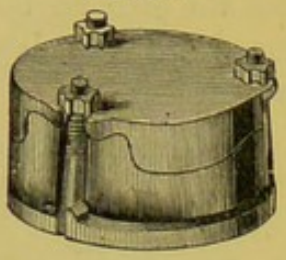
WITH BOLTS AND NUTS.

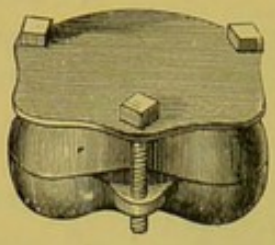
		Iron. s.	Iron. d.	Gun-metal. s.	Gun-metal. d.
Large	each	5	3	8	6
Small	„	4	3	6	0
Extra Bolts and Nuts	„	0	6	–	–

All Lewis's Flasks will fit our Portable Vulcanizers.

FLASKS FOR VULCANITE WORK, WITH BOLTS AND NUTS.

HAYES'. WHITNEY'S.

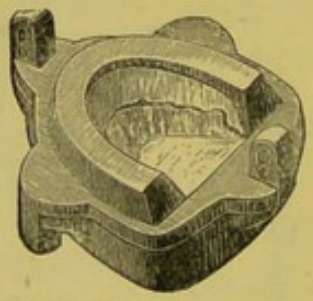


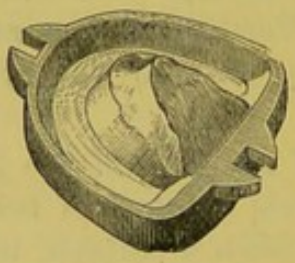


Prices :

		s.	d.
Hayes' Iron, complete	each	4	0
„ Gun Metal, complete	„	6	0
Separately: Iron Plate, with three Bolts and Nuts, for renewing	„	2	0
Whitney's Gun-Metal, one size only	„	6	0
„ Iron, ordinary	„	4	0
„ „ deep	„	4	0
„ „ slot	„	4	0
Extra Bolts and Nuts for Hayes' and Whitney's Flasks	„	0	2
Spanners for Flasks, double-ended	„	0	7½

THE WHITEHOUSE FLASK.





Mr. Whitehouse states that—

"This Flask is designed to give strength to the plaster 'capping,' the inability of which to withstand the pressure applied in packing and closing the Flask being one of the causes of raised bites; it has also proved of great service in preventing teeth soldered to plates cracking whilst passing through the vulcanising process. No extra time or trouble is entailed by the use of the capping, the moment or so required to decide the position of the teeth in relation to the capping being saved in having less plaster to shape and trim up. Sufficient plaster must be heaped on the teeth, and while soft the capping dropped into place and pinned."

The British Dental Association Journal says (January 16th, 1888):—

"It has some features likely to prove useful. There is the further advantage that the intermediate portion, seen pinned to the lower part of the Flask in the left hand diagram, may be left out when not required, and the upper and lower parts then form a simple flask."

Made in Gun Metal in three sizes.

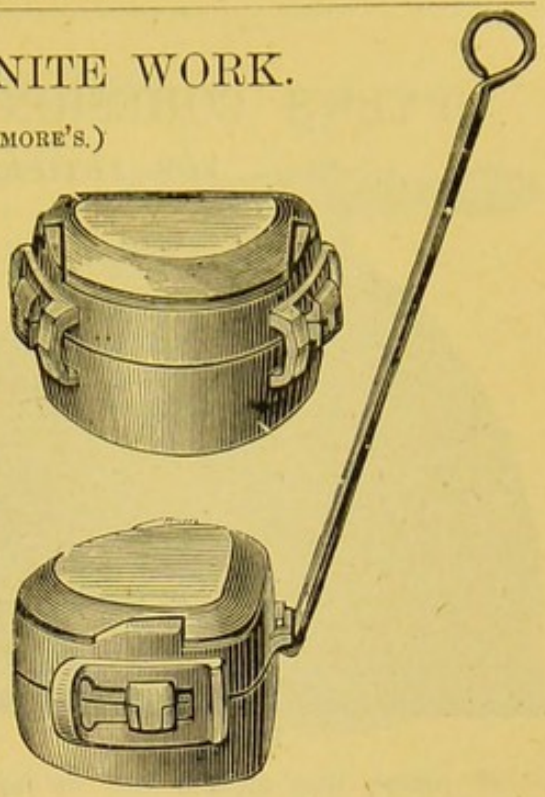
Prices :

		s.	d.
Small	each	9	6
Medium	„	11	0
*Large	„	14	0

*** All the Flasks on this page, except the large Whitehouse, will fit our Portable Vulcanizers.**

FLASKS, FOR VULCANITE WORK.

(Mr. E. J. Ladmore's.)

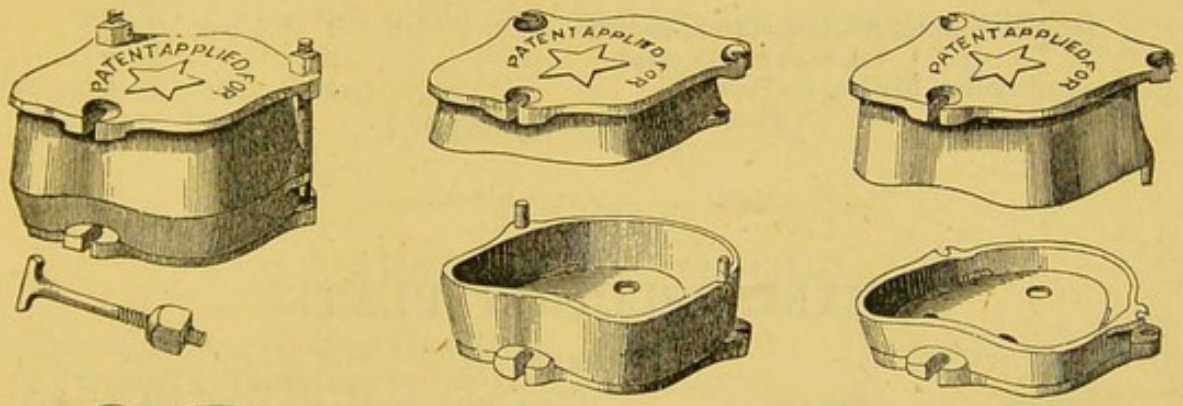


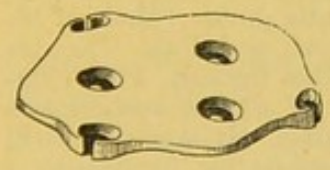
Consisting of three parts. The upper and lower sections are held together by side clamps, but these clamps are not intended for closing the Flask; they merely serve to keep the parts together after it has been closed in the press or vice. A few light taps with a wooden mallet will be found sufficient to drive them home. There are two projections on the top of the upper part, under which the lid slides and fixes itself.

The hook, shown in the illustration, is for lifting the Flask while hot.

		s.	d.
In Gun-metal, large	each	6	6
„ „ small	„	4	6
Hook, for lifting Flasks ..	„	0	6
Clamps extra	„	0	8

STAR REVERSIBLE FLASK.





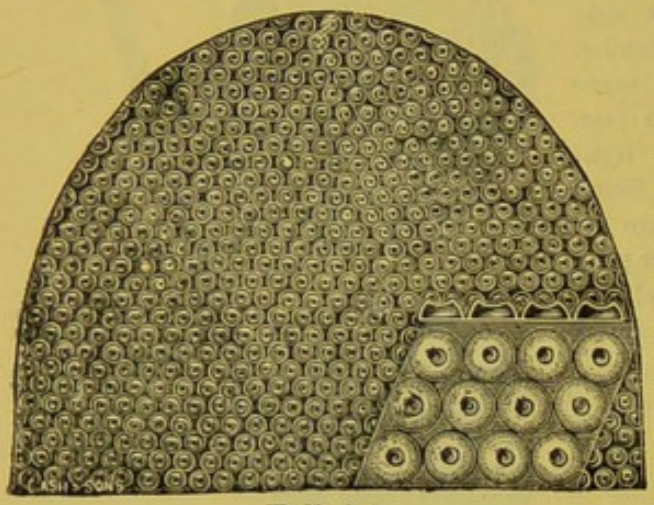
The rings of this Flask are of different widths, either of them fitting the top or bottom accurately, as may be required. By using the wide Ring next to the bottom, an admirable Flask is obtained for deep cases and partial sets, or where the artificial gum rests on the natural. The narrow Ring is used next the bottom plate, for whole dentures, where the parting is at the rim of the Plate. The bottom has three counter-sunk holes, through which the plaster runs, which, when set, holds the accompanying Ring securely to it. The fastenings of the Flask are T-shaped at one end, and fit the slots in the bottom Plate; and, being free at both ends, are more easily adjusted than ordinary bolts. The Flask being in four pieces (two Rings and two Plates), the plaster is removed without the usual trouble. The cuts are faithful representations of the Flask in different positions.

		s.	d.
In Brass	each	8	0
In Iron	„	5	0
Extra Bolts and Nuts	„	0	4
Spanner for Flasks, double-ended	„	0	7½

All these Flasks will fit our Portable Vulcanizers.

SPYER'S COHESION SURFACE FORMERS,

FOR ARTIFICIAL DENTURES.



Full size.

The enlarged sizes show the Formers magnified three diameters.

Mr. Walter Sutton, of London, says: "For rendering 'Spyer's Cohesion Formers' thoroughly useful, I find the following method answers admirably:

Gently press the form on the model and cut to the required shape. Then well wet the model with water; have some very thin Plaster of Paris, and with a camel-hair brush lay it on the inside of the form; replace the form on the model, gently press out the excess of plaster, let it set, pack in the usual way, and there will be no fear of pressing the form out of shape.

Of course this method can be applied when vulcanizing on the model. I generally do it before commencing to wax up."

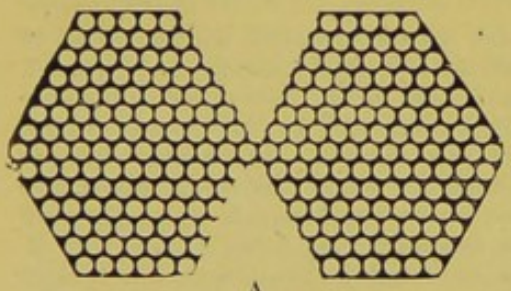
Made in three thicknesses, thick, medium and thin, and put up in boxes of one dozen, as illustrated.

		s.	d.
In Aluminium, thick, medium, or thin	per box	2	0
„ „ assorted thicknesses	„	2	0
American Make, in Pure Tin	„	1	0

(These are only supplied thin.)

"PEARL" SUCTION PLATES.

(Passehl's.)



A

Very suitable for tender gums. (Made of 18-Carat Gold, Aluminium, and Pure Tin, for Vulcanite Pieces.) This Suction Plate improves the appearance of a piece and renders breakage almost impossible. It is easily used. If cut to the shape shown in the illustration, it can be readily fitted on to the plaster model. To secure a good hold for the rubber the outer row of "pearls" should be pierced and then cut in half as shown at A in the engraving.

Prices:

		s.	d.
In 18-Carat Gold—ready for use	each	5	0
„ Aluminium	per doz.	2	6
„ Pure Tin	„	1	6

Rubber Cement for employment with any of the above can be readily made as required, by dissolving red dental rubber in chloroform. It should be kept securely corked when not in use.

FLASK PRESSES.

Fig. 1.

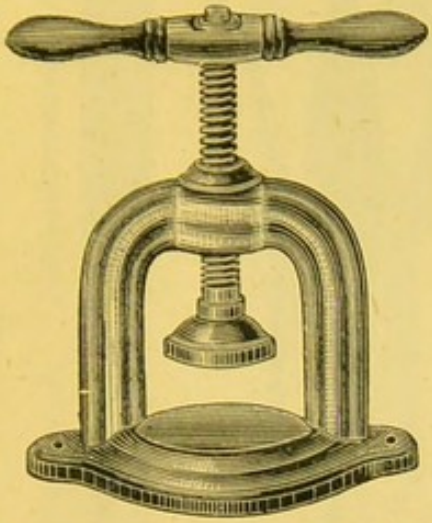


Fig. 2.

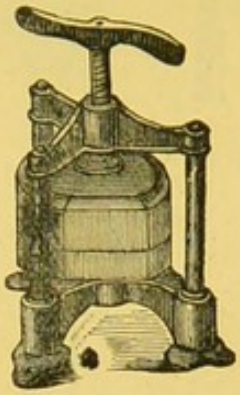
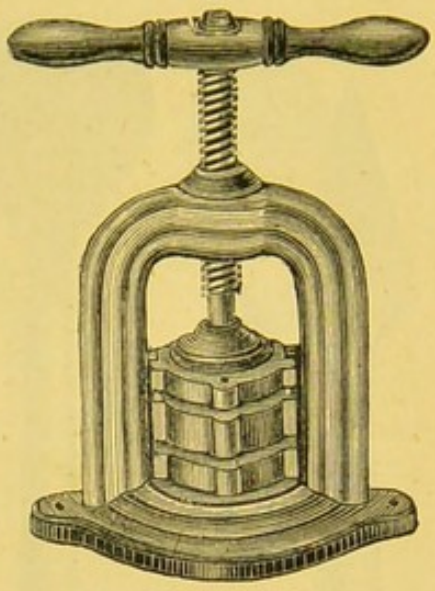


Fig. 3.



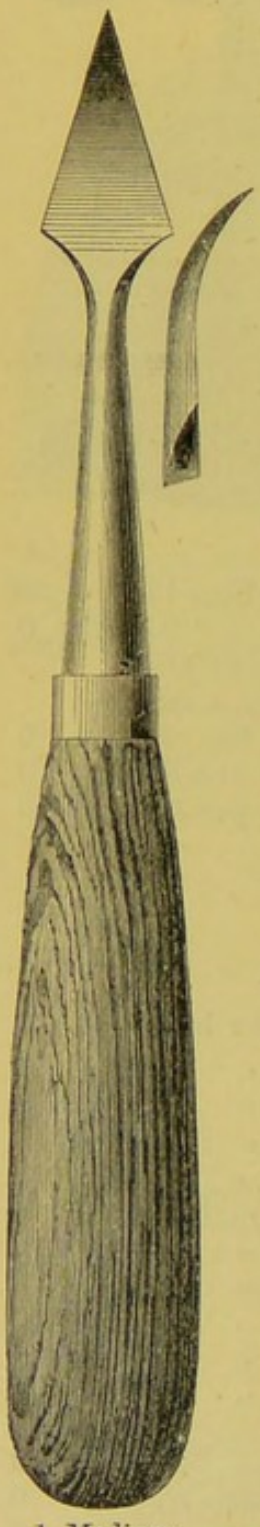
		s.	d.
Iron Press for closing Flasks, with bolts and Nuts for fastening to bench	(Fig. 1)	16	0
Handy Flask Press, without Flask	(„ 2)	12	0
Swaging Press, for swaging metal plates, on models that are made of Spence's metal, &c., complete, as illustrated, with Flask	(Fig. 3)	40	0
Flasks for this Press, extra	each	15	0
Spence's Metal.—Sulphide of Iron	per lb.	0	9

ARTICLES—VARIOUS.

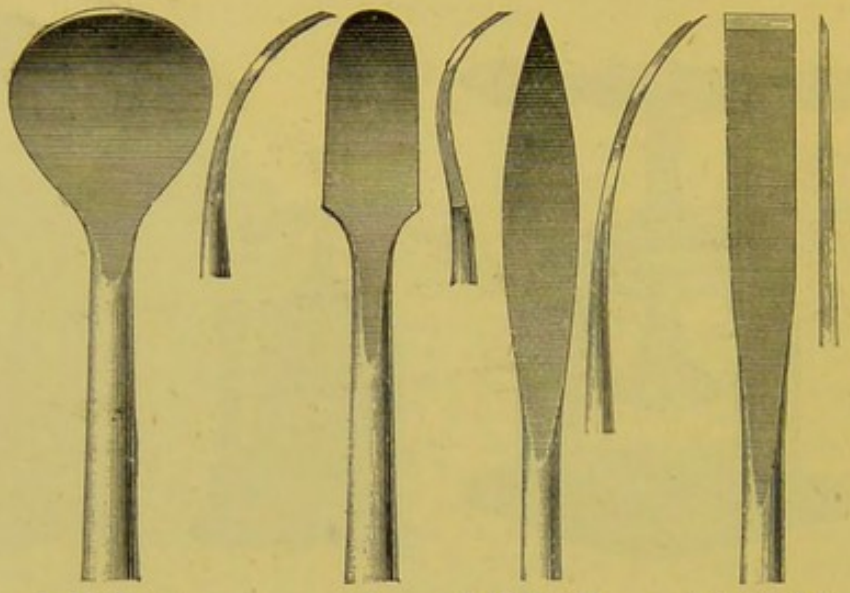
		s.	d.
Collodion, for coating models	per bottle	2	0
Corundum Powder, for polishing	„ lb.	3	6
„ „ „	„ box	0	6
Crocus, for polishing	„ lb.	1	0
French Chalk	„ „	0	6
Non-adhesive Liquid, for coating models	„ bottle	1	0
* **Pumice in Powder,** superfine	„ lb.	0	6
* „ „ fine	„ „	0	4
* „ „ coarse	„ „	0	3
Rouge	„ „	4	6
„	„ box	0	7
Silex in Powder	„ lb.	1	6
„ **in Liquid**	„ bottle	1	3
Thermometers repaired, all kinds	each from	4	0
Vulcanite Cement, for temporary repairs ..	per stick	0	6

*** A discount of 10 per cent. is allowed off Pumice when purchased in 7-lb. lots.**

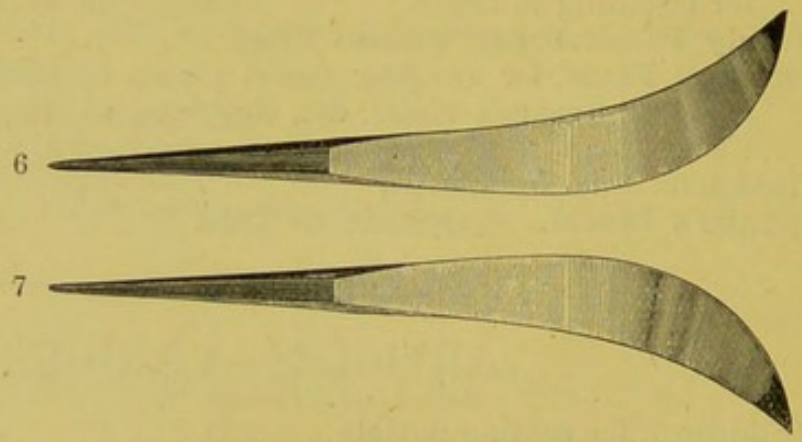
VULCANITE SCRAPERS.



1, Medium.



2, Medium. 3. 4 (Curved). 5 (Straight).



6

7

Fig. 1 is made in large, medium, and small.
,, 2 is made in extra large, large, medium, and small.
,, 3 only in one size, as illustrated.
,, 4 is made curved, straight, and right and left.
,, 5 is made straight, and right and left.

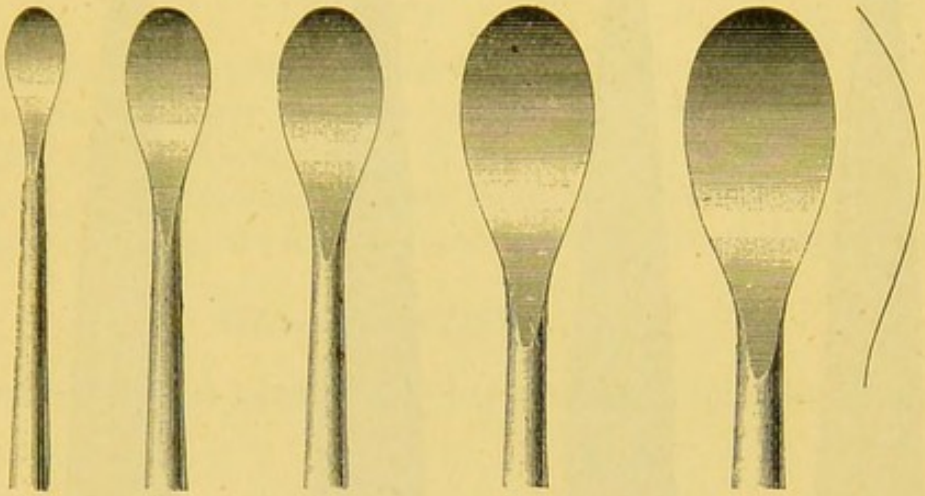
Figs. 6 and 7, new shapes, right and left, are made and supplied with tang, as illustrated, for fixing into handles of any form that may be preferred by the user. They are considered very useful.

			s.	d.
Price, any size or kind ..	(Figs. 1–5)	each	1	0
,, without handles ..	(,, 6–7)	,,	0	7
Wooden handles for Figs. 6 and 7, round, half-round, inverted cone and pear-shaped		,,	0	1

VULCANITE FINISHERS.

(Dr. KINGSLEY'S.)

1.

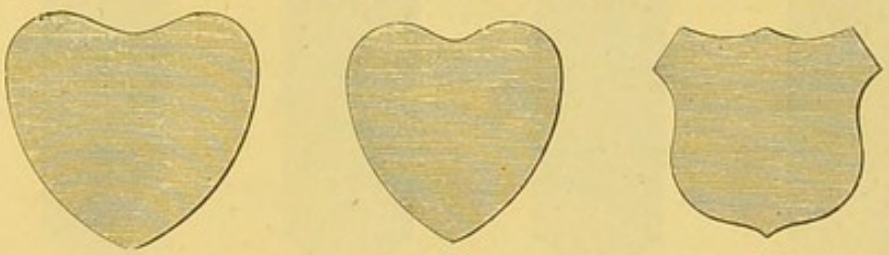


2. 3. 4. 5. 6.

The illustrations show the full size of each blade; Fig. 1 shows the full length of each with handle; and the outline on the side of Fig. 6 shows the curve of the blade.

	s.	d.
In polished Steel with Wooden handles .. .. each	1	0

METAL PATTERNS.

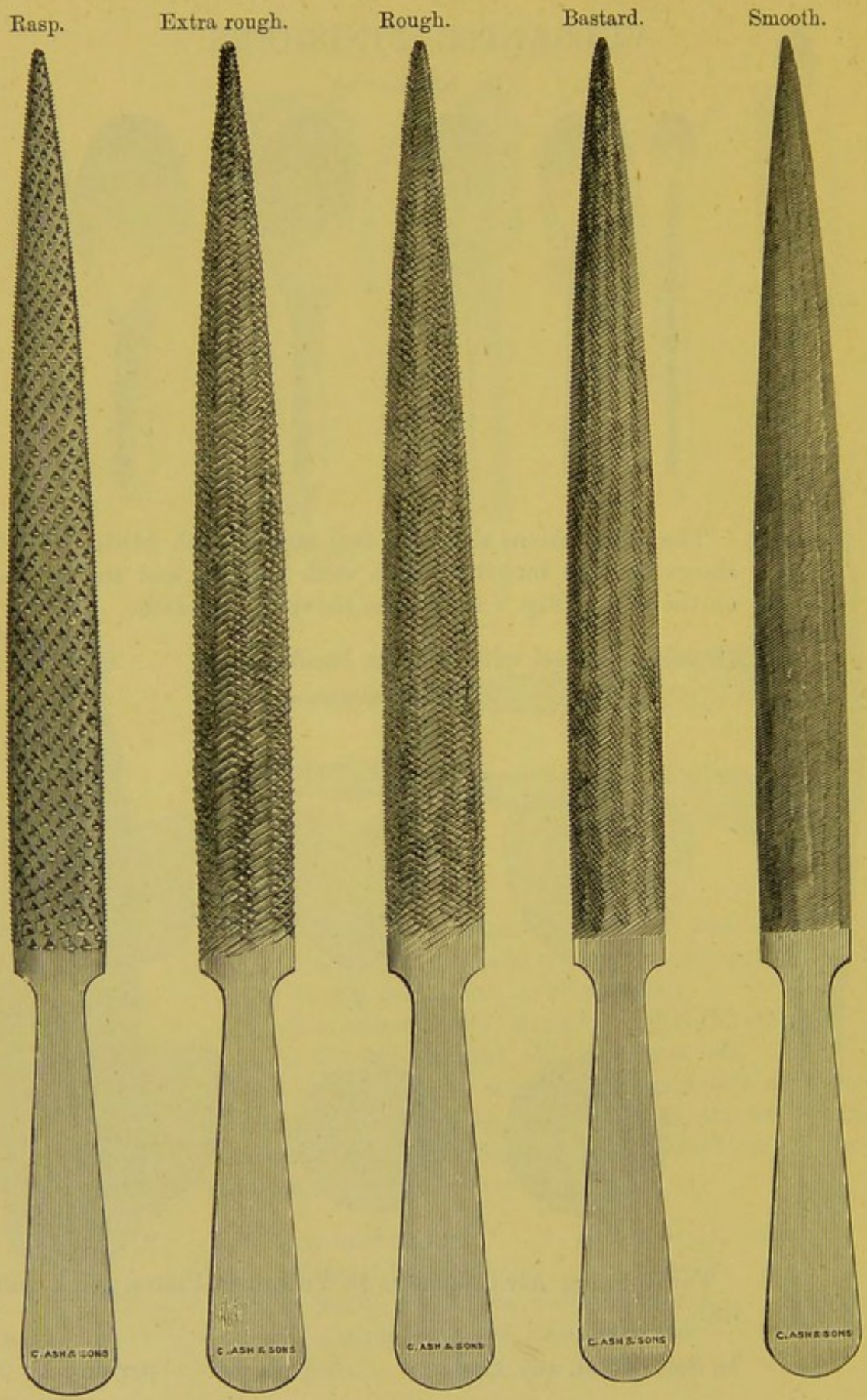


1. 2. 3.

4. 5. 6.

For forming Air Chambers in Vulcanite Plates, thick and thin.

	s.	d.
In Soft Metal, any kind .. .. per doz.	1	0


Rasp.
Extra rough.
Rough.
Bastard.
Smooth.
C. ASH & SONS
C. ASH & SONS
C. ASH & SONS
C. ASH & SONS
C. ASH & SONS

FILES,

FOR METAL AND VULCANITE WORK, &c.

(STUBS'.)

The illustrations on the previous page show different styles of 4½-inch Files full size. In the larger sizes the cuts run somewhat coarser. The Bastard and Smooth are intended for Metal Work, the other kinds for Vulcanite work. When ordering, please be careful to state which kind is required, and in giving the length do not include the steel handle.

HALF ROUND.

		s.	d.
Files and Rasps, with Steel handles, 4 inches long, any kind	each	0	8
,, ,, ,, ,, 4½ ,, ,, ,, ,,		0	9
,, ,, ,, ,, 5 ,, ,, ,, ,,		0	10
,, ,, ,, ,, 6 ,, ,, ,, ,,		1	0

		s.	d.
Tube Files, English	per doz.	1	6
,, ,, **French**	,,	2	9
Needle ,, **German**, pointed	,,	0	6

Other Files of every description supplied to order.

		s.	d.
File Cleaners, Wire, on wooden block, with blunt ends	each	0	6
,, ,, ,, ,, ,, with handles ..	,,	0	6
Filing Trays, Tin, with sifter, cap and rim	,,	3	9
Wooden Handles for Tang Files ..	each from 1½*d.* to	0	3

GLASS CLOTH.

IN SHEETS.

No. 0	Extra superfine.
,, 1	Superfine.
,, 1½	Fine.
,, F/2 ..	Medium.
,, M/2 ..	Coarse.
,, S/2 ..	Extra Coarse.

		s.	d.
Price, any grade	per quire	1	9

EMERY CLOTH.

IN SHEETS.

Made in the following grades:—

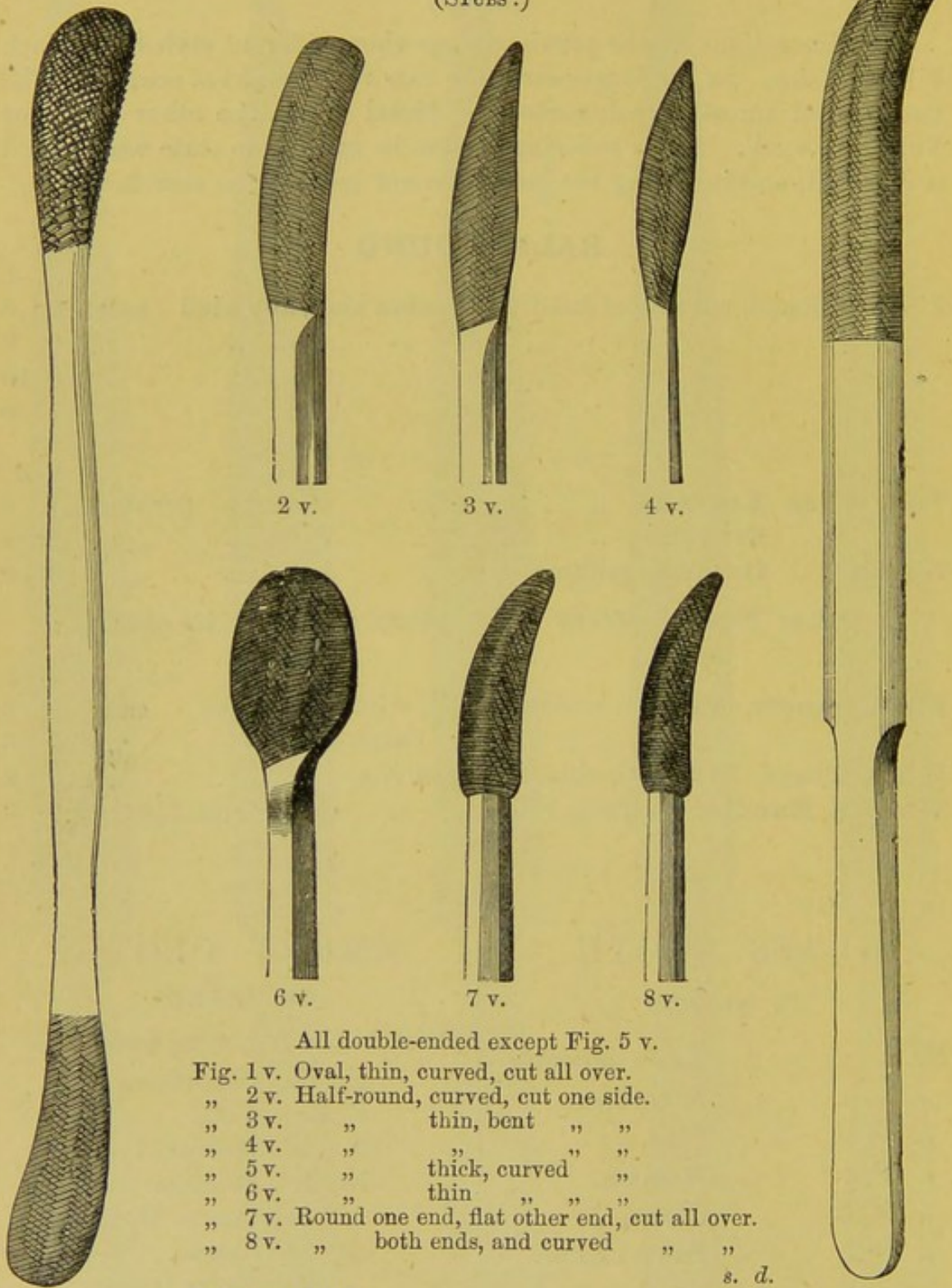
No. O.	Superfine.
F. F.	Fine.
F.	Medium Fine.
No. 1.	Medium.
,, 1½	Coarse Medium.
,, 2.	Coarse.
,, 3.	Extra Coarse.

		s.	d.
Per quire, supplied to order		1	9

RIFFLERS,

FOR VULCANITE WORK.

(Stubs'.)



All double-ended except Fig. 5 v.

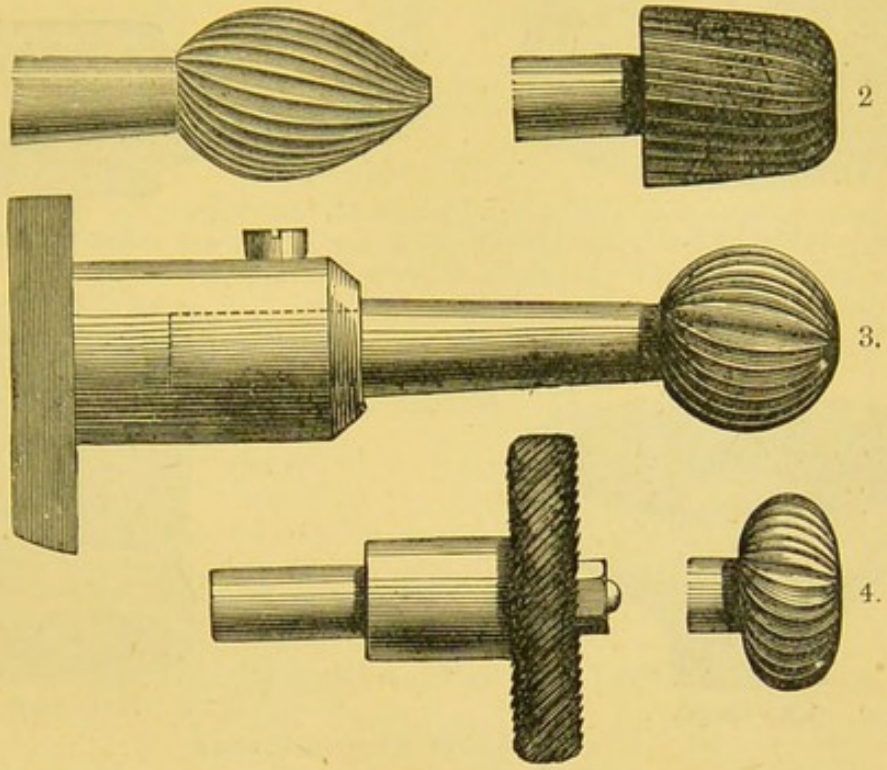
Fig. 1 v. Oval, thin, curved, cut all over.
„ 2 v. Half-round, curved, cut one side.
„ 3 v. „ thin, bent „ „
„ 4 v. „ „ „ „
„ 5 v. „ thick, curved „
„ 6 v. „ thin „ „ „
„ 7 v. Round one end, flat other end, cut all over.
„ 8 v. „ both ends, and curved „ „

		s.	d.
Price, any kind	each	0	7½

Other forms of Stubs', and all kinds of French Rifflers supplied to order.

CUTTING BURS AND WHEELS,

FOR VULCANITE WORK, &c.



These Burs and Wheels are useful for cutting Vulcanite or Bone. They are made of the best Steel and finished in a superior manner, and will fit chuck suitable for Lathes and Lathe-heads, pages 473–475.

Smaller sizes, with suitable Chuck, for the Operating Room Lathe, shown on page 90, supplied, to order, at the prices quoted below.

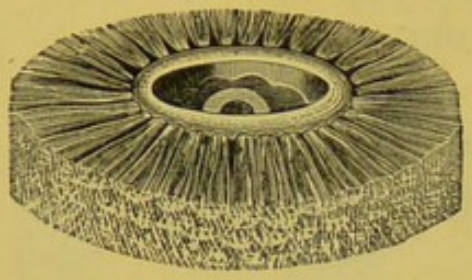
Steel Burs and Wheels to fit Chucks of other Lathes made to order.

American Steel Burs and Wheels obtained to order.

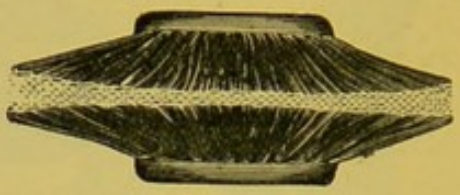
			s.	d.
Steel Burs	.. ..	the exact size and form of (Fig. 1) each	4	0
,,	.. ..	,, ,, ,, (,, 2) ,,	4	0
,,	.. ..	,, ,, ,, (,, 3) ,,	4	0
,,	.. ..	,, ,, ,, (,, 4) ,,	4	0
Steel Wheels,	1¼ in. diameter	,, ,, ,, (,, 5) ,,	4	0
,,	1½ in.	,, ... (,, 5) ,,	4	6
,,	2 in.	,, ... (,, 5) ,,	5	0
Chucks, Steel,	to carry the above	.. .. ,,	6	6

LATHE BRUSHES,

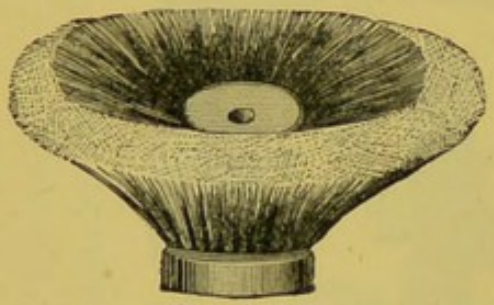
FOR POLISHING.



Straight.



Converging.



Cup-shape.

Hub-shape.

	Straight or converging.	
Rows of bristles in each Brush:—	*s.*	*d.*
Two Rows 2 in. diameter Hard or Soft .. .. each	0	5
Two „ 3 in. „ „ „ .. .. „	0	6
Three „ 2½ in. „ „ „ .. .. „	0	7
Three „ 3 in. „ „ „ .. .. „	0	7
Four „ 3 in. „ „ „ .. .. „	0	10
Five „ 3 in. „ „ „ .. .. „	1	0
Six „ 3 in. „ „ „ .. .. „	1	3
Six „ 3½ in. „ „ „ .. .. „	1	3
Six „ 4 in. „ „ „ .. .. „	2	0
Cup Shape, two Rows, 2½ in. diameter .. .. „	1	3
„ three „ 2¾ in., 3 in. diameter .. .. „	1	6
Hub Shape, 1¼ in. diameter .. .. „	1	3
„ 1½ in. diameter .. .. „	1	6
Goat's Hair Lathe Brushes, 2 in. and 3 in. diameter per row	0	5

Lathe Brushes of other sizes made to order by the dozen.

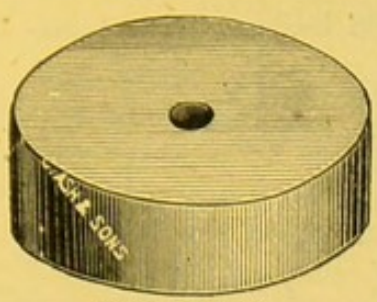
A discount of 10 per cent. is allowed when Lathe Brushes are bought by the dozen.

HAND BRUSHES FOR POLISHING.

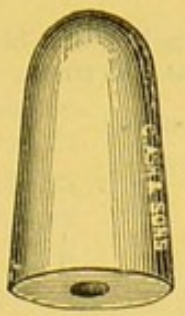
HARD OR SOFT.

	s.	*d.*
With Bone handles, 4 rows, brush 5¼ in. long by ⅝ in. deep .. .. each	1	3
„ „ 6 „ „ 4 in. „ by ⅝ in. „ .. .. „	1	6
Buff Sticks for polishing, flat and round .. .. „	0	1½

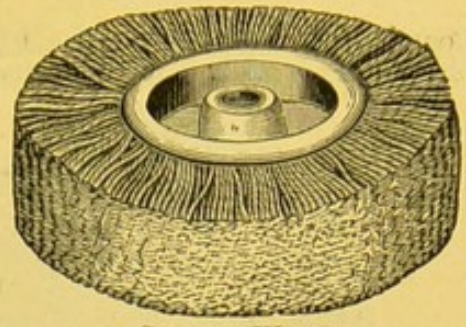
POLISHING WHEELS AND CONES.



FELT WHEEL.



FELT CONE.



COTTON WHEEL.

The Felt Wheels and Cones here illustrated are made from selected wool of the best quality and are much superior to any of the Wheels and Cones that have heretofore been supplied. We can strongly recommend them as being unequalled for fine polishing.

		s.	d.
Wheels, Small, 1½ in. diameter	each	0	8
„ Large, 2 and 2⅜ in. diameter	„	1	0
Cones, Small, 1½ in. high, pointed or rounded	„	0	5
„ Large, 2 in. „ „ „	„	0	10
Cotton Wheel, 3¾ in. diameter	„	1	3
Buff Wheels, 3½ in. „	„	1	0

WOOL PALATE BRUSHES,

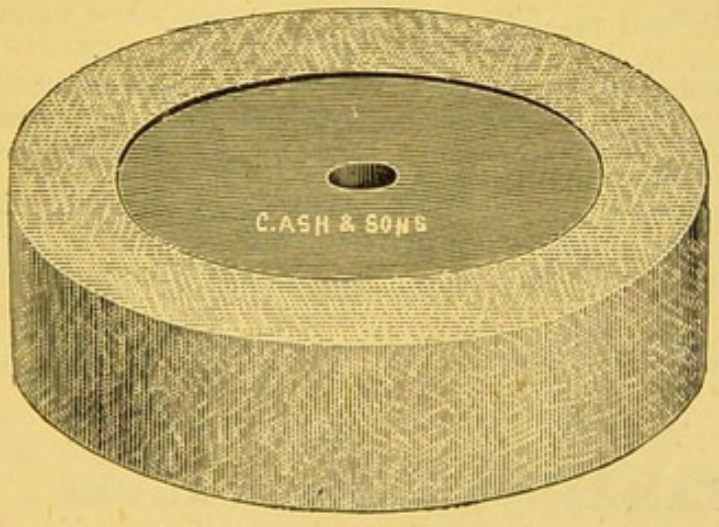
FOR USE ON THE LATHE.

Intended for polishing the palates of Metal and Vulcanite dentures.

		s.	d.
Price	each	0	8

Less 10 per cent. by the dozen.

FELT WHEELS FOR LATHES.



With Wooden centres, made in four sizes as under:

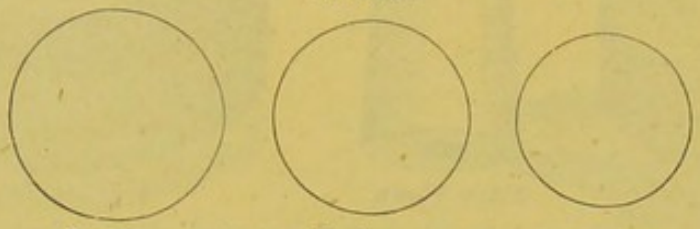
		s.	d.
No. 1. 1⅜ in. diameter, by ⅜ in. thick	each	0	6
„ 2. 2 in. „ ½ in. „	„	0	9
„ 3. 2⅛ in. „ ½ in. „	„	1	0
„ 4. 2⅜ in. „ ⅝ in. „	„	1	6

They are considered very suitable for fine polishing.

HALL'S SUCTION DISCS.

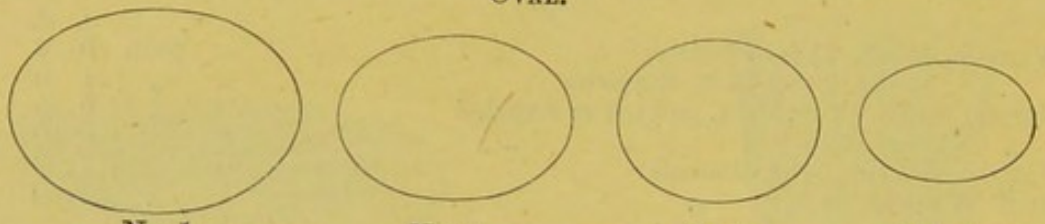
Consisting of India-rubber Disc, Platinum Pin, and two Gold Washers. The India-rubber Discs are made in the following forms and sizes :—

ROUND.

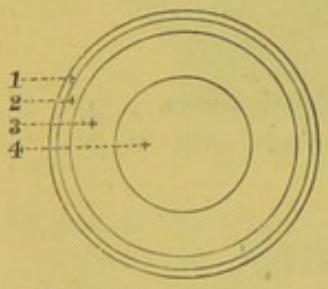


Large. Medium. Small.

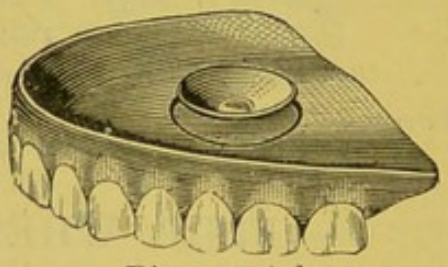
OVAL.



No. 1. No. 2. No. 3. No. 4.



Round—extra sizes.



Disc mounted.

Directions for Use.

Make the air-chamber in the denture by means of a round metal pattern, then place the disc in it with the large gold washer on the top, and drill a hole through the denture large enough to receive the platinum pin. Insert the pin, place the small gold washer over it, on the lingual side, and rivet in position.

NOTE.—The air-chamber should always be a size larger than the India-rubber disc, and the plain side of the disc should be put uppermost.

		s.	d.
Price, any size or shape	each	2	0
,, ,, ,,	per ½ doz.	10	6
India-rubber Discs only	per doz.	6	0
,, ,, ,,	each	0	9

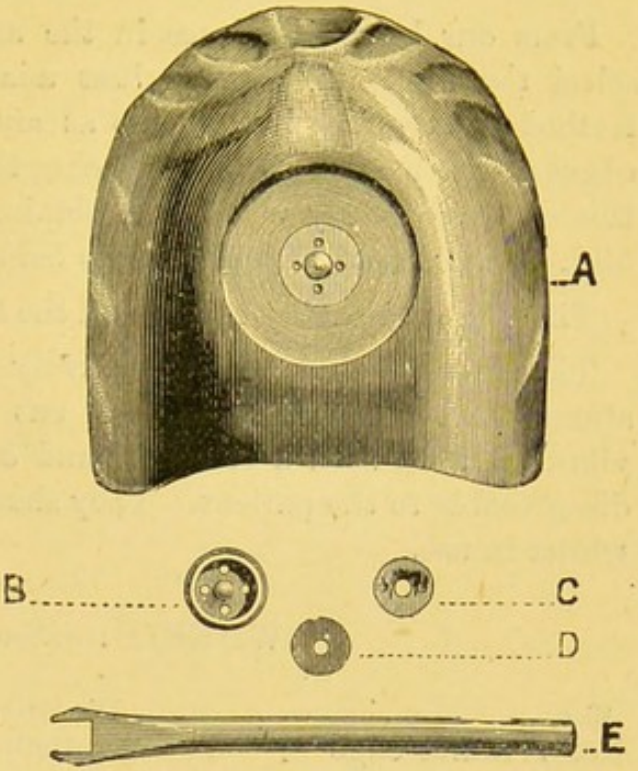
LEMAN'S SUCTION VALVES.

The VALVE has been entirely reconstructed and greatly improved ; the old form of domed triangular cover on the lingual side, and the leather or soft rubber valve centres are dispensed with, and superseded by NEW IMPROVEMENTS. The improved Valve presents a perfectly smooth surface to the tongue. It has no central screw, and the centre, being composed of a thoroughly durable material, will not perish, thus making it, from a practical point of view, one of the most perfect Valves possible.

		s.	d.
In 16-Carat Gold, including Key	each	5	6
In Dental Alloy ,,	,,	3	6

BROWNLIE'S SUCTION VALVE.

This Valve can be attached to either a metal plate or a vulcanite piece. It is simple in construction, not liable to get out of order, will hold the heaviest denture in position, and is very cleanly, comfortable, and efficient in use.



Description.

A. Valve mounted in Vulcanite.
B. Valve unmounted.
C. Screw-head.
D. India-rubber washer.
E. Key for adjusting screw-head.

Directions for Use.

For Metal Dentures.—Make the usual air-chamber in the plate, let in the valve sufficiently for the flange to rest upon the floor of the chamber, and solder it in position. Place the rubber washer in the centre, on the lingual side, and adjust the screw-head by means of the key.

For Vulcanite Dentures.—Place a metal pattern on the plaster model, to form an air-chamber; drill two holes through the metal pattern and the model; put the flanged end of the valve on the metal pattern, and firmly secure it there with binding wire. A piece of plate or thick wire should be laid between the holes, on the under side of the model, before twisting up, to prevent the wire cutting through the plaster. When the valve is thus fixed on the model, fill the interior of it with plaster to keep out the rubber during the vulcanizing process. After the piece is packed and vulcanized, thoroughly clear the centre of the valve, place the rubber washer in it, and adjust the screw-head with the key.

Only screw up the head sufficiently to allow air to be forced through the valve from the palatal side.

After the valve has been adapted to either a Metal or Vulcanite Denture, grind off the end of the screw in the centre with a small corundum wheel, to make it flat and smooth to the tongue.

Prices:

		s.	d.
In 16-Carat Gold	each	5	6
In Dental Alloy	each	3	6
Key for adjusting screw-head in position	„	0	6
Extra India-rubber Washers in packets containing two dozen	per pkt.	0	6

A discount of 10 per cent. is allowed when half-a-dozen Valves are purchased.

ASH'S CORUNDUM WHEELS, FILES, &c.

From our long experience in the use of Corundum, we are able to select the kind and quality best adapted for dental purposes. Our method of crushing it prevents as much as possible dulling the sharp edges of the particles while reducing them to their several grits. It is this cutting quality which has obtained for our Wheels, Files, &c., the high estimation in which they are held both in England and abroad.

The Wheels are adapted to fit all the Lathe Chucks of our manufacture.

The Files are used very extensively in the mouth for cutting down stumps, &c. Not only do they cut rapidly, but there is much less vibration than with a steel file, and consequently the operation is less disagreeable to the patient. They should be dipped in water frequently whilst in use.

WHEELS:—(See next page).

Size.			Diameter.		Thick. s. d.	Thin. s. d.
No. 1	round edge	..	$\frac{1}{2}$ inch	..	each 0 2	each 0 2
„ 2	„ „	..	$\frac{3}{4}$ „	..	„ 0 3	„ 0 2
„ 3	„ „	..	1 „	..	„ 0 4	„ 0 3
„ 4	„ „	..	$1\frac{1}{2}$ „	..	„ 0 6	„ 0 5
„ 5	„ „	..	2 „	..	„ 0 8	„ 0 7
„ 6	„ „	..	$2\frac{1}{4}$ „	..	„ 0 11	„ 0 9
„ 7	„ „	..	3 „	..	„ 1 9	„ 1 0
„ 8	„ „	..	$3\frac{3}{4}$ „	..	„ 3 0	„ 2 0
„ 9	„ „	..	$4\frac{1}{2}$ „	..	„ 4 6	„ 4 0
„ 10	square edge	..	1 „	..	„ 0 5	„ 0 4
„ 11	„ „	..	$1\frac{1}{8}$ „	..	„ 0 6	„ 0 5
„ 12	„ „	not illustrated	$2\frac{1}{2}$ „	$\frac{1}{4}$ inch thick	„ 1 3	—
„ 13	„ „	„	$3\frac{1}{8}$ „	„ „	„ 2 0	—

No. 7, round edge, is also made in medium thickness, price 1*s.* 6*d.*

Nos. 1 to 7 are $\frac{1}{16}$ to $\frac{1}{4}$ inch thick.

„ 8 and 9 are $\frac{1}{4}$ to $\frac{1}{2}$ „ „

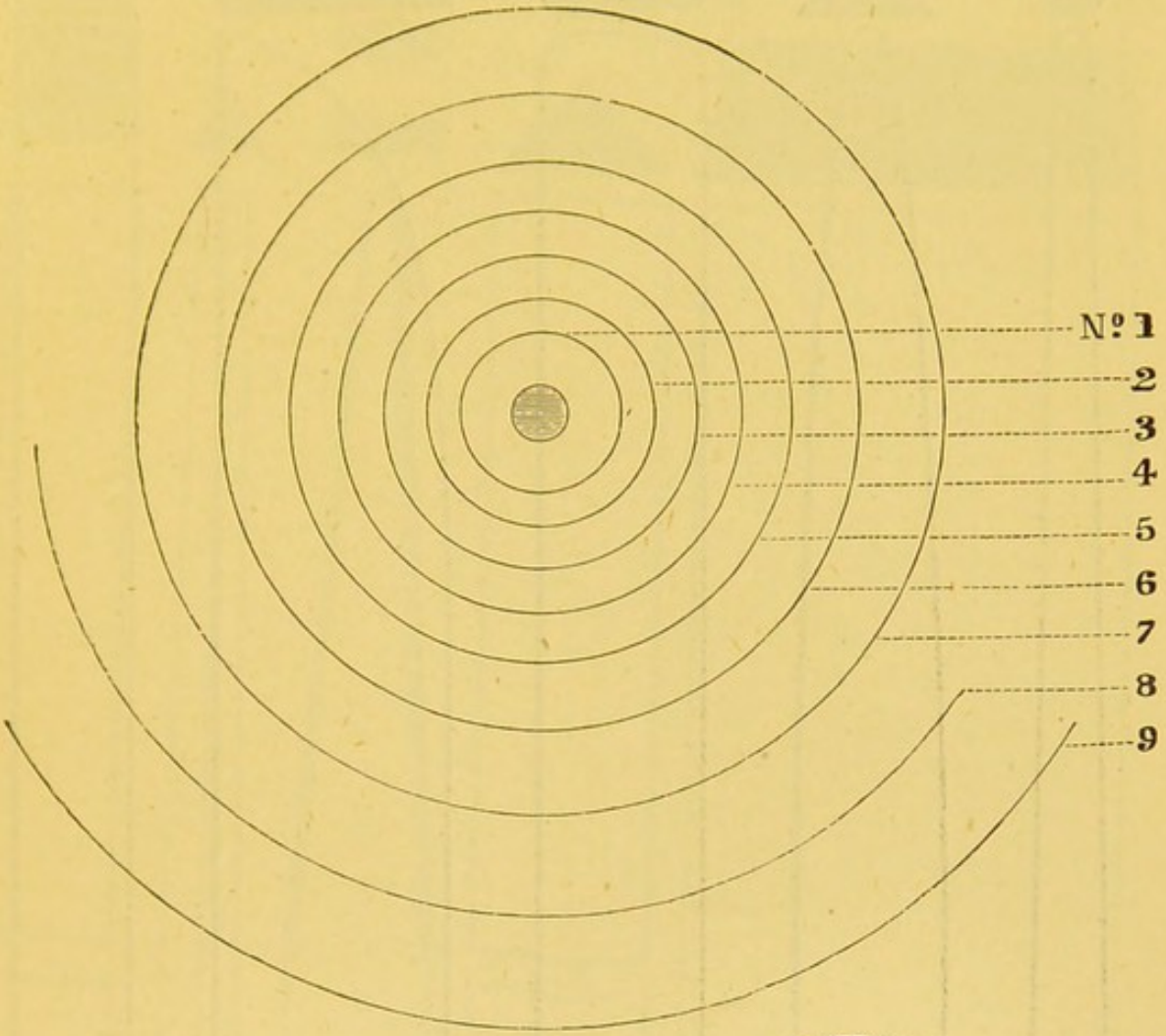
„ 10 and 11 are made in the thicknesses illustrated.

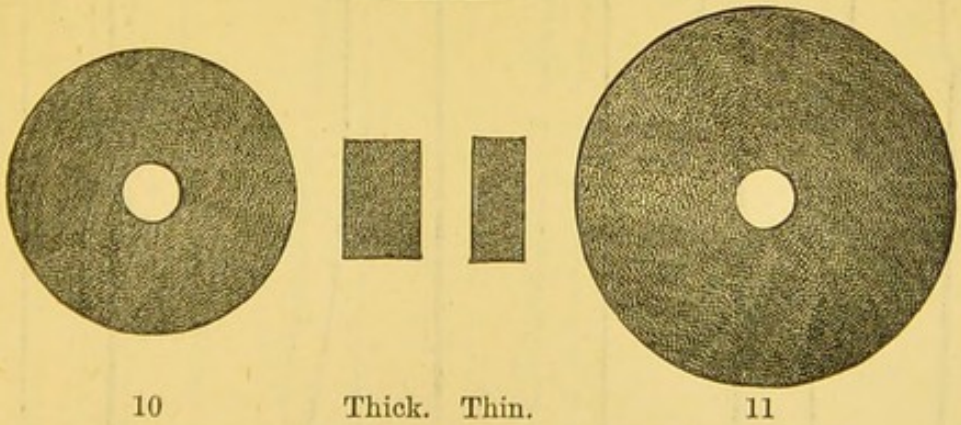
All the above Wheels are supplied in three grits, known as fine, medium, and coarse; therefore, when ordering, please be careful to state which grit is required.

A discount of 10 per cent. is allowed when Corundum Wheels and Files are purchased to the value of 10s.

ASH'S CORUNDUM WHEELS.

(For Prices, see previous page.)



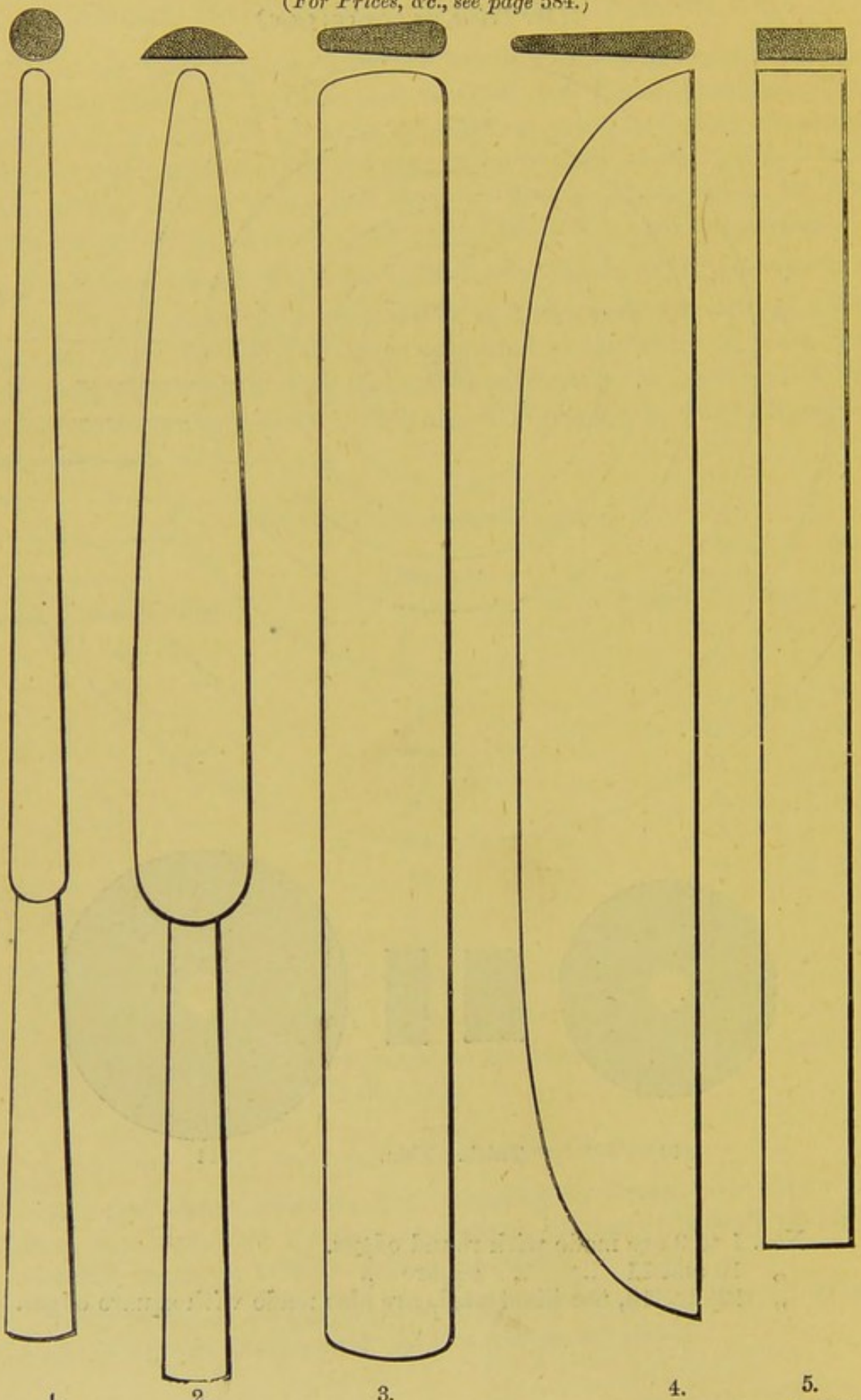


10 Thick. Thin. 11

Nos. 1 to 9 are made with round edges.
„ 10 and 11 „ „ square „
„ 12 „ 13, not illustrated, are also made with square edges.

ASH'S CORUNDUM FILES.

(*For Prices, &c., see page* 584.)

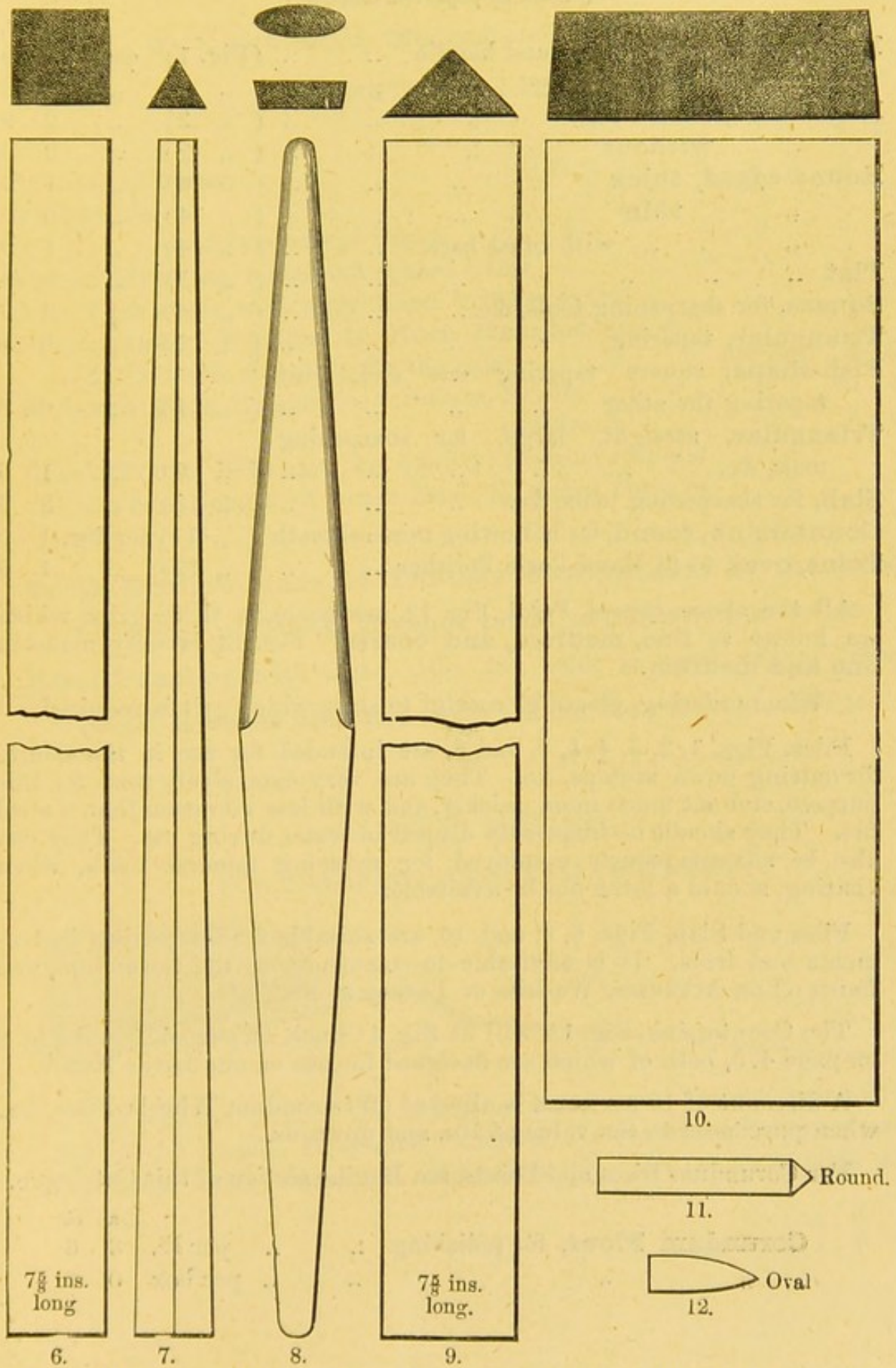


1. 2. 3. 4. 5.

The sections over the top of the outlines show the middle of each File.

ASH'S CORUNDUM FILES.

(For Prices, &c., see next page.)



6. 7. 8. 9. 10. 11. 12.

The sections over the top of the outlines show the middle of each File.

ASH'S CORUNDUM FILES, &c.

(*Shown on pages* 582 *and* 583.)

			s.	d.
Round, with Steel centre and handle	(Fig. 1)	each	0	9
„ **without** „ „	(„ 1)	„	0	6
Half-round, with „ „	(„ 2)	„	0	9
„ **without** „	(„ 2)	„	0	6
Round-edged, thick	(„ 3)	„	1	0
„ **thin**	(„ 4)	„	0	8
„ „ with brass back	(„ 4)	„	1	0
Flat	(„ 5)	„	0	8
Square, for sharpening tools, &c.	(„ 6)	„	2	0
Triangular, tapering	(„ 7)	„	0	8
Fish-shape, square tapering one end, oval tapering the other	(„ 8)	„	0	8
Triangular, straight, large, for sharpening tools, &c.	(„ 9)	„	1	6
Slab, for sharpening tools, &c.	(„ 10)	„	2	6
Countersink, round, for hollowing mineral teeth	(„ 11)	per doz.	1	0
Point, oval, to fit Hand Porte Polisher	(„ 12)	„	1	0

All the above, except Point, Fig. 12, are made in three grits, which are known as **fine, medium, and coarse.** Fig. 12 is only made in **fine and medium.**

When ordering, please be careful to state which grit is required.

Files, Figs. 1, 2, 3, 4, 5, 7, and 8, are intended for use in the mouth, for cutting down stumps, &c. They are very extensively used for this purpose, and cut much more quickly, and with less vibration than a steel file. They should be frequently dipped in water during use. They can also be advantageously employed for reducing mineral teeth, when visiting, should a lathe not be available.

Files and Slab, Figs. 6, 9, and 10, are suitable for sharpening instruments and tools. It is advisable to commence on the Corundum, and finish off on Arkansas, Washita or Turkey stone.

The Countersink, Fig. 11, will fit Fig. 4 Chuck, on page 476, and Fig. 8 on page 479, both of which are designed for use on our Lathe Heads.

A discount of 10 per cent. is allowed off Corundum Wheels, Files, &c., when purchased to the value of 10*s.* and upwards.

For Corundum Discs and Points, see Engine section of this Catalogue.

		s.	d.
Corundum Flour, for polishing	per lb.	3	6
„ „ „	per box	0	6

TOOTH BRUSHES WITH BONE HANDLES.

(*As shown on pages* 586 *and* 587.)

Made with **Hard**, **Medium** and **Soft** Bristles.

FIRST QUALITY.

	per gross. s.	d.	per doz. s.	d.
Adults', all forms .. .. .. (Figs. 1–5)	84	0	7	6
Children's .. .. (Fig. 4)	72	0	6	6
„ all forms except Fig. 4	57	0	5	3
Palate Brushes, round and square forms	84	0	7	6
Any of the above with **very hard** bristles, extra			1	0
Double-ended Brushes in Horn Handles, one end for the teeth, the other for the palate	per doz.		9	6
Badger's Hair Brushes for solutions, Adults'	„		10	6
„ „ „ „ Children's ..	„		8	0
Black Tooth Brushes, best quality, for tinctures and solutions, length of brush head, 1½ inches, form of Fig. 1	„		7	0

Tooth Brushes made to Dentists' own patterns by the gross.

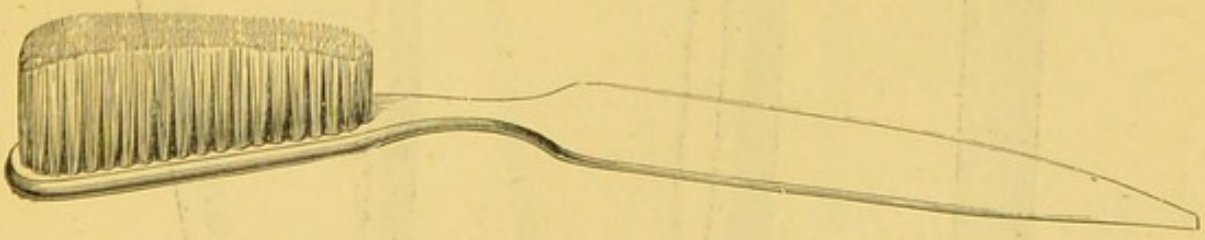
All forms of Tooth Brushes made or obtained to order.

Steel Punches, with name, title, &c., made to order, 6*d.* per letter.

Tooth Brushes stamped with name, &c., free of charge.

TOOTH BRUSH,

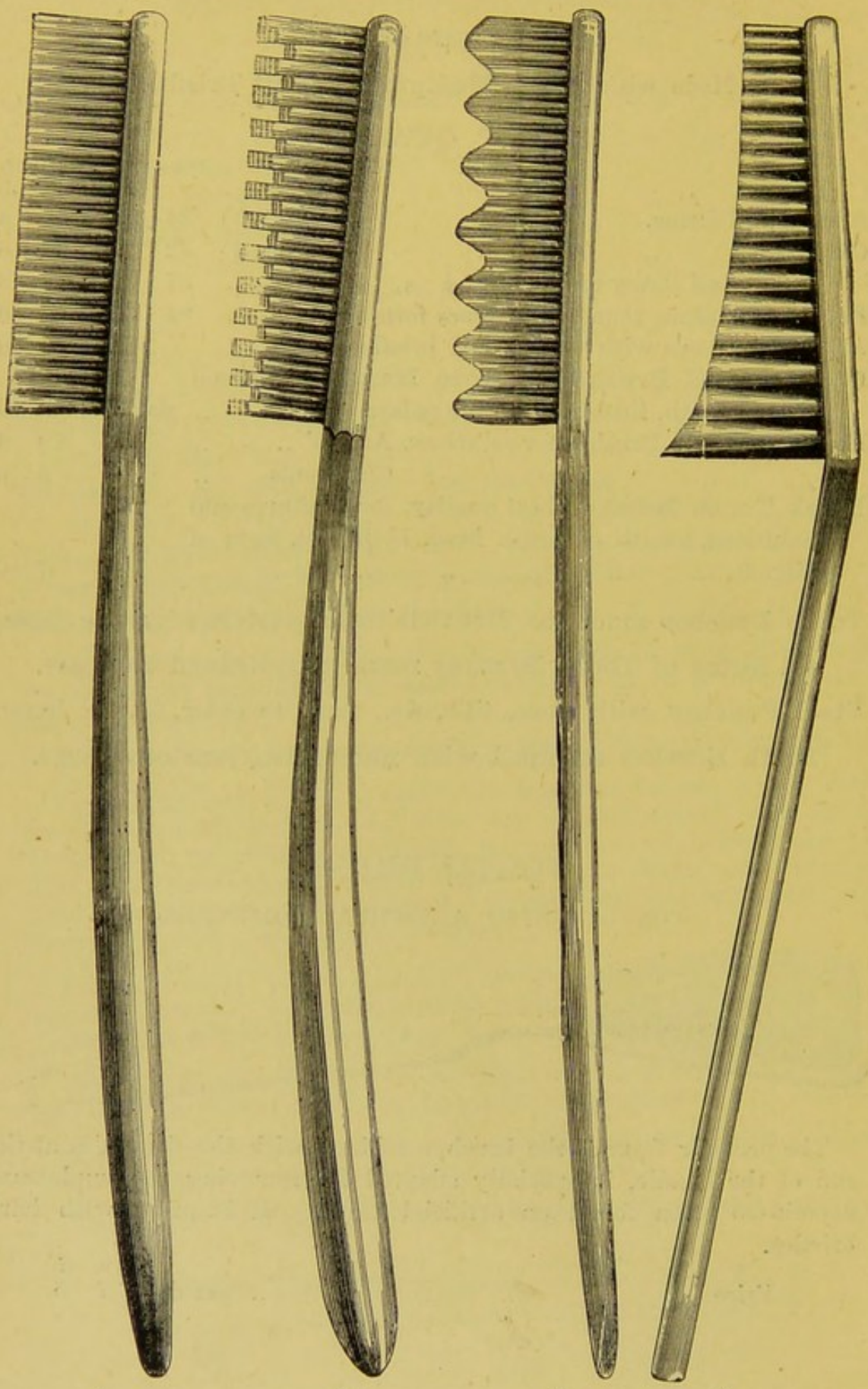
FOR CLEANING ARTIFICIAL DENTURES.



The peculiar form of the brush, combined with the flat point at the end of the handle, is specially adapted for removing the unpleasant deposit so often found on artificial teeth. It is made with hard bristles.

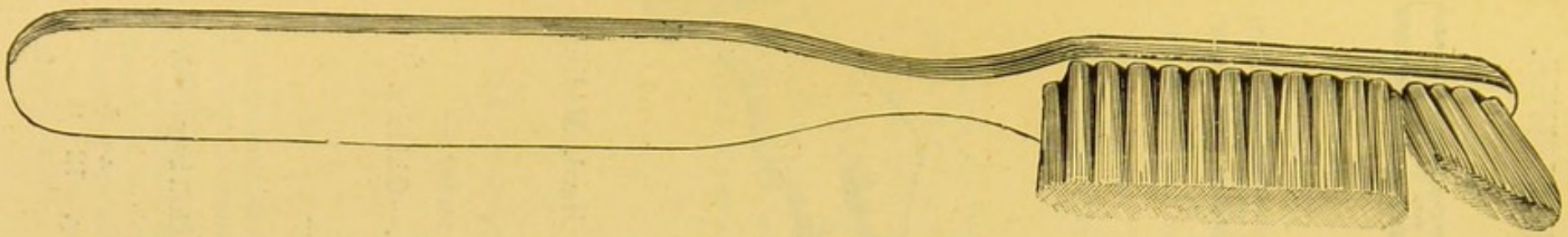
	s.	d.
Price .. .. per doz.	7	6

FORMS OF TOOTH BRUSHES.



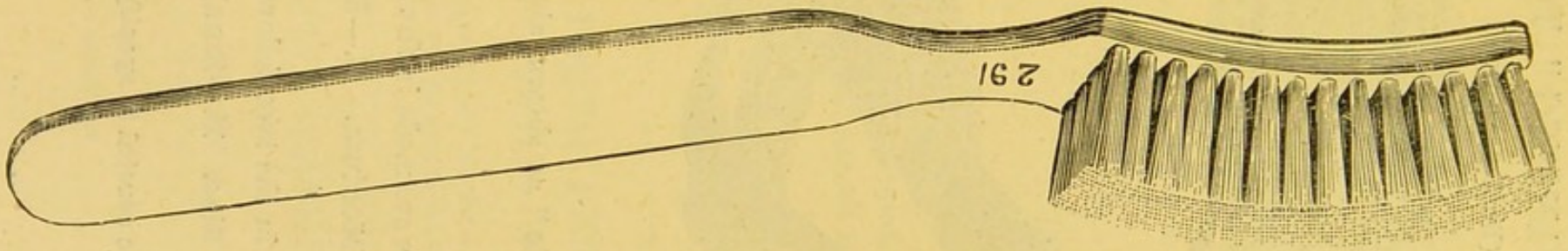
1. 2. 3. 4.

5.

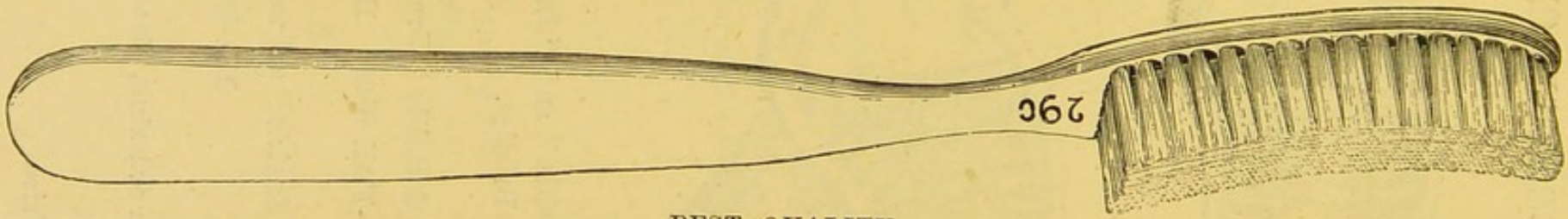


"INSIDE" AND "OUTSIDE" TOOTH BRUSHES.

Inside.



Outside.



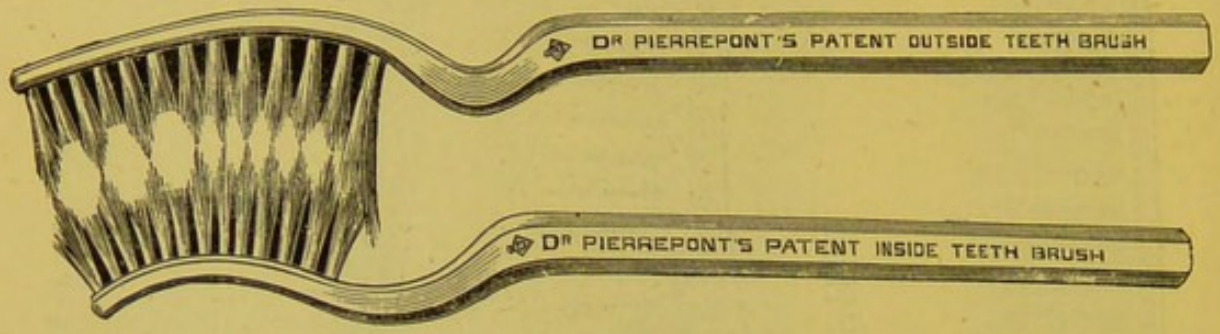
BEST QUALITY.

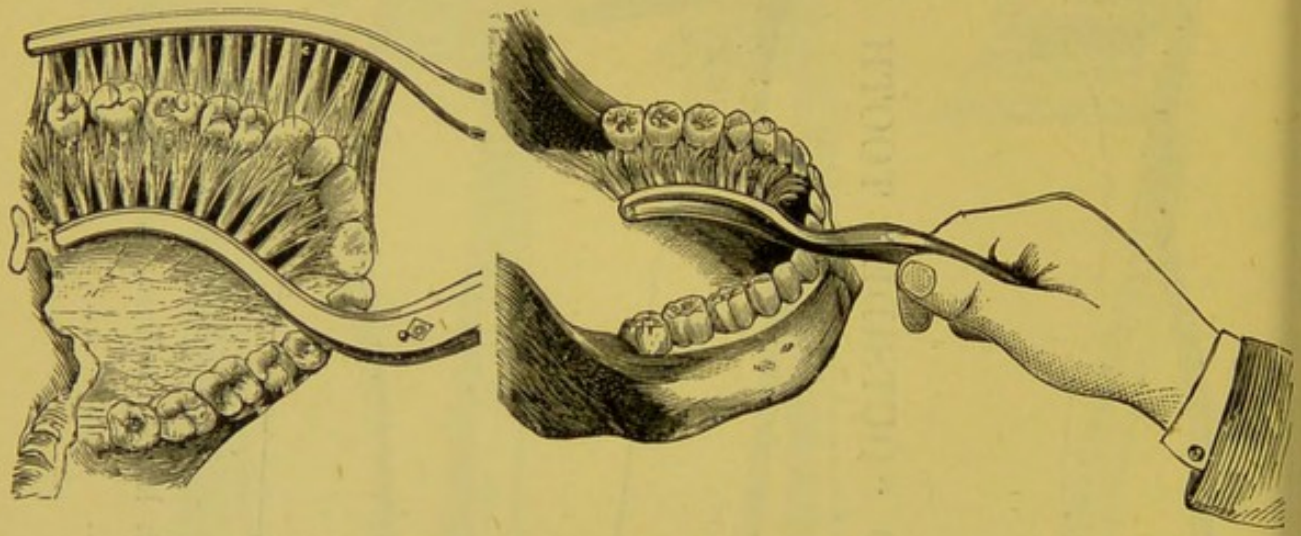
Made with hard, medium, and soft bristles.

		s.	d.
Price	per doz.	7	6

"THOROUGH CLEANSING" TOOTH BRUSHES.

(Dr. PIERREPONT'S.)





"**Outside**" and "**Inside**" as shown above, with Hard, Medium, and Soft Bristles.

The "**Outside**" Brushes are made in **four sizes**, as under:—

A.—Full Size. B.—Medium. C.—Small. D.—Child's.

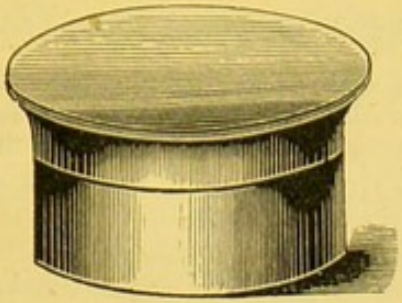
The "**Inside**" are made in the **two** following sizes:—

E.—Full Size. F.—Smaller Size.

When ordering, please be careful to specify size and kind required.

		s.	*d.*
Price	per doz.	12	0

VARNISHED TOOTH POWDER BOXES.



		Per gross. s.	d.
With Projecting Tops,	2½ in. by ¾ in. deep inside, size No. 1	25	0
„ „ „	2¼ in. by ¾ in. „ „ „ 2	20	0
„ „ „	2 in. by ¾ in. „ „ „ 3	16	0
With Plain Tops,	2½ in. by ¾ in. „ „ „ 1	25	0
„ „ „	2¼ in. by ¾ in. „ „ „ 2	20	0
„ „ „	2 in. by ¾ in. „ „ „ 3	16	0

Plates for Tooth Powder Box Labels made and engraved any style, price varying according to the design.

Labels printed from Dentists' own Plates.

Labels with name, address, &c., printed from ordinary type to order.

		s.	d.
Labels with the words "Tooth Powder" only ..	per 100 from	1	6
Charge for labelling Tooth Powder Boxes	per gross	1	0

Tooth Powder Boxes made to Dentists' own patterns by the gross.

TOOTH PICK.

(Mr. Palmer's.)

		s.	d.
In Gold, set in ivory, fitted in square ivory handle inside which it slides	each	5	0

Other kinds supplied to order.

MOUTH WASHES, &c.

	Per doz. s.	d.	Each. s.	d.
Astringent Mouth Wash, in 3-oz. bottles	20	0	1	10
Condy's Ozonized Water, in 4-oz. „	16	0	1	6
Listerine, in 14-oz. bottles	–	–	4	0
Oralina Mouth Wash, in bottles	20	0	1	10
Salodent, in 2-oz. bottles, with sprinklers	14	0	1	6
Myrrh Tincture	per 8-oz. bottle		2	9
„ „	„ 16 „ „		5	0
Myrrh Gum	per lb.		3	6

TOOTH POWDERS.

(C. ASH AND SONS'.)

In round Tins with Patent Self-opening Lids.

These Powders are prepared with great care, the ingredients being thoroughly well ground and mixed. The materials of which they are composed are of the purest quality, and such as are generally recommended by the best authorities.

To open a Tin, lever up the Lid with the side of a small screw-driver or other suitable tool.

No. 1. Fine. Scented with Oil of Bergamot.
„ 2. Medium. Scented with Oil of Bergamot and Otto of Roses.
„ 3. Coarse. Scented with Oil of Bergamot.

		s.	d.
Price	per lb.	4	0

A discount of 10 per cent. is allowed off 5 lbs.
Special terms for Tooth Powders in quantities.

TOOTH POWDERS.

(AMERICAN.)

		s.	d.
No. 1. Rose flavour, in 1lb. Tins	per tin	6	3
„ 1. „ „ in 4-lb. Tins, *to order*	„	21	0

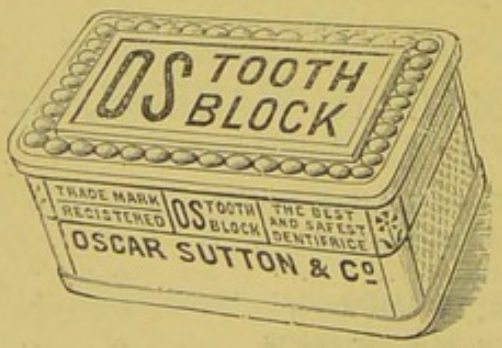
A discount of 15 per cent. is allowed off 5 lbs.
The No. 1 can be had, *to order*, flavoured with Wintergreen instead of Rose.

		s.	d.
No. 2. in 1 lb. enamelled Tins	per tin	4	2
„ 2. „ 4 lb. „ „ *to order*	„	14	6

A discount of 10 per cent. is allowed off 10 lbs.

		s.	d.
Cuttle-Fish Powder	per lb.	2	0
Orris Root	„	2	0
Precipitated Chalk	„	0	6
Prepared „	„	0	3

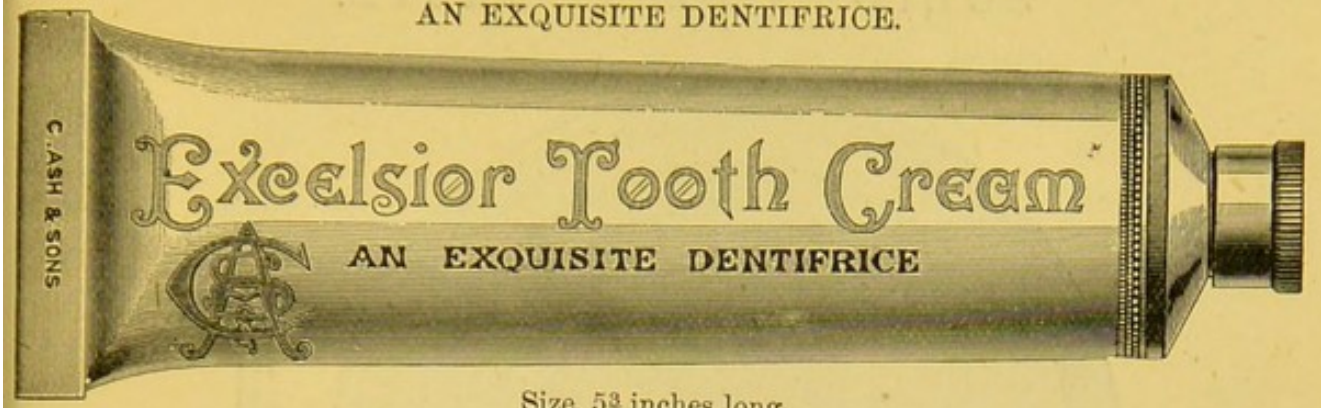
O.S. TOOTH BLOCKS.



		s.	d.		s.	d.
In glass boxes	each	2	0	per doz.	21	0
In metal „	..	..		„	7	0

EXCELSIOR TOOTH CREAM.

AN EXQUISITE DENTIFRICE.



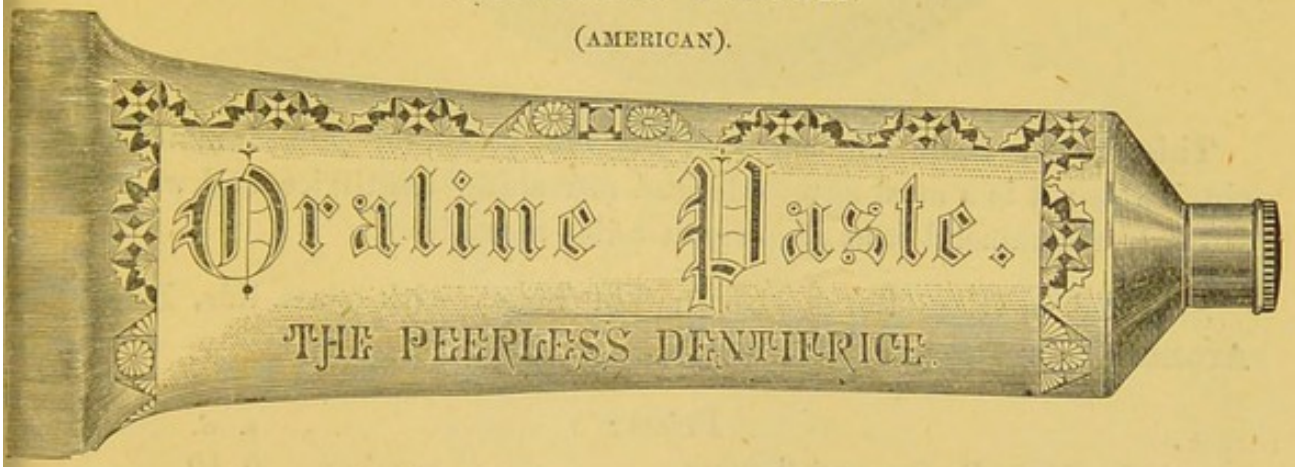
Size, 5⅜ inches long.

We can recommend this preparation, with the fullest confidence, as one of the best and most efficient pastes ever made for cleansing the teeth and refreshing the mouth.

		s.	d.		s.	d.
Excelsior Tooth Cream	per tube	1	6	per doz.	16	0

ORALINE PASTE.

(AMERICAN).



		s.	d.		s.	d.
In soft metal tubes	per tube	1	8	per doz.	16	8

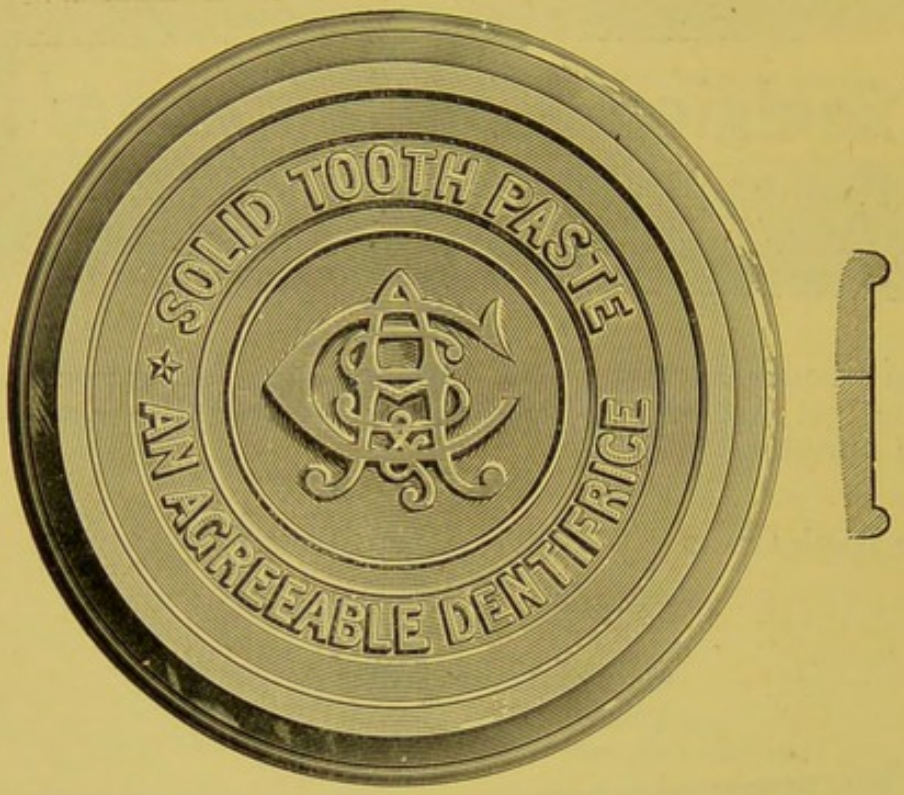
TOOTH SOAP.

(AMERICAN).

Mint, Wintergreen and Rose Flavours.

		s.	d.
Mint Flavour, in cardboard boxes	per doz.	8	4
Wintergreen ,, ,, ,, ...	,,	8	4
Rose ,, ,, ,, ...	,,	10	5

SOLID TOOTH PASTE.



This Tooth Paste is composed of the best and purest materials obtainable; it is a most agreeable and refreshing dentifrice, and we can strongly recommend it as an elegant toilet requisite.

Supplied in Glass Boxes, also in Tin Boxes with glass lids, **Rose, Aromatic,** or **Peppermint** flavour.

Prices:		*s.*	*d.*
In Glass Boxes, any flavour	per box	0	10
,, ,, ,, ...	,, doz.	9	0
,, ,, ,, ...	,, gross	100	0
In Metal Boxes with Glass Lids, any flavour	,, box	0	9
,, ,, ,, ,, ,,	,, doz.	8	0
,, ,, ,, ,, ,,	,, gross	84	0

Solid Tooth Paste can be had stamped with the dentist's own name and address on the following condition :—

Not less than one gross to be ordered at a time.

No charge is made for stamping beyond the first cost of the die, which is twenty shillings. The die will serve for a long time.

ELECTROTYPES,

FOR APPOINTMENT BOOKS, RECORD FORMS, &c.

Fig. 3.

Fig. 4.

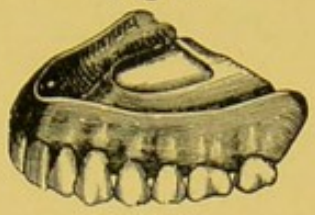


Fig. 7.

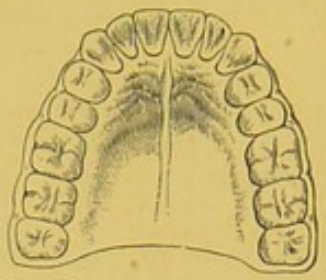


Fig. 5.

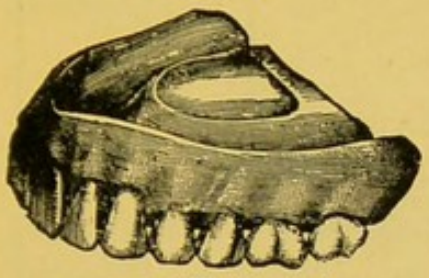
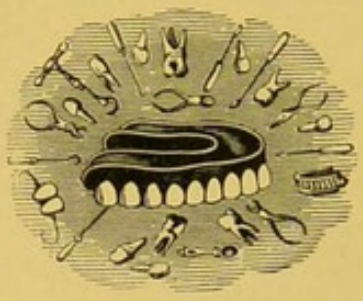


Fig. 6.



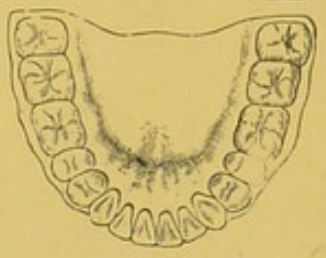


Fig. 8.

Fig. 9.

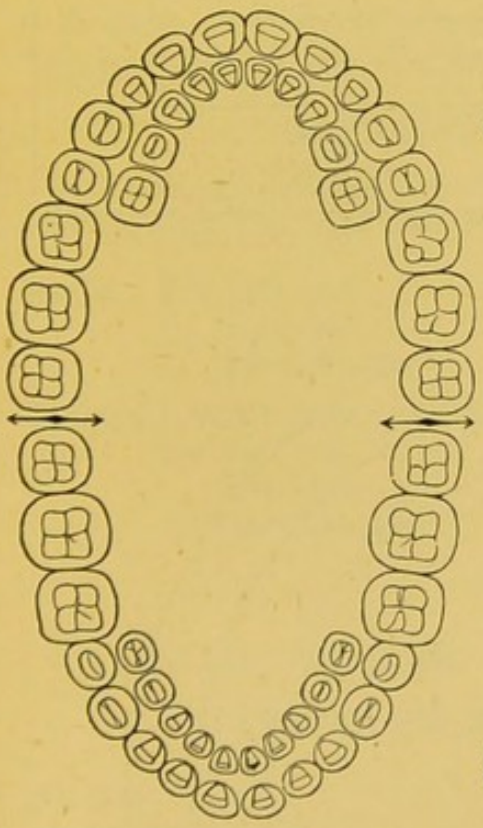


Fig. 1.

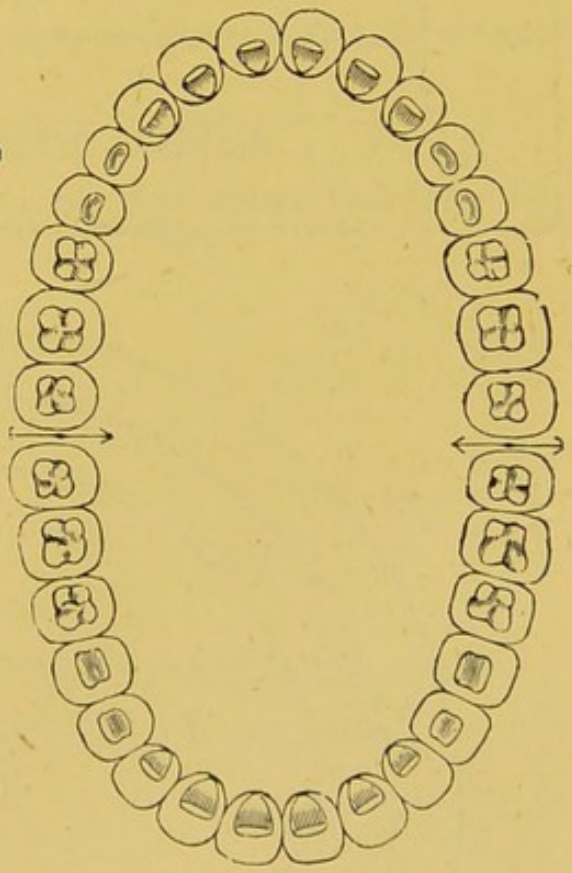
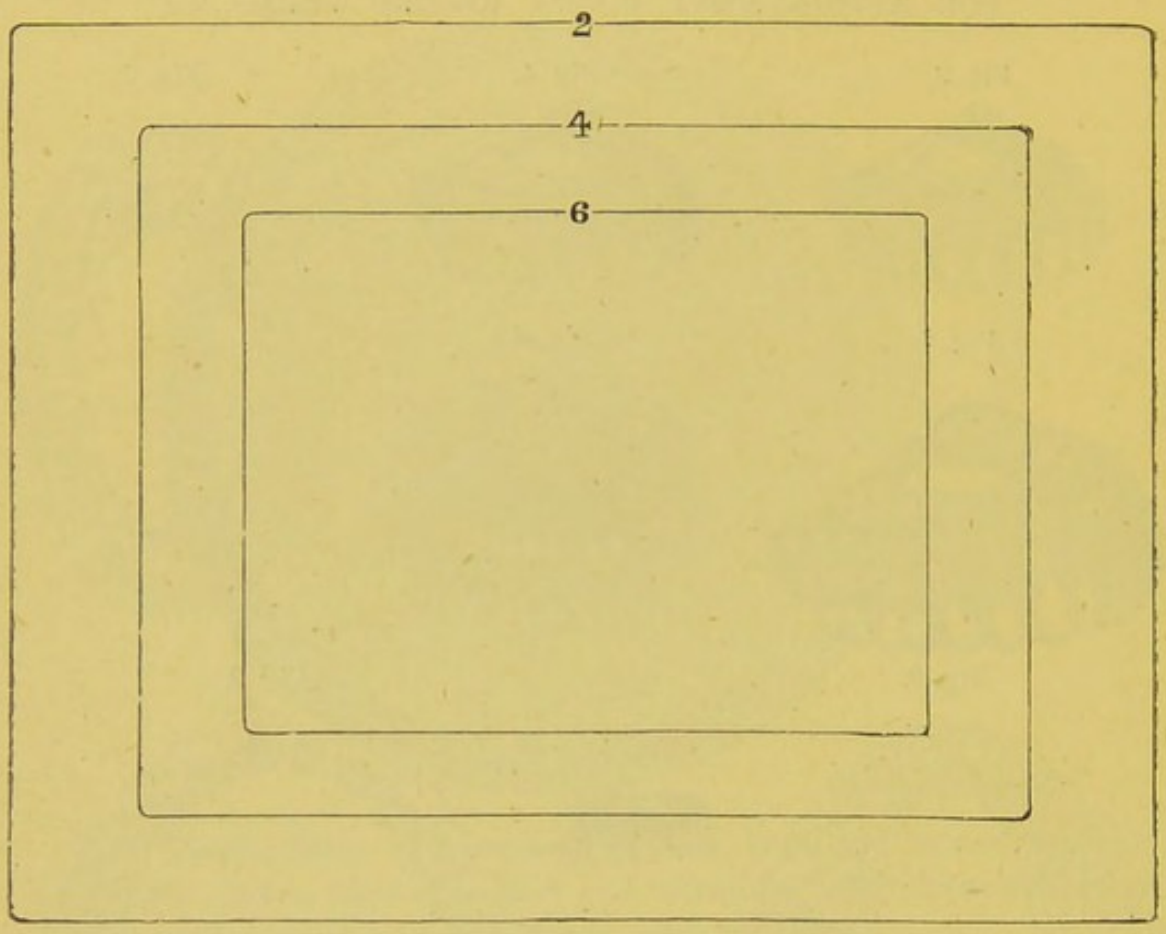


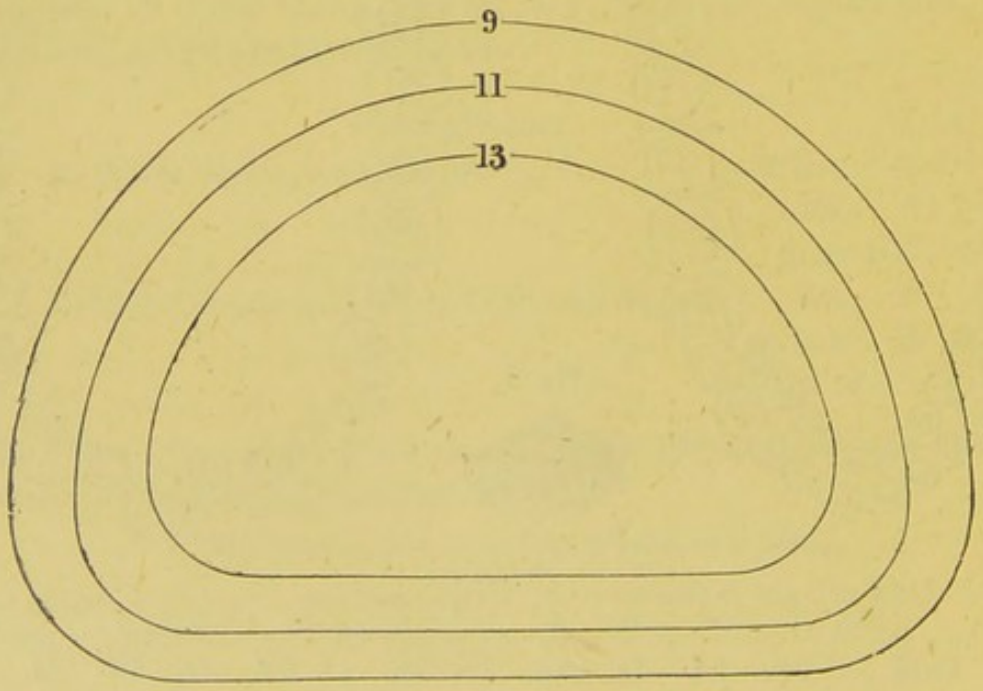
Fig. 2.

Prices:

Fig.	1.	2.	3.	4.	5.	6.	7.	8.	9.
Each ..	9*d.*	9*d.*	1*s.*	1*s.*	1*s.* 6*d.*	1*s.* 6*d.*	3*s.*	3*s.*	3*s.*

SIZES OF CASES.





LEATHER CASES.

The sizes on the opposite page represent the **outside** dimensions of each case. The **inside** measurements are, roughly speaking, about an eighth of an inch less each way.

Names, addresses, &c., printed inside the lids of the **first quality** to order, when purchased by the dozen.

SQUARE.

Sizes		2.		4.		6.	
		s.	*d.*	*s.*	*d.*	*s.*	*d.*
First Quality, with Lock and Key ..	each	5	0	3	3	—	
„ „ with Spring	„	2	3	1	9	1	3
Second „ „ „	„	1	10	1	6	1	1

HALF-OVAL,

FOR LOWER PIECES.

Sizes		9.		11.		13.	
		s.	*d.*	*s.*	*d.*	*s.*	*d.*
First Quality, with Spring	each	1	6	1	4	1	1
Second „ „ „	„	1	2	1	1	1	0

Other sizes supplied to order.

A discount of 10 per cent. is allowed when Leather Cases are purchased by the dozen.

SHOULDERED WOOD BOXES.

For holding artificial dentures. They are very strong, and may be sent through the post without fear of being broken.

		s.	*d.*
Plain: For full sets	each	0	4
„ half sets	„	0	3
„ partial sets	„	0	2
Covered with morocco paper:			
For full sets	„	0	5
„ half sets	„	0	4
„ partial sets	„	0	3

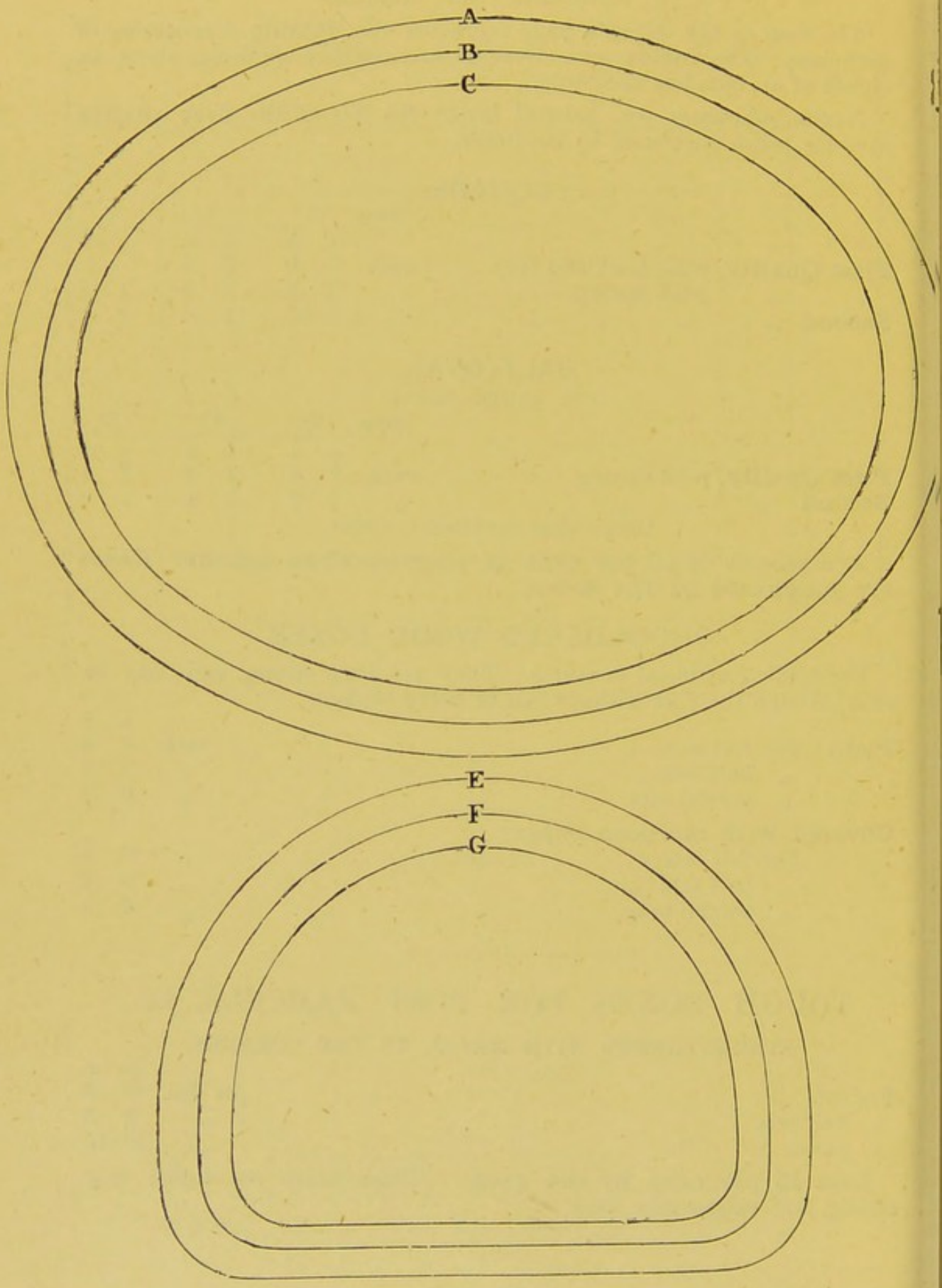
TOUGH BOXES FOR POST PARCELS, &c.,

STRENGTHENED WITH METAL AT THE CORNERS.

		s.	*d.*
For sets	per doz.	1	6
„ half-sets	„	1	3
„ pieces	„	0	10

Less 10 per cent. by the gross. These boxes are light, very strong, and extensively used.

SIZES OF CASES.



LEATHER CASES.

The sizes on the opposite page represent the **outside** dimensions of each case. The **inside** measurements are, roughly speaking, about $\frac{1}{8}$ of an inch less each way.

Names, addresses, &c., printed inside the lids of **first quality** cases to order, when purchased by the dozen.

OVAL.

Sizes		A.		B.		C.	
		s.	*d.*	*s.*	*d.*	*s.*	*d.*
First Quality with Spring	each	2	6	2	0	2	0
Second ,, ,, ...	,,	2	0	1	9	1	7

HALF-OVAL.

Sizes		E.		F.		G.	
		s.	*d.*	*s.*	*d.*	*s.*	*d.*
First Quality with Spring	each	1	9	1	7	1	3
Second ,, ,, ...	,,	1	3	1	1	1	0

Other sizes supplied to order.

A discount of 10 per cent. is allowed when Leather Cases are purchased by the dozen.

CARD BOXES,

FOR HOLDING ARTIFICIAL DENTURES, ETC.

Sizes as on page 594. Nos.		2.		4.		6.	
		s.	*d.*	*s.*	*d.*	*s.*	*d.*
Drab, with red edges	per doz.	5	0	3	0	2	0

JAPANNED AND LEATHER CASES,

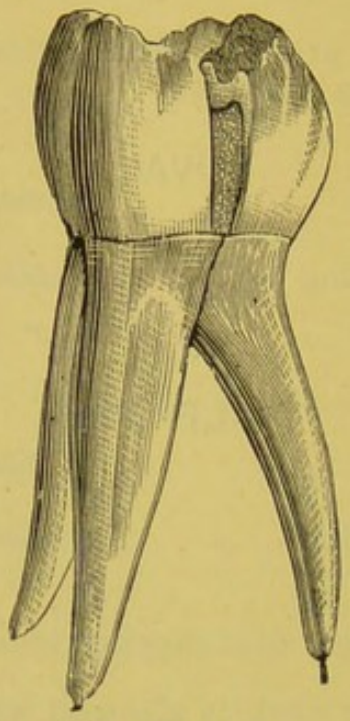
FOR HOLDING MINERAL TEETH.

			s.	*d.*
Japanned, with lock and key, to hold	5000	.. .. each	28	0
,, ,, ,, ,,	3000	.. .. ,,	25	0
,, ,, ,, ,,	2000	.. .. ,,	21	0
Leather, with hooks and loops ,,	1000	.. .. ,,	15	0
,, ,, ,, ,,	600	.. .. ,,	9	0
,, ,, ,, ,,	300	.. .. ,,	6	9

Cases or Boxes in Card, Wood, Leather, Britannia Metal, or Japanned Tin made to order or special directions.

MAGNIFIED HUMAN MOLAR.

(By Dr. F. G. Lemercier.)



One-fifth size.

DESCRIPTION.

(*From the French.*)

First upper molar iconographically stratified, that is to say, in superposed illustrations.

The tooth is shown 14 inches long, divided into four superposed layers, cut vertically from the centre, through the crown, neck and roots, for the purpose of illustrating to their full extent the enamel, dentine, cement, pulp, membranes, vessels, and nerves.

It was first prepared from the natural organs seen through the microscope, and, according to the works of the best authorities, it shows histologically, layer by layer, the complete structure of the human tooth.

It is chromo-lithographed, and carefully mounted on stout cardboard, the various parts being numbered for ready reference to the explanatory table which is printed opposite the illustrations.

	s.	*d.*
Price complete	16	0

DIAGRAM OF INCISOR TOOTH.

Size 13 inches long by 9½ wide.

Published by request of the Dental Society of the State of New York. Designed to show the complete structure of the human tooth, every part being carefully marked to correspond with an explanatory table, which is printed at the foot of the illustration. As a ready means of reference it will be found very useful both by the Dental Student and the busy Practitioner.

	s.	*d.*
Price, coloured	4	0

HUMAN ANATOMY AND PHYSIOLOGY.

Illustrated by a series of ten movable atlases of the Human Body, showing the relative positions of the several parts by means of superposed coloured plates, from the designs of Professor G. J. Witowski, M.D.

As each part is complete in itself, only those which are specially interesting to Dentists are here enumerated. Any of the other parts will be obtained to order.

Part II.—Text by Lennox Browne, F.R.C.S. Edin.
Throat and Tongue, showing the Mechanism of Voice, Speech, and Taste.

„ IV.—Text by Henry Power, F.R.C.S., Senior Ophthalmic Surgeon to St. Bartholomew's Hospital.
The Eye and the Apparatus of Vision.

„ V. { Text of the Ear by Lennox Browne, F.R.C.S. Edin.
Text of the Teeth by Henry Sewill, M.R.C.S., &c.
The Ear and the Teeth: the Mechanism of Hearing and of Mastication.

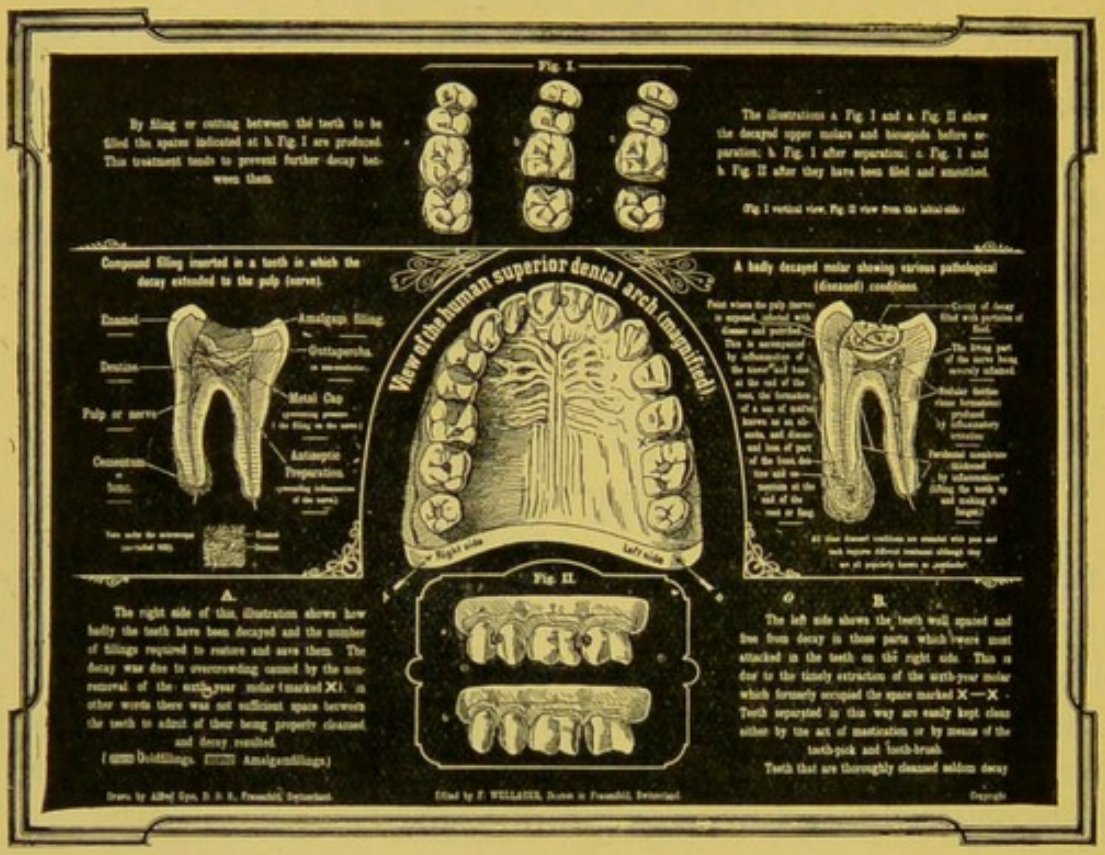
„ VI.—Text by T. Stretch Dowse, M.D., F.R.C.P. Edin., &c.
The Brain and the Skull (Cerebrum, Cerebellum, and Medulla Oblongata).

„ VIII.—Text by A. T. Norton, F.R.C.S., &c.
The Skeleton and its Articulations, showing the Bones and Ligaments of the Human Body and Limbs.

	s.	*d.*
Price, any part .. .. each	7	6

DIAGRAM OF THE UPPER JAW AND TEETH.

(Dr. Gysi's.)



The central illustration shows :—

1. The teeth on the right side of the arch badly decayed through overcrowding, and the number of fillings required to save them, while by the timely extraction of the sixth-year molar the teeth on the left side are almost entirely free from decay, two only out of seven having been filled.
2. The molars and bicuspids on the right side decayed before separation, and the same after they are separated and filled.

The section of a molar with exposed pulp on the left-hand side shows the order in which the materials employed for capping the pulp and stopping the tooth are introduced.

A badly decayed molar, with exposed pulp and an abscess at the root, is shown at the right-hand side.

The diagram, reduced size of which is illustrated above, is 21 by 16 inches, and is intended rather for showing various conditions to patients, should it be considered necessary or desirable to do so, than for the instruction of the dentist. It is beautifully illustrated in colours, and contains a clear explanation of the treatment pursued.

Prices :

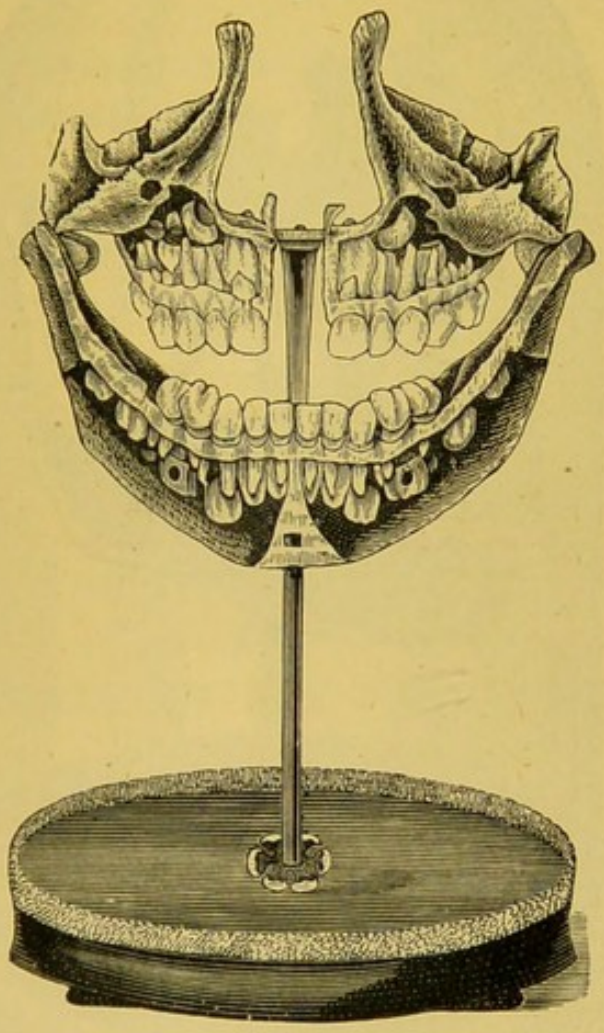
	s.	d.
Diagram with text in English	4	0
„ „ French	4	0

ANATOMICAL PREPARATIONS.

FIRST AND SECOND DENTITION.

These preparations are not only instructive to the Dental Student, but useful to the Dentist for explaining to Patients the causes of irregularities in the teeth of children, and for showing why some Teeth have a greater tendency to irregularity than others.

Fig. 1.



This is supplied in two kinds; one showing the dentition of children between the ages of six and seven years, the other between the ages of seven and eight years. The bones and teeth are perfectly bleached, and mounted on pillar and stand covered with a glass shade.

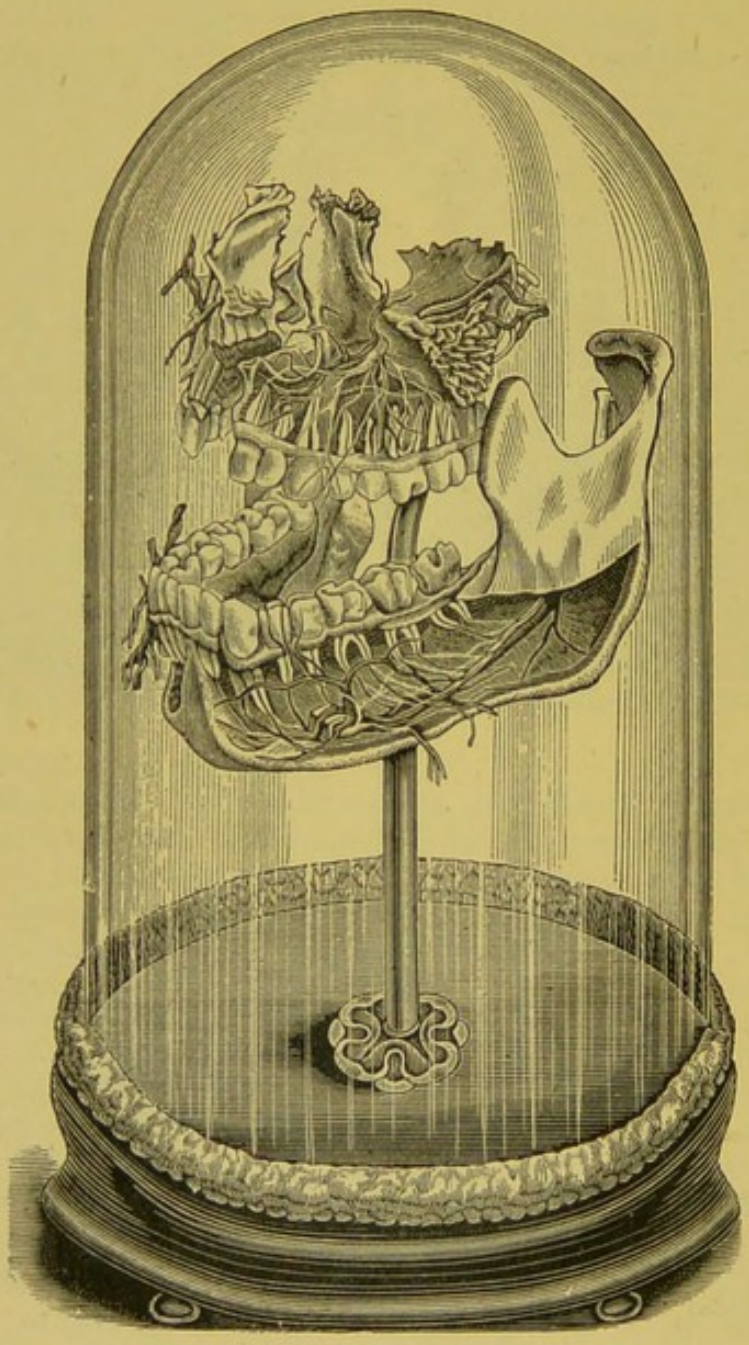
		s.	d.
Price	(Fig. 1)	52	0

Children's Skulls, showing First and Second Dentition, mounted or unmounted, supplied to order.

ANATOMICAL PREPARATIONS—*continued.*

SECOND DENTITION.

Fig. 2.



The Second Dentition is useful to the Dentist for describing to Patients the ramifications of the nerves of the face and jaws, and thus accounting for the pain which is often felt at a considerable distance from the tooth which is the cause of it.

SECOND DENTITION—*continued.*

Fig. 2 shows the Nerves, Arteries, and Veins in the upper and lower jaws, portions of which and of the teeth are cut away for the purpose. The nerves are exhibited on one side, and the arteries and veins on the other.

The bones and teeth are perfectly bleached, and are mounted on pillar and stand covered with glass shade, as shown in the illustration.

		s.	*d.*
Price	(Fig. 2)	55	0
Skulls, Articulated, for Students	each	35	0
„ **Disarticulated** „	„	55	0

Other kinds of Anatomical Preparations supplied to order.

DIAGRAMS OF THE NERVES OF THE HUMAN BODY.

By William H. Fowler, K.C.B., F.R.C.S., F.R.S., &c.

Exhibiting their Origin, Divisions and Connections, with their Distribution to the various Regions of the Cutaneous Surface, and to all the Muscles.

	s.	*d.*
Third edition, with 6 Plates. Royal 4to. ..	12	0

DIAGRAM OF THE FIFTH NERVE.

New edition; confined entirely to the illustration of the Ramifications of the Great Trifacial Nerve and its Branches.

		s.	*d.*
Price, with Key and Description	net	4	0

REMEMBRANCE CARD.

(Suggested by Mr. James Rymer.)

This useful little card gives the Normal Periods for the Eruption of the Teeth, and forms a ready reference to the operator. Under the head of the Temporary Teeth, the ages at which the Centrals, Laterals, Anterior Molars, Canines and Posterior Molars are erupted are given, and under the head of the Permanent Teeth like information is found concerning the first Molars, Centrals, Laterals, first Bicuspids, second Bicuspids, Canines, second Molars and Wisdoms.

		s.	*d.*
Price, eyeleted, 7 inches by 5	net	0	3

RECORD FORMS.

189.....

Date.	Sign.	£ s. d.

RECORD FORMS—*continued.*

These Forms are useful for hurriedly recording daily operations, most of which can be noted by a simple sign and a few words of explanation. A faithful account of the work done during the hours of practice can thus be kept, which is always ready for posting into the ledger, each case presenting its own information without either confusing or taxing the Operator's memory.

They are supplied in two sizes—**Small,** with the diagram on one side of the paper and the ruling on the other, and **Large,** with both diagram and ruling on one side as shown in the illustration.

Prices:

		s.	*d.*
Small Record Forms in packets of 50 ..	per pkt.	1	0
Large „ „ „ ..	„	1	0

BRYAN'S DENTAL LEDGER AND OPERATION REGISTER.

With a diagram on each page.

Exhibiting all the surfaces and the roots of every tooth in the mouth, adapted for any system of Dental Nomenclature, with a complete index, interleaved with blotting paper.

Every dentist who desires to keep a careful record of his operations will find this ledger a most useful and simple book for the purpose.

It contains 500 4to. pages, and is strongly bound in cloth with leather back.

		s.	*d.*
Price	**net**	**17**	**6**

Specimen page forwarded on application.

SARSON'S DENTAL SURGEON'S DAY-BOOK.

Is comprehensive, yet condensed, and will hold the details of over 3,000 cases.

A leading dentist writes as follows to the Author concerning it:—

"My bookkeeping used to finish me up, when feeling tired after a busy day, but with your Book I think nothing of it, even if I leave it for a week or more; it is so simple and easy."

		s.	*d.*
Price	**net**	**12**	**6**

Specimen page forwarded on application.

DENTAL AND OTHER BOOKS.

ALL THE BOOKS IN THIS LIST THAT ARE NOT MARKED NET ARE SUBJECT TO A DISCOUNT OF 15 PER CENT.

New Books relating to Dentistry will be found advertised, as they are published, in our "Quarterly Circular," which can be had, post free, on application by any member of the Profession.

ACCOUNT BOOKS:

		s.	d.
Allport's Dental Ledger, 340 pages, half-roan	net	12	0
Meredith's Dental Register and Appointment Book, plain	,,	5	0
,, ,, ,, with Tuck ..	,,	6	0
S. S. White D.M. Coy.'s Pocket Diary and Appointment Books, plain	,,	3	0
,, ,, ,, ,, with Tuck	,,	4	0
Wilmington ,, ,, ,, plain	,,	3	0

ANATOMIST'S VADE-MECUM, or THE POCKET GRAY.

—*See* Cotterell.

ANDRIEU.—TRAITÉ DE DENTISTERIE OPERATOIRE.

Par E. Andrieu, Docteur en Médecine de la Faculté de Paris, Président de l'Institut Odontotechnique de France, &c., &c. Avec 409 Figures intercalées dans le texte. 8vo., 1889, 648 pp.

		s.	d.
Price	net	15	0

ANGLE.—A SYSTEM OF REGULATION AND RETENTION OF THE TEETH.

—By Edward H. Angle, D.D.S., formerly Professor of Histology and Orthodontia, and Comparative Anatomy of the Teeth in the Dental Department of the University of Minnesota. Third edition, in paper covers, 54 illustrations, 51 pp.

		s.	d.
Price	net	3	0

ARTHUR.—TREATMENT AND PREVENTION OF DECAY OF THE TEETH.

—By Robert Arthur, M.D., D.D.S. Latest edition, 16mo., cloth, 256 pp.

		s.	d.
Price	net	5	6

DENTAL AND OTHER BOOKS—*continued.*

ATKINSON.—PRACTICAL NOTES ON NITROUS OXIDE GAS. A brochure by J. Ottley Atkinson, L.D.S. Eng. 38 pp., 3 illustrations, in cloth covers.

	s.	d.
Price	1	6

AYRTON.—PRACTICAL ELECTRICITY.—By W. E. Ayrton. Latest edition, 8vo., cloth.

	s.	d.
Price	7	6

BALKWILL.—MECHANICAL DENTISTRY IN GOLD AND VULCANITE: Arranged with regard to the difficulties of the Pupil, the Mechanical Assistant, and the young Practitioner.—By F. H. Balkwill, L.D.S. Eng., Member of the Odontological Society of Great Britain. With 2 lithographic plates and 57 engravings; 190 pp., 8vo., cloth.

	s.	d.
Price	10	0

BALKWILL.—THE TESTIMONY OF THE TEETH TO MAN'S PLACE IN NATURE, with other Essays on the doctrine of Evolution. —By F. H. Balkwill, L.D.S. Eng, &c. With illustrations, crown 8vo., cloth.

	s.	d.
Price	6	0

BARRETT.—DENTAL SURGERY for General Practitioners and Students of Medicine.—By A. W. Barrett, M.B. (Lond.), M.R.C.S., L.D.S.E., Dental Surgeon to the London Hospital, and Lecturer on Dental Surgery in the Medical School. Second edition, with 80 illustrations; 134 pp. and Index.

	s.	d.
Price	3	6

BEASLEY.—THE BOOK OF PRESCRIPTIONS, containing upwards of 3,000 prescriptions. Collected from the practice of the most eminent Physicians and Surgeons, English and Foreign, with a history of the Materia Medica, Lists of Doses, and an Index of Diseases and Remedies.—By Henry Beasley. Seventh edition. 597 pp., 18mo., cloth.

	s.	d.
Price	6	6

BEASLEY.—The DRUGGIST'S GENERAL RECEIPT BOOK, comprising a copious Veterinary Formulary; numerous Recipes in Patent and Proprietary Medicines, Druggists' Nostrums, &c.; Perfumery and Cosmetics; Beverages, Dietetic Articles, and Condiments; Photographic Chemicals and Formulæ, Trade Chemicals, Scientific Processes, and an Appendix of useful Tables.—By Henry Beasley. Ninth edition. 507 pp., 18mo., cloth.

	s.	d.
Price	6	6

DENTAL AND OTHER BOOKS—*continued.*

BEASLEY.—The POCKET FORMULARY AND SYNOPSIS OF THE BRITISH AND FOREIGN PHARMACOPŒIAS; comprising standard, approved, and most recent Formulæ for the Preparations and Compounds employed in Medical Practice.—By HENRY BEASLEY. Eleventh edition. 517 pp., 18mo., cloth.

	s.	d.
Price	6	6

BLACK.—ANATOMY OF THE HUMAN TEETH.—By G. V. BLACK, M.D., D.D.S., Professor of Pathology in the Chicago College of Dental Surgery. Second edition, in cloth.

	s.	d.
Price .. .. net	10	0

"Black's 'Dental Anatomy' has already secured an established place in our literature, as a standard text and reference book. There is nothing like it published. It is a book which no intelligent dentist can afford to be without. The fact that a second edition was so soon called for is ample evidence of its merits."—*The Dental Practitioner and Advertiser.*

BLACK.—ON THE FORMATION OF POISONS BY MICRO-ORGANISMS.—By G. V. BLACK, M.D., D.D.S., &c. 109 pp., 12mo., cloth.

	s.	d.
Price .. .. net	6	0

BLACK.—STUDY of THE HISTOLOGICAL CHARACTERS OF THE PERIOSTEUM AND PERIDENTAL MEMBRANE.—By G. V. BLACK, M.D., D.D.S., &c.

	s.	d.
Price .. .. net	6	0

BLODGETT.—A HANDBOOK OF DENTAL PATHOLOGY for Students and Practitioners.—By ALBERT N. BLODGETT, M.D., late Professor of Pathology and Therapeutics in Boston Dental College. 8vo., cloth, 33 Illustrations, 273 pp., and index.

	s.	d.
Price .. .. net	5	6

***BLOXAM AND HUNTINGTON.—METALS: THEIR PROPERTIES AND TREATMENT.**—By CHARLES LOUDON BLOXAM, Professor of Chemistry in King's College, London, in the Department of Artillery Studies, and formerly in the Royal Military Academy, Woolwich. Partially re-written and augmented by ALFRED K. HUNTINGTON, Professor of Metallurgy in King's College, London, and late Lecturer on Metallurgy to the Medical School of the Dental Hospital of London. New edition, 130 illustrations, 439 pp., and index, crown 8vo., cloth.

	s.	d.
Price	5	0

* This is a Text-Book at the Dental Hospital of London.

DENTAL AND OTHER BOOKS—*continued.*

BRITISH PHARMACOPŒIA, THE.—Published under the direction of the General Council of Medical Education and Registration of the United Kingdom. 502 pp., and index.

	s.	d.
Price .. .. net	6	0

(*See* also Extra Pharmacopœia, The.)

***BRUCE.—MATERIA MEDICA AND THERAPEUTICS:** An Introduction to the Rational Treatment of Disease.—By J. Mitchell Bruce, M.A. Aberd., M.D. Lond., F.R.C.S., Physician and Lecturer on Medicine and Therapeutics, Charing Cross Hospital, &c., &c. 574 pp., including index. Twenty-second thousand. Of a convenient size for the pocket. In limp cloth.

	s.	d.
Price	7	6

"We welcome its appearance with much pleasure, and feel sure that it will be received on all sides with the favour which it richly deserves."—*British Medical Journal.*

BUXTON.—ANÆSTHETICS: THEIR USES AND ADMINISTRATION.—By Dudley Wilmot Buxton, M.D., B.S., M.R.C.P., M.R.C.S., Administrator of Anæsthetics and Lecturer in University College Hospital, the National Hospital for Paralysis and Epilepsy, Queen's Square, and the Dental Hospital of London. Second edition, 31 illustrations, 222 pp., crown 8vo. cloth.

	s.	d.
Price	5	0

CARPENTER.—THE MICROSCOPE AND ITS REVELATIONS.—By the late Wm. B. Carpenter, C.B., M.D., LL.D., F.R.S. Seventh edition (just published, Nov. 1891), in which the first seven chapters have been entirely re-written and the text throughout reconstructed, enlarged and revised by the Rev. W. H. Dallinger, LL.D., F.R.S., &c. With 21 plates and 800 wood engravings, 1,054 pp., and index, 8vo. cloth.

	s.	d.
Price	26	0

CARPENTER.—PRINCIPLES OF HUMAN PHYSIOLOGY.—By William B. Carpenter, C.B., M.D., LL.D., F.R.S. Ninth edition, edited by Mr. Henry Power. With steel plates and 377 engravings, 1,100 pp., royal 8vo.

	s.	d.
Price	31	6

CATCHING'S COMPENDIUM OF PRACTICAL DENTISTRY. Published annually, commenced in 1890. It consists of the most valuable practical matter that appears in the dental journals, collected by the Author and classified under the following heads: Operative Dentistry, Prosthetic Dentistry, Crown and Bridge-Work, Orthodontia, Dental Medicine, Oral Surgery, and Miscellaneous. Three volumes have already appeared, one for 1890, one for 1891, and one for 1892. The volume for 1893 will appear early in 1894. Cloth.

	s.	d.
Price (any year) .. .. net	10	6

* This is a Text-Book at the Dental Hospital of London.

DENTAL AND OTHER BOOKS—*continued.*

CHUPEIN.—THE DENTAL LABORATORY: A Manual of Gold and Silver Plate Work for dental substitutes, Crowns, &c.; Regulating appliances for irregular teeth; Repairing, &c.; to which is added Manipulations in Vulcanite and Celluloid, Laboratory Hints, Suggestions, Fixtures, &c.—By THEODORE F. CHUPEIN, D.D.S., Editor of "The Dental Office and Laboratory." Fully illustrated, 120 pp., bound in cloth.

	s.	d.
Price .. .. net	6	0

CLIFFORD'S MANUAL OF RECITATIONS IN MATERIA MEDICA, PHARMACY, AND THERAPEUTICS. — Compiled by E. L. CLIFFORD, D.D.S., formerly Professor of Dental Materia Medica and Therapeutics, North Western University Dental School (Chicago), &c.

	s.	d.
Price .. .. net	12	0

Approved by the American Committee on Text-Books of the National Association of Dental Faculties.

COLE.—METHODS OF MICROSCOPICAL RESEARCH: An Introductory Essay to Studies in Microscopical Science. Edited by ARTHUR C. COLE, F.R.M.S. In cloth, with illustrations, 83 pp. and Index.

	s.	d.
Price	5	0

This book is recommended by Mr. G. G. Campion, of Manchester, and Mr. J. Andrew, of Belfast, as one of the best working books.

COLEMAN.—A MANUAL OF DENTAL SURGERY AND PATHOLOGY.—By ALFRED COLEMAN, L.R.C.P., F.R.C.S. (Exam.), L.D.S., Past President of the Odontological Society of Great Britain, &c., &c. With 388 illustrations, 342 pp., 8vo., cloth.

	s.	d.
Price	12	6

COLEMAN. — MANUEL DE CHIRURGIE ET DE PA- THOLOGIE DENTAIRES. — Par ALFRED COLEMAN, L.R.C.P., F.R.C.S. (Exam.), L.D.S., &c. Traduit par le Dr. G. Darin. In 8o., avec 256 figures.

	s.	d.
Price .. .. net	5	0

COLEMAN.—LEHRBUCH der ZAHNÄRZTLICHEN CHIR- URGIE UND PATHOLOGIE.—Von ALFRED COLEMAN, L.R.C.P., &c., &c. Autorisirte Ubersetzung. 320 Seiten, mit elegantem Einband.

	s.	d.
Price .. .. net	6	0

COLES.—A MANUAL OF DENTAL MECHANICS, with an account of the Materials and Appliances used in Mechanical Dentistry.—By OAKLEY COLES, L.D.S., late Dental Surgeon to the Hospital for Diseases of the Throat. Second edition, 140 engravings, 288 pp., crown 8vo., cloth.

	s.	d.
Price	7	6

DENTAL AND OTHER BOOKS—*continued.*

COLES.—MANUEL DE PROTHÈSE DENTAIRE, par OAKLEY COLES, L.D.S., &c., traduit par le Dr. G. Darin. 1 vol. petit in 8vo., avec 150 gravures.

	s.	d.
Price .. .. net	5	3

COLES.—DEFORMITIES of THE MOUTH, CONGENITAL AND ACQUIRED, with their Mechanical Treatment.—By OAKLEY COLES, L.D.S., &c. With 83 Wood engravings and 96 drawings on stone, 223 pp., 8vo., cloth.

	s.	d.
Price	12	6

COLYER.—*See* Smale and Colyer.

CONSTANT.—HOW TO GIVE GAS. With a detailed Description of the Apparatus Employed.—By T. E. CONSTANT, M.R.C.S., L.R.C.P., L.D.S. Eng., late House-Surgeon, Dental Hospital of London. With seven illustrations, 36 pp., 8vo., in paper covers.

	s.	d.
Price	1	6

***COTTERELL.—THE POCKET GRAY; or, ANATOMIST'S** VADE-MECUM. Compiled especially for Students.—By EDWARD COTTERELL, F.R.C.S. Eng., &c., Surgeon (out-patients) London Lock Hospital; Surgeon to the Cancer Hospital; Surgeon to the West-End Hospital for Epilepsy and Diseases of the Nervous System; formerly assistant Demonstrator of Anatomy, University College, London. 263 pp., including index, 16mo. Fourth edition (fifteenth thousand), cloth.

	s.	d.
Price	3	6

This edition has been thoroughly revised, enlarged, and brought completely up to date.

CROWLEY.—DENTAL BIBLIOGRAPHY. A Standard Reference List to over 2000 Books on Dentistry, published throughout the world from A.D. 1536 to 1885. Arranged chronologically, and supplemented with a complete cross reference to authors. Compiled by C. GEO. CROWLEY. On heavy toned paper, neatly bound.

	s.	d.
Price .. .. net	2	0

DARIN.—SUR LES ANESTHÉSIQUES: Une brochure de 55 pp. par le Dr. G. DARIN. 4 gravures, in 8vo.

	s.	d.
Price .. .. net	1	6

* This is a Text-Book at the Dental Hospital of London.

DENTAL AND OTHER BOOKS—*continued.*

DAVIS.—GUIDE TO THE ADMINISTRATION OF ANÆSTHETICS.—By Henry Davis, M.R.C.S., Tecaher and Administrator of Anæsthetics at St. Mary's Hospital, and Assistant Anæsthetist at the Dental Hospital of London. 8 illustrations, 92 pp., including index. Second edition.

	s.	d.
Price	2	6

DENTAL JOURNALS.—*See* page 628.

DENTIST'S REGISTER, THE.

		s.	d.
Current year	net	3	4
Any past year	,,	1	6

DIAGRAM OF THE FIFTH NERVE.—*See* page 603.

DRUITT.—THE SURGEON'S VADE-MECUM: A Manual of Modern Surgery.—By Robert Druitt, F.R.C.S. Twelfth edition, edited by Stanley Boyd, M.B., F.R.C.S., Assistant Surgeon and Pathologist to the Charing Cross Hospital. With 373 engravings, 1000 pp., crown 8vo., cloth.

	s.	d.
Price	16	0

DUBOIS.—AIDE-MEMOIRE DU CHIRURGIEN-DENTISTE. Par Paul Dubois, Directeur de l'Odontologie, Président de la Société d'Odontologie de Paris. Première Partie Therapeutique de la carie Dentaire. Deuxième édition.

		s.	d.
Price	net	4	9

EISSLER.—THE METALLURGY OF GOLD. A practical Treatise on the metallurgical treatment of gold-bearing ores: including the processes of concentration and chlorination, and the assaying, melting and refining of gold.—By M. Eissler. Crown 8vo. cloth, 200 pp., 90 illustrations.

	s.	d.
Price	7	6

ESSIG.—DENTAL METALLURGY.—By Charles Essig, M.D., D.D.S., Professor of Mechanical Dentistry and Metallurgy in the University of Pennsylvania, Dental Department. Second edition, revised and enlarged, cloth, 8vo.

		s.	d.
Price	net	7	0

EVANS.—CROWN AND BRIDGE WORK: A practical Treatise by Geo. Evans. With nearly 600 illustrations. 320 pp., 8vo., cloth. Third edition.

		s.	d.
Price	net	14	0

"Dr. Evans has brought this book thoroughly up to date."

"The work is about as complete as can possibly be wished for, and is one which should be in the possession of all those interested in the operative part of our profession."—*The Journal of the British Dental Association.*

DENTAL AND OTHER BOOKS—*continued.*

EXTRA PHARMACOPŒIA, THE. With the additions introduced into the British Pharmacopœia, 1885, and Medical References and a Therapeutic Index of Diseases and Symptoms.—By WILLIAM MARTINDALE, F.C.S., late Examiner of the Pharmaceutical Society, and late Teacher of Pharmacy and Demonstrator of Materia Medica at University College, and W. WYNN WESTCOTT, M.B. London, Deputy Coroner for Central Middlesex. Seventh edition, revised, with numerous illustrations. Limp roan, med. 24mo.

	s.	d.
Price	7	6

FARRAR.—A TREATISE ON THE IRREGULARITIES OF THE TEETH AND THEIR CORRECTION, including, with the Author's practice, other current methods. Designed for Practitioners and Students. By J. N. FARRAR, M.D., D.D.S., formerly Lecturer in Pennsylvania College of Dental Surgery, &c., &c. Volume I., 737 pp. and index. 695 illustrations. In morocco back and cloth sides.

	s.	d.
Price .. .. net	29	0

Volume II. is nearly ready.

FILLEBROWN.—A TEXT-BOOK OF OPERATIVE DEN-TISTRY.—By THOMAS FILLEBROWN, M.D., D.M.D., Professor of Operative Dentistry in the Dental School of Harvard University. Written by invitation of the American National Association of Dental Faculties. With 300 illustrations. 8vo., 269 pp. and index.

	s.	d.
Price .. .. net	7	0

FISHER.—COMPULSORY ATTENTION TO THE TEETH OF SCHOOL CHILDREN. A Pamphlet containing the Papers read by W. M. FISHER, at the British Dental Association Meetings, with Criticisms and Press Opinions. Suitable for the education of School directorates, &c.

	s.	d.
Price per dozen .. .. net	3	0

FLAGG AND INGLIS. — DENTAL PATHOLOGY AND THERAPEUTICS in the form of Questions and Answers. Compiled by OTTO E. INGLIS, D.D.S., carefully revised and approved by J. FOSTER FLAGG, D.D.S., Professor of Dental Pathology and Therapeutics in Philadelphia Dental College. In cloth, 105 pp., interleaved.

	s.	d.
Price .. .. net	12	0

The book consists of 719 Questions and Answers; there is a blank page for Memoranda opposite each page of reading matter and a list of useful Medicaments occupying thirteen pages.

FLAGG.—PLASTICS AND PLASTIC FILLINGS, as pertaining to the filling of all cavities of decay in Teeth below medium in structure and to difficult and inaccessible cavities in Teeth of all grades of structure.—By J. FOSTER FLAGG, D.D.S., &c. Third edition. Cloth, with illustrations, above 215 pp.

	s.	d.
Price .. .. net	13	6

DENTAL AND OTHER BOOKS—*continued.*

FLETCHER.—COAL GAS AS A FUEL: A concise Guide to Fitters and Users.—By THOMAS FLETCHER, F.C.S. Illustrated, 71 pp., 8vo., cloth.

		s.	*d.*
Price	net	1	0

FLETCHER. — METALLURGIE DENTAIRE, par THOMAS FLETCHER, F.C.S., traduit par le Dr. G. DARIN.

		s.	*d.*
Price	net	1	0

FLETCHER.—PRACTICAL DENTAL METALLURGY.—By THOMAS FLETCHER, F.C.S., of Warrington. With Addenda reprinted from "Design and Work on the Use of the Blowpipe," by the same Author, and Advertisements comprising a List of General Apparatus and Specialities for Dentists. Third edition, with illustrations, 133 pp., cloth.

	s.	*d.*
Price	4	0

"This small volume has more generally available information to the square inch than any other work of the kind within our knowledge . . . . There is a large number of incidentally useful facts and formulas . . . which every dentist should have at hand."—*The Dental Cosmos.*

FLETCHER.—COAL GAS as a LABOUR-SAVING AGENT IN THE MECHANICAL TRADES. A Lecture delivered before the Society of Arts, Jan. 30, 1884, and reprinted from the Society's Journal with Notes and Additions, January, 1888.—By THOMAS FLETCHER, F.C.S. 22 pp., 8vo., paper covers.

		s.	*d.*
Price	net	0	4

FOULKS.—QUESTIONS ET RÉPONSES sur la Pathologie et la Thérapeutique Dentaires. Par WILLIAM C. FOULKS, D.D.S., Ancien Demonstrateur au Collége Dentaire de Philadelphie. Traduction du Docteur G. Darin.

		s.	*d.*
Price	net	2	0

FOURNEAUX. — ANIMAL PHYSIOLOGY. — By WILLIAM S. FOURNEAUX, being an easy introduction to the study of the Human Frame, with 218 illustrations, 234 pp. and index, crown 8vo., cloth.

	s.	*d.*
Price	2	6

FOY.—ANÆSTHETICS, ANCIENT AND MODERN: Their Physiological Action, Therapeutic Use, and Mode of Action.—By GEORGE FOY, F.R.C.S., Surgeon to the Richmond Hospital. Cloth.

		s.	*d.*
Price	net	3	6

"Every professional man should study this scholarly book, alike for its curious and interesting records of Anæsthetics in past ages, and for its practical suggestions in Modern Surgery and Dental Surgery."—*Medical Journal.*

DENTAL AND OTHER BOOKS—*continued.*

GARRETSON.—A SYSTEM OF ORAL SURGERY: Being a Treatise on the Diseases and Surgery of the Mouth, Jaws, Face, Teeth, and Associate Parts.—By JAMES E. GARRETSON, A.M., M.D., D.D.S., President of the Medico-Chirurgical Hospital, Dean of the Philadelphia Dental College, etc. Illustrated with numerous Woodcuts and Steel Plates. Fifth edition, thoroughly revised, with additions, large 8vo., cloth.

	s.	d.
Price	42	0

"It is without a rival in its comprehensive treatment of the subjects indicated on its title-page."—*Dental Cosmos.*

GEE.—THE GOLDSMITH'S HANDBOOK on Gold and Gold-Working.—By GEORGE E. GEE. Second edition, 12mo., cloth.

	s.	d.
Price	3	0

GEE.—THE SILVERSMITH'S HANDBOOK on Silver and Silver-Working.—By GEORGE E. GEE. Second edition, 12mo., cloth.

	s.	d.
Price	3	0

GILBERT.—VULCANITE AND CELLULOID: Instructions in their Practical Working.—By S. ELDRED GILBERT, Instructor of Clinical Dentistry, Philadelphia Dental College. Illustrated, 8vo., cloth.

	s.	d.
Price .. .. net	3	0

GORGAS.—DENTAL MEDICINE: A Manual of Dental Materia Medica and Therapeutics.—By F. J. S. GORGAS, A.M., M.D., D.D.S., Professor in the Dental Department of the University of Maryland, Baltimore, U.S.A., &c., &c. Fourth edition, revised and enlarged, cloth.

	s.	d.
Price .. .. net	14	0

GORHAM.—TOOTH EXTRACTION: A Manual of the Proper Mode of Extracting Teeth.—By JOHN GORHAM, M.R.C.S., &c. Third edition, 46 pp., fcap. 8vo.

	s.	d.
Price	1	6

***GRAY.—ANATOMY, DESCRIPTIVE AND SURGICAL.**—By HENRY GRAY, F.R.S., F.R.C.S., late Lecturer on Anatomy at St. George's Hospital. The drawings by H. V. CARTER, M.D., late Demonstrator of Anatomy at St. George's Hospital. Edited by T. PICKERING PICK, Surgeon to, and Lecturer on Surgery at, St. George's Hospital, Senior Surgeon Victoria Hospital for Children, Member of the Court of Examiners, Royal College of Surgeons, England. With 605 large Woodcut illustrations, a large proportion of which are Coloured; the Arteries being coloured red, the Veins blue, and the Nerves yellow. The attachments of the muscles to the bones, in the section on Osteology, are also shown in coloured outline. Twelfth edition, 1051 pp., royal 8vo., cloth.

	s.	d.
Price	36	0

* This is a Text-Book at the Dental Hospital of London.

DENTAL AND OTHER BOOKS—*continued.*

GUILFORD. — ORTHODONTIA, OR MALPOSITION OF THE HUMAN TEETH: its Prevention and Remedy.—By S. H. Guilford, A.M., D.D.S., Ph.D., Professor of Operative and Prosthetic Dentistry in the Philadelphia Dental College; Author of "Nitrous Oxide," &c., approved by the American National Association of Dental Faculties as a text book for use in the schools of its representation. Second edition, revised and enlarged, 164 illustrations, and two lithographed plates of engravings, 228 pages, in octavo, cloth.

		s.	d.
Price	net	9	0

HARRIS'S DICTIONARY OF DENTISTRY: Including definitions of such words and phrases of the collateral sciences as pertain to the art and practice of dentistry.—By Ferdinand J. S. Gorgas, M.D., D.D.S.; Author of "Dental Medicine"; Editor of "Harris's Principles and Practice of Dentistry"; Professor of the Principles of Dental Science, Dental Surgery, and Prosthetic Dentistry in the University of Maryland. Fifth edition, re-written, revised and enlarged.

		s.	d.
Price	net	17	0

HARRIS'S PRINCIPLES and PRACTICE OF DENTISTRY: Including Anatomy, Physiology, Pathology, Therapeutics, Dental Surgery and Mechanism. Revised and edited by Ferdinand J. S. Gorgas, A.M., M.D., D.D.S., Professor of the Principles of Dental Science, Dental Surgery, and Dental Mechanism. Twelfth edition, much enlarged, with more than 1000 illustrations, 8vo., cloth

		s.	d.
Price	net	28	0

HASKELL.—THE STUDENT'S MANUAL and HANDBOOK FOR THE DENTAL LABORATORY.—By L. P. Haskell, D.D.S., Professor of Prosthetic Dentistry, Dental Department of the North Western University, Chicago. To which is appended Dr. E. H. Angle's System of Appliances for Correcting Irregularities. Second edition, revised, enlarged and more fully illustrated; 97 pp., in cloth.

		s.	d.
Price	net	6	0

HEATH. — INJURIES AND DISEASES OF THE JAWS. Jacksonian Prize Essay.—By Christopher Heath, F.R.C.S., Holme Professor of Clinical Surgery in University College (London), and Surgeon to the Hospital. Third edition, with a plate (3 figures) and 204 engravings, 480 pp., 8vo., cloth.

	s.	d.
Price	14	0

HEATH.—LECTURES ON CERTAIN DISEASES OF THE JAWS. Delivered at the Royal College of Surgeons of England in 1887.—By Christopher Heath, F.R.C.S., &c. 8vo.; paper wrappers.

		s.	d.
Price	net	2	3

DENTAL AND OTHER BOOKS—*continued.*

HEATH.—LÉSIONS ET MALADIES DES MACHOIRES. —Par Christopher Heath, F.R.C.S., Professeur de Clinique Chirurgicale à University College, Chirurgien de University College Hospital, Chirurgien Consultant de l'Hôpital Dentaire de Londres. Traduction du Dr. G. Darin.

Price .. .. net 8 0

HEWITT.—THE ADMINISTRATION OF ANÆSTHETICS: A Manual for Medical and Dental Practitioners.—By Frederic W. Hewitt, M.A., M.D. Cantab., Anæsthetist and Instructor in Anæsthetics at the London Hospital; Administrator of Anæsthetics at Charing Cross Hospital, the Dental Hospital of London, and the National Orthopædic Hospital.

Nearly ready.

HEWITT.—SELECT METHODS IN THE ADMINISTRATION OF NITROUS OXIDE GAS AND ETHER.—By Frederic Hewitt, M.A., M.D. Cantab. Instructor in and Lecturer on Anæsthetics at the London Hospital. Administrator of Anæsthetics at Charing Cross Hospital, the Royal Hospital for Children and Women, and the Dental Hospital of London. With five original illustrations, crown 8vo.

Price 2 6

HILL.—THE HISTORY OF THE REFORM MOVEMENT IN THE DENTAL PROFESSION OF GREAT BRITAIN, during the Twenty Years from 1856 to 1876.—By the late Alfred Hill, L.D.S., Dental Surgeon to the Dental Hospital of London, &c. 400 pp., 8vo., cloth.

Price .. .. net 5 0

Only a limited number of copies of this work remain.

HUNTER.—MECHANICAL DENTISTRY: A practical Treatise on the Construction of the various kinds of Artificial Dentures, comprising also Formula, Tables and Receipts for Gold Plates, Clasps, Solders, &c.—By Charles Hunter.

Price 3 0

"We strongly recommend this book to all students of dentistry, and every mechanical dentist."—*Dublin Journal of Medical Science.*

HUNTER.—THE DENTAL LABORATORY: A Manual of its Construction, Management, and Economy: the various Implements and their Manipulations, with Laboratory Notes and Suggestions.—By Charles Hunter, Author of "A Treatise on Mechanical Dentistry." With numerous illustrations, crown 8vo., cloth.

Price 5 0

DENTAL AND OTHER BOOKS—*continued.*

***HUXLEY.—LESSONS IN ELEMENTARY PHYSIOLOGY.** By Thomas H. Huxley, LL.D., President of the Royal Society. Revised edition (1885), with 113 illustrations, 370 pp. and index.

	s.	d.
Price	4	6

Professor Huxley says: "The present edition has been more extensively revised than any of its predecessors. The chapter on Histology, in particular, has been entirely reconstructed and provided with new illustrations, several of which have been taken from Ranvier and from Quain."

HUNTINGTON.—*See* Bloxam and Huntington.

INDEX TO VOLUMES I. to XXIV. INCLUSIVE OF THE DENTAL COSMOS. Compiled by J. E. Dexter, M.D.S., containing 30,000 references, 367 pp., Half-Turkey Morocco, royal 8vo.

	s.	d.
Price .. .. net	5	0

INGERSOLL.—DENTAL SCIENCE: QUESTIONS AND ANSWERS. A Compendium of Lectures on Dental Materia Medica, Dental Physiology, Dental Pathology, and Therapeutics. — By Luman C. Ingersoll, A.M., D.D.S., Dean of the Dental Department of the State University of Iowa.

	s.	d.
Price .. .. net	8	0

This book is stated by the Author to be "the result of thirty years' experience at the operating chair."

INGERSOLL.—PRÉCIS DE SCIENCE DENTAIRE, comprenant la Matière Medicale, la Physiologie, la Pathologie et la Therapeutique Dentaires.—Par Luman C. Ingersoll, A.M., D.D.S., Doyen de la Section Dentaire de l'Université de Iowa (E.U.). Traduction du Dr. G. Darin.

	s.	d.
Price .. .. net	1	7

KINGSLEY.—ORAL DEFORMITIES, A TREATISE ON, as a branch of Mechanical Surgery.—By Norman W. Kingsley, M.D.S., D.D.S., President of the Board of Censors of the State of New York, late Dean of the New York College of Dentistry, and Profes-or of Dental Art and Mechanism, &c. With over 350 illustrations, 529 pp. and index, royal 8vo., cloth.

	s.	d.
Price	16	0

KIRKE'S HANDBOOK OF PHYSIOLOGY.—By V. Morrant Baker, F.R.C.S., Surgeon to St. Bartholomew's Hospital, &c., &c.; and Vincent Dormer Harris, M.D. (Lond.), F.R.C.P., Examiner in Physiology at the Conjoint Board of the Royal Colleges of Physicians and Surgeons; Demonstrator of Physiology at St. Bartholomew's Hospital, &c. Twelfth edition, with 500 illustrations, 851 pp. and index, 8vo., cloth.

	s.	d.
Price	14	0

* This is a Text-Book at the Dental Hospital of London.

DENTAL AND OTHER BOOKS—*continued.*

LEBER AND ROTTENSTEIN.—DENTAL CARIES AND ITS CAUSES. An Investigation into the Influence of Fungi in the Destruction of the Teeth. Translated by H. CHANDLER, D.M.D., Professor in the Dental School of Harvard University. With illustrations, 103 pp., royal 8vo., cloth.

	s.	d.
Price	5	0

LEGROS AND MAGITOT.—ORIGIN AND FORMATION OF THE DENTAL FOLLICLE. Translated by the late Dr. DEAN, of Chicago. 78 illustrations, 216 pp., 8vo., cloth.

	s.	d.
Price .. .. net	10	0

MAKINS.—MANUAL OF METALLURGY: Illustrated by 100 engravings.—By GEORGE HOGARTH MAKINS, M.R.C.S., F.C.S., late one of the Assayers and Referee to the Bank of England, and formerly Lecturer upon Metallurgy at the Dental Hospital of London. Second edition, re-written and much enlarged. 578 pp. and index, 8vo., cloth.

	s.	d.
Price	16	0

MARTINDALE.—COCA AND COCAINE: Their History and Economic Uses, and Medicinal Preparations.—By WILLIAM MARTINDALE, F.C.S. Second edition, cloth.

	s.	d.
Price	2	0

MASON.—ON THE SURGERY OF THE FACE.—By FRANCIS MASON, F.R.C.S, late Surgeon to, and Lecturer on Practical Surgery at, St. Thomas's Hospital. With 100 engravings, 170 pp., 8vo., cloth.

	s.	d.
Price	7	6

MAYNE.—A MEDICAL VOCABULARY: Being an Explanation of all Terms and Phrases used in the various Departments of Medical Science and Practice, giving their Derivation, Meaning, Application and Pronunciation, intended specially as a Book of Reference for the Student.—By R. G. MAYNE, M.D., LL.D. Sixth edition. Revised and enlarged by W. W. WAGSTAFFE, B.A., F.R.C.S., late Senior Assistant-Surgeon and Lecturer on Anatomy at St. Thomas's Hospital. 479 pp. Crown 8vo., cloth.

	s.	d.
Price	10	6

MEDICAL DIRECTORY, THE. — Published Annually on the First of January.

	s.	d.
Price	14	0

MEREDITH.—THE TEETH, AND HOW TO SAVE THEM. By L. P. MEREDITH, M.D., D.D.S. Illustrated. 271 pp. 8vo., cloth.

	s.	d.
Price .. .. net	5	0

DENTAL AND OTHER BOOKS—*continued.*

MILLER.—THE MICRO-ORGANISMS OF THE HUMAN MOUTH; and the Local and General Diseases which are caused by them.—By Willoughby D. Miller, D.D.S., M.D., Professor at the University of Berlin. With 128 illustrations, one chromo-lithographic and two photo-micrographic plates, 353 pp. and index.

		s.	*d.*
Price	net	20	0

Dr. Miller is well-known throughout the dental profession as one of our ablest original investigators, and this work is in every way worthy of him.

MITCHELL.—THE DENTIST'S MANUAL OF SPECIAL CHEMISTRY.—By Clifford Mitchell, A.B. (Harv.), M.D. 252 pages and index.

		s.	*d.*
Price	net	10	0

"The book is worth a place in the library of every dentist."—*The Archives of Dentistry.*

"It should be in the hands of every student and practitioner of dentistry."—*The Dental Cosmos.*

"No one can study the book without great profit."—*The Independent Practitioner.*

MUMMERY.—SOME POINTS IN THE STRUCTURE AND DEVELOPMENT OF DENTINE: A Paper contributed to the Philosophical Transactions of the Royal Society of London.—By J. Howard Mummery, M.R.C.S., L.D.S., Past President of the Odontological Society of Great Britain.

	s.	*d.*
Price	5	6

"The paper is beautifully printed upon large quarto pages, and is illustrated by twenty-three coloured figures from the author's own photo-micrographs, every one of which will be a revelation to all histologists."—*The Dental Practitioner and Advertiser.*

OTTOLENGUI.—METHODS OF FILLING TEETH: An Exposition of Practical Methods which will enable the Student and Practitioner of Dentistry successfully to prepare and fill all cavities in human teeth.—By Rodrigues Ottolengui, M.D.S. With 236 illustrations, giving exact representations of all classes of cavities and their management. 196 pp. and Index. 8vo., cloth.

	s.	*d.*
Price	10	6

"The whole book throughout is splendidly illustrated with clear diagrammatic figures, which alone make it most valuable, and . . . we cordially recommend all those who are interested in the surgical arts of our profession to read it, as much will be found both valuable, helpful, and interesting."—*The Journal of the British Dental Association.*

"It should be placed in the library of every dental practitioner."—*The Ohio Dental Journal.*

"The detail in filling teeth is more fully described and illustrated in this work than has ever before been attempted. . . . No one can help being benefited by a careful examination of the book."—*The Dental Register* (Cincinnati).

DENTAL AND OTHER BOOKS—*continued.*

ORMSBY.—SURGICAL OPERATION CHART (copyright); Enumerating the instruments and appliances usually requisite for the performance of each of the Ordinary Major and Minor Operations in Surgery. Arranged and tabulated by L. Hepenstal Ormsby, M.D., F.R.C.S., Surgeon to the Meath Hospital and County Dublin Infirmary; Surgeon to the Children's Hospital, Dublin; and Member of the Court of Examiners, Royal College of Surgeons in Ireland; Inventor of the "Pocket Ether Inhaler," &c.

		s.	d.
Price	net	2	9
,, with rollers, mounted on linen, and varnished	,,	8	0

PARREIDT.—A COMPENDIUM OF DENTISTRY FOR THE USE OF STUDENTS AND PRACTITIONERS. By Jul Parreidt, Dental Surgeon to the Surgical Polyclinic at the Institute of the University of Leipzig, &c. Authorised Translation by Louis Ottofy, D.D.S., Lecturer on Physiology in the Chicago College of Dental Surgery. With notes and additions by G. V. Black, M.D., D.D.S., Professor of Pathology in the Chicago College of Dental Surgery. With numerous illustrations, one volume, fine muslin.

		s.	d.
Price	net	10	0

PHARMACOPŒIA.—*See* British and Extra.

QUINBY.—NOTES ON DENTAL PRACTICE.—By H. C. Quinby, L.D.S., President of the British Dental Association, 1892-3. With 92 illustrations, 216 pp., 8vo., cloth. Second edition.

	s.	d.
Price	9	0

REHFUSS.—DENTAL JURISPRUDENCE.—By W. F. Rehfuss, D.D.S. Cloth.

		s.	d.
Price	net	10	0

It is stated by the publishers that "This work has been written with the view that it be acceptable to the Deans of the Dental Colleges, the Members of State Boards of Examinations, Dentists and Lawyers, containing, as it does, every subject pertaining to Dental Jurisprudence, which thus becomes a standard subject in dentistry. . . . . The work is in forty-two chapters. Every conceivable dental legal subject is included in it, and the references of all legal cases quoted are annexed; hence the authority is unquestionable. . . . . The Appendix embraces the laws regulating the practice of dentistry in every State in the United States having such statutes; and, in addition, the dental laws of every country in the world having dental laws. These are compiled correctly."

***RICHARDSON.—A PRACTICAL TREATISE on MECHANICAL DENTISTRY.**—By Joseph Richardson, M.D., D.D.S., Emeritus Professor of the Principles of Prosthetic Dentistry in the Indiana Dental College. Fourth edition, re-written and enlarged, 710 pp., 458 illustrations, 8vo., cloth.

	s.	d.
Price	21	0

"This largely amplified re-issue of the favourite standard text-book on the subject will be welcomed as almost a new work by those even best acquainted with the previous one of 1880." . . . and "for the fullest information on all subjects treated, we should consider this valuable compilation indispensable."—*The Journal of the British Dental Association*, February 15th, 1887.

* This is a Text-Book at the Dental Hospital of London.

DENTAL AND OTHER BOOKS—*continued.*

ROBERTS-AUSTEN. — AN INTRODUCTION TO THE STUDY OF METALLURGY.—By W. C. Roberts-Austen, C.B., F.R.S., Associate of the Royal School of Mines, Chemist and Assayer of the Royal Mint, Professor of Metallurgy in the Royal School of Science, with which the Royal School of Mines is incorporated. With numerous diagrams, 286 pp. and index. 8vo., cloth.

	s.	d.
Price	7	6

***ROSCOE.—LESSONS IN ELEMENTARY CHEMISTRY,** INORGANIC AND ORGANIC.—By Sir Henry Roscoe, LL.D., F.R.S., late Professor of Chemistry in the Victoria University, the Owens College, Manchester. With 77 illustrations. 503 pp. including index. Crown 8vo., cloth.

	s.	d.
Price	4	6

ROSE.—TREATISE ON CONTINUOUS GUM WORK.—By Harry Rose, L.D.S. Eng., Formerly Dean of the National Dental Hospital. 8vo., cloth. Illustrated.

	s.	d.
Price .. .. net	2	6

ROSE.—ON HARELIP AND CLEFT PALATE.—By William Rose, B.S., M.B. Lond., F.R.C.S., Professor of Surgery to King's College, London, and Surgeon to King's College Hospital, &c. Demy 8vo., cloth.

	s.	d.
Price	6	0

"This book is thoroughly practical, candid, and unbiassed, and does equal credit to the author's professional skill and literary ability."—*Lancet.*

RYMER.—NOTE-BOOK FOR DENTAL STUDENTS (Dental Anatomy and Physiology).—By James F. Rymer, M.R.C.S., L.D.S., D.D.S. 64 pp., interleaved, to permit of notes being added opposite the text to which they refer. Second edition, cloth.

	s.	d.
Price	2	6

"As a suggestive help and short reference-book it should be of value to the dental student, for whom it is especially designed, and to a considerable degree useful to the dental practitioner.—*The Dental Cosmos.*

"The writer" (of the review) "knows of no book of its size that comprises so much condensed information."—*The International Dental Journal.*

SALOMONS.—ELECTRIC LIGHT INSTALLATIONS and the Management of Accumulators. A practical handbook by Sir David Salomons, Bart., M.A., Assoc. Inst. C.E., &c., &c. Sixth edition, revised and enlarged, with numerous illustrations, 416 pp., small crown 8vo.

	s.	d.
Price	6	0

* This is a Text-Book at the Dental Hospital of London.

DENTAL AND OTHER BOOKS—*continued.*

SALTER.—DENTAL PATHOLOGY AND SURGERY.—By the late S. James A. Salter, M.B., F.R.S., Member of the Royal College of Surgeons, and Examiner in Dental Surgery at the College; Dental Surgeon to Guy's Hospital. With 133 illustrations. 394 pp., and index. 8vo., cloth.

	s.	d.
Price	18	0

SARSON'S DENTAL SURGEON'S DAY-BOOK.—*See* p. 605.

SEWILL.—A MANUAL OF DENTAL SURGERY: including Special Anatomy and Pathology.—By Henry Sewill, M.R.C.S., L.D.S., late President of the Odontological Society of Great Britain.

A Handbook for Students and Practitioners. Third edition, revised, rewritten and enlarged, with numerous new illustrations.

	s.	d.
Price	10	6

"A really valuable addition to dental literature. . . . The chapter which deals with the pathology of caries is, in our opinion, the most accurate account of this important subject that has yet appeared . . . . Illustrated with Photo-micrographs which are really splendid."—*The Journal of the British Dental Association.*

"This well-known work has many points of great value. . . . Exceedingly interesting and instructive chapter on 'caries.' . . . The facsimile reproductions of Photo-micrographs are very fine. . . . As a Manual, this work can be heartily recommended."—*The International Dental Journal.*

SEWILL.—DENTAL CARIES AND THE PREVENTION OF DENTAL CARIES. By Henry Sewill, M.R.C.S., L.D.S. Second edition. 8vo., cloth.

	s.	d.
Price	2	6

SILK.—A MANUAL OF NITROUS OXIDE ANÆSTHESIA, for the use of Students and General Practitioners.—By J. Frederick W. Silk, M.D. (Lond.), &c., Anæsthetist to Guy's Hospital Dental School, &c. With 26 engravings, 109 pp. and index, 8vo., cloth.

	s.	d.
Price	5	0

SILVERLOCK'S MEDICAL AND SURGICAL EMERGENCY REFERENCE BOOK, with Table of Doses arranged according to the British Pharmacopœia (1885), bound in leather.

	s.	d.
Price .. .. net	2	6

SMALE AND COLYER.—DISEASES AND INJURIES OF THE TEETH, including Pathology and Treatment: a Manual of Practical Dentistry for Students and Practitioners.—By Morton Smale, M.R.C.S., L.S.A., L.D.S., Dental Surgeon to St. Mary's Hospital, Dean of the School, Dental Hospital of London, Member of Board of Examiners in Dental Surgery, Royal College of Surgeons of England; and J. F. Colyer, L.R.C.P., M.R.C.S., L.D.S., Assistant Dental Surgeon to Charing Cross Hospital, and Assistant Dental Surgeon to the Dental Hospital of London.

Almost ready.

DENTAL AND OTHER BOOKS—*continued.*

STEELE.—567 USEFUL HINTS FOR THE BUSY DENTIST. By WILLIAM H. STEELE, D.D.S., bound in cloth.

		s.	d.
Price	net	10	0

STERNFELD.—UEBER BISSARTEN UND BISSANOMALIEN. Eine Studie von Dr. ALFRED STERNFELD, approb. Arzt in München, mit 92 Abbildungen. Seiten 1–65 enthalten die Beschreibung des Verfahrens nach welchem die Abbildungen hergestellt wurden.

		s.	d.
Preis broschirt	net	3	6

"Die Arbeit füllt eine Lücke in der Zahnärztlichen Literatur aus und wir können sie nur empfehlen."—*L. Schmidt, Correspondenz-Blatt.*

STOCKEN.—ELEMENTS OF DENTAL MATERIA MEDICA AND THERAPEUTICS.—By JAMES STOCKEN, L.D.S., late Lecturer on Dental Materia Medica and Therapeutics to the National Dental College; assisted by THOMAS GADDES, L.D.S. Eng. and Edin. Third edition, 400 pp., fcap 8vo.

	s.	d.
Price	7	6

TAFT.—A PRACTICAL TREATISE ON OPERATIVE DENTISTRY.—By JONATHAN TAFT, D.D.S., Professor of Operative Surgery in the Ohio Dental College. Third edition, with 134 engravings, 521 pp, 8vo., cloth.

	s.	d.
Price	18	0

TALBOT.—CHART OF TYPICAL FORMS OF CONSTITUTIONAL IRREGULARITIES OF THE TEETH.—By EUGENE S. TALBOT, M.D., D.D.S., Author of "The Irregularities of the Teeth and Their Treatment." With 16 coloured lithographic plates, each one being fully described. Nos. I. to VIII. show the jaws in their normal position and the development of the superior and inferior maxillæ, whether the development has been excessive or retarded; and Nos. IX. to XVI. show the deformities and irregularities in the upper jaw. Cloth covers.

		s.	d.
Price	net	10	0

TALBOT.—IRREGULARITIES OF THE TEETH and THEIR TREATMENT.—By EUGENE S. TALBOT, M.D., D.D.S., Professor of Dental Surgery in the Women's College, Lecturer on Dental Pathology and Surgery in Rush Medical College, Chicago. Second edition, revised and enlarged, with 234 illustrations, 169 of which are original; 8vo., 257 pp. and index, cloth.

		s.	d.
Price	net	12	0

"This book is indispensable to the practitioner of modern dentistry."—*Dental Cosmos.*

DENTAL AND OTHER BOOKS—*continued.*

***TOMES.—A MANUAL OF DENTAL ANATOMY:** Human and Comparative.—By Charles S. Tomes, M.A., F.R.S., &c, with 212 Illustrations, 484 pp., and Index. Third edition, 8vo., cloth.

	s.	d.
Price	12	6

***TOMES.—A MANUAL OF DENTAL SURGERY.**—By Sir John Tomes, M.R.C.S., F.R.S., &c., and Charles S. Tomes, M.A., M.R.C.S., F.R.S., &c. Third edition, revised and enlarged, with 292 Engravings, 772 pp., and Index. Crown 8vo.

	s.	d.
Price	15	0

"We do not think there is any literary event that is regarded with more interest by the dental fraternity in this country than the re-appearance of 'Tomes' Dental Surgery.' Twenty-eight years ago the first edition of the work was completed by Mr. John Tomes (as he was then), and at once became what it still remains, and will probably always continue to be, the Standard English Classic of Dental Surgery."—*The Journal of the British Dental Association*, May 15, 1887.

"It is yet the book by which the present condition of dentistry will be judged."—*The Dental Review* (Chicago), May 15, 1887.

"No other work is to be compared to it in fulness, clearness, and scientific accuracy."—*Medical Press and Circular.*

TOMES.—TRAITÉ DE CHIRURGIE DENTAIRE.—Traduit par le Dr. G. Darin. La 2e. édit. 1 fort vol. in 8o., avec 263 gravures. Savy, editeur.

	s.	d.
Price .. .. net	8	6

TURNBULL'S ARTIFICIAL ANÆSTHESIA. A Manual of Anæsthetic Agents and their Employment in the Treatment of Disease; Modes of Administration; Relative Risks; Tests of Purity; Treatment of Asphyxia; Spasm of the Glottis; Syncope, &c.—By Laurence Turnbull, M.D., Ph.G., Aural Surgeon to Jefferson College Hospital, &c. Third edition, revised and enlarged. Illustrated, 12mo., cloth.

	s.	d.
Price .. .. net	12	0

***UNDERWOOD.—AIDS TO DENTAL HISTOLOGY.**—By Arthur S. Underwood, M.R.C.S., L.D.S. Eng.; Professor of Dental Surgery, King's College, London; Lecturer on Dental Anatomy and Physiology, and formerly Dental Surgeon at the Dental Hospital of London. 84 pp., including Index. Cloth.

	s.	d.
Price	2	6

UNDERWOOD.—AIDS, TO DENTAL SURGERY.—By Arthur S. Underwood, M.R.C.S., L.D.S. (Eng.), &c., &c. 100 pp., and Index. Cloth.

	s.	d.
Price	2	6

* These are Text-Books at the Dental Hospital of London.

DENTAL AND OTHER BOOKS—*continued.*

UNDERWOOD & BRAINE.—NOTES ON ANÆSTHETICS IN DENTAL SURGERY.—By Arthur S. Underwood, M.R.C.S., L.D.S. Eng., Professor of Dental Surgery, King's College Hospital, and Lecturer on Dental Anatomy and Physiology at the Dental Hospital of London; and C. Carter Braine, F.R.C.S., Anæsthetist and Instructor in Anæsthetics at Charing Cross Hospital, and Assistant Anæsthetist at the Dental Hospital of London. 2nd edition, revised and enlarged, with 40 Illustrations, 155 pp., and Index. 8vo., cloth.

	s.	d.
Price .. .. net	4	0

This work has been brought thoroughly up to date, many new illustrations have been added, and the chapters on Ether and Chloroform have been entirely re-written. It is confidently recommended as a safe and reliable guide to the administration of anæsthetics.

"It contains all that a dentist can possibly need."—*The Journal of the British Dental Association.*

"We know of no other work of such special advantage to the dentist."—*Dominion Dental Journal.*

"It is not to be wondered at, with such a goodly show of experts as helpers as Mr. Woodhouse Braine, Mr. Bailey, Mr. Bird, Mr. Carter Braine, Dr. Hewitt, and Mr. Rowell, that Mr. Underwood has been able to bring his valuable little manual to its present standard of excellence."—*The Dental Record.*

UNDERWOOD.—NOTES SUR LES ANESTHÉSIQUES.—Par Arthur S. Underwood, M.R.C.S., L.D.S., Professeur d'Anatomie et de Physiologie Dentaires à l'Hôpital Dentaire de Londres, &c. Traduction du Dr. G. Darin, avec 31 figures, 88 pages in-8.

	s.	d.
Price .. .. net	1	6

URQUHART. — ELECTRO-PLATING: A Practical Handbook on the Deposition of Copper, Silver, Nickel, Gold, Aluminium, Brass, Platinum, &c., &c.; with description of the Chemicals, Materials, Batteries and Dynamo Machines used in the art.—By J. W. Urquhart, C.E. Second edition, carefully revised, with numerous illustrations, crown 8vo., cloth.

	s.	d.
Price	5	0

"The information given appears to be based on direct personal knowledge . . . . its science is sound, and the style is always clear."—*Athenæum.*

VADE-MECUM.—The Pocket Gray or Anatomist's Vade-Mecum. —*See* Cotterell.

***WALSHAM.—SURGERY: ITS THEORY AND PRACTICE.** —By William John Walsham, F.R.C.S., Assistant Surgeon, Lecturer on Anatomy, and Surgeon in charge of the Orthopædic Department at St. Bartholomew's Hospital, &c., &c. Fourth edition, with 335 Illustrations, 868 pp., and Index. Fcap. 8vo., cloth.

	s.	d.
Price	12	0

This is an excellent book for students, and has achieved great popularity.

---

* This is a Text-Book at the Dental Hospital of London.

DENTAL AND OTHER BOOKS—*continued.*

WARNEKROS. — DAS FÜLLEN DER ZÄHNE BEI INTACTER PULPA, mit besonderer Berücksichtigung der Verwendung von cohäsiver Goldfolie, von Ludwig Warnekros, Zahnarzt in Berlin, mit 150 in den Text gedruckten Abbildungen, zum Theil mit Golddruck. Seiten 107. Elegant gebunden.

		s.	d.
Price	net	7	6

"Das Buch mit zum Theil vortrefflichen und überreich gehaltenen Illustrationen ausgestattet, ist besonders geeignet, Studirenden als schätzbarer Leitfaden zu dienen." —*L. Schmidt, Correspondenz-Blatt.*

WARREN. — A COMPEND OF DENTAL PATHOLOGY AND DENTAL MEDICINE, containing the most noteworthy points upon the subjects of interest to the dental student.—By Geo. W. Warren, D.D.S., Clinical Chief, Pennsylvania College of Dental Surgery, Philadelphia. Second edition, illustrated, crown 8vo., cloth.

		s.	d.
Price	net	4	0

WATT. — ELECTRO-METALLURGY PRACTICALLY TREATED.—By Alexander Watt, Author of "Electro-Deposition," &c., &c. Ninth edition, enlarged and revised, with additional illustrations, and including the most recent processes. 270 pp., and Index. 12mo., cloth.

	s.	d.
Price	3	6

WEBB. — NOTES ON OPERATIVE DENTISTRY.—By the late Marshall H. Webb, D.D.S., Lecturer on Operative Dentistry and Dental Histology in the Dental Department of the University of Pennsylvania, &c., &c. Second edition, 78 illustrations, 175 pp., 8vo., cloth.

		s.	d.
Price	net	9	0

WEDL.—ATLAS TO THE PATHOLOGY OF THE TEETH.—By Prof. Dr. M. Heider and Prof. Dr. Carl Wedl. Second enlarged edition, arranged by Dr. J. Metnitz, Lecturer on Dentistry at the University of Vienna, with text in German and English. Complete in four parts, consisting of 74 pages and index, and 24 plates containing 194 illustrations.

		s.	d.
Price	net	32	0

WHITE.—THE MOUTH AND THE TEETH (American Health Primer).—By the late J. W. White, M.D., D.D.S., Editor of the *Dental Cosmos.* 24 illustrations, 147 pp. and Index.

		s.	d.
Price	net	2	0

WOOD.—THE TEETH AND ASSOCIATE PARTS, and what everyone should know regarding them: their Anatomy, Physiology, Diseases, Treatment, &c., practically considered. By the late John Wood, D.D.S., L.D.S. Edin., &c. With 25 illustrations, 88 pp., 8vo., cloth.

		s.	d.
Price	net	2	6

DENTAL JOURNALS, &c.

THE JOURNAL of the **BRITISH DENTAL ASSOCIATION**: A Monthly Review of Dental Surgery (London). Published on the 15th of each month. Per copy, 6*d.*; per annum, post-free, 7*s.*

THE BRITISH JOURNAL OF DENTAL SCIENCE (London). Published fortnightly. Per copy, 6*d.*; per annum, post-free, 14*s.*

THE DENTAL RECORD (London). Published on the 1st of each month. Per annum, post-free, 7*s.* 6*d.*

THE TRANSACTIONS of the **ODONTOLOGICAL SOCIETY** OF GREAT BRITAIN. Price per number to Members, 2*s.*; Non-members, 2*s.* 6*d.* Covers for volumes, each 1*s.*

THE DENTAL COSMOS (Philadelphia). Edited by EDWARD C. KIRK, D.D.S. Published monthly. Per annum, including postage, 12*s.*

THE AMERICAN JOURNAL OF DENTAL SCIENCE (Baltimore). Edited by FERDINAND J. S. GORGAS, A.M., M.D., D.D.S., and another. Published monthly. Per annum, 12*s.* 6*d.*, including postage.

THE INTERNATIONAL DENTAL JOURNAL (Philadelphia). A Monthly Periodical devoted to Dental and Oral Science. Edited by JAMES TRUMAN, D.D.S., and another. Published monthly. Per annum, 12*s.* 6*d.*, including postage.

THE DENTAL REVIEW (Chicago): Devoted to the advancement of Dental Science. Edited by A. W. HARLAN, M.D., D.D.S., and others. Published monthly. Per annum, 12*s.* 6*d.*, including postage.

THE DENTAL REGISTER (Cincinnati). A Monthly Journal devoted to the interests of the Profession. Edited by J. TAFT, D.D.S. Per annum, 10*s.* 6*d.*, including postage.

DENTAL JOURNALS, &c.—*continued.*

THE OHIO DENTAL JOURNAL (Toledo). Edited by L. P. Bethel, M.D., D.D.S. Published monthly. Per annum, 10*s.* 6*d.*, including postage.

THE WESTERN DENTAL JOURNAL (Kansas City). Edited by J. D. Patterson, D.D.S. Published monthly. Per annum, 10*s.* 6*d.*, including postage.

ITEMS OF INTEREST (Philadelphia). Edited by T. B. Welch, M.D. Published Monthly. Per annum, 6*s.* 3*d.*, including postage.

THE DENTAL PRACTITIONER AND ADVERTISER (Buffalo). Edited by W. C. Barrett, M.D., D.D.S. A Quarterly Journal. Per annum, 4*s.* 9*d.*, including postage.

THE DENTAL OFFICE and LABORATORY (Philadelphia). A Quarterly Journal of Dental Intelligence, edited by Theodore F. Chupein, D.D.S. Price per annum, 4*s.* 9*d.*, including postage.

DOMINION DENTAL JOURNAL (Toronto, Canada).—The Official Organ of the Ontario Dental Association. Edited by W. George Beers, L.D.S., and others. Published monthly. Per annum, 6*s.* 3*d.*, including postage.

LE PROGRÈS DENTAIRE.—Un Journal de Chirurgie et de Prothése Dentaires. Prix un an, y inclus frais de poste, 9*s.* 6*d.*

CORRESPONDENZ — BLATT FÜR ZAHNÄRZTE. — Ein Vierteljährlicher Bericht. Der Jahrgang besteht aus 4 Heften, franco 5*s.* 9*d.*

GIORNALE DI CORRESPONDENZA PEI DENTISTI. Abbonemento Annuale, franco 8*s.*

QUARTERLY CIRCULAR, published by C. Ash & Sons, sent, post free, to any Dentist on receipt of professional card.

Other Dental Journals, and Scientific Publications and Books of every description, supplied to order.

INDEX.

A

	PAGE
Abbey's Gold Foils	23
Abbott's Automatic Mallet	253
„ Enamel Cutters	159
„ Hand Stoppers	246
„ Mallet Points	253, 262
„ Pluggers	261
„ Scalers	152
Abscess Lancets	337
Absolute Alcohol	384
Absorbents	388–390
Absorbent Cotton	388, 390
„ Napkins	353, 390
„ Paper	353, 390
„ „ Clamps	354, 355
Account Books	605, 606
Accumulators	190
Acetate of Morphia	386
Acid Bottles	542
„ Pans	528
Acids for Laboratory	542
Ackery's Tragacanth Sprinkler	382
Aconite and Iodine	386
„ Tincture	384
Acute Angle Attachments	202
Adjustable Bench Pins	522
„ Elevator	147
„ Gags	451, 454
„ Holder	163
„ Perforators	525–527
Agate Burnishers	312
„ Pestles and Mortars	376
Ainsworth's Punch	347
Air Chamber Patterns	571
Alarm Clocks	557
Albrecht's Amalgam Carrier	279
Alcohol, Absolute	384
„ Lamp	560
Allan's Bracket Tables	84, 85
Allan's Clamps	361
Allen's Gum Body	487
„ „ Enamel	487
„ „ Teeth	485
Alloys for Amalgams	30–32
Aluminium	548
Alveolar Forceps	129
Amadou Pellets	389
„ or Spunk	390
Amalgam Balance	274
„ Carriers	273–281
„ Cylinder Mould	274
„ Mixing Tube	274
„ Spoons	280, 281
„ Squeezing Pliers	520
„ Stoppers	271–281
„ Stoppings	30–32
„ Tweezers	301, 302
Amber Cement	387
American Crown Die	296
„ Dental Rubbers	41
„ Dentifrices	590, 591
„ Gold Foils, &c.	23
„ Gutta-Percha	546
„ Mandrels	221, 222
„ Nerve Instruments	163
„ Teeth	15
„ Tooth Powders	590
„ Vulcanizers	560
„ Pattern Elevators	148
„ „ Facepiece	439
„ „ Forceps	129–143
„ „ Head Rest	64
„ „ Syringe	315
„ „ Wall Bracket	83
Ames' Copper Amalgam	32
Am-Meter	195
Ammonia, Nitrate of	468

	PAGE
Amyl, Nitrite of	453
Anatomical Preparations	601
Anatomy Atlases	599
Andrieu's Disc Carrier	222
Anhydrous Ether	448
Annealing Burners	368, 503, 505
„ Tweezers	300
Antrum Syringe	314
Anvils	529, 530, 542
Apparatus, Hot-Water	73
Apperley's Bench Pin	523
Appliances, Separating	343, 344
Apron and Bench Pin	523
„ or Bib	391
„ Rubber	429
Archimedian Drill	176
Argand Bunsen Burners	507
Aristol	384
„ in Oil of Cassia	384
Arkansas Slips	390
„ Stones, Engine	228
„ „	391
Arm Support, Engine	187
Aromatic Tooth Soap	592
Arrington's Amalgam	32
„ Enamel Cutters	160
„ Forceps	141
„ Nerve Instruments	164
Arsenic and Creasote	381
„ Powders	381
Arsenious Paste	381
Arthur's Corundum Discs	224
Articulating Paper	391
Articulators	549, 551
Artificial Dentine	37
Asbestos	485
„ Connection	315
„ Fibre	384
„ Soldering Block	496
„ Yarn Packing	561
Ash's Adjustable Stool	72
„ Amalgams	30, 31
„ Bench Pins	522
„ Bur Gauge	213
„ Cabinets	42–44
„ Combination Bracket	82
„ Concrete Cement	34
„ Cone-Regulating Arrangement	196
„ Corundum Files	582
„ „ Wheels	580
„ Dental Chairs	48–62

	PAGE
Ash's Dental Rubbers	38–41
„ Engine Burs	207–218
„ Ether Bag	448
„ Excelsior Cement	35
„ Free Registers	9
„ Gold Foils	20–22
„ Gold, &c., Plate and Wire	25
„ „ Springs	24
„ „ Swivels	24
„ „ Washers	24
„ Gum Body	487
„ „ Enamel	487
„ Mercury	31
„ Mineral Teeth	10–19
„ Mixing Powder	487
„ Modelling Wax	546
„ Nerve Instruments	162
„ Paper Discs	229, 230
„ Phosphate Cement	34
„ Plate and Wire Sizes	27
„ Polishing Stones	547
„ Registers	9
„ Rock Cement	35
„ Spittoons	70
„ Thermo-Regulator	465, 468
„ Tin Cylinders	23
„ „ Foils	23
„ Tooth Powders	590
„ Vulcanizers	552–559
Assistants seeking Engagements	9
Assorted Strips	390
Astringent Mouth Wash	589
Atkinson's Napkin Holder	335
Attachments for Chairs	64*a*–69
„ for Engines	200–202
Automatic Blowpipe	498
„ Mallets	252, 253
Azotine	381

B

Babbitt's Metal	548
Back-Action Mallet Points	253
Backs for Chairs	46, 59
Bactericide, Kingzett's	386
Badger's Hair Tooth Brushes	585
Bailey's Flask	540
Balance for Amalgams	274
Baldock's Bactericide	384
„ Celluloidal Root Filling	384
„ Cocaine Solution	380

	PAGE
Baldock's Nerve Paste	381
„ Tooth Dressing	384
Baldwin's Cement Breaker	418
„ Plug Trimmers	418
Balkwill's Mechanical Dentistry	288
„ Pivoting Instruments	286
Baly's Forceps	115
Bands for Engines	180, 187
„ for Lathes	477
„ for Regulating	344
Bar Tin	548
Barkley's Articulating Paper	391
Barr's Fluid	380
Barth's Stopcocks, &c.	440
Base, Rubbers for	39–41
Base-Plate Gutta Percha	546
„ Wax	546
Battery Parts	324
„ Sal-Ammoniac	323
„ Switch	325
Baylis's Scalers	154
Bayonet Clamp Forceps	348
„ Dividing Files	414
„ Scraper	544
Beacock's Flash Lamp	369
Beak Irons	529, 530
Bed Plate and Wrench	560
Bees' Wax	394
Bell and Turner's Flask	563
Bellows	500, 501
Bench Block	531
„ Pins	522, 523
Bennett's Flask Plate	563
Benzoin Gum	384
Berlin Pattern Flask	564
„ Klinik Elevator	147
"Best" Lathe Head	482
Bib or Apron	391
Bibulous Paper	353, 390
„ „ Clamps	354, 355
Bicuspids, Forceps for	98, 129
Binding Wire	547
Bing's Hand Stoppers	247
Bismuth	548
Biss's Spatula	544
Bit Holders	238
„ Oiler	234
Bite Frames	409, 410
Black Tooth Brushes	585
Blocks for Battery	324
„ for Lathe Chucks	478
Blocks for Wedges	344
„ or Electrotypes	593
„ Soldering	496
Bloodstone Points	219
Blowers	500, 501
Blowing Apparatus	500, 501
Blowpipe Jets or Nozzles	498
„ Pad	513
Blowpipes	496–499, 511
Blue Colouring Matter	37
Board Pins	522, 523
Bodies, Furnace	489, 490
Body for Gum Work	487
Boiling Pans	528
Bolts and Nuts	565–567
Bone Spatula	309
Bonwill's Amalgam	32
„ Crowns and Pins	19
„ Electric Mallet	256
„ Mallets	204, 205
„ Oil Can	237
Books and Journals	606
Borax	515
„ Slabs	515
„ Tabloids	384
Bottles for Acids	542
„ for Gas	423
„ Various	374–377
Bow Saw Frames	534
„ Tongs	489
Bowls, Plaster	536
Box for Engine	185
Boxes for Dentures	595
„ for Engine Burs	239
„ for Gas Bottles	425
„ for Scraps	529
„ Tooth Powder	589
Boxwood Mallets	538
Boyd Wallis's Instruments	278
„ Switch	188
Bracket for Electric Lamp	88
„ Lamps	369
„ Spittoons	70
„ Tables	84, 85
Brackets for Spittoons	68, 69
„ Wall	82, 83
Bradley's Saw Blades	534
Braine's Chloroform Inhaler	449
„ Emergency Case	458
„ Tongue Forceps	456
Brass Flasks	567

	PAGE
Brass Plug for Gas Bottles	433
„ Punches	527
„ Spirit Lamp	517
„ Towel Rail	44
„ Wire Brushes	173, 524
Bright Metal Screw Posts	297
„ „ Shields	230
Bristles, Donaldson's	163
Britannia Metal Trays	395–412
Brittan's Soldering Spoon	516
Broach Drills	529
„ Holders	532
Broaches	532
Brown's Chisels	158
„ Polishing Strips	312
Brownlie's Suction Valve	579
Brun's Absorbent Cotton	390
Brunton's Cocaine Syringe	320
„ Gag	451
Brunton-Ladmore's Matrices	305
Brushes, Camel-Hair	546
„ for cleaning Burs	173
„ Lathe	576
„ Polishing	235
„ Tooth	585–588
Bryan's Ledger	605
Buchanan's Celluloid Discs	231
Buck's Gag	451
Buckman's Clamps	365
Bud-Shaped Cavity Burs	208
Buff Polishers	233
„ Sticks	576
„ Wheels	577
Bulbs for Mallets	254, 255
„ for Syringes	313–315
Bungs for Flasks	468
„ for Wash-Bottles	468
Bunsen Burners	502–507
Bunter's Nervine	384
Bur Boxes	239
„ Brushes	173
„ Cups	232
„ Gauge	213
„ Handles or Holders	238
„ Stands	239
„ Thimble	176
Burner Gauzes	507
„ for Vulcanizers	554
Burners	368, 502–507
Burnishers, Agate	312
„ Corrugated	218
Burnishers, Smooth	218
„ Steel	282
Burnisher and Spatula	545
Burroughs and Wellcome's Cocaine	380
Burs and Drills	174–176
„ for Engine	206–218
„ and Wheels	575
„ Re-cut and Stoned	210
Business Hours	9
Butler's Corundum Point	224
„ Enamel Cutters	161
„ „ Mallet Pluggers	260
Büttner's Pivoting Instruments	284
Buxton's Mason's Gag	455

C

Cabinet Mirrors	75
Cabinets	42–44
„ for Instruments	92
Cables for Engine	187
Cajeput, Oil of	384
Cakes, Gutta-Percha	33
Callipers	542
Calorific Fluid	380
Calvert's Carbolic Acid	384
Camel-Hair Pencils	546
Campbell's Engine	184, 185
„ Forceps	120
Camphor	384
Campion's Tongue Holder	656
Can for Hot Water	74
Cane Holder	391
„ Points	390, 391
„ Seat for Children	50, 54
„ Seats and Backs	59
Canes	390
Canines, Forceps for	98
Cannabis Indica	380
Capsicum Bags	383
„ Plasters	383
Carbolic Acid	384
Carbolized Resin	384
Carbon Block	496
„ Crucibles	492
Carbonized Cotton Wool	388
Carbons for Battery	324
Card Boxes	597
Carriers and Stoppers	273–281
Carter's Oral Net Spoon	457
„ Porcelain Palette	71

	PAGE
Cases for Dentures	594
„ for Foil and Cylinders	307
„ for Gas Bottles	425
„ for Instruments	94, 108, 288
„ for Teeth	597
„ with Bottles	375
Casting Die Rings	547
„ Rings	547
„ Sand	538
Cast-Iron Ladles	484
Catalogue of Teeth	13
Cattlin's Bags	429
Caulk's Amalgams	32
„ Diamond Cement	37
„ Gutta-Percha	33
Caustic (Nitrate of Silver)	391
„ Holders	391
„ Potash	468
Cautery Points	317
Cauterizing Apparatus	316
Cavity Burs	208
„ Caps	303
„ Cap Carriers	303
„ Stoppers	19
Celluloid Apparatus	561, 562
„ Discs	231
„ Flasks	561, 562
„ Plates	562
„ Strips	390
Celluloidal Root Filling	384
Cement Filling Breaker	418
„ Mastic	386
„ Model	538
„ Stoppings	34–37
„ Vulcanite	569
Chair Attachments	65–67
„ Footstool	61
Chairs	45–62
Chalk	390, 590
Chamois Discs	231
Charcoal	496
Chase's Gum Body, &c.	487
Cheap Dental Chairs	58–62
„ „ Rubbers	40
„ Workroom Lathe	472
Chemically Pure Cotton-Wool	388
„ „ Mercury	31
Children's Forceps	98, 129
„ Seat	50, 54
Chimneys for Reflectors	87
Chip Syringe	313
Chisel-pointed Drill	212
Chisels	155–161
Chlorate of Potash Tabloids	384
Chloride of Ethyl	379
„ of Zinc	385
Chloroform	385
„ Inhalers	449
Chuck Handpieces	199–201
Chucks for Lathes	476, 479, 575
Circular Saws	216, 218, 534
Clamps for Flasks	563–567
„ for Wool Rolls	353
Clarkson's Attachment	425
„ Gas	423
Clasp Benders	528
Clay, Whitehouse's	547
Cleansers, Pulp Canal	163
Clocks for Vulcanizers	557
Cloth Strips	390
Clover's Ether Chamber	444
„ Facepiece	439
Cloves, Oil of	385
Clutch Lathe Head	483
Coal and Coke Furnaces	488
Coals for Soldering	496
Coating Rubbers	39, 41
Cocaine	320
„ Hydrochlorate	320
„ Lanolin	385
„ Solution	380
„ Syringes	320
Coffer-dam Appliances	345–367
„ Applier	347
„ Clamps	352–367, 654
„ Forceps	348
„ Holders	349, 350, 654
„ Punches	347
„ Rubber	345
„ Weights	351
Coffin's Regulating Appliances	343
Cogswell's Coffer-dam Holder	350
„ File Carrier	415
Cohesion Surface Formers	568
Cohesive Gold Foils	20–23
Coleman's Elevator	145
„ Forceps	122
College Tweezers	300
Collodion	569
Colouring Matter	37
Colyer's Clamps	355
Combination Stopcocks	440

	PAGE
Combined Pliers and Nippers	520
„ Saliva Ejector	78
Comer's Corundum Cups	225
„ Crowns	19
„ Mandrel	225
Common Mercury	548
Compo, Soldering	515
Composition Silver Strips	312
Compound Bags	383
„ Ether	378
„ Plasters	383
Compressed Hickory Wood	297
Concrete Cement	34
Condensers	250
Condy's Fluid	385
„ Ozonized Water	589
Cone Cavity Burs	208
„ Chuck Lathe Head	477
„ Journal Hand Lathe	480
„ „ Handpiece	198
„ Regulating „	196
Cone-Socket Enamel Cutters	160
„ Excavators	173
„ Handles	154, 160, 166, 173
„ Probes	166
„ Scalers	154
Cones and Wheels	577
Coning Cups	225
Connor's Tweezers	299
Continuous-Gum Furnaces	485–488
Contouring Pliers	289
Copal Ether Varnish	37, 385
Copper Amalgams	32
„ Boiling Pans	528
„ Fine	548
„ Sulphate of	385
Cords for Engine	180, 187
„ for Lathes	477
Cork in Thin Sheets	385
Corn Tongs	517
Corrugated Rubber Discs	227
„ „ Points	227
Corundum Countersink	583
„ Cups	225
„ Discs	224
„ Files	582
„ Flour or Powder	235, 390
„ Points	224, 583
„ Slab	583
„ Stump Wheels	224
„ Wheels	580
Cotton and Johnson's Bellows	501
Cotton Wheel	577
„ Wood	390
„ Wool	388, 390
Covers for Engine	180, 187
Coxeter's Gas	423
Cramp wire	547
Creasote	385
„ and Arsenic	381
Crocus	569
„ Cloth Strips	390
Crown Articulator	550
„ Composition	393
„ Die Plate	296
„ Instruments	284–297
„ Metal Screws and Posts	297
„ Saw	216
„ Trays	550
„ Work Shears	528
Crowns for Pivoting	15, 19
Crucible Furnaces	488–491
„ Slides	492
„ Tongs	488, 489
Crucibles	488–493, 513
Crystal Mat Gold	23
Cubes, Glass	372
Cup for Engine	232
Cup-shape Brushes	235, 576
Cups and Rings	62
Cuspadors or Spittoons	70–74
Custer's Chamois Discs	231
Cutting Nippers	520, 521
Cuttle-Fish Paper Discs	229
„ „ Strips	390
„ Powder	590
Cuttriss's Am-Meter	195
„ Dental Motor	189
„ Dynamo	194
„ Gas Engine	194
„ Primary Battery	191
Cylinder Mould	274
Cylinders, Gold	21–23
„ Gutta-Percha	33
„ Tin	23

D

Dall's Amalgam Spoon	281
„ Inlays	10
Dally's Lancet	337
Darby's Buff Polishers	233

	PAGE
Darby's Capsicum Bags	383
„ Enamel Cutters	161
„ Hand Stoppers	248
„ Paper Points	389
Davis's Amalgams	32
„ Coffer-Dam Applier	347
„ Mercury	31
„ Miraculine (Eucathymen)	385
Day-Book, Sarson's	605
Dennant's Iodine Dresser	381
„ Sterilizing Vase	381
Dental-Alloy Plate and Wire	26
„ Swivels	24
„ Washers	24
Dental Books	606
„ Cabinets	42–44
„ Chair Seats and Backs	46, 59
„ Chairs	45–62
„ Engines	177–187
„ Forceps	98–143
„ Instruments	91
„ Ledgers	605, 606
„ Motors	189-193
„ Napkins	353, 390
„ Rubbers	38–41
Dentifrices	589–592
Dentine, Fletcher's	37
Dentists requiring Assistants	9
Derenberg's Tweezers	304
Devitalizing Nerve Fibre	381
Diagram of Incisor Tooth	599
„ of Upper Jaw	600
Diagrams of Nerves	603
Diamond Cement	37
„ Discs	226
„ Points	226
„ Reamers	285
„ Wheels	226
Diatoric Teeth	14–18
Disc Carrier, Andrieu's	222
„ Mandrel	219
Discs, Corundum	224
Dissecting Case	93
Distributor, Gas	500
Ditcham's Germicide	385
Dividers	542
Dividing Files	414–416
Dog Wood	344, 390
Dolamore's Metal Shields	230
Dome, Fireclay	509
Donaldson's Adjustable Holder	163
Donaldson's Nerve Instruments	163
Door for Furnace	487
Dorsenia	380
Double-ended Chisels	158, 159
Double Unions	428
Dougan's Amalgam	32
Drab Colouring Matter	37
Draft Furnaces	488
Dragon Cane Points	390
„ Canes	390
Draw Plates	533
Drawing Tongs	533
Dressing Tweezers	299–301
Drill, Archimedian	176
„ Bow	533
„ Stocks	529
Drilling Tool	529
Drills	529
„ and Burs	174–176
„ for Engine	211–215
Drip Cup with Sponge	90
„ Proof Burner	507
Drivers for Mandrels	222, 225
Driving Springs	180, 185
„ Wheel	482
Drop Bottles	376, 377
Drying Oven	509
Dubois and Eckfeldt's Alloy	32
Dunn's Stains	470
Duplicating Apparatus	547
Dynamo	194

E

Earthenware Spittoons	70, 74
Ebony Hand Mirrors	75
Eckfeldt and Dubois' Alloy	32
Edgelow's Flap Valves	431
„ Pedal Attachment	426
„ Wool Holders	457
Edwards' Pliers	519
Elastic Bands	344
Elbow Joint for Engine	182
„ Springs	180, 185
Electric Lamp Bracket	88
„ „ for Mouth	322
„ Lamps	89
„ Mallet Pluggers	257
„ Motors	189-193
„ Switch	188
Electrically Pure Mercury	31

	PAGE
Electro-Magnetic Mallet	256
Electrotypes	593
Elevators for Stumps	144–148
Elliott's Clamps	352, 363
„ Mandrel	220
„ Nerve-Canal Drills	214
„ Syringe Points	319
Ellis's Hand Stoppers	242
„ Hydraulic Chair	47
„ Joint for Engine	181
"Elmwood" Dynamo	194
„ Gas Engine	194
„ Primary Battery	191
Emergency Case	458
Emery Cloth	573
„ „ Discs	230
„ „ Strips	390
„ Paper Discs	229
Enamel-Cutting Burs	209
„ Cutters	155–161
„ Gum	487
„ Trimmers	289, 297
Endless Packings	560
Engine Arm Support	187
„ Bands	180, 187
„ Bit Oiler	234
„ Bit Stands	239
„ Brushes	235
„ Burnishers	218, 219
„ Burs	206–218
„ Cables	187
„ Drills	211–215
„ Instruments	206
„ Mallets	203–205
„ Oil	237
„ Polishing Discs	229–231
„ Shaw's	179–183
„ Sheaths	187
„ Spiral	180
„ Spring Pliers	183
„ Syringe	223
„ Treadles	180, 187
„ White's	187
Engines, Dental	177–187
English Gilling Thread	346
„ Pattern Forceps	98–127
„ Tube Files	573
E. P. S. Accumulators	190
Ether Apparatus	378
„ Bottle	378
„ Compound	378
Ether for Inhalation	448
„ Inhalers	444, 448
Ethylate of Sodium	385
Eucalyptus Oil	385
Eucathymen (Miraculine)	385
Eugenol	385
Evans' Clamps	361, 365
Examining Lamp	322
Excavators	168–173
Excelsior Cement	35
„ Gutta-Percha	33
„ Tooth Cream	591
Excising Forceps	98, 129
Expander, Regulating	341
Explorers or Probes	166, 167
Extra Large Vulcanizer	556
„ Parts for Battery	324
Extracting Forceps	98–143
„ Instrument Case	108

F

Facepiece Pads	439, 448
Facepieces	438–449
Facing Rubbers	39, 41
Fahnstock's Wax Knife	544
Farebrother's Burs	218
„ Mallet Points	266
Felt Discs	231
„ Wheels and Cones	577
Fergusson's Gag	455
Fernald's Coffer-dam Holder	349
Ferrule and Band Holder	289
Fibre Lint	390
Fifth Nerve Diagram	603
File Carriers	415
„ Cleaners	573
Files, Mouth	413–416
„ Gold and Vulcanite	572
Filing Trays	573
Fine-Cut Amalgam	30
Fine Copper	548
„ Gold	26
„ Silver	26
Finishers, Vulcanite	571
Finishing Burs	217, 218
„ Files	416–422
Fireclay	485
„ Crucibles	488–493
„ Dome	509
„ Muffles	485–488

	PAGE
Fireclay Slabs	487, 488
First Dentition Specimens	601
Fissure Cavity Burs	208, 209
„ Drill	212
Flagg's Amalgams	32
„ Gutta-Percha	33
„ Lamp	370
„ Oxychloride Cement	37
„ Plastic Enamel	37
„ „ Instruments	275
„ Tongue Holder	334
„ Tweezers	301
„ Work	275
„ and Ingliss's Work	387
Flap Valves	431
Flash Lamp	369
Flask for Metal Dies	540
„ Moulding	540
„ Presses	569
„ Spanners	566, 567
Flasks	561–569
„ Glass	461, 468
Flat Oil Can	237
„ Spirit Lamp	369
„ Teeth	10–18
Flatting Mills	494
Fleming's Aconite and Iodine	386
Fletcher's Amalgam Balance	274
„ Amalgams	32
„ Blowers	501
„ Blowpipes	497–499
„ Burners	468, 469
„ „	502–507, 554
„ Carbolized Resin	384
„ Colouring Matter	37
„ Copal Ether Varnish	37, 385
„ Cylinder Mould	274
„ Dentine	37
„ Drying Oven	509
„ File	414
„ Furnaces	484, 489–491
„ Gas-Tight Tubing	87, 491
„ Gauzes	507
„ Melting Arrangements	492
„ Mercury	31
„ Mixing Tube	274
„ Pestles and Mortars	376
„ Plate Dryer	509
„ Porcelain	37
„ Spatula	311
„ Styptic	385
Fletcher's Taps	508
„ Water Heater	510
„ White Enamel	37
Flexible Arm of Engine	187
„ Burs	214
„ Drills	214
"Flexo" Files	416
„ Finishing Strips	416
„ Saws	416
Flint-Edge Gold Alloy	32
Floss Silk	346
Flower's Diagrams	603
Foil Manipulators	307
„ Scissors	307
Foils, Gold, &c.	20–23
Foot Bellows	378, 500, 501
„ Pads	236
„ Press	189
Footstool	61
Förberg's Carbonized Wool	388
Forbes' Paraboloid Chisels	158
Forceps	98–143
„ for Crowded Teeth	99, 129
„ Pouches for	107
Forms of Engine Instruments	206
Fossiline	37
Foster's Crowns	19
Foulks' Capsicum Bags	383
„ Compound „	383
Fragment Nippers	128
Francis's Polishing Discs	227
Fraser's Electric Lamp Bracket	88
„ Rubber-dam Holder	654
Free Registers	9
French Bibulous Paper	353, 390
„ Chalk	390, 569
„ Cloth Strips	390
„ Emery Paper Strips	390
„ Tube Files	573
Fret Saw Blades	534
Funnels for Spittoons	71
Furnace Muffles	485–488
Furnaces	484–491
Fusible Metal	293, 295
„ „ Outfit	290
„ Plugs	555, 559

G

Gags or Mouth Props	450–455
Gartrell's Apparatus	561

	PAGE
Gartrell's Gauge	557
Gas Bags	429
„ Box	432
„ Burners	468, 469, 502–507, 554
„ and Bottles	423
„ Distributor	500
„ Engine and Dynamo	194
„ Extinguisher	461, 468
„ Furnaces	485–489
„ Laboratory Lamps	560
„ Manufacturing Apparatus	459–465
„ Quieter	429
„ Regulating Gauges	557
„ Soldering Lamp	517
„ Supply Taps	508
„ Tight Tube	491
Gasometers	434–437
„ Manufacturing	460, 468
Gauges	557
Gauzes	507
Gelatine Composition	547
Genese's Pestle and Mortar	373
„ Rubber Wedges	343
German Needle Files	573
„ Silver Cocaine Syringe	320
„ „ Mouth Tubes	76
„ „ Strips	306
„ „ Trays	395–412
Gilbert's Gutta-Percha	33
Gilling Thread	346
Glass Borax Slab	515
„ Bottles	374–377
„ Bur Cup	232
„ Cloth	573
„ Cubes	372
„ Flasks	461, 468
„ Inlay Materials	19
„ Mixing Slab	371
„ Pestles and Mortars	376
„ Spirit Lamps	369, 518
„ Tubes	461, 468
„ „ for Cocaine	320
„ „ for Saliva Ejector	76
„ „ for Specimens	547
Glasses, Mirror	327, 329
Globe Modelling Composition	393
„ Rubber-dam	345
Globes for Reflectors	86, 87
Glycerine Celluloid Apparatus	562
Glycerole of Thymol	385
Goat's-Hair Brushes	576
Godiva Composition	392
Gold Caps	285
„ Crown Dies	291, 296
„ Cylinder Case	307
„ Cylinders	20–23
„ Foil Case	307
„ Foils	20–23
„ Pellets	20–23
„ Plate and Wire	25
„ „ (flatted to order)	25
„ „ for Crown Work	25
„ Rifflers	420–422
„ Screw Posts	297
„ Solders	26
„ Springs	24
„ Swivels	24
„ Tooth-Pick	589
„ Washers	24
Goods, Remarks on ordering	8
Gorgas's Work	387
Gouge Chisels	158
Gouges	543
Graham and Wood's Articulator	549
Grain Tin	548
Granit-Plombe, Poulson's	37
Granite Cloth Strips	390
„ Paper Discs	229
Gravity Battery	191
Green Shades for Reflectors	86, 89
Gregory's Amalgam	32
Grinding Lathes	472–483
Grindstones	542
Grooved Pliers	183, 519
Grooving Bur	213
Gross's Clamps	353
Guillotine Forceps	338
Gum Body	487
„ Enamel	487
„ Forceps	338
„ Lancets	336
„ Myrrh	386, 589
„ Scissors	338
„ Shellac	547
„ Tragacanth	382
Gun Metal Flasks	561–567
Gut for Drill Bow	533
„ for Lathes	477
Gutta-Percha	33, 394, 546
„ Covered Wire	324
„ for Lining Palates	394
„ Heaters	370, 371

	PAGE
Gutta-Percha Nerve Canal Points	33
„ Stoppings	33
Gysi's Diagram	600

H

Hair Spring Valves	441
Hall's Suction Discs	578
Hand Bag, Anæsthetist's	431
„ Bellows	378
„ Brushes	576
„ Burnishers	282
„ Burs and Drills	174–176
„ and Foot Lathe	480
„ Mallets	252
„ Mirrors	75
„ Scratch Brushes	524
„ Spittoons	74
„ Stoppers	241–251
„ Support for Lathes	90
„ Vices	535
Handles for Broaches	532
„ Cone-Socket	154, 160, 166, 173
„ for Engine Burs	238
„ for Nerve Instruments	162, 163
„ for Sculptors	543
Handpieces	196–202
Handy Flask Press	569
Hard Buff Polishers	233
Harlan's Scalers	153
Harris's Forceps	133, 143
Hatfield's Flask	564
Hawes' „	540
Hayes' Articulator	549
„ Flask	566
„ Vulcanizers	560
Hazeline	385
H. C. Clamps	361
Head's Hand Stoppers	246
Head Rests	63, 64
Hepburn's Slide Section Tray	395
Herbst's Clamps	367
„ Gold Filling Instruments	219
„ Matrices	306
Hern's Forceps	118, 119
„ Nerve-Canal Bur	212
Hewitt's Gags	451
„ Gas Apparatus	444
„ „ and Oxygen Apparatus	445
„ Work	447
Hickman's Clamps	365
Hickory Wood	297, 344
High Power Burners	506
Hill's Gutta-Percha	33
Hindostan Stones	228
Hinds' Godiva Composition	392
Hockley's Mastic Bottle	374
Hodge's Handpiece	200
„ Right-Angle Attachment	201
Hodson's Clamps	365
Holder for Cane Points	391
„ for Silk	346
„ for Table, &c.	64*a*
„ for Teeth	532
Holders for Broaches	532
„ Caustic	391
„ for Engine Burs	238
„ for Spittoons	68, 69
„ Various	333, 335
„ for Waste Dressing	270
„ for Wool	270
Holland Covers for Engine	180, 187
Holmes' Bracket Table	84
„ Engine Bit Oiler	234
Holt's Clamps	363
Hoods for Attachments	187, 202
Hook for Flasks	567
„ for Glass Flasks	461, 469
Hope's Amalgam Tweezers	302
Horizontal Engine	184
„ Vices	535
Horn Mallets	538
Horne's Nervine	381
Horton's Bib	391
Hospital Chairs	57–62
„ Jugs for	72
„ Pattern Chisel	158
„ „ Coffer-dam Holder	350
„ „ Elevators	145, 146
„ „ Stoppers	250
Hot-Air Syringes	314–318
„ Syringe Stand	315
Hot-Blast Blowpipe	499
Hot-Water Apparatus	73
„ Can	74
„ Jugs	72
„ Plate	539
Houghton's Spatula	309
Hours of Business	9
How's Clamps	364
„ Crowns	19
„ Gutta-Percha Heater	371

	PAGE
How's Screw Posts	297
Howe's Scalers	153
Hub Mould	296
Hub-Shape Brushes	576
Hubs for Wire Brushes	236
Huey's Clamps	361
„ Mandrel	219
Human Anatomy Atlases	599
Humby's Mixing Block	309
„ Root Rougheners	213
„ Spatula	309
Hunt on Cocaine	321
Hunt's Syringe	319
Hunter's Clamps	367
„ Nerve-Canal Stoppers	164
Husband's Hand Stoppers	251
Hutchinson's Forceps	117, 137
„ Gag	451
Hyderabad Chloroform Inhaler	449
Hydraulic Chair	47
Hydrochlorate of Cocaine	320
Hydrochloric Acid	542
Hydrogen, Peroxide of	387
Hydronaphthol	386
Hypodermic Syringes	320

I

Ideal Clamp	352
Imperial Gold Foil and Cylinders	20
Important Notice	27
Impression Composition	392, 393
„ Materials	392–394
„ Trays	395–412, 550
Improved Chuck Handpiece	199
„ Cone-Regulating Hand-piece	196
„ Elbow Joint	182
Incisor Tooth Diagram	599
Incisors, Forceps for	98, 129
Indestructible Gauzes	507
India-Rubber Bags	429
„ „ Bowls	536
„ „ Bulbs	254, 255
„ „ Bungs	468
„ „ Collars	555, 559
„ „ Discs	227, 501, 578
„ „ Flap Valves	431
„ „ Foot Pads	236
„ „ Packings	560
„ „ Polishing Cups	234
„ „ Sheet for Regulating	344
India-Rubber Syringe Bulbs	313–315
„ „ Washers	579
„ „ Wedges	343
India-Rubber Tubing:—	
Covered with Mohair	468
For Gas Apparatus	468
„ General Purposes	491
„ Pneumatic Mallets	254, 255
„ Reflectors	87
„ Saliva Ejectors	76–79
„ Springs	519
Williamson's	468
Ingot Moulds	492, 513
Injector Furnaces	489, 490
Inlay Materials	19
„ Rods	17
Inlays, Dall's	10
Inside Elbow Springs	180, 185
Insoluble Cement, Weston's	37
Instantaneous Water Heater	510
Instrument Cabinet	92
„ Cases	94–97, 108
„ Cups and Rings	62
„ Pouches	93, 95
„ Table Stands	78–81
„ Warmer	370
Instruments for Crown Work	284–297
„ Dental	91
„ for Engine	206
Inverted-Cone Cavity Burs	208, 210
„ „ Fissure „	209
Iodic-Hydrarg	386
Iodine and Aconite	386
„ Dresser	381
„ Liniment	386
„ Tincture of	386
Iodoform	386
„ Paste	386
Iron Chairs	45–59
„ Flasks	562–569
„ Ladles	484
„ Perchloride of	386
„ Presses	569
„ Proto-Sulphate of	469
„ Wire	547
Ivory's Clamps	357–359, 654

J

Jack Screws	342
Jack's Enamel Cutters	159
„ File Carrier	415

	PAGE
Jack's Paraboloid Chisels	158
Jackets for Vulcanizers	556
Jacob's Gutta-Percha	33
Japanese Bibulous Paper	353, 390
„ Bracket Tables	85
„ Instrument Cups	62
Japanned Cases	597
Jars for Battery	324
Jaws, Human	601
„ for Cutting Nippers	521
Jeffery's Spring Matrices	655
Jenkins' Nerve Instruments	162
Jet Spittoons	70, 74
„ Water Bottles	74
Jets for Blowpipes	498
Johnson's Lever Clamp	364
Joints for Engines	181, 182
Jordan's Flasks	565
Journals and Books	606–629
Jugs for Hot Water	72
Junker's Inhaler	449
Justi's Spittoon Holder	68

K

Kaeber Bit Holders	238
„ Saws	340
Kearsing's Gold Foils, &c.	23
Kelene (Chloride of Ethyl)	379
Kendrick's Amalgam Tweezers	302
Kerosene Furnace	491
„ Stove	560
Kettle, Packing	539
Key for Brownlie's Valve	579
Keys for Gas Bottles	423, 428
King's College Forceps	116, 117
„ Modelling Composition	292, 393
Kingsley's Finishers	571
Kingzett's Bactericide	386
Kirby's Electric Motor	192
„ Gas Extinguisher	461, 468
„ Pneumatic Mallet	255
„ Rubber-dam	345
Knife Files	414
„ Wheels	215
Knives for folding Foil	307
„ for Plaster	537

L

Laboratory Burners	502-507
„ Lathes	472-483
Ladle Furnace	484
Ladles for Lead and Zinc	484
Ladmore-Brunton Matrices	305
Ladmore's Flasks	567
„ Forceps	123
„ Mallet Points	263
„ Plastic Instruments	272
„ Soldering Tool	545
„ Spatula	545
„ Tweezers	299
Lamp, Electric	322
„ Wick	87, 555, 558
Lamps, Spirit	517, 518
„ Various	368–370, 469
Lancets	336, 337
Lanolin-Cocaine	385
Lathe Brushes	576
„ Burs and Wheels	575
„ Heads	474–483
„ Saw Blades	534
„ Scratch Brushes	524
Lathes, Operating Room	90, 481
„ Workroom	472–483
Lava Strips	390
Lawrence's Amalgam	32
„ Lathe Head	483
Lawton's Absorbent Cotton	390
Lead	548
„ Furnace	484
Leather Cases	594
„ Covered Wrist Spring	180
„ Covers for Springs	180
„ Polishing Wheels	233
„ Pouches	93, 95, 107
Lechmere's Burs	209, 218
„ Mallet Points	264
„ Nerve Canal Pluggers	165
Lee-Bennett Jack Screw	342
Lee's Regulating Screw	342
Leg Vices	535
Leman's Suction Valves	578
Lemercier's Molar	598
Lennox's Outfit	290
Levett's Matrices	304
Lewis's Flasks	565
Lids for Furnaces	489, 490
Ligature Knife	337
„ Silk and Thread	346
Light Anvils	530
Lignum Vitæ Wood Gags	451
Liniment Iodine	386

	PAGE
Lip Protectors	334
Liquid Gas Bottle Stand	428
„ „ Case	430
„ Silex	569
Listerine	386, 589
Lloyd Williams' Mallet Points	267
„ „ Scalers	152
Loadstone Stoppers	272, 281
Local Anæsthetics	378–380
Lock-Bit Attachments	202
Logan's Crowns and Pins	19, 297
Long Burs and Drills	206
Long's Clamps	365
Longnecker's Clamps	363
Lyder's Clamps	363

M

Macleod's Pins and Tubes	288
Magnetized Carrier	303
Magnified Human Molar	598
Mahogany Box for Engine	185
„ Cases with Bottles	375
„ Hand Mirrors	75
Majolica Spittoons	70, 74
„ Water Bottles	74
Malachite Spittoons	74
„ Water Bottles	74
Malleable Iron Ladles	484
Mallet Pluggers	257–261
„ Points	253, 257, 262–269
Mallets for Engine	203–205
„ Horn and Boxwood	538
„ Various	252–256
Mandrels	216, 219–222
Manipulator, Foil	307
Mannhardt's Mercury Bottle	377
Manufacturing Apparatus for Nitrous Oxide Gas	459–465
Marfil Cement	36
Markham's Inlay Rods	17
Marsh's Local Anæsthetic	380
Mason's Gag	454
Mastic Bottles	374
„ Cement	374, 386
Materials for Impressions	392–394
„ for Separating	343, 344
Matrices	304–306, 655
Maunder's Screw Gag	454
McAdam's Spatulas	311
McCarthy's Packing Kettle	539
McLean's Sharpening Discs	172
Mechanical Mallets	204, 205
Melotte's Bench Block	531
„ Blowpipe	511
„ „ Pad	513
„ Crown Dies	296
„ Moldine Outfit	294
„ Soldering Tweezers	514
Melting Arrangements	492, 493
Mercury for Amalgams	31
„ Bottles	377
„ Common	548
Meriam's Crown Saw	216
Metal Bur Cup	232
„ Files	573
„ Mouth Tubes	76
„ Patterns	571
„ Plates for Discs	172
„ Scrap Boxes	529
„ Shields	230
„ Spittoons	70
„ Syringes	313–320
Metals, Various	548
Method of Staining Teeth	470
Miles' Pliers	519
Miller and Wood's Switch	188
Miller's Wedge Cutters	341
Mills, Flatting	494
Mineral Inlay Rods	17
„ Inlays	10
„ Plombe, Poulson's	37
„ Specimens	15
„ Teeth	10–19
Minim Discs	231
Mint Tooth Soap	591, 592
Miraculine, Davis's	385
Mirror Glasses	327, 329
Mirrors	322–333
„ and Clamps	332, 356
Mitchell's Contouring Pliers	289
„ Crown Instruments	289
„ Enamel Chisels	157
„ Rubber-dam Holder	349
Mixing Cubes	372
„ Slab	371
„ Tube for Amalgams	274
Model Cement	538
Modelling Burners	503–505
„ Composition	392, 393, 546
„ Tools	544, 545
„ Wax	546

	PAGE
Moffatt's Syringes	314
Molars, Forceps for	98, 129
Moldine Outfit	294
Moon's Bur Cup	232
„ Probe	167
Moore's Clamps	363
Moorish Spittoons	74
Moose-Hide Points	233
Morelli's Paper Cylinders	389
Morgan's Crucibles	488–491
Morphia, Acetate of	386
Morrison's Chair	55–57
„ Hospital Chair	57
Mortars and Pestles	373, 376
Motors, Electric	189–193
Moulded Carbon Block	496
Mounts for Gas Bags	429
„ for Mohair Tubing	439, 469
Mouth Blowpipes	496
„ Distenders	334
„ Mirrors	322–333
„ Openers	453
„ Props	450–452
„ Saws	340
„ Speculum	356
„ Tubes	76
„ Washes	589
Muffle Furnaces	485–488
Muffles for „	485–488
Mullett's Amalgam Spoon	280
Muriatic Acid	542
Myrrh Gum	386, 589
„ Tincture	386, 589

N

	PAGE
Napier's Gas Stand	428
Napkins, Absorbent	353, 390
Napkin Clamps	356–359
„ Holders	335
Nedden's Sponge Gold	22
Needle Chuck	219
„ Files	573
Nerve Bristles	163
„ Canal Burs	212, 213
„ „ Drills	214, 215
„ „ Pliers	240
„ „ Pluggers	164, 165
„ „ Points	33
„ Destroying Agents	381
„ Instruments	162–167
Nerve Instrument Handles	162, 163, 532
„ Obtunder, Scott's	387
„ Pastes	381
Nervine, Horne's	381
Nets for Blowers	501
New Moorish Spittoons	74
Nickel	548
„ Mixing Block	309
„ Spatula	309
Nickold's Amalgam	32
„ Gold Foil, &c.	22
Nippers for Crown Work	128
„ Cutting	520–522
Nitrate of Ammonia	468
„ of Silver	391
Nitric Acid	542
Nitrite of Amyl	453
Nitrous Oxide Gas	423
„ „ „ Bottles	423
Non-Cohesive Gold Foils	20–23
Non-Irritant Cement	37
Northrop's Corundum Points	224
Noses for Handpieces	187, 197
Notice, Important	27
Nozzles for Blowpipes	498, 511
„ for Ether Apparatus	378
„ for Syringes	320

O

Oak Blocks for Lathe Chucks	478
Obtuse-Angle Attachment	202
Off-Centre Springs	185
Office Lathes	90, 481
„ Pliers	240, 520
„ Preparations	383–387
Oil of Cajeput	384
„ Cans	237
„ Celluloid Apparatus	562
„ of Cloves	385
„ for Engine	237
„ of Eucalyptus	385
„ Furnace	491
„ of Peppermint	387
„ Sanitas	387
Old Metals	9, 25
Operating-Room Jugs	72, 74
„ „ Lathes	90, 481
„ „ Pliers	240, 520
„ „ Preparations	383–387
„ „ Sundries	388–391

	PAGE
Opium Tincture	386
Oral Net Spoon	457
Oralina Mouth Wash	589
Oraline Tooth Paste	591
Orange Wood	344, 390
Ormsby's Ether Inhaler	448
Orris Root Powder	590
Ossilite, Robertson's	37
Osteos, or Cement Stoppings	34–37
O. S. Tooth Blocks	590
Ottolengui's Clamps	364
„ Work	260
Outfit, Lennox's	290
„ Melotte's	294
Outside Elbow Springs	180, 185
Oval Cavity Burs	209
Oven for Drying Flasks	509
Overell's Flasks	565
Owen's Blowpipe	496
„ Soldering Lamp	517
Oxychloride Cement, Flagg's	37
Oxygen Blowpipe	498
„ Gas	424
„ and Gas Apparatus	445
„ Injector Furnace	490
Ozonized Water	589

P

	PAGE
Pack's Gold Pellets, &c.	23
Packing Kettle	539
„ Remover	559
„ Tools	544
Paget's-Syme's Knife	336
Palate Brushes	576, 577, 585
Palette, Porcelain	71
Palladium, Precipitated	32
Palmer's Clamps	361, 366
„ Tooth Pick	589
Pan, Soldering	515
Paper and Cloth Discs	231
„ Cylinders	389
„ Discs	229–231
„ Disc Mandrels	219–222
„ Fibre Lint	390
„ Points	389
„ Strips	390
Paraboloid Chisels	158
Paraffin Stove	558
„ Wax	394, 546
Parcel Post Parcels	8
Parker's Fibre Lint	390
Parmly's Forceps	135, 137, 139
Parmly Brown's Chisels	158
Parris's Amalgam Carrier	277
„ Articulator	551
„ Tweezers	301
Parting Nut Mandrel	219
Partnerships for Disposal	9
Passehl's Suction Plates	568
Patrick's Contouring Pliers	289
Pattern Lead	548
Paulme's Cautery	316
Pear-Shaped Cavity Burs	210
"Pearl" Suction Plates	568
Pedal Attachments	425–427, 433
Pedley's Drop Bottle	376
„ Glass Cubes	372
„ Iodoform Paste	386
„ Triangular Drills	211
Pellets, Gold	20–23
„ Gutta-Percha	33
Pencils, Camel-Hair	546
Peppermint, Oil of	387
„ Tooth Soap	591, 592
Perchloride of Iron	386
Perfected Impression Composition	392
„ Pin-Hole Nippers	526
Perforated Plate	29
Perforators	525–528
Permanganate of Potash Tabloids	387
Peroxide of Hydrogen	387
Perry's Mandrels	222
„ Minim Discs	231
„ Separators	344
„ Tweezers	301
Pestles and Mortars	373, 376
Petroleum Furnace	491
Pettee's Spring Reamers	214
Phenate of Soda	386
Phenol Sodique	386
Phosphat-Plombe, Poulson's	36
Phosphate Cement	34
Physick's Forceps	131
Piercing Saw Frame	534
Pierrepont's Tooth Brushes	588
Pin-Head Mandrel	220
Pin Nippers	524–527
Pin-Roughing and Bending Pliers	520
Pin-Size Engine Drills	211
„ Vices	535
Pink Colouring Matter	37

	PAGE
Pink Dental Rubbers	38–41
„ Gutta-Percha	394
„ Moorish Spittoons	74
Pins for Logan Crowns	19, 297
„ for Perforators	525–528
„ for Pin Nippers	524
„ and Tubes, Balkwill's	288
„ „ Howkins'	288
„ „ Macleod's	288
Pivot Crowns	15, 19
„ Teeth	14
„ Tray	412
Pivoting Instruments	284–297
Plain-Line Articulator	550
„ Porte Polisher	219
Plaster Bowls	536
„ Knives	537
„ of Paris	394, 536
„ Pins	538
Plastic Enamel, Flagg's	37
„ Filling Instruments	272–281
„ Fillings	30–37
Plate Benders	524
„ Cutters	524
„ Dryer and Heater	509
„ for Flasks	563
„ Hot-Water	539
, Punches	527
„ Shears	528
„ and Wire	25, 26
„ „ Gauge	529
„ „ Sizes	27
Plates for Sharpening Discs	172
Platinum Cavity Caps	303
„ and Iridium Nerve Instruments	166
„ Plate and Wire	26
„ Pointed Tweezers	301
„ Spatulas	311
Pliers for Crown Work	289
„ Drawing	533
„ for Engine Springs	182
„ Nerve-Canal	240
„ for Operating Room	240
„ for Regulating	343
„ Various	519, 520
Plug Finishing Files	416–422
„ for Gas Bottles	433
„ Trimmers	417, 418
Pluggers	241–271
for Hand	241–251
Plugging Assistant	251
„ Tweezers	298
Plugs for Furnace Door	487
Plumbago Crucibles	488
Pneumatic Mallets	254, 255
Pocket Lancets	336
„ Mirrors	333
Points for Cautery	317
„ Corundum	224
„ Gutta-Percha	33
Polishing Brushes	235. 576, 577
„ Discs and Points	227–231
„ Lathes	473–483
„ Materials	390
„ Powders	235
„ and Sharpening Discs	172
„ Stones	228, 547
„ Wheels and Cones	577
Porcelain Boiling Pans	528
„ Cavity Stoppers	19
„ Crowns	19
„ Fletcher's	37
„ Palette	71
„ Pestle and Mortar	376
Portable Head Rests	63, 64
„ Instrument Cases	96, 97
„ Liquid Gas Case	430
„ Vulcanizers	554, 555
Porte-Polishers	219, 220
Potassa cum Calce	387
Pouches for Forceps	107
„ for Instruments	93, 95
Poulson's Granit-Plombe	37
„ Mineral Plombe	37
„ Paper Points	389
„ Phosphat-Plombe	36
„ Spatula	311
Powder for Mixing Liquid	487
Powdered Asbestos	485
„ Shellac	233
„ Silex	485, 569
Powders for Polishing	235
„ Tooth	590
Power's Engine Mallets	203
Practices for Disposal	9
Precipitated Chalk	390, 590
Premium Gutta-Percha	33
Preparations for Operating Room	383–387
Prepared Chalk	390, 590
„ Cotton	387
Primary Battery	191

PAGE

Probes 166, 167
Proto-Sulphate of Iron 469
Pulp-Canal Cleansers 163
„ „ Points 388
„ Cavity Caps 303
„ Devitalizing Agents . . . 381
Pulpine, Rosenthal's 36
Pumice Powder . . . 390, 538, 569
Pump Chair 48
Pure Shellac 233
Pyrophore, Rowney's 318

Q

Quantity Rates for Engine Burs 207
„ „ for Gold . . . 22
Quieter, Gas 429

R

Radial Burners 506
"Reach-Around" Clamps . . . 363
Read's Elevator 146
„ Forceps 110, 120
„ Squaring Bur 212
Reamers, Diamond 285
„ Pettee's 214
„ Talbot's 214
Record Forms 604
Redman's Facepiece 439
„ Forceps 120, 121
„ Plug Trimmers . . . 417
Reflectors 86–89
Register's Mandrel 222
Registers 9
Regulating Apparatus . . . 341–344
„ Rubber 344
Regulator for Battery 325
„ Electric 188
Remarks on ordering Goods . . . 8
„ on Teeth 11
Remembrance Card 603
Resorcin 387
Rest for Lathes 90
Revolving Bench Block 531
„ „ Pin 523
„ Socket Bit Holder . . 238
Ribbon Saws 312
Rich's Tweezers 299
Richard's Gutta-Percha 33
Richardson's Ether Apparatus . . 378

PAGE

Richardson's Ethylate of Sodium . 385
Richmond's Crowns 19
Richter's Inlay Materials . . . 19
Rifflers, Gold 420
„ Vulcanite 574
Right-Angle Attachments . . 201, 202
Rings and Cups 62
„ and Thumb Screws . . . 563
Riveting Hammer 542
Robbins' Forceps 124
Robertson's Amalgams 32
„ Calor Fluid 380
„ Expander 341
„ Ossilite 37
Rock Cement 35
Rogers' Amalgam Spoon 281
„ Clamps 365
„ Copper Amalgam . . . 32
„ Mallet Points 265
„ Mouth Mirrors 330
„ Plug Trimmers 417
„ Pneumatic Mallets . . . 254
„ Saliva Ejector 77
„ Tilting Lever . . . 55–57
Rollers, Flatting 494
Rollins' Knife Wheels 215
Root Nippers 128
„ Rougheners 213
„ or Stump Elevators . . . 144–148
„ „ Forceps . . . 98, 129
„ „ Screws . . . 147, 148
Rose Tooth Soap 591, 592
Rose's Gum Body, &c. 487
Rosenthal's Pulpine 36
Rosewood Hand Mirrors 75
Rouge 235, 569
Round Cavity Burs 208
„ Nose Nippers 522
Rowney's Azotine 381
„ Forceps 118, 126
„ Mastic Bottle 374
„ Pyrophore 318
„ Spatula 309
Rubber Apron 429
„ Bowls 536
„ Bulbs 313–315
„ Bungs 468
„ and Corundum Discs . . 226
„ „ Points . . 228
„ Discs 501, 578
„ Foot Pads 236

	PAGE
Rubber Pestle and Mortar	373
„ Polishing Cups	234
„ „ Discs	227
„ „ Points	227
„ Rims	235, 513
„ Separating Strips	344
„ Tubing—*See* India-Rubber Tubing.	
„ Wedges	343
Rubber-dam and Appliances	345–367
„ Applier	347
„ Clamps	352–367, 654
„ Forceps	348
„ Holders	349, 350, 654
„ Punches	347
„ Weights	351
Rubbers for Base	39–41
„ Dental	38–41
Ryding's Forceps	116
Rymer's Remembrance Card	603

S

Safety Bunsen Burners	503
„ Discs	560
„ Valves	555
Sal-Ammoniac	324
„ „ Battery	323
Saliva Ejectors	76–79
Salodent Mouth-Wash	589
Sand Baths	502
„ Casting	538
„ Paper Discs	229
„ Spatula	538
Sandarac Varnish	387
Sanitas Oil	387
Sarson's Day Book	605
Satinwood Hand Mirrors	75
Saw Blades	340, 416, 534
„ Frames	340, 534
Saws for Engine	216, 218
„ Ribbon	312
Scalers	149–154
„ and Trimmers	297
Scales and Weights	548
Scissors, Foil	307
„ Gum	338
Scotch (Water of Ayr) Stones	228, 547
Scott's Calorific Fluid	380
„ Nerve Obtunder	387
„ Specific for Neuralgia	387
Scrap Boxes	529
Scrapers	544, 570, 571
Scratch Brushes	524
Screw Die	533
Screw Drivers	222, 225, 238
„ Frame Mirrors	326–328
„ Gag	454
„ Mandrels	219
„ Plate	529
„ Porte-Polisher	219
Screws for Cutting Nippers	521
„ for Regulating	342
„ for Stumps	147, 148
Sculptors	543
Seabury's Absorbent Cotton	390
Seats for Chairs	46, 59
Second Dentition Specimens	602
Secondary Batteries	190
Separating Appliances	343, 344
„ Discs	224, 226
„ Files	414–416
„ Strips	344
Separators	344
Sets of Battery Blocks	324
„ of Shades	12
„ of Weights	548
Shades for Reflectors	86, 89
Shallow Inverted-Cone Burs	210
Sharpening Discs	172
„ Stones	391
Shaw's Engine	179–183
Shears	528
Sheaths for Cables	187
Sheet Lead	548
Shefford's Cavity Caps	303
Shellac, Gum	547
„ Powder and Sticks	233
Shields for Glass Flasks	461, 469
„ Metal	230
Shouldered Mandrels	219
„ Wood Boxes	595
Siam Benzoin Gum	384
Sickle-Shape Files	414
Silencer or Gas Quieter	429
Silex	485, 569
Silicon Powder	390
Silk	346
„ Holder	346
Silver Gilt Springs	24
„ Plate and Wire	26
„ Solder	26
„ Springs	24

	PAGE
Silver Swivels	24
„ Washers	24
Simple Bracket Tables	84, 85
„ Celluloid Apparatus	562
„ Gag	451
„ Mouth Opener	453
„ Tongue Holder	656
Single Gas Union	429
Skulls, Articulated	603
„ Disarticulated	603
Slabs, Borax	515
Slide Section Tray	395
Slides for Crucibles	492
Sliding Tongs	533
Small Screw Drivers	238
Smith's Felt Discs	231
„ Mandrel	221
Smooth Engine Burnishers	218, 219
Snape's Calorific Fluid	380
Snow and Lewis's Articulator	549
„ „ Mallet	252
„ „ „ Points	262
Snow's Saliva Ejector	77
Socket Handles	154, 160, 166, 173, 257
Sockets for Spittoon Holders	68, 69
Soda, Phenate of	386
Sodique, Phenol	386
Soft Metal	548
„ „ Patterns	571
„ Rubber Cups	234
„ „ Discs	227
„ „ Points	227
„ Solder	548
„ Tooth Paste	591
Solder Tweezers	517
Soldering Blocks	496
„ Coals	496
„ Compo	515
„ Lamps	517
„ Pan	515
„ Spoon	516
„ Tool	545
„ Tweezers	514
Solders, Gold and Silver	26
Southwick's Clamp	363
Southwood's Wood Points	227
Spanner for Gas Bottles	433
Spanners or Wrenches	555, 560
„ „	566, 567
Spatula, Sand	538
Spatulas, Various	308–311
Spatulas, Wax	544, 545
Spear Drills for Engine	211
"Special" Mallet Points	268
„ Plastic Instruments	276
Special Rubbers	39, 41
Specific for Neuralgia	387
Specimen Tubes	547
Specimens of Teeth	15
Speculum, Mouth	356
Spence's Metal	569
Spiral for Engine	180
„ Twist Fret Saw	534
Spirit Lamps	368–370, 469, 517, 518, 560
Spittoon Funnels	71
„ Holders	68, 69
„ and Tumbler Holders	65
Spittoons	70, 74
Splash Guards	474, 475
Split Porte-Polisher	220
Splitting Forceps	98, 129
Sponge and Drip Cup	90
„ Gold	22, 23
Spoons, Amalgam	280, 281
„ Impression	395–412
Spring Adapting Pliers	519
„ Dividers	542
„ Gag	451
„ Matrices	306, 655
„ Nerve-Canal Drills	215
„ Reamers	214
„ Seats and Backs	46
Springs for Engine	180, 185
„ for Mallets	203
„ and Swivels	24
Spunk or Amadou	390
Spyer's Surface Formers	568
Square Engine Drills	211
Squaring Bur	212
"Squat" Spittoons	70
S. S. White—*See* White.	
Stains for Artificial Teeth	470
Stand for Syringe	315
Standard Gas Burners	502
„ Rose „	505
„ Star „	554
Standing's Bellows	500
Stands for Engine Burs	239
„ Motor	189, 193
„ for Tables	78–81
„ for Vulcanizers	556
Star Reversible Flasks	567

PAGE

Steam Pressure Gauges 557
„ Taps 555, 556
Stearine 538
Steel Burs and Wheels 575
„ Cavity Caps 303
„ Figures 527
„ Gas Keys 423
„ Gilt Springs 24
„ Letters 527
„ Metal Shields 230
„ Noses. 187, 197
„ Numbers 527
„ Punches 527, 585
„ Saws 216, 218
„ Tape 306
„ Wire Brushes . 173, 235, 236, 524
„ „ for Regulating . . . 343
Stellwagen's Forceps 141
Stem with Screw End 219
Stent's Amber Cement 387
„ Impression Composition . . 392
„ Prepared Cotton 387
Stephane's Plates 28, 29
Sterilizing Vases 381
Stevens' Forceps 115
„ Mallet Pluggers . . . 258
„ Pulp-Canal Points . . . 388
Sticks of Gutta-Percha 33
„ of Shellac 233
Stocken's Work 387
Stokes' Clamp Forceps 348
„ Clamps 354, 355
„ Engine Syringe 223
Stoned Cavity Burs 208
„ Engine „ 207
„ Finishing Burs . . . 217, 218
Stones, Sharpening 391
Stool, Adjustable 72
Stopcocks 429, 439, 469
„ and Valves 440
Stoppers, Amalgam 271–281
„ for Hand 241–251
„ Nerve Canal . . . 164, 165
„ Various 241–271
Stoppings, Amalgam 30–32
„ Cement 34–37
„ Gutta-Percha 33
Stove for Vulcanizers 558
Straight Handpieces 196–201
Strengtheners, Vulcanite. . . 28, 29
Striking Hammers. 542

PAGE

Strings of Shades 12
Strips, Finishing 416
„ German Silver. 306
„ for Polishing 390
Student's Cabinet 92
„ Dissecting Case . . . 93
„ Instrument „ 97
„ Pouches 93, 95
Stump Elevators 144–148
„ Files 413
„ Forceps. 98, 129
„ Screws 147, 148
Styles of Engine Instruments . . 206
Styptic Colloid. 387
Sub-Alveolar Forceps 129
Suction Discs 578, 579
„ Plates 568
„ Valves 578, 579
Suggestions for ordering Teeth . . 13
Sullivan's Copper Amalgam . . . 32
Sulphate of Copper 385
Sulphide of Iron 569
Sulphur Cement 387
Sulphuric Acid 542
Sundries for Operating Room . 388–391
Superfine Pumice 235
Supplemental Bags 429, 469
Surface Formers 568
Surgeon's Gas Case 430
Surgical Case 93
Sutton's O. S. Tooth Blocks . . 592
„ Tongs. 515
Swaging Press 569
Switch for Battery 325
„ High Resistance 188
Swivel or Adjustable Elevator . . 147
„ Pliers 519
Swivels and Springs 24
Sycamore Blocks 344
Syme's-Paget's Knife 336
Syphons for Gauges 557
Syringe Bulbs 313–315
„ for Engine 223
„ Stand 315
Syringes 313–320

T

Tables, Bracket 84, 85
Tablets, Gutta Percha 33
Taft's Finishing Files. 419
Tail Vices 535

	PAGE
Talbot's Reamers	214
Tannin	387
Tape, very thin Steel	306
Tapering Wheel Burs	210
Taps, Gas Supply	508
Taylor's Spatula	311
Tees' Clamps	361
„ Gum Body, &c.	487
„ Sub-Alveolar Forceps	143
Teeth, American	15
„ Ash's Mineral	10–19
„ Cases	597
„ Catalogue	13
„ Crowns	15, 19
„ Remarks on	11
„ Shades	12
„ Specimens	15
„ Suggestions for ordering	13
„ Wax	15
Telephone Plate	303
Telschow's Reflectors	86, 87
Tender Gums, Rubbers for	41
Terminal for Battery	324
Thermometers	555–562, 569
Thickened-Rim Paper Discs	231
Thimble, Bur	176
Thompson's Mallet Pluggers	259
„ „ Points	266
Thomson's Elevators	144
"Thorough Cleansing" Brushes	588
Thread for Ligatures	346
Thumb Screws and Rings	563
Tilting Lever, Rogers'	55–57
Tin	548
„ Foil for Vulcanite Work	548
„ Foils	23
„ Spirit Lamps	518
Tincture of Aconite	384
„ of Iodine	386
„ of Myrrh	386, 589
„ of Opium	386
Toilet Cabinet	44
Tomes' Elevator	147
„ Forceps	98, 143
„ Tweezers	301
Tongs, Crucible, &c.	488, 489, 515
Tongue Compressor	333
„ Forceps	456
„ Holders	334, 656
Tooth Blocks	590
„ Brushes	585–588
Tooth Dressing	384
„ Holder	532
„ Paste	591, 592
„ Pick	589
„ Polishing Brushes	235
„ Powder Boxes	589
„ Powders	590
„ Soap	590–592
Top Parts of Engines	180, 187
Torsion Wire Springs	46
Tortoise-shell Lancets	336
Tough Boxes for Parcels	595
Towel Rail for Cabinet	44
Townsend's Amalgam	32
Tragacanth, Gum	382
„ Sprinkler	382
Trays, Impression	395–412
Treadles for Engines	180, 187
Trephines for Engine	217
Triangular Cavity Burs	208
„ Drills	211
Trimmers and Scalers	297
Triplex Punch	347
Tripod Stands	556
Trocar Drills	211
Truman's Gutta-Percha	394
Tube Crowns	15
„ Files	573
„ Teeth	15
Tubes, Glass	461, 468
„ for Mixing Cocaine	320
„ for Saliva Ejector	76
„ and Scales	555–560
„ for Specimens	547
Tumbler and Spittoon Holder	65
Turkey Stones	391
Tweezers, Amalgam	301, 302
„ Annealing	300
„ Dressing	299–301
„ Plugging	298
„ Solder	517
„ Soldering	514
„ for Stumps	304
Twist Drills for Engine	211
„ Silk	346
Two-way Stopcocks	439, 469

U

Underwood and Braine's Work	441
Union Kerosene Stove	560

PAGE

Union Wooden 469
Unions for Gas Bottles . . . 428, 429
Universal Blowpipe 497
„ Castors 42
„ Electric Lamp Bracket . 88
„ Joint, Ellis's 181
„ Separator 344
„ Union 452
Upper Parts of Engine . . . 180, 187

V

Vacuum Valves 469
Vajna's Mandrel 221
Varney's Mallet Pluggers . . . 258
„ „ Points 267
Varnish, Copal Ether 37, 385
„ Sandorac 387
Vaseline 387
Velvet Rubber-dam 345
Vermilion 547
Verrier's Furnaces. 485
Very Absorbent Cotton Wool . . 388
„ Thin Steel Saws 216
„ „ „ Tape 306
Vices 535
Von Brun's Absorbent Cotton . . 390
Vulcanite Apparatus 561
„ Burs and Wheels . . . 575
„ Cement 569
„ Files 573
„ Flasks 561–567
„ Gags 451, 452
„ Hypodermic Syringe . . 320
„ Packers 544
„ Plate Strengtheners . 28, 29
„ Presses 569
„ Rifflers 574
„ Scrapers 570, 571
„ Teeth 10–18
Vulcanizers. 552–561

W

Waite's Gutta-Percha 33
Walker's Forceps 122, 123
„ Pivot Tray 412
Wall Brackets 82, 83
„ Saliva Ejector 76
Wallis's Antrum Syringe. . . . 314
„ Plastic Instruments. . . 278

PAGE

Wallis's Pressure Regulator . . . 188
Walnut Gas Boxes 433
Wardwell's Rubber Rims. . . . 235
Wash Bottles 461, 469
Washes, Mouth 589
Washers for Swivels 24
Waste Dressing Holders 270
Water Apparatus . . . 472, 473, 481
„ of Ayr Stones 228, 547
„ Bottles 74
„ Cup for Engine 232
„ Heater, Instantaneous . . 510
„ Syringes 313–320
Waterproof Solution 547
Watts' Crystal Sponge Gold . . . 23
Wax for holding Teeth 15
„ for Impressions 394
„ Knives 544, 545
„ Spatulas 544, 545
Weagent's Copper Amalgam. . . 32
Webb's Mallet Pluggers 257
„ „ Points. 257
„ Operative Dentistry . . . 256
Wedge Cutters. 341
Wedges and Clamps 563–567
Wedgewood Pestles and Mortars . 376
Weights and Scales 548
Weiss's Mirror and Clamps . . . 332
Wellauer's Diagram 600
Weller's Stopcocks. 442
„ Twin Bottle Stand . . . 427
„ Universal Union. . . . 452
Welsh's Tongue Holder 378
Weston's Chair Backs 46
„ „ Seats 46
„ Crowns 19
„ Flask 541
„ Insoluble Cement . . . 37
„ Metal 541
„ Non-Irritant Cement . . 37
„ Plugging Assistant. . . 251
„ Probe. 167
„ Solder 541
„ Spatulas 309
Wetherbee's Excavators 173
Wheel Burs for Engine . . . 216, 217
„ for Driving Lathes . . . 482
Wheels and Cones. 576, 577
„ for Stumps. 224
Wheel-Shaped Cavity Burs . . . 208
White Enamel, Fletcher's . . . 37

PAGE

White's Annealing Lamp . . . 368
„ Creasote and Arsenic . . 381
„ Devitalizing Nerve Fibre 381
„ Engine 186, 187
„ Globe Amalgam 32
„ Gold Foils 23
„ Gutta-Percha 33
„ Hand-pieces 196–202
„ Portable Head Rest . . . 63
„ Tin-Foils 23
Whitehouse's Duplicating Apparatus 547
„ Flasks 566
Whitney's Flasks 566
„ Vulcanizers 560
Wick for Lamps 555, 558
„ for Reflectors 87
Wilkerson's Chair 45
Williams' Capsicum Bags . . . 383
„ Clamps and Mirror . . 356
„ Gold Foils 23
„ Ideal Clamp 352
„ Mallet Points 267
„ „ „ 268
„ Napkin Holders . . . 335
„ Scalers 152
Willow Charcoal 496
Wintergreen Tooth Soap 591
Wire for Battery 324
„ Brushes . . . 173, 235, 236, 524
Wire File Cleaners 573
„ Hook 461, 469
„ and Plate 25, 26
„ „ Gauge 529
„ „ Sizes 27
„ for Regulating 343
„ Spring Seats and Backs . . 46
„ for Syringe Nozzles . . . 320
Wisdom Teeth, Forceps for . . 98, 129
Witowski's Atlases 599
Witzel's Cavity Caps 303
„ Ligature Knife 337
„ Spatulas 311
„ Tweezers 299
Wolrab's Gold Cylinders 22

PAGE

Wolrab's Gold Foil 22
Wolverton's Forceps 139, 141
Wood Polishing Points 227
„ Pulp-Canal Points. . . . 388
Wood's Forceps 125
„ Polishing Cups 234
Wooden Boxes 595
„ Cases 425
„ Centre Wheel Brushes . . 577
„ Chairs 60–62
„ Gags 451
„ Handles . . . 543, 570, 573
„ Shield 461, 469
„ Union 469
Woodhouse's Excavators 172
„ Gum Forceps . . . 338
„ Hand Stoppers . . 249
Woodson's Stoppers 280
Wool Brushes 577
„ Holders 270, 457
„ Roll Clamps 353
„ Rolls 353
Workroom Burners 502–507
„ Lathes 472–483
„ Tongs 515
Wrench and Bed Plate 560
Wrenches or Spanners . 555, 559, 566, 567
Wrist or Driving Springs . . 180, 185
Wrought-Copper Vulcanizers . 552–559
„ Iron Clamps . . . 563, 564
„ „ Ladles 484
Wyleys' Cocaine Pellets 320

Y

Ynchausti's Clamps 365
Young's Perforators 525

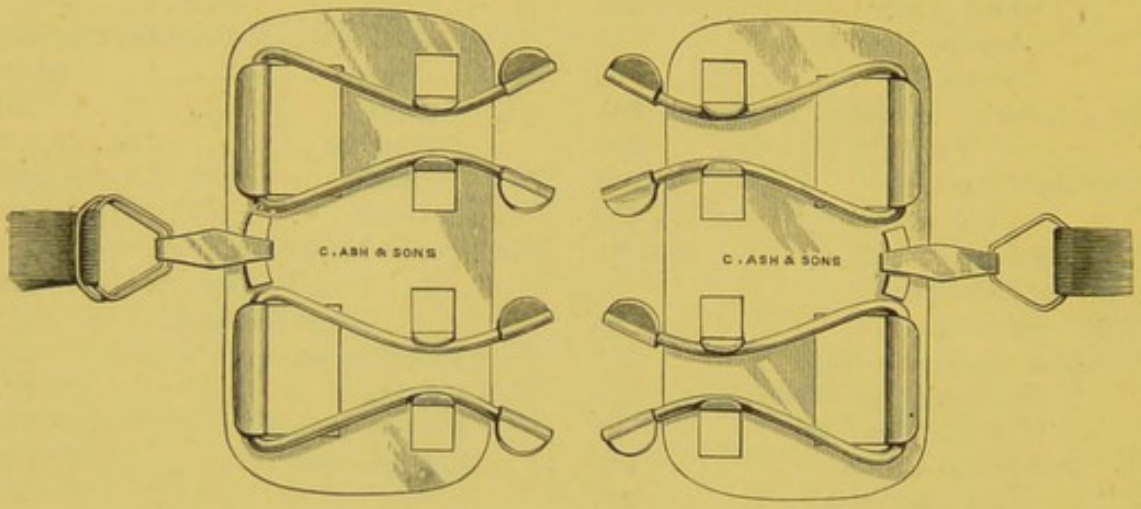
Z

Zinc 548
„ Furnace 484
„ Model Tongs 515

APPENDIX.

RUBBER-DAM HOLDER.

(Designed by Mr. Leslie Fraser, of Inverness.)



Two-thirds size.

This Holder was shown by Mr. Fraser at the annual meeting of the British Dental Association, held in Birmingham on the 6th, 7th and 8th of April, 1893.

The plates can be secured at any convenient angle on the face of the patient, and they are large enough for the rubber-dam to be well spread on them.

To attach to the rubber, press the free ends of the arms sufficiently close together for them to pass the projections in which they are held, as shown in the illustration, raise them out of the way, place the rubber on the plates, and close the arms down upon it by pressing the ends to admit of the projections being passed.

	s.	*d.*
Price, Nickel-plated	6	6

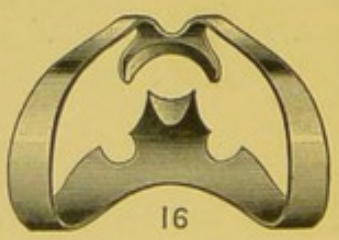
IVORY'S RUBBER-DAM CLAMPS.

ADDITIONAL FORMS.

(See pp. 357–359 for other Forms.)

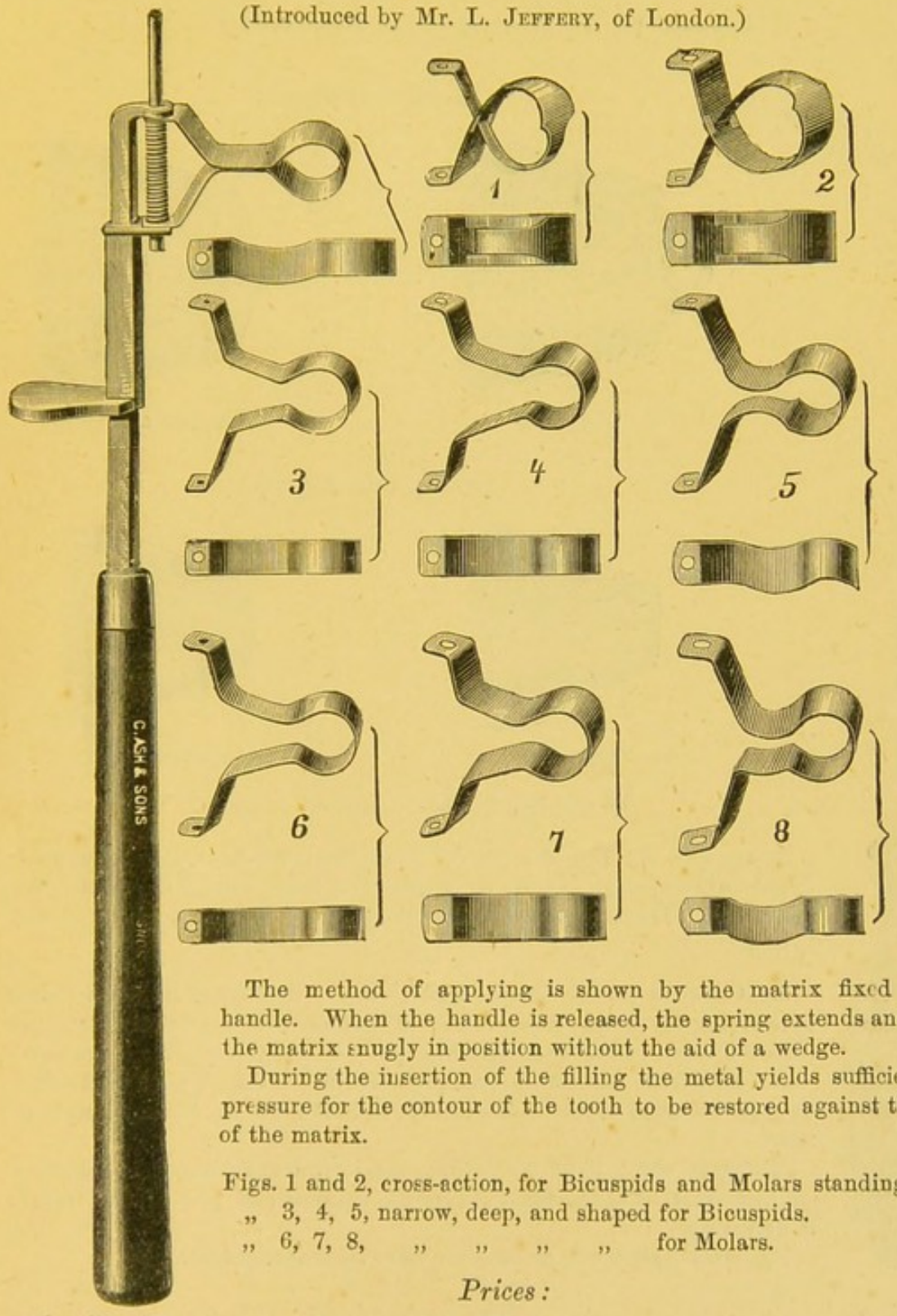
Fig. 7, Improved Clamp for Molars; Fig. 16, Labial Clamp for Centrals where the cavity extends wide on the face of the tooth.

		s.	*d.*
Price, Nickel-plated ..	(Fig. 7)	2	6
„ „ ..	(Fig. 16)	3	0



SPRING MATRICES.

(Introduced by Mr. L. JEFFERY, of London.)



The method of applying is shown by the matrix fixed in the handle. When the handle is released, the spring extends and holds the matrix snugly in position without the aid of a wedge.

During the insertion of the filling the metal yields sufficiently to pressure for the contour of the tooth to be restored against the wall of the matrix.

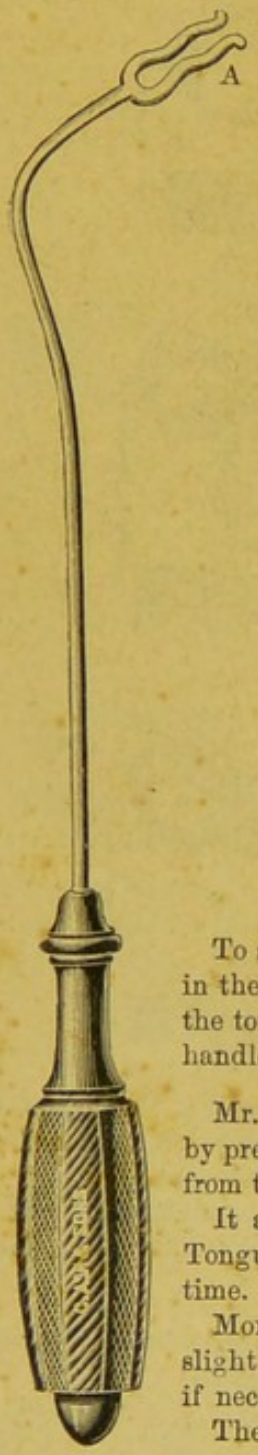
Figs. 1 and 2, cross-action, for Bicuspids and Molars standing alone.
„ 3, 4, 5, narrow, deep, and shaped for Bicuspids.
„ 6, 7, 8, „ „ „ „ for Molars.

Prices:

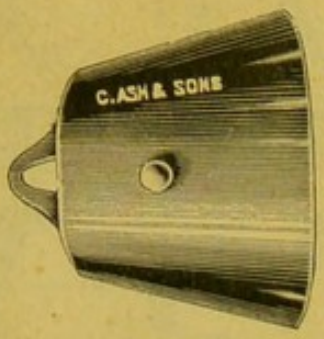
			s.	d.
The Set complete as illustrated			10	6
Separately	Matrices	each	0	9
	Bars with spring	„	0	9
	Handle	„	5	6

SIMPLE TONGUE HOLDER.

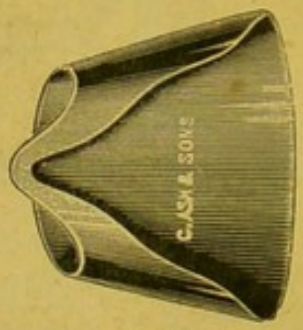
(Designed by Mr. H. Campion, of Manchester.)



Large Size Shield.



Top view.



Underneath view.

Small Size Shield.

Top view.

Underneath view.

All the Illustrations are about half-size.

To secure a shield to the handle press the stud on the top as far as A in the forked spring. In applying, pass the large end of the shield over the tongue. During use the patient holds it in position by means of the handle.

Mr. Campion says:—"The advantages of this Tongue Holder are that by pressing the tongue downwards and backwards it is perfectly protected from the engine discs when grinding teeth or stoppings in the lower jaw.

It also avoids the continuous pressure under the chin of most other Tongue Holders, which causes much pain if kept up for any length of time.

Moreover, the patient, by holding the instrument himself, is able by a slight movement of the hand to vary the pressure and give himself relief, if necessary.

The metal shield can be made in other sizes as required."

Price:

	s.	d.
Tongue Holder, consisting of Handle and two Metal Shields, nickel-plated, complete	7	6

LONDON: WILLIAM CLOWES AND SONS, LIMITED, STAMFORD STREET AND CHARING CROSS.

GLASGOW UNIVERSITY LIBRARY

GLASGOW
UNIVERSITY
LIBRARY