

Illustrated & descriptive report of select exhibits at the Medical and Sanitary Exhibition at South Kensington, July 16th to August 15th, 1881.

Contributors

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ILLUSTRATED & DESCRIPTIVE REPORT

OF

SELECT EXHIBITS

AT THE

Medical and Sanitary EXHIBITION

At South Kensington, July 16th to August 15th, 1881.

REPRINTED FROM THE

LONDON MEDICAL RECORD AND SANITARY RECORD.

Apollinaris

'THE QUEEN OF TABLE WATERS.'—*British Medical Journal.*

ANNUAL SALE, NINE MILLIONS.

Hunyadi Janos.

'UNRIVALLED AS A CUSTOMARY APERIENT'—*British Medical Journal.*

'THE RICHEST OF APERIENT WATERS.'—*Baron Liebig in the 'Lancet'.*

SOLE IMPORTERS:—

THE APOLLINARIS COMPANY, LIMITED.

LONDON: SMITH, ELDER, & CO., 15, WATERLOO PLACE, S.W.



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OF HEALTH

Founded 1876

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DIASTASE	Digestive of Farinaceous Matters.
MALT SUGAR & DEXTRINE	Nutritious, Resolvent, Emollient.
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One Fluid Ounce of this Extract contains more of the valuable properties of Malt than
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Dr. GUSMAN, of Stuttgart, declares that Malt Extract has rendered excellent service in diseases of the lungs, stomach, bowels, and throat, as consumption, dyspepsia, defective nutrition, bronchitis, and chronic catarrh.

Supplied by respectable Chemists in bottles of 12 and 24 oz. by weight.

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MANUFACTURING CHEMISTS, SNOW HILL, LONDON.

VERITY BROTHERS.

Patent Fan Ventilator, worked by a fine jet of water, for introducing fresh air into dwellings and extracting the vitiated air therefrom, with Vertical Tube and Regulating Mouthpiece ready for fixing. From £6 6s. each.

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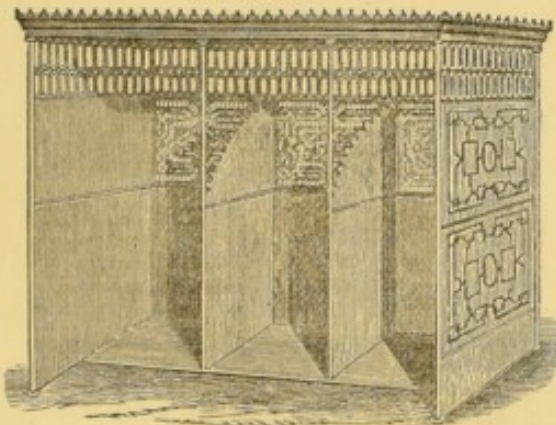
Macfarlane's Castings,

PLAIN AND ORNAMENTAL, OF EVERY DESCRIPTION.

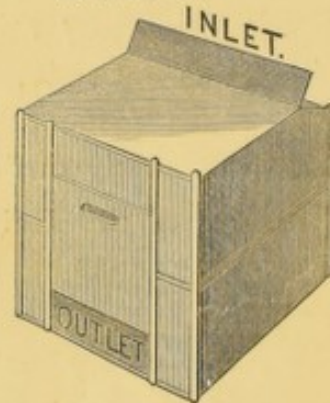
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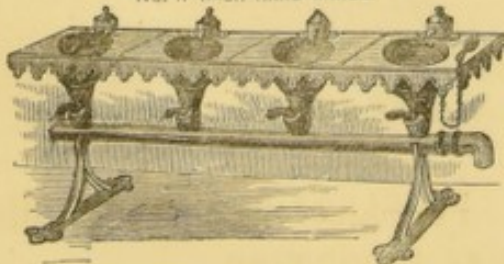
NO. 4. URINAL.



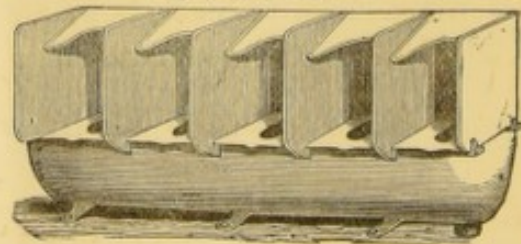
NO. 2. DUST BIN.



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ILLUSTRATED catalogue, price list, plans, and estimates, on application.

WALTER MACFARLANE & CO., GLASGOW.

CONTRACTORS by appointment to her majesty's war department.

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1881.

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AND
EXPORT



CHEMISTS
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WILL EXHIBIT
PHARMACEUTICAL PREPARATIONS,
DRUGS,
AND MEDICAL DIETETIC ARTICLES, ETC.

LACTROSE,

A perfect Substitute for Human Milk.

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A pure and superior Syrup, under Dr. O. LIEBREICH'S guarantees.

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Invaluable in all Skin Diseases.

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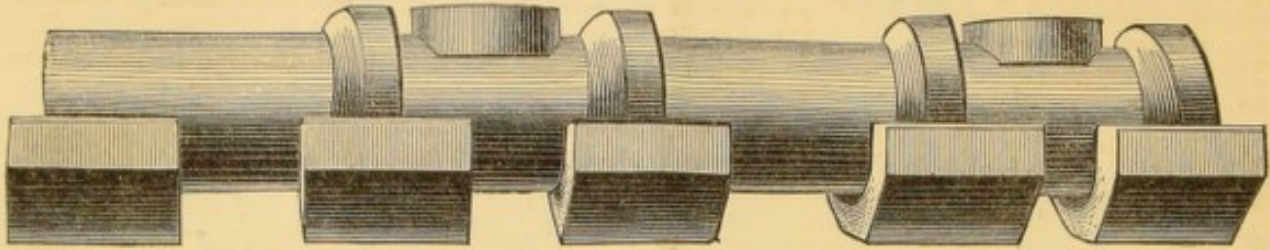
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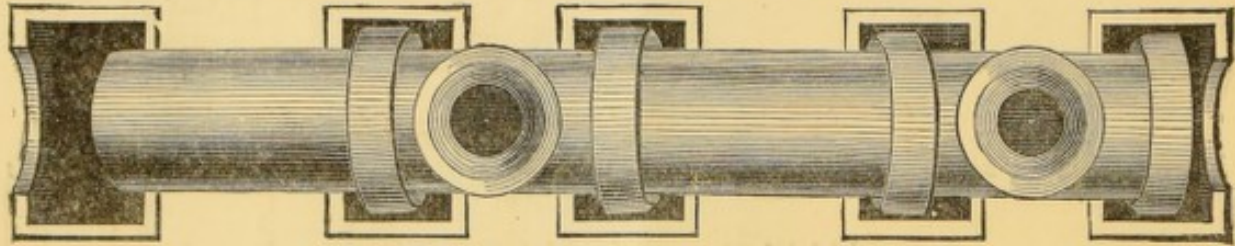
HEALTHFUL HOMES SECURED.

MAGUIRE'S PERFECT SAFETY JOINT DRAIN.

PROTECTED BY LETTERS PATENT, No. 2014.



Elevation of Maguire's Patent Safety Joint Drain.



Plan of Maguire's Patent Safety Joint Drain.

In our Patent Perfect Safety Joint Drain we have secured by simple means everything that can be desired in a drain, at but slight increase of cost. As the drawings show, we provide a hollow cradle of glazed earthenware, in which the pipe and the socket of next drain rest. This enables a *second and independent cement joint to be made on the lower half of the socket where the sewage runs*, by pouring in liquid cement round the first joint after it has properly set fast, making a perfectly sound, staunch joint, independent of the workman's care, and open to the inspection of all concerned.

In addition to this, we provide an open inspection hole, round or oval, with loose cover, on every alternate length of drain pipe, each hole affording easy means of smoothing perfectly the interior of two joints right and left, and giving perfect facility for the careful inspection of every joint in the drain after it has been laid and finished.

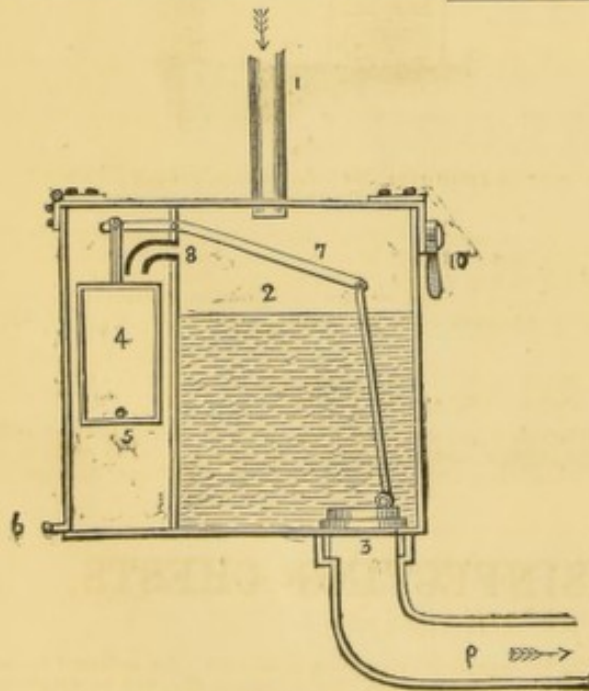
No other Drain should be used under any Dwelling.

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PATENT SAFETY DRAINS with INSPECTION OPENINGS and CRADLES, 4-inch, 1s. 3d.; 6-inch 1s. 8d.; 9-inch, 2s. 6d. per foot.
PATENT SAFETY CRADLES only: Suitable for any drain-pipes they fit, 4-inch, 1s. 6d.; 6-inch, 2s.; 9-inch, 3s. each cradle.

MAGUIRE'S PATENT SELF-ACTING FLUSHING TANK.

PROTECTED BY LETTERS PATENT, No. 2853.



Experience has shown that even the best laid drains, when properly fitted with intercepting sewer-gas traps, may become choked, unless provided at the upper end with a Flushing Tank perfectly self-acting.

This Patent Tank has been introduced to overcome the objections found in the working of old syphon flushing arrangements.

The rain-water and bath-wastes, or both, accumulate in Tank until the water overflows into Balance Cistern and weighs it down, opening the large full bore valve at bottom of Tank and discharging the contents with a direct rush through the drains to clear them. The valve closes immediately when Balance Cistern empties, and remains closed until large tank again overflows. We have now thoroughly tested the practical value of both these inventions, and we are backed by the approval of eminent Sanitary Engineers who know the practical difficulties of House Drainage, which we have successfully overcome.

RETAIL PRICES.

Maguire's Patent Direct Action Flush Tank. No. 1, £2; No. 2, £3; No. 3, £4; No. 4, £5; No. 6, £6 each.

Illustrated Prospectuses and Special Trade Terms on Application.

We are now receiving applications for Sole Agencies of Towns and Districts, which will be liberally dealt with in rotation. We enter into arrangements for Contractors and Engineers to be supplied direct from the Works at lowest wholesale prices. *Apply to the Patentees,*

MAGUIRE & SON, THE DUBLIN SANITARY AND ENGINEERING WORKS,

10, DAWSON STREET, AND 6, 7, & 8, SOUTH FREDERICK STREET, DUBLIN.

OR WRITTEN COMMUNICATIONS TO 9, SALISBURY STREET, STRAND, LONDON, W.C.

HEALTHFUL HOMES SECURED

BY MAGUIRE'S PATENT SANITARY REFORM SYSTEM.

MAGUIRE & SON, Sanitary Engineers, Dublin, were the first persons to introduce practically the System of Inspecting and Reporting on House Drainage, charging a fixed fee per ordinary dwelling house. They have inspected and reported on the sanitary arrangements of over 1,000 houses, for

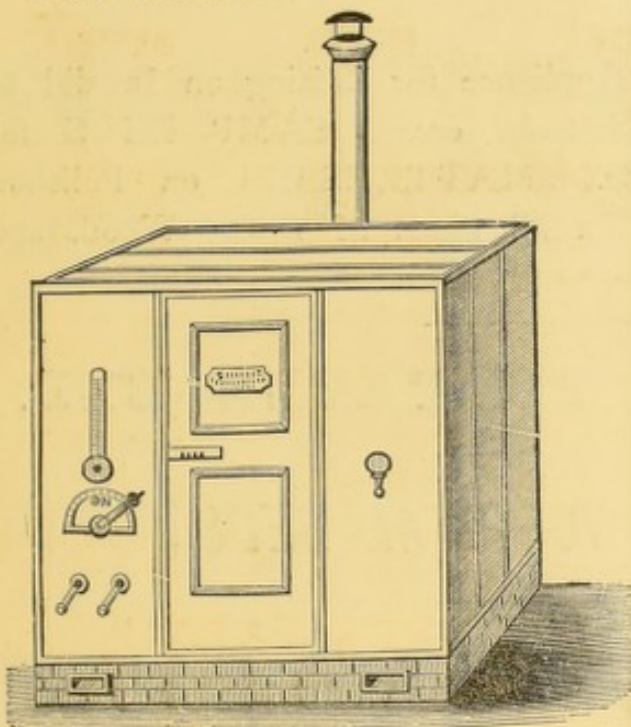
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The Earl of Erne.
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The Earl of Donoughmore.

The Earl of Ranfurly.
Viscount Powerscourt.
The Archbishop of Dublin.
Lord Plunkett, Bishop of Meath.
The University.

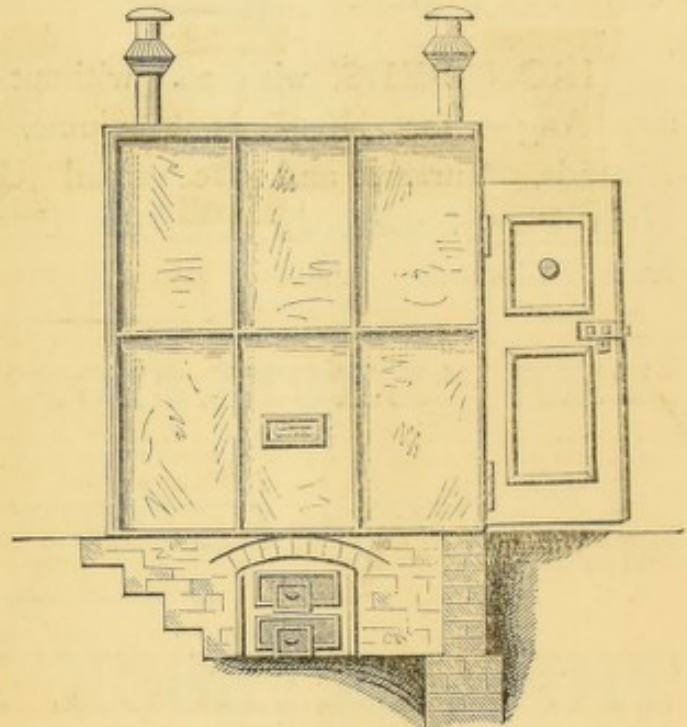
The Royal Bank of Ireland.
The Shelbourne Hotel, Dublin.
The Gresham Hotel, Dublin.
The Mansion House, Dublin.
Etc., etc.

MAGUIRE & SON exhibit at the International Sanitary Exhibition, London, and any communication to 9, SALISBURY STREET, STRAND, will have prompt attention. London Houses Inspected and Reported on from £2 2s. per house.

DR. SCOTT'S IMPROVED DISINFECTING APPARATUS.



Dr. Scott's Improved Hot Air Disinfecting Chamber for Gas.



Dr. Scott's Improved Hot Air Disinfecting Chamber for Coal.

Dr. Scott's Improved Disinfecting Chambers, as manufactured and erected by us with perfect success, combine, in the most efficient manner, all the requisites of first class disinfecting chambers, at moderate cost. They are constructed of an improved composite non-conducting material, with our improved non-conducting door, hinges, improved fastener, perforated iron shelves, galvanised iron safety carrying case, with two wicker linings for clothing; inspection valve, gas-heating apparatus, with four valves to regulate heat to desired temperature; improved automatic safety-valve, to prevent heat exceeding 300°; improved pyrometer, indicating from 50° to 400° Fahrenheit; air inlet-valve, ventilating shaft with outlet-valve.

			For Gas.	For Coal.
No. 1.	4 ft. × 3 ft. 6 in. × 6 ft.	£45	£42	
No. 2.	4 ft. 6 in. × 4 ft. 6 in. × 6 ft.	60	56	

			For Gas.	For Coal.
No. 3.	5 ft. × 5 ft. × 6 ft. 6 in.	£70	£66	
No. 4.	6 ft. × 6 ft. × 7 ft.	90	85	

Nos. 1 and 2 are suitable for laundry or institution, where bedding is not disinfected, and are sent out with all parts fitted together ready for work. Nos. 3 and 4 are suitable for hospitals and small unions; will disinfect bedding, and are sent out in parts numbered ready to fix together; any workman can fix them. No Brickwork is necessary for our Gas Disinfecting Chambers, and for the Coal Furnace Chambers the cost of Brickwork is not included.

DR. SCOTT'S PORTABLE DISINFECTING CHESTS,

HEATED BY GAS OR BY CHARCOAL.

For small Hospitals. Combine in the most efficient manner all the requisites for first class Disinfecting Chambers. Are mounted on easy running noiseless wheels, and can be readily moved from ward to ward, or from house to house. Beds, clothes, etc., can be disinfected instantly in the sick room, preventing spread of infection by removal. Size, 2 ft. × 3 ft. × 4 ft. inside, £30 for gas, £25 for charcoal.

Full Terms and Illustrated Pamphlet on application to Patentees and Sole Manufacturers,

MAGUIRE & SON, THE DUBLIN SANITARY AND ENGINEERING WORKS,

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OR WRITTEN COMMUNICATIONS TO 9, SALISBURY STREET, STRAND, [LONDON, W.C.]

BY HER MAJESTY'S ROYAL LETTERS PATENT.

THE 'EXCELSIOR' SPRING MATTRESS,

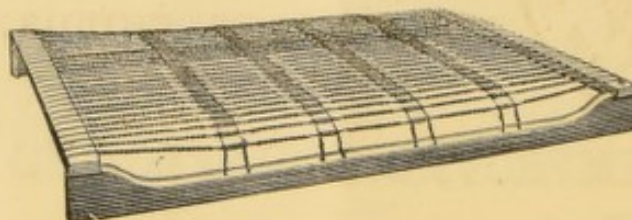
Patronised by Royalty, the Nobility, etc.

AWARDS.

Two Prize Medals.

Three

Certificates of Merit.



The patented and peculiar arrangement of the 'Excelsior' ensures complete isolation where two or more occupy a bed, the principle of construction effectually preventing depression in the centre.

IRON BEDS, with and without Appliance for Raising an Invalid to any Angle, for Hospitals, Asylums, Schools, etc. CAMP BEDS for Invalids, Nurses, and Occasional Use. MATTRESSES on Polished Pitch Pine Frame, for Constant Use on all kinds of Brass, Wood, and Iron Bedsteads.

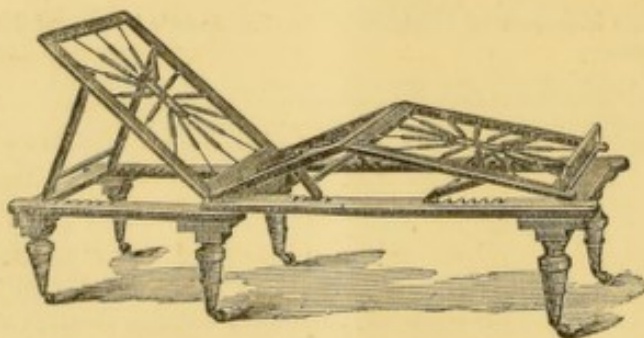
THE 'EXCELSIOR' PORTABLE BED.

THE 'EXCELSIOR' HOSPITAL BEDS.

THE 'MATLOCK' INVALID COUCH

With Swivel arrangement reducing length from 6 ft. 9 in. to 4 ft. 3 in.

Also made in one length (not reducible) 6 ft. 9 in. long.



An elegant and useful article of Furniture made in

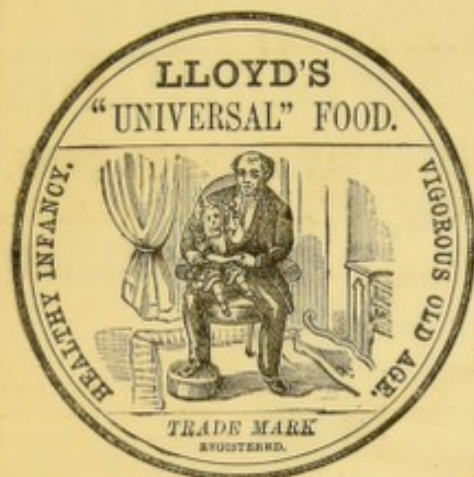
Mahogany, Oak,
Pitch-Pine,
and
Imitation Ebony.

THE 'MATLOCK' BED REST.

FOR SUPPORTING AN INVALID WHEN IN BED.

Supplied by Cabinet Makers, Upholsterers, and Furnishing Ironmongers. Illustrated Descriptive Circulars and Price Lists from

CHORLTON & DUGDALE, Manchester.



LLOYD'S 'UNIVERSAL' FOOD

(Patent Cooked Malted Farinaceous).

THE NEW FOOD

FOR INFANTS, CHILDREN, AND ADULTS,
BOTH IN HEALTH AND SICKNESS:

REQUIRES NEITHER BOILING NOR STRAINING,

And contains the Greatest Amount of Nutriment in Smallest Bulk and most Convenient Form.

Malted on improved scientific principles with pure fresh Malt Meal, as originally suggested by Liebig, thereby preserving all the most valuable portions of the Grain, and securing the resulting important advantages.

THIS FOOD consists of the most nutritious and finest-selected cereal grains and pulse, combined with the active constituents of pure malt meal, in such proportions as to render the mixture as nearly as possible chemically identical with the constituents of the human body itself. It is therefore valuable for every-day use, both in health and sickness, and for every condition of life: alike suited to the youngest child, the most robust adult, and the weakest invalid. Being THOROUGHLY COOKED, it is quickly and easily made; and being palatable, it is attractive, instead of, as so many foods are, repulsive. This new food is unlike any other, having special qualities and virtues of its own, such as are possessed by nothing else. It is excellent for Breakfast instead of bread-and-milk or bread-and-butter; for Dinner is delicious as Custard with Stewed Fruit or as Baked Pudding, and is of inestimable value for Supper. It also contains the greatest amount of nutriment in the smallest bulk, and in the most convenient and easily digested form, and is invaluable in all cases of weak digestion, confirmed indigestion, and constipation, as its daily use regulates the natural functions of the body, and renders medicine for this purpose unnecessary.

EXCELLENT for Breakfast.
UNSURPASSED for Supper.
DELICIOUS as Baked Pudding.
NOURISHING as Custard
With Stewed Fruit of all kinds.

INFANTS thrive Splendidly on it.
CHILDREN grow Strong on it.
ADULTS keep Well on it.
INVALIDS recover on it.

*Analytical Report by Professor ATTFIELD, F.R.S., etc., Professor of Practical Chemistry
to the Pharmaceutical Society of Great Britain:*

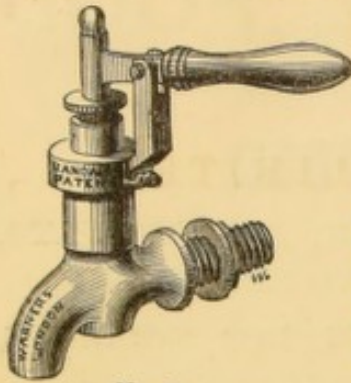
December 16th, 1880.

"I have made a chemical analysis and microscopical examination of LLOYD'S 'UNIVERSAL' Food, a well-mixed and prepared meal. I find it to be a *true food*, rich in all the elements necessary to the formation of flesh, fat, bone, and muscle, and therefore greatly superior to mere starchy 'foods.' Its elements are in a proper form, in a perfectly cooked form, and in natural proportions. The phosphates present equal fully two per cent. of bone phosphate. The nitrogenous or flesh-forming matter amounts to as much as fifteen per cent. (Signed) JOHN ATTFIELD."

Sold by all Chemists and Grocers, in Tins, at 1s., 2s., 5s., and 10s. each; Wholesale of
J. & C. LLOYD & Co., Verulam Street, London, E.C.

SPECIAL QUOTATIONS TO HOSPITALS & PUBLIC INSTITUTIONS.
SAMPLES FREE ON APPLICATION.

PREVENTION BETTER THAN DAMAGE, SUFFERING, OR LOSS OF LIFE, BY HOT-WATER BOILER EXPLOSIONS



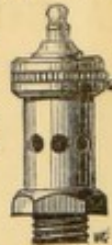
No. 381.

RANDALL'S PATENT BOILER SAFETY VALVES AND TAPS.

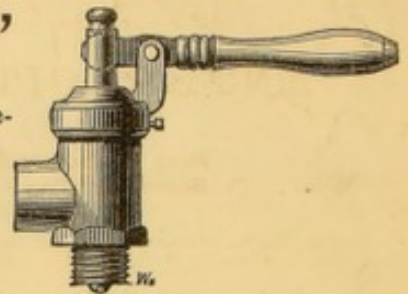
J. WARNER & SONS,

Sole Proprietors and Manufacturers.

An absolute safety in connection with Hot-water Boilers and Circulating Cisterns now being adopted by the first-class cistern makers and hot-water engineers.



An unfailing Preventive of Kitchen Boiler Explosions.



No. 382.

The fatal accident which occurred at Mr. W. Randall's, C.E., of Belsize Park, Hampstead, through the circulation pipes connected with the close boiler of the kitchen-range having become frozen up, caused that gentleman to turn his attention to an improved safety-valve tap, the merits and application of which will be at once apparent by the following:—

The Tap should be fixed to the boiler itself, or to a pipe in connection with and as near to it as may be convenient, as a *hot water draw-off cock for domestic purposes*. The valve would thus be opened many times daily, and therefore could not stick fast, as other safety-valves often do, through being rarely brought into use. This tendency to stick or 'set'—which is the great defect of the ordinary 'ground-in' safety-valve—is additionally guarded against in the Patent Tap by the face of the valve being of vulcanite, which cannot corrode, and will stand the action of hot water and steam for years without deterioration.

The spiral brass spring (which cannot waste by rust or heat), when screwed down to the utmost, balances the pressure exerted on the boiler by the water in the circulating pipes in houses 60 to 70 feet high. For less heights, the workman in fixing the tap has merely to unscrew the cap until the water issues from the side aperture, and to screw it down again until it ceases to run (but no further), and then to tighten up the small set screw.

When the circulating pipes become stopped by frost or any other cause, and the water and steam in the boiler attain a pressure greater than the weight of the water in the circulating pipes, the valve opens and the heated water escapes into the sink, or other receptacle placed beneath it; the draw off tap thus forming, at the same time, a complete self-acting safety-valve.

No. 381.—Randall's Patent Safety Draw-off Boiler Valve.

No. 517.—Safety Valve for Boilers and Circulating Cisterns.

No. 382.—Randall's Patent Boiler Valve Screwed for Iron Pipes, with Handle Testing Action.

To be obtained, or Prices and Particulars may be had, from

JOHN WARNER AND SONS.

WARNER'S IMPROVED PAN CLOSETS.

WITH CHINA CONTAINERS (Registered).

INTRODUCED BY J. WARNER AND SONS IN 1872.

AS FIXED IN GUY'S HOSPITAL BY E. G. BANNER, ESQ., C.E.

FOR MAJOR CORBETT. FOR MAJOR SEDDON, R.E. FOR E. G. BANNER, Esq., BRIGHTON.

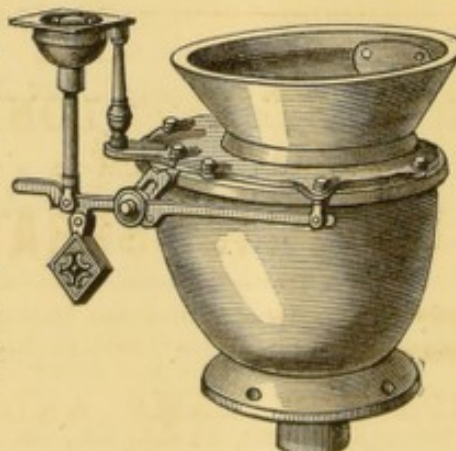
And considered to be perfect.

WITH BANNER'S SYSTEM OF VENTILATION.

'The use of Earthenware in place of Iron for Containers of Pan Closets is a great improvement.'—J. TYLOR & SONS.

Twenty-four of these Closets are in use in Guy's Hospital, with Banner's system of ventilation of drains and soil-pipes.

'GRAND MEDAL OF MERIT' for Sanitary Appliances, Closets, Baths, and Lavatories, etc., was awarded to J. W. and Sons, at the Vienna Exhibition, 1873, and at Kensington, 1874.



11, BILLITER SQUARE,
9th March, 1881.

'I am informed by M. A. Billing, the Surveyor to the Hospital, that the Pan Closets which we had of you, and which were fixed at Guy's Hospital without D Traps below them, in 1876, have answered their purpose ever since, and continue to do so satisfactorily.

'Yours faithfully,

'ED. G. BANNER.'

Illustrated Priced Catalogues and List of Prices on application.

JOHN WARNER AND SONS,

Hydraulic and Sanitary Engineers, Bell and Brass Founders to Her Majesty,

THE CRESCENT FOUNDRY, CRIPPLEGATE, LONDON, E.C.

ANTHRACITE SMOKELESS COAL.

See reports of the Meetings of the Committee of the National Health and Kyrle Societies, with reference to Smoke and Fog Nuisance in London.

Some of the advantages attending the use of Anthracite Coal.—It is cheaper than bituminous coal. Two tons will do the work of three of the ordinary Coal. It saves trouble, as it makes less ash and dirt, and requires less attention. The fire is always red and glowing. Chimneys never require sweeping, and it therefore contributes to health and comfort.

This Coal is now being delivered within a radius of three miles of the Coal Depots at WESTBOURNE PARK, W., and MAIDEN LANE, N.W., by the

ANTHRACITE COAL COMPANY, LIMITED,

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Best Household Coal , selected, ready for use	24s. per ton.
Second Quality	21s. „

Extra charge according to distance beyond the radius.

Instructions for Household use, and any other information, supplied on application at above offices. Special quotations given, according to quantity and locality of delivery, for Anthracite Coal for steam purposes.



THE 'CROWN JEWEL'

AMERICAN BASE BURNER

ANTHRACITE COAL STOVE.

This Stove is specially adapted for warming Houses throughout, when placed, and used, in the Hall. It will maintain any equal temperature desired at a cost of only a few pence per day (24 hours). It is also adapted for warming Schools, Churches, and other Buildings, and is the only Stove made which efficiently and economically consumes the Anthracite Smokeless Coal. It is self-supplying, and has a very cheerful appearance.

Testimonials can be had, and the stove can be seen in use at

HARRY HUNT'S,

117, NEWINGTON GREEN ROAD, N., & 136, PETHERTON ROAD, Highbury New Park, N.
Agent for Norton's Best Anthracite Coals.

J. F. CLARKE,

COOKING AND DISINFECTING APPARATUS MANUFACTURER,

HEATING, LIGHTING, & VENTILATING ENGINEER,

LAUNDRY AND BATH FITTER.

ELECTRIC AND PNEUMATIC BELLS AND SPEAKING TUBES.

Patentee of an Improved Self-Flushing & Water-Waste Preventing Water-Closet.

49, MOORGATE STREET, LONDON, E.C.

STEAM

ANTISEPTIC SPRAY PRODUCERS,

As used and recommended by Prof. LISTER.

Made in four sizes, to give a continuous spray from one to five hours. Unsurpassed for SIMPLICITY, DURABILITY, and EFFICIENCY. Fitted with

IMPROVED LAMP AND PATENT BURNER.

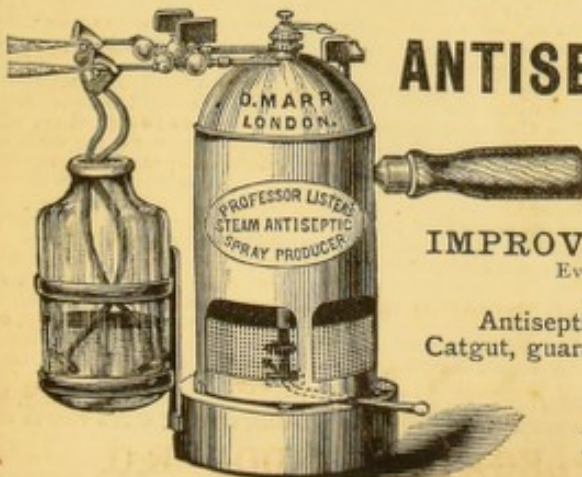
Every machine thoroughly tested, and guaranteed to give satisfaction.

Prices on application.

Antiseptic Gauze, Protective Oil Silk, Pink Mackintosh, Carbolised Catgut, guaranteed six months old, Carbolised Silk, etc. Also, the New **CHROMIC CATGUT LIGATURE,**

As used by Prof. LISTER.

DAVID MARR, Surgical Instrument Maker,
27, LITTLE QUEEN STREET, LONDON, W.C.



- The attention of Investors is directed to the following :—
- 1.— $7\frac{1}{2}$ per cent. per annum as a minimum Dividend is guaranteed for 3 years, by deposit in Government Guaranteed Stock in the hands of Trustees, and will be payable at the Company's Bankers, on the 1st January and 1st July in each year.
 - 2.—A prosperous going business is taken over, so that a permanent and increasing Dividend can be reasonably expected from the moment of allotment of the Shares.

THE LONDON SANITARY COMPANY, LIMITED.

On and after 1st August the Name of the Company will be "THE

LONDON AND PROVINCIAL SANITARY COMPANY, LIMITED."

Incorporated under the Companies Act, 1862 to 1880, limiting the liability of Shareholders.

CAPITAL £100,000, IN 20,000 SHARES OF £5 EACH.

FIRST ISSUE 10,000 SHARES.

£1 payable on application, £2 on Allotment, and the remainder as required.

Application for Shares to be made not later than Wednesday, the 20th July.

In case of no Allotment being made, the money received on application will be returned in full.

Advising Council.

ALFRED CARPENTER, Esq., M.D., J.P., Duppas House, Croydon (President of the Council of the British Medical Association).
ERNEST HART, Esq., 38, Wimpole Street, W.
(Chairman of Council of the National Health Society).
Professor ATTFIELD, Ph.D., F.R.S., F.C.S.
(Professor of Practical Chemistry to the Pharmaceutical Society).
T. J. DYKE, Esq., Med. Off. of Health, Merthyr Tydvil.
W. N. THURSFIELD, Esq., M.D., Shrewsbury.
(Med. Off. of Health, Shropshire Comb. District).

W. H. MICHAEL, Esq., Q.C.,
38, Parliament Street, Westminster, S.W.
JAMES HOWARD, Esq., M.P. for Bedfordshire.
ALFRED R. PITE, Esq., Architect,
44, Bloomsbury Square, W.C.
J. BAILEY-DENTON, Esq., Mem. Inst., C.E.,
22, Whitehall Place, S.W.
B. S. BRUNDELL, Esq., Mem. Inst. C.E., Doncaster.
WILSON WEATHERLEY PHIPSON, Esq.,
Mem. Inst. C.E., 1, Salisbury Street, W.C.

Trustees for the Guaranteed Fund.

Major-General H. Y. D. SCOTT, R.E., C.B., F.R.S.

Captain T. HOUNSOM BUTLER FELLOWES, R.N., C.B.

Board of Directors.

J. BAILEY-DENTON, Esq., Mem. Inst. C.E., 22, Whitehall Place, S.W.
G. H. DUPUIS, Esq. (late Indian Public Works Department), 74, Lansdowne Road, W.
W. B. LEWIS, Esq., Mem. Inst. C.E., 8, Victoria Chambers, Westminster.
W. MOLESWORTH ST. AUBYN, Esq., M.P., 1, Brick Court, Temple.
ALFRED R. PITE, Esq., Architect, 44, Bloomsbury Square, W.C.

Engineers—Messrs. BAILEY-DENTON, SON, & NORTH, 22, Whitehall Place, S.W.

General Manager of Works.

Mr. J. G. STIDDER.
(With a seat at the Board after Allotment).

Bankers—Messrs. COCKS, BIDDULPH, & CO., Charing Cross, S.W.

Solicitors—Messrs. DENTON, HALL, & FOX, 15, Gray's Inn Square, W.C.

Auditors—Messrs. JOHN B. BALL & CO., Gresham Buildings, E.C.

Secretary—WILLIAM LAMBERT, Esq., M.A. Oxon.

Temporary Offices—22, WHITEHALL PLACE, S.W.

PROSPECTUS.

1. This Company is formed for the purpose of putting Dwelling Houses and other Buildings into a perfect sanitary condition, under the advice of the highest authorities on the subject.
2. It is notorious that thousands of houses are built without the slightest regard to the health of the occupants, and others are allowed, through neglect or ignorance, to fall into an unhealthy condition. The evils arising from defective sanitary arrangements are widespread and deplorable, and exist in many houses where the danger is hardly suspected.
3. Householdiers have not hitherto been able to obtain thoroughly competent and trustworthy advice as to the sanitary state of their dwellings without great expense and difficulty. This Company will, however, place at the disposal of its shareholders the skilled advice and services of some of the most experienced Medical Advisers and Sanitary Engineers in England, and the privilege of having the required works executed on beneficial terms, *i.e.*, at a slight increase in the trade price of materials, and at the lowest cost for labour consistent with efficiency. The names of the Advising Council, who will be a working body—not honorary patrons only—are sufficient guarantee of the standard at which the Company will aim. Without pretending to give any 'insurance' against disease, the Company will undertake to bring about what experience has taught to be the highest known condition of Sanitation applicable to Drainage, Water Supply, and Ventilation.
4. For the Metropolis an efficient inspecting staff, acting under the direction of the Company's Engineers, will be instituted and maintained and, for a small annual subscription, based on rateable value, Shareholders residing within the Metropolitan area will be entitled to a periodical examination of and report upon their houses by thoroughly competent men. The Company, if desired, and for a sum to be agreed on, will supply plans and designs for such recommendations as are embodied in their reports, and will undertake the proper carrying out of the work, or leave it to be done by the occupiers' own workmen, as may be desired. The Company will also undertake the filtration of water, the regular cleansing of water cisterns, seeing to their being kept pure and free from deposit, and disconnected from any possible contamination by sewer-gas. The Company will also provide appliances for the prevention of boiler explosions.
5. As it is intended that the advantages to be derived from this Company shall not be confined to the Metropolis, it is arranged that Country Shareholders shall have their residences examined and put in proper sanitary condition, on advantageous terms, having reference to locality.
6. Shareholders of not less than five shares (£25) will have the special advantage of having any house or cottage property they may possess examined and set right on the same terms as if they occupied them themselves. By this means the owners of large properties, and those extensively engaged in the erection of houses, factories, and hotels, may have them reported upon by the Company at a fixed rate of charge.
7. It is anticipated that a considerable income will be obtained by admitting the public as subscribers to the privileges of the Company, on payment of an entrance fee. This will apply especially to the governors and managers of public institutions, such as Hospitals, Asylums, Schools, etc., and also to establishments of the character of Clubs, Hotels, Restaurants, Barracks, etc., where pure air and water are of such vital importance.
8. Corporations and Local Boards of cities and towns, and Sanitary Authorities in rural districts, who cannot become Shareholders, may, by becoming subscribers, arrange with the Company for the examination of any particular dwellings, or parts of their districts, with a view to the adoption of remedial work on terms to be agreed on.
9. To facilitate the operative branch of the Company's business, the Directors have acquired, as a going concern and in full working order, the well-known and profitable Sanitary Engineering Works and Business carried on by Messrs. J. G. STIDDER & COMPANY. **This business**

THE LONDON AND PROVINCIAL SANITARY COMPANY—continued.

is now yielding a profit sufficient by itself to pay a fair dividend on the capital of the Company, and it only requires further capital in order to make it a highly lucrative investment for the Shareholders. The purchase-money is fixed at £27,000, to include leases, buildings, plant, machinery, patents, patterns, and goodwill, and the benefit of all existing contracts, of which there are a considerable number in hand.

10. By the Contract of Sale Messrs. STIDDER & CO. agree to place in the hands of Trustees a sum of £10,000 out of the purchase money, in order to guarantee the payment of a Dividend of $7\frac{1}{2}$ per cent. per annum to the Shareholders for the first three years. Mr. STIDDER'S services will be retained by the Company as Manager of the Works, and the Directors anticipate that this portion of the business will of itself return an income at least equal to the amount guaranteed, while it is capable of great extension in the future.

11. The Company will therefore be in a position to earn dividends from the moment of the allotment of its Shares, and its income will consist of—

1st. A Profit from the Sanitary Engineering Business, which is already producing sufficient net profit to pay a fair dividend on the Capital of the Company.

2nd. The Annual Subscriptions. These, it is considered, at a moderate estimate, will soon reach 10,000 Houses, which, independently of Entrance Fees from Subscribers, will, at a charge of £1 1s. per annum, yield a return equal to 20 per cent of the Capital of the Company.

3rd. The entrance fees from Subscribers (not being Shareholders).

4th. Charges for Surveys and Reports.

It will thus be seen that for three years the Shareholders will have absolute security for a minimum dividend of $7\frac{1}{2}$ per cent. per annum, and at the expiration of three years, the business of the Company having meanwhile become fairly established, the Company will be in a position to earn a high rate of dividend from the above-mentioned source of income, while a great boon will be afforded to the public by the establishment of a Company whose object will be to secure to its supporters, on the most moderate terms, the best advice, and the best known Sanitary arrangements.

12. It is intended to apply for a quotation on the Stock Exchange.

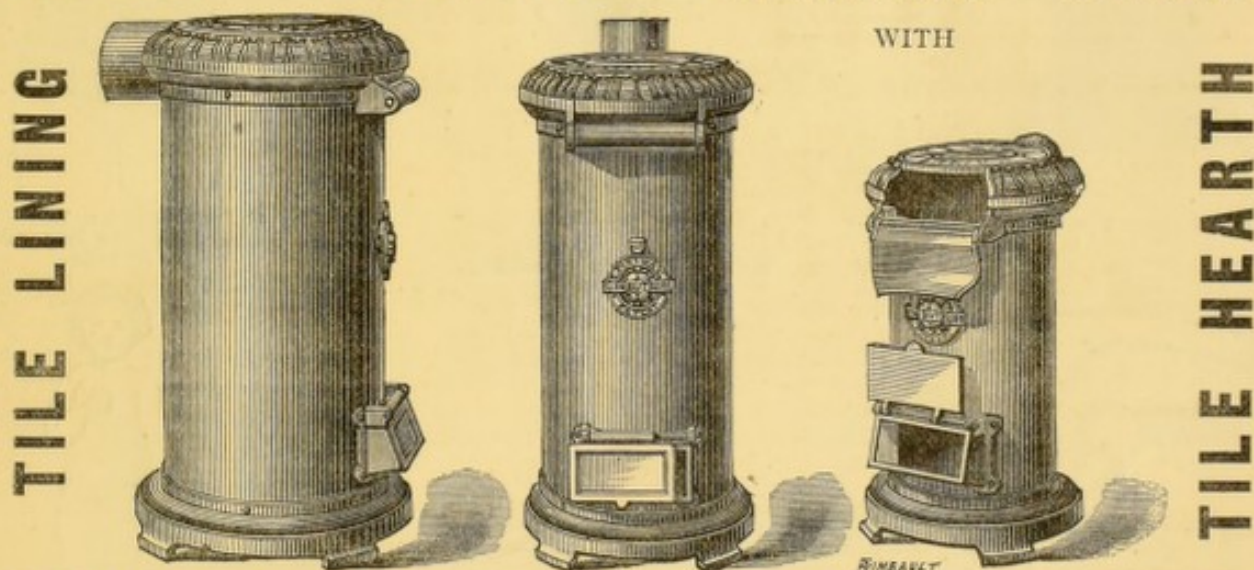
13. The only Contract which has been entered into is a Contract dated 17th June, 1881, and made between J. G. STIDDER of the first part, E. W. HENRY of the second part, and the LONDON SANITARY COMPANY, LIMITED, of the third part.

Prospectus and Forms of Application for Shares can be had from the Bankers, Solicitors, and at the Company's Offices.

APPLICATIONS FOR SHARES TO BE MADE NOT LATER THAN WEDNESDAY, JULY 20.

Full particulars as to Terms of Annual Subscription to be had by application to the Secretary.

PATENT 'TORTOISE' HEATING STOVES



BURN ANTHRACITE COAL OR COKE.

DIMENSIONS.		HEATING POWER.	PRICES.	IRON PANS,
				If wanted.
No. 1, 20in. high, X	9in. Diameter.	About 2,000 cubic feet.	£1 1s 0	3/0
No. 2, 25in. " X	10in. "	" 6,000 "	1 10 0	4/0
No. 3, 30in. " X	12in. "	" 10,000 "	2 5 0	5/0
No. 4, 32in. " X	14in. "	" 15,000 "	3 0 0	6/0
No. 5, 36in. " X	16in. "	" 25,000 "	4 10 0	10/0

SEE FOLLOWING RESULTS OF TRIALS:—

**ANTHRACITE
COAL,**

No.	Consumed Anthracite Coal.	Hours Burning.	Replenished every	Consumed each 24 hours.	At cost per 24 hours.
1.	112lbs.	170	7 hours.	15 $\frac{3}{4}$ lbs.	2 $\frac{1}{2}$ d.
2.	112lbs.	140	10 "	20lbs.	3d.
3.	112lbs.	100	12 "	28lbs.	3 $\frac{1}{2}$ d.
4.	112lbs.	84	18 "	33lbs.	4 $\frac{1}{2}$ d.
5.	112lbs.	56	24 "	48lbs.	6d.

calculated to cost
24s. per ton.

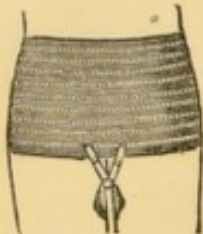
MADE AND SOLD BY

C. PORTWAY, Tortoise Stove Works, Halstead, Essex.

Also by HYDES & WIGFULL (LIMITED), Sheffield, and W. CARSON & SONS, Dublin.

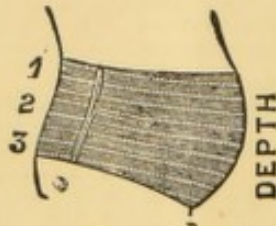
ESTABLISHED 1848.

P. BOURJEAUD,
INVENTOR OF THE ELASTIC SPIRAL APPLIANCES,
 49, DAVIES STREET, BERKELEY SQUARE, LONDON, W.,
 ALSO AT PARIS AND MARSEILLES.

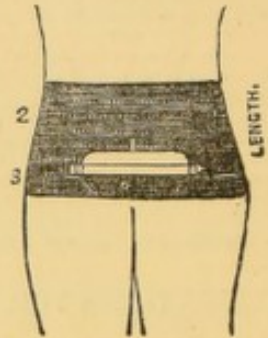


Spiral Elastic Belt and Air Pad for Prolapsus Uteri or Ani.

Spinal Abdominal Supporter, free from under straps and buckles.



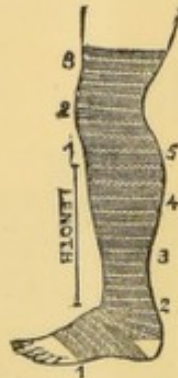
To be worn before or after confinement.



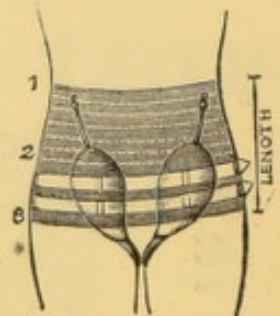
Hypogastric Belt and Air-pad supporter for the displacement of the womb.



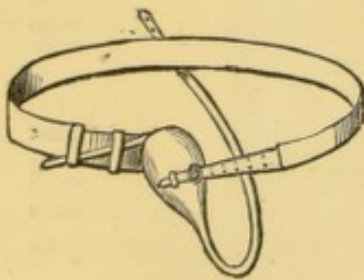
Spinal Support or Corset.



Spiral Elastic Stocking.



Spiral Elastic Belt, and Air Pad for Inguinal Hernia.



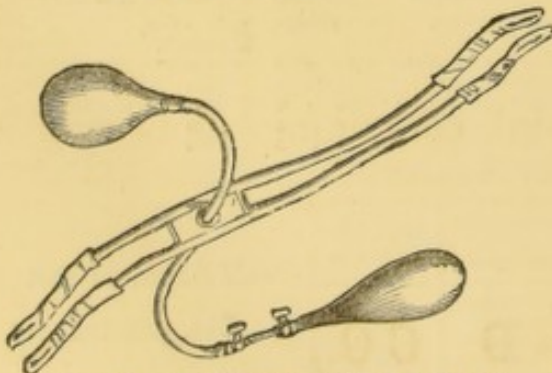
Improved Truss, free from steel, with Air Pad.



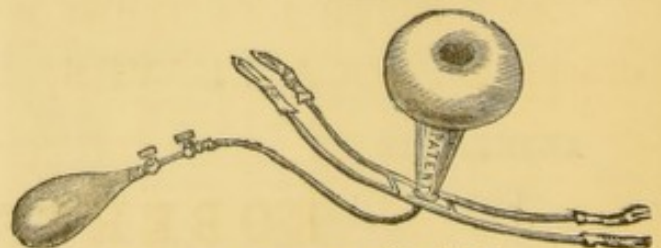
Improved Suspensory.



India-rubber Truss for children, free from steel.



Long Stork Pessary, with Air Pump and Waist Band.



Mushroom Pessary, with Air Pump and Waist Band.

Illustrated Catalogue free by post.

SEE SHOW CASE, MEDICAL SECTION.

MARIANI'S WINE OF COCA.

The wonderful properties of COCA are now very generally known. The PERUVIAN LEAF now vies with the PERUVIAN BARK as a most admirable Tonic and Restorer; and COCA is even superior to Quinine in some respects, as it can be used for any length of time without irritating the stomach. Besides its action as a general tonic, it has been found of especial use in Diseases of the Stomach and of the Respiratory and Vocal Organs.

Of all the preparations of COCA, MARIANI'S WINE has been found the most efficacious and agreeable. It contains all the mucilaginous and gummy particles of the Leaf. It is most pleasant to the taste. It is sufficiently strong to be of itself a good tonic. It is especially adapted, on account of its nice taste, for Children. It suits delicate people and convalescents.

Besides, it can be advantageously substituted for Liqueurs and sweet Dessert Wines, which it equals in flavour and surpasses by its tonic and strengthening qualities.

The general dose is one wineglassful, containing about half a drachm of COCA LEAVES.

ROBERTS AND CO.,
76, NEW BOND STREET, LONDON.

MARIANI & CO., 41, Boulevard Haussmann, Paris.



TENERIFFE WINES.

SHIPPED BY

Messrs. HAMILTON and Co., TENERIFFE.

Of fine character, pure, generous, and dietetically recommended by the highest Medical Authorities.

NOTICE.—Messrs. SINCLAIR, HAMILTON, & Co., 17, St. Helen's Place, E.C., invite the attention of the Medical Profession to the subjoined wines, which will be found finer in flavour, purer in character, and not less suited for daily use than high-class sherries. Samples furnished on request.

S.H.	‘Teneriffe’...	...	£24	} Per 100 gallons in bond London landing gauges.
	‘London Particular Vidonia’	£34	
L.G.H.	‘Old London Particular Vidonia’	...	£40	
<i>In Pipes, Hhds., and Quarter Casks.</i>				
	In Pipes and Hhds...	...	£15 10s.	} Per Pipe f.o.b. Teneriffe.
„	In Quarter Casks	£16 10s.	

SINCLAIR, HAMILTON, & CO., 17, ST. HELEN'S PLACE, E.C.

BLAKE, SANDFORD, & BLAKE,

THE ORIGINAL MAKERS OF

LITHIA WATER, P.B., POTASH WATER, P.B., AND MINERAL ACID WATER

(A very refreshing Tonic and Hepatic Stimulant),

Confidently submit their Aërated Waters, according to the subjoined list, to the Medical Profession, as being of definite strength and most carefully prepared.

AERATED WATER.
AERATED DISTILLED WATER.
SODA WATER, 15 grains in each bottle.
POTASH, 15 grains.

CITRATE OF POTASH, 30 grains.
AMMONIA, 10 grains Carbonate.
LITHIA, 5 grains.
LITHIA POTASH, 5 of Lithia, 15 Potash.

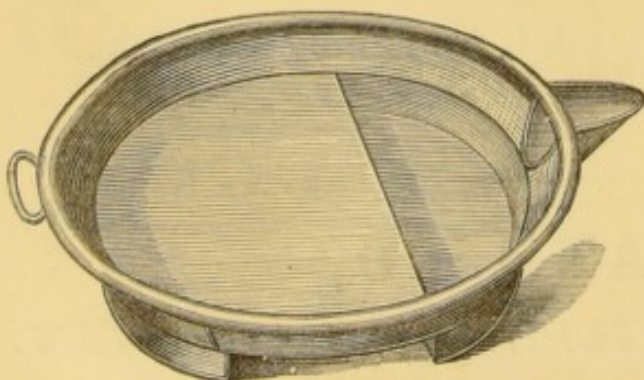
LITHIA AMMONIA, 5 Lithia, 10 Phosphate
SALTZ. [of Ammonia].
MINERAL ACID.
LEMONADE.

The above are all more fully described in a pamphlet to be had on application.

GUAIACATE OF LITHIA.—A soluble combination consisting of 1 part of Lithium Oxide and 3 of Guaiacum resin. Dose, to 10 grains, in the form of pills.

THYMOL CAPSULES.—Each containing 1 grain. Prepared to obviate the difficulty of administering Thymol in mixture or pills.

BLAKE, SANDFORD, & BLAKE, PHARMACEUTICAL CHEMISTS, 47, PICCADILLY.



THE WELL AND DRY PLATFORM SPONGE BATH

(REGISTERED).

Constructed on purely **HYGIENIC** principles, this Bath is designed to meet a long-felt want. The Medical Profession is unanimous in condemning the practice of standing in cold water while taking a bath, because doing so drives the blood to the head.

ECONOMY of time and water is also secured by the use of this Bath, as the sponge can be filled instantly, and half the usual quantity of water is sufficient—a material advantage when using salt water. In cold weather a quart of hot water poured over the platform will keep the feet warm during the whole period of bathing.

Retail Price, 25s., 36 in. diameter.

In strong tinned iron, japanned oak, and white marble.

To be obtained of all Ironmongers in London and the Provinces.

GROOM & CO., Liquorpond Street, London, E.C.,
INVENTORS AND SOLE MANUFACTURERS.

PRIZE MEDALS.—London, 1851; Paris, 1855; London, 1862; Paris (Silver), 1867; London, 1874.

WILLIAM TONKS AND SONS,

BRASSFOUNDERS & MANUFACTURERS

OF THE
VARIOUS KINDS OF WORK IN BRASS, IRON, AND OTHER METALS,
BOTH PLAIN AND ARTISTIC,

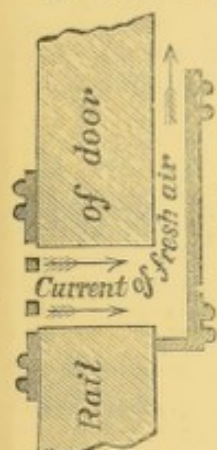
Used in the Construction, Ventilation, & Furnishing of Public & Private Buildings, Ships, &c.

Patent Keyed Door Furniture.

- „ Wedge Casement-stay.
- „ Sash-opener and Automatic Fastener.
- „ Hopkinson's Guarded Lever Sash-fastener.
- „ Hookham's Steel Ribbon Sash-line.

Patent Wethered's Blind Furniture.

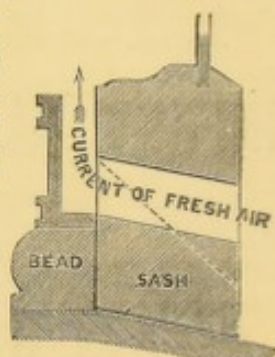
- „ Safety Door Chain and Bolt.
- „ Book Shelf Fittings.
- „ Hookham's Steel Piano-wire Picture-line.
- Hayward's Secure Flush Bolt.



CURRALL'S PATENT VENTILATORS.

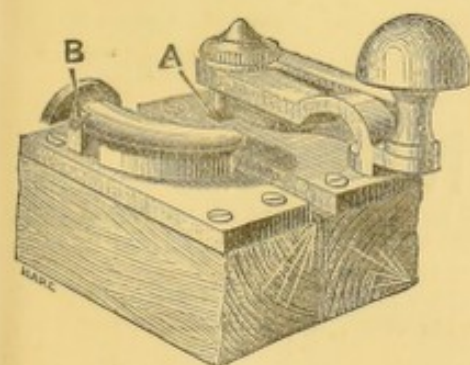
These Ventilators are very simple, efficient, and cheap; a regular supply of fresh air *without any perceptible draught*, and the removal of the vitiated air is effected by the two forms—the inlet and the outlet, of which the inlet is the indispensable form. The inlet is made suitable for doors, windows, and walls; the outlet for chimneys and walls. The result is the replacement of an oppressive atmosphere by one which is agreeable, refreshing, and free from smoke, for these ventilators are an effectual cure for smoky chimneys.

Illustrations and Particulars of the several articles will be sent free by post on application.



MOSELEY STREET, BIRMINGHAM.

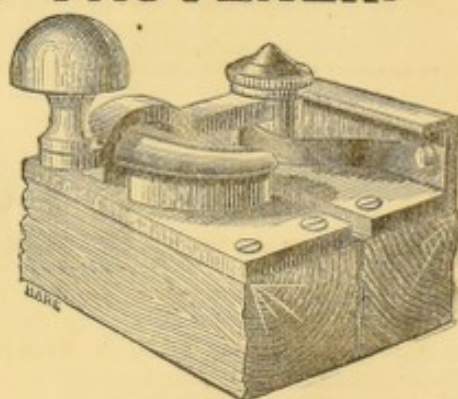
EVERED & CO.'S PATENT 'SECURE' SASH FASTENER.



OPEN.

THE Patent Sash Fastener is closed in the ordinary manner; when the arm reaches the notch, B, it locks in, the spring acting on the face of sliding pivot, which moves in slot, A, forces it backward, thus the two sashes are held firmly together, and cannot be moved or opened from the outside at all, and the window is perfectly secure.

To Open: The person in room slightly pulls forward the knob of Fastener, thus moving forward the pivot in slot, A, which frees the arm from notch or lock, B, and then slides back as is usual in ordinary fasteners.



CLOSED.

The Fastener has the following advantages:—

- It is a perfectly 'secure' Fastener, as it cannot be opened with a knife or other instrument from the outside.
- It locks the two sashes together, and prevents all noise of rattling sashes.
- It has no complications to get out of order.
- Its simplicity of construction allows a strong well-finished article to be sold at the price usually charged for the ordinary insecure fastenings.
- Its action being similar to the ordinary kind of Fastener it is fixed as usual, and there being no parts projecting beyond the sash, it cannot damage blinds, etc.

These Fasteners can be obtained of all Ironmongers and Factors in London and Country; and wholesale by Ironmongers only of the Manufacturers,

RICHARD EVERED & Co., Limited,

Cabinet Brass Founders, Etc.,

SURREY WORKS, SMETHWICK, NEAR BIRMINGHAM.

KOUMISS:

PREPARED BY THE AYLESBURY DAIRY COMPANY, LIMITED.

KOUMISS is already known to the Medical Profession as a highly Refreshing Effervescent Preparation of Milk, obtained by a natural process of fermentation, of which the chief properties are:—

- (1) Its agreeable, refreshing, and highly digestible character.
- (2) Its attested and rare powers of nutrition in the most desperate cases of Emaciation, Chronic Vomiting, Dyspepsia from all causes, Gastric Pain and Irritability, and of Debility following Acute, or accompanying Chronic, diseases.
- (3) The avidity and pleasure with which it is drunk by Children, Women, and Men, in health and disease, and its remarkable success in allaying vomiting and gastralgia, and in restoring the nutrition.

KOUMISS is a form of Milk in which the albumen and casein are partially digested by a natural process, while its abundance of free carbonic acid makes it sedative to the most irritable stomach, so that it has succeeded in numerous cases recorded by medical practitioners where stimulants, beef-tea, and rectal enemata, aided by the most varied pharmacopoeial treatment, had alike failed.

KOUMISS has a pleasant slightly sub-acid flavour.

NOTICE.—KOUMISS has hitherto been very costly, in fact, the price has prohibited its use, except to the wealthy and in very extreme cases. THE AYLESBURY DAIRY COMPANY having all the necessary conveniences for its preparation—space, a resident analytical chemist, an unlimited supply of pure milk (more than 3,000 gallons are daily passed through the Dairy), and a service of delivery covering all the Western Districts of London—are now able to supply this most valuable beverage at less than one-half the price hitherto charged.

Small convenient taps for drawing off the KOUMISS are supplied at cost price.

INFANT ALIMENTATION.—ARTIFICIAL HUMAN MILK.

Dr. W. S. PLAYFAIR, F.R.C.P., writing to the *British Medical Journal*, May 21, 1881, says:—‘I should like to direct the attention of practitioners to the artificial Human Milk now prepared by THE AYLESBURY DAIRY COMPANY, at a cost little over that of the best nursery milk. This valuable method of treating cows’ milk was first brought under my notice, some years ago, by Dr. Frankland, the eminent chemist, who devised it for one of his own children who was ill; and I have since used it extensively in my practice.’

‘Its composition is absolutely identical with that of human milk; and under its use the risks and disadvantages of the bottle-feeding of infants are reduced to a minimum.’

‘I suggested its manufacture to THE AYLESBURY DAIRY COMPANY, and the specimens with which they have since supplied me have been perfectly satisfactory, and require no further treatment than heating to the proper temperature. I look upon it as immeasurably superior to asses’ milk, than which it is much cheaper; and if this valuable preparation were more generally known and used, much illness, in the case of children who cannot be brought up at the breast, would be avoided.’

Professor FRANKLAND, F.R.S., thus writes:—‘The rearing of infants who cannot be supplied with their natural food is notoriously difficult and uncertain, owing chiefly to the great difference in the chemical composition of human milk and cow’s milk. The latter is much richer in casein and poorer in milk-sugar than the former, whilst asses’ milk, which is sometimes used for feeding infants, is too poor in casein and butter, although the proportion of sugar is nearly the same as in human milk.’

From the ‘SOCIAL SCIENCE REVIEW’.

‘The statistics of mortality show that a large number of children die annually from diseases, which, although variously designated, may readily be traced to one source, viz.: *defective nutrition*; and it may be fairly assumed that the infant death-rates, though high, represent only a small proportion of the sickness and debility that could be referred to the same cause.’

‘How to feed an infant deprived of its mother’s milk?’ is, indeed, one of the most important sanitary questions of the present day; for upon its proper solution will depend the health, strength, and vigour of the rising generation.’

It must be distinctly understood that ARTIFICIAL HUMAN MILK will not keep sweet for a longer period than ordinary milk.

PEPTONIZED MILK.

Carefully prepared by the AYLESBURY DAIRY COMPANY according to the formula of Dr. W. ROBERTS, F.R.C.P., F.R.S., etc., and as directed by Dr. E. E. NUNN, U.S.

The above preparations may be obtained at the Chief Office of the Aylesbury Dairy Company, Limited, at either of their Branches, 13, Lowndes Street, Belgrave Square, S.W., 81, Gloucester Road, South Kensington, and 95, Grosvenor Road, Canonbury, or from:—

ELLCOMB INSTITUTE LIBRARY	Messrs. ALLEN & HANBURYS	- - -	Plough Court, 37, Lombard Street, E.C.
	Messrs. JOHN BELL & Co.	- - -	338, Oxford Street.
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		- - -	86, New Bond Street, W. ;
WA	Messrs. SAVORY & MOORE	- - -	7, Poultry, E.C. ; and
	Messrs. P. & P. W. SQUIRE	- - -	140, Leadenhall Street, E.C.
	Messrs. YOUNG & POSTANS	- - -	143, New Bond Street ;
		- - -	29, Chapel Street, Belgrave Square ; and
		- - -	1, Lancaster Gate, Hyde Park, W.
		- - -	277, Oxford Street, W.
		- - -	35, Baker Street, Portman Square, W.

AND OF MOST OTHER RESPECTABLE CHEMISTS.

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AYLESBURY DAIRY COMPANY, LIMITED,

31, ST. PETERSBURGH PLACE, BAYSWATER, LONDON, W.



ILLUSTRATED GUIDE TO SELECT EXHIBITS AT THE SANITARY AND MEDICAL EXHIBITION AT SOUTH KENSINGTON.

Reprinted from the *SANITARY RECORD* and
LONDON MEDICAL RECORD.

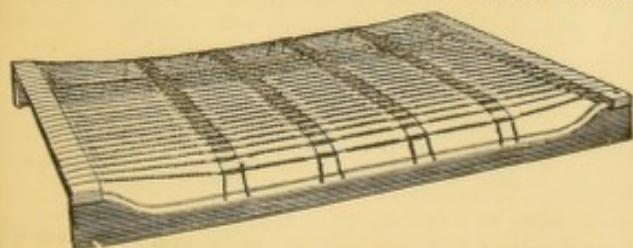
INTRODUCTION.

EVERY Exhibition requires something more of a guide than is afforded by a mere catalogue; and there is always more to be said about exhibits than appears on the surface. In the following pages we have endeavoured to present a reasoned report on some of the prominent objects of interest, setting forth their claims to attention, and with such illustrations as serve to render their structure or special characters more easily comprehended. The difficulties of compiling such a guide prior to the opening of the Exhibition are evident, inasmuch as reliance must be placed to a great extent upon the promptitude and foresight of exhibitors who are willing to take a little extra trouble in order to obtain a good result. Unfortunately, the number of those who foresee the advantage of such a guide to their exhibits, and who are willing to take the necessary trouble to make their efforts more fruitful than they otherwise could be, is not so great as might be expected, and it is owing to this cause chiefly that this pamphlet is far less complete than we could desire it to be. Obviously, during the course of an exhibition lasting so short a time it was not possible to wait until all the exhibits were in place in order to obtain the description, as by such a course of action the publication must have been postponed until the Exhibition was over; when its main uses would have been past. Such as it is, we trust that this pamphlet, on which much pains have been bestowed, may be found useful, both to readers and exhibitors, and may serve both as a guide to the Exhibition and as a permanent memento of some of its leading and most useful features.

The attention of medical visitors is particularly directed to *The Western Gallery*, upstairs (entrance from QUEEN'S GATE), where will be found most of the Surgical Instruments, and many important Pharmaceutical Exhibits.

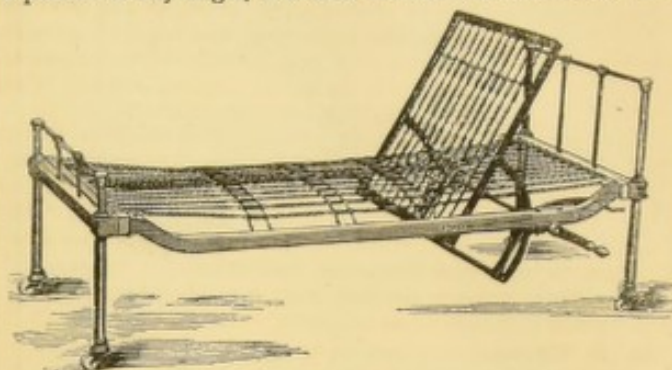
The ANTHRACITE COAL COMPANY, 19, Spring Street, Paddington, exhibit a large block of the purest anthracite coal, an article on which appeared in the number of the *SANITARY RECORD* for May 15th. Several of the stoves exhibited will be fed with this smokeless fuel.

Messrs. CHORLTON & DUGDALE, Blackfriars Street, Manchester, will be represented by their celebrated 'Excelsior' Spring Mattress, exhibited on a bedstead. To this mattress

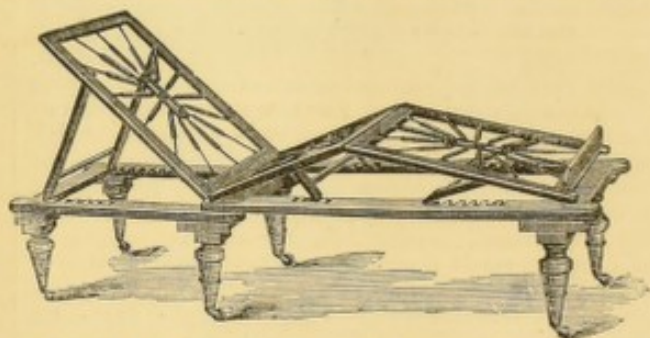


has already been accorded a full description in a previous number of the *SANITARY RECORD*, and we need only recom-

mend the public to examine it for themselves. As a strong, useful, and universal hygienic appliance for the bedstead, we doubt if it can be excelled, and its diffused elasticity adapts itself to the slightest movement of the body.—The Invalid, Camp, or Occasional Bedstead, with the Excelsior Mattress fixed to it, is of a similar character, excepting that the mattress forms a portion of the bedstead itself.—The Excelsior Bedstead, with appliance for raising a patient to any angle, is a most meritorious invention. A



patient reclining upon this bedstead is raised or lowered painlessly, easily, and immediately, by one person; during the operation the entire length of the spine is evenly supported. The benefit of this will be at once realised, if the excruciating pain often experienced by the invalid when lifted by hand, or held in uneasy position by a chair, or packing of pillows, be borne in mind. The mechanical construction provides for the moveable back and shoulder-rest being secured in any desired position.—An Asylum Bed, for epileptic patients, is also exhibited.—A Ship's Berth, on the Excelsior 'lines', a Portable Cabinet Bedstead, the Matlock Invalid Couch, adjustable to various positions, and

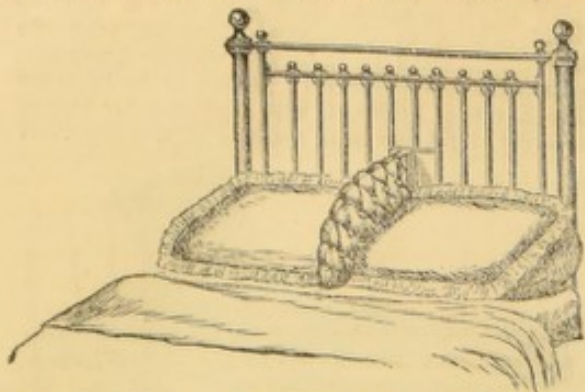


the Matlock Bedstead, complete the bedstead exhibits.—The Excelsior Invalid Chair, with adjustable leg rest, will be



found a real luxury to many patients.—The Patent Pillow Divider, which is easily and immediately converted into a cup rest, is another invention of Messrs. Chorlton & Dugdale that should find favour with the profession generally. Dr. Richardson, in an article in *Good Words*, April 1880, entitled 'Health at Home', says: 'At some time or other the breath of one of the sleepers must in some degree affect

the other, the breath is heavy, disagreeable, it may be so intolerable that in waking hours when the senses are alive to it it would be sickening soon after a short exposure to

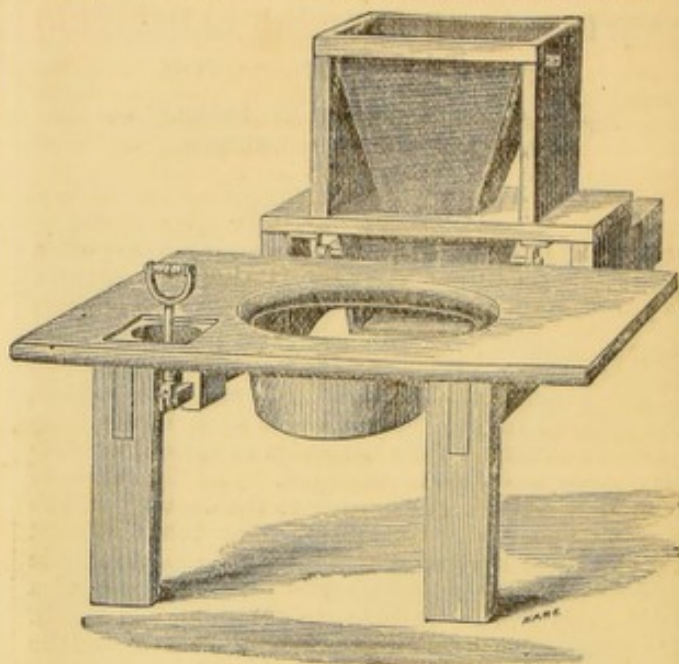


it. Here, in bed, with the senses locked up, the disagreeable odour may not be realised, but, assuredly, because it is not detected, it is not less injurious.

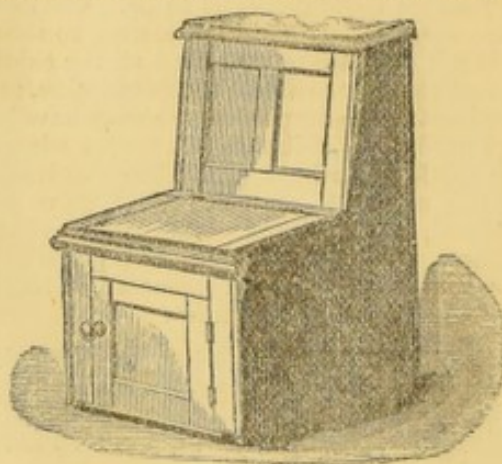
Mr. A. CLARKE will exhibit a variety of his popular pneumatic bells, made under his patent, No. 1599 of the year 1879. The improvement in Mr. Clarke's patent consists in dispensing with certain objectionable features connected with pneumatic bells of other inventors. Amongst these we may mention that the inventor makes his airholder of a cup form, *i.e.*, entirely open on the flat side, so that it can be readily and thoroughly cleaned out before being fixed for use, and of such a shape and thickness that it will not collapse with usage. It also dispenses with the spring inside the airholder, except for long distances, when a pull handle is used; a spring is applied inside the airholder, *but does not touch it in any part*. Should the airholder at any time require to be removed, it can be without injury to the wall or paper. The cup shaped airholder is closed on the flat side by a plate of metal or wood, against which the edges abut closely without being clamped thereto, the plate may be the top or bottom of the box in which the airholder is contained. For short distances, the air-tube communicates with the interior of the airholder through this plate. For long distances, the airholder is open to the atmosphere through holes in this said plate, and the air tube communicates with the metal box in which the airholder is contained, so that in either case no binding or other form of metal connection with the india-rubber is necessary. This invention also comprises improvements whereby the valves obliged to be used to prevent the return of the air in long tubes are dispensed with. By having a pin-hole in the air tube, close to the air vessel of the bell or indicator, 'for the inlet and egress of air,' the compression of the airholder by the pull handle (Fig. 4) creates a partial vacuum in the tube and draws in air at the said pin-hole; when the pull handle is released, the expansion of the india-rubber airholder compresses the air behind it, causing it to act on the air vessel of the bell or indicator, whilst the surplus is escaping at the pin-hole; thus, however quickly the pull handle may be released, the bell cannot fail to be acted on.

Messrs. WM. WOOLLAMS & CO., manufacturing paper-stainers, 110, High Street, near Manchester Square, London, W., will send a selection of wall papers, all *guaranteed to be free from arsenic*, including papers of bright tints, usually thought to be necessarily arsenical, and others of almost every shade of the present fashionable low toned colours, ranging in quality from the cheapest and most simple bed-room papers, up to the most elaborate and richly decorated, suitable for the handsomest reception rooms. They will also show their 'Patent Embossed Flock' papers, in which the flock is modelled in relief, like carving, and compressed under heavy pressure, being thereby rendered much more dense than ordinary flock, and less likely to absorb noxious vapours or to retain dust. These papers are of especial value for ceiling decoration, as well as for walls. Messrs. Wm. Woollams and Co. desire to call special attention to their sole address, as above, to prevent mistakes and disappointment.

MOULE'S EARTH CLOSET COMPANY, 5 Garrick Street, Covent Garden, will exhibit their Pull-up Earth Closet Apparatus, No. 4A in Company's catalogue: On pulling the plug a pint and a half of earth is thrown into the receptacle under the seat.—Pull-up Apparatus, No. 9 in Company's list: Similar to above, except that the contents



of receptacle are hidden by a tray covered by dry, unused earth which, after use, is depressed by pulling the plug, the action discharging what rested upon it into the receptacle.—A bed, bath, or dressing-room commode, quite portable,



fitted with an apparatus similar to the first one mentioned above.—Model of an up-stairs closet, showing how it can be attended to for filling and emptying purposes from a garden, without the attendant ever entering the house: A simple lift carries up the earth and discharges it into the hoppers of the various upstairs closets, the receptacles being brought down by an arrangement of chains and pulleys; the whole being immediately accessible by opening a door in garden wall of house.—Model showing how a downstairs or out of doors closet may be arranged so that filling the hopper and emptying the receptacle may be effected from behind, the closet not being entered at any time.—A collection of receptacles larger than a pail to be used, when that is too small.

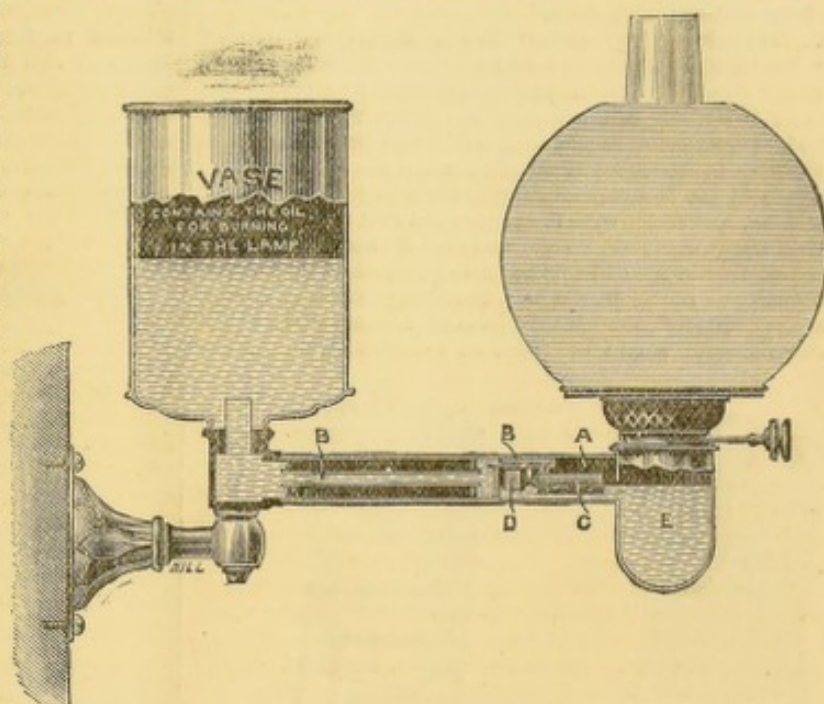
The 'ALBISSIMA' PAINT COMPANY, 24, Lime Street, E.C., send a collection of their beautiful pure white paints, which have gained a vast amount of popularity. The extreme purity of this compound is expressed by its name, and the company have not without good reason adopted the 'Lily' as their trade mark. Its component parts are zinc, but it is distinguished from other pigments of which that metal

forms the basis, by its covering power being much greater. In this feature it exceeds any white lead in the market to the extent of from twenty-five to fifty per cent., which we believe has been effectually proved by the trade. It is absolutely non-poisonous, and this is a great consideration to be borne in mind, as the health of workmen will not be affected by its use; another boon is also obtained in so far that it is virtually without smell, so that the inmates of a house may live in comfort while renovations are being carried out, if Albissima form the groundwork of the pigments used. It is almost unnecessary to add, after what we have said, that it is of the purest white, and devoid of that bluish tint which zinc paints of the present day too often possess. Its colour is unaffected by gas, or any impure atmosphere; ordinary chemical re-agents appear to be powerless in affecting it, and in the neighbourhood of the sea it has been found to surpass all others in appearance and general lasting qualities. There appears also to be a softness or elasticity in its nature that renders cleaning much more easy without destroying its vitality. Owing to its smoothness and fineness it works much freer under the brush, thus securing economy in time and labour, and the brush does not require daily cleansing, nor is straining necessary, thus loss of weight, no mean factor in such cases, is prevented. Another advantage is that when a cask is opened it does not require to be kept under water. Metallic surfaces are protected by its use without being attacked—as in white-lead pigments. As regards the admixture of colours, beautiful tints are obtained by using vermilion and French ultramarine, which has baffled the best mixers who use white-lead, but to keep it as a pure pigment, arsenical colours should not be used with it, almost any tint required being obtainable by blending non-noxious ones. As a proof of its purity and beauty in colour, it is being largely used by artists, particularly for stucco, and Professor Church, R.A., is loud in his praises of it. Apart from the economical features already enumerated, one of the qualities sent out is much lower in price than white lead, and the very finest samples do not exceed it in cost. The Albissima paints may be obtained at the depot agents of the company, Messrs. Randall Brothers, Imperial Wharf, Bankside, E.C., Price & Co., Ebury Street, S.W., A. Emanuel & Son, Marylebone Lane, W., Brooks & Phillips, Paddington Green, W., Barnard & Son, Winsley Street, W., and Urquhart, Edgeware Road, W.

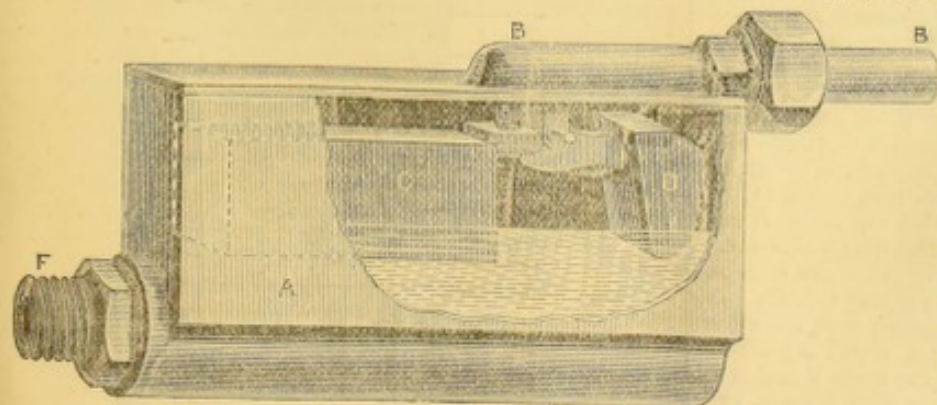
THE LIBRA VALVE AND LAMP WORKS, W. W. Hopkinson's patent, 141, Fetter Lane, exhibit the 'Libra' Valve and Lamp, the former intended to regulate the supply of water to kitchen boilers, filters, etc., in place of the unsightly and cumbersome ball cock, etc. Our illustration

lining for connecting it to the supply pipe; the outlet F is tapped to fit iron barrel. Its size is $5\frac{1}{2}$ inches long, 3 inches deep, 2 inches broad. There is no leakage from the Libra Valve, and it is for use instead of a ball-cock and cistern. As the water approaches the required height, the float C for actuating the valve rises very readily; the buoyancy of the float being caused by the counterbalance D, which renders the valve so very sensitive that the supply of water is regulated with minute accuracy, admitting only the exact quantity of water that is withdrawn. The Libra cistern for flushing purposes contains a very simple water-waste preventer.

THE LIBRA LAMP brings the same invention into operation in an ingenious and effective manner, and may be utilised in a variety of ways. Our illustration depicts a bracket lamp, the oil fount being connected with it at the end of the bracket, but the oil may be placed in a tank at any height or distance from the lamp. In each case the



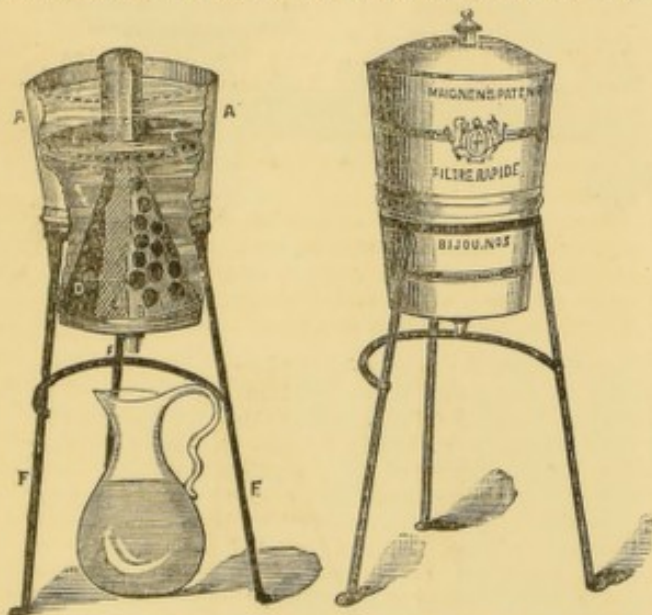
oil flows through the pipe B to the lamp. The supply is regulated by the Libra Valve fixed in the arm A. The buoyancy of the float C for actuating the valve is caused by the counterbalance D, which renders the valve so very sensitive that the supply of oil is regulated and kept up to the proper level in the lamp-fount E with minute accuracy, the valve admitting only as much oil as is consumed while the lamp is burning. The Libra Valve is applied to standards, two-light table lamps, chandeliers, billiard lights, etc., with the vase in the centre, which when required is made to supply a great number of lights; it is also fitted to Queen's reading lamps, street lamps, cooking and heating stoves, etc., and is a desideratum for green-houses where a constant heat is required, as well as for light-houses requiring continuous light. The method of applying the Libra Valve to the Libra Lamp is very simple, easily performed, and effective. The vase has a hinged cover, and is fitted with a filter to prevent particles of impurity entering the lamp. The vases can be made to other designs and the arms to any length. When the oil is conveyed through pipes from a tank placed at a distance from the lamp, a stop-cock, with the handle reaching to the top of the tank, is attached to the pipe inside the tank, with a filter. The joints of the pipes are soldered, so that there is no leakage of oil from them. The Libra Lamp



describes the invention. The metal box A in which the Libra Valve operates, is fixed at a level with the required height of water in the kitchen-boiler, or filter, etc., or cistern for flushing purposes. The inlet B has a cap and

has the following advantages:—It saves much of the time and trouble all other lamps require for cleaning, and filling, and trimming; the Libra Lamp burns without re-trimming from 70 to 100 hours, continuous or otherwise, and the vase can be refilled with oil while the lamp is burning without affecting the light in any way, and without danger. The lamp-fount is small and casts but little shadow, the Libra Valve constantly admitting exactly as much oil as the lamp requires. The wick does not get burnt to anything approaching the same extent as when the oil-level falls, nor does the light diminish in brilliancy. It cannot become heated, and thus danger from explosion is avoided. The effect of the oil-level falling as in other lamps, can be illustrated by the burning of a tallow-candle. As the tallow is consumed it becomes lower, the wick burns, and the light diminishes in brilliancy; but if the tallow could be replaced as it is consumed, and kept up to its original height, the wick of the candle would not get so much burnt, nor would the light diminish as it does.

M. MAIGNEN, 23, Great Tower Street, is present with his 'Filtre Rapide', which has already been mentioned in these columns. Since the patent was first taken out for this invention the patentee has laboured incessantly to make it as perfect as possible, and it will be shown at the Exhibition in its most approved form. M. Maignen disapproves of the hitherto existing notions as to what a filter should be, and starts with the argument that the storage of filtered water is objectionable, and that it should be filtered as required for use. For this purpose he provides an earthen receptacle, as shown in the accompanying drawing, having a loose perforated cone inside, also of earthenware, which is covered with a cup of the best asbestos cloth. After

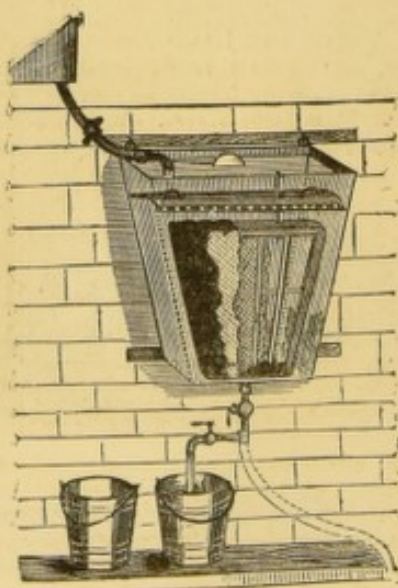
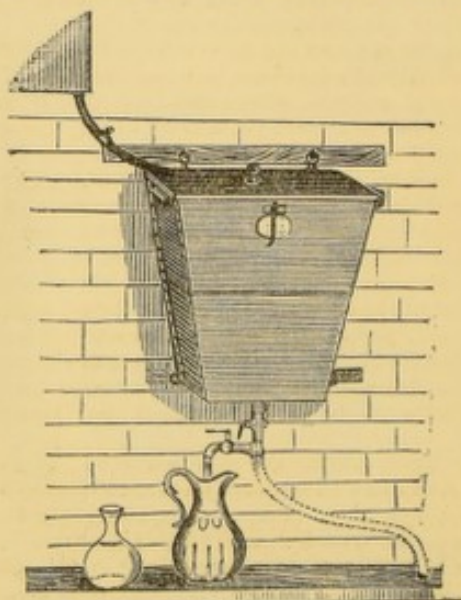


experimenting with various substances, this material has been proved to be the best for the purpose, as it does not wear out or decay, is purer, and more readily cleansed than any other. When filled with water, a quantity of a finely powdered substance patented by the inventor, called 'Carbo calcis', mainly composed of the finest animal charcoal, is thrown in, and this, in its endeavours to escape with the water through the covering and the cone, is drawn by the water to the asbestos, to which it adheres, and in a short time we have a thick covering of this substance firmly adhering to the asbestos cap, through and over which every drop of water must permeate ere it passes out at the bottom, and arresting every particle of impurity it may contain. In addition to this, an air-pipe communicating with the water is provided, having a cup at the top in which is placed a small ball of cotton wool, which purifies it ere it comes in contact with the fluid. The action of the filter is rapid, and by the means described a stream of bright, pure, and sparkling water, which may almost be called aerated, is given off. The filter is entirely under the control of the user, and all that is required at any time to cleanse it, is to take out the cone, take off the asbestos covering, wash the whole, and

replace them, or an additional covering of asbestos may be kept in store, to put on while the other is being cleansed. These filters are made in various sizes, from a small one, called a 'Bijou', upwards, and if a larger quantity of water is required at any time, the filter can be placed over a glass or earthenware barrel, as in the accompanying drawing, and



allowed to filter into it, and be used as required. M. Maignen also provides us with a main service filter on the same principle, which we also illustrate. This is made of a strong metallic material, such as galvanised iron, etc., and in place of the cone, filtering frames, covered with the same substance, and communicating by taps to the draw-off pipe, so that every drop of water used in the household may



be purified. The 'Carbo calcis' is so inexpensive that it is not worth while to save it after each washing, but to use a fresh supply each time. The 'Carbo calcis' has also the property of tendency to soften the water, and, according to

the quantity used, this is accomplished in a greater or less degree.

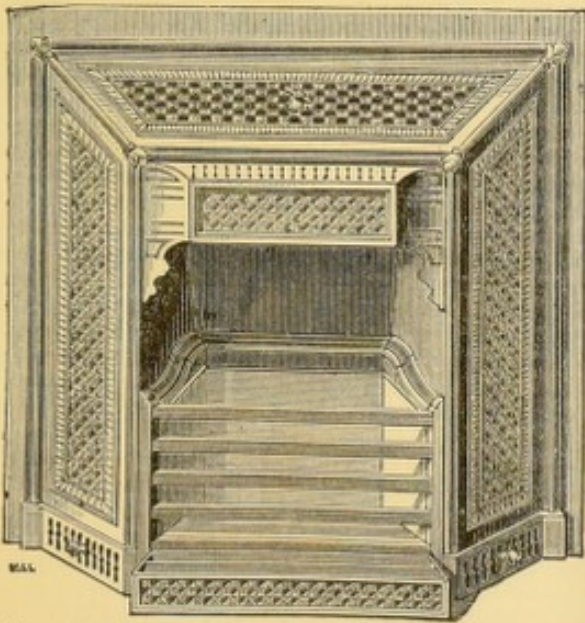
Messrs. CAPPER, SON, & CO., 69, Gracechurch Street, are represented by Pearson's Patent Trapless 'Twin Basin' Water-Closet, made in one piece of pure white earthenware. Also, recently patented and attached to the basins; Brian Jones's Patent Joint, for connecting the closet with the soil-pipe. This Joint effectually prevents the escape of sewer gas, and it also prevents the possibility of the joint being eaten through by rats or mice, or from perishing, or being broken, to all of which defects the usual joint is subject. It hermetically seals the closet to the soil-pipe, and is the most effectual guarantee against the escape of sewer gas. It is simple in construction, and is entirely without that complicated mechanism by which other closets are worked, and consequently less liable to get out of order. The very important features, however, being cleanliness and the absolute protection against foul air from the sewer. This contrivance is without wires, without cranks, and without underground traps. It has no fly-pan, nor any container. It protects the cistern water from being contaminated by sewer gas. Being without obstructive gear, the contents of the basin pass freely to the sewer. As a sanitary appliance this closet is, without doubt, one of the best produced; it has been tested and approved by the highest sanitary authorities, by architects, the medical profession, and others. It is made in a variety of designs and sizes.

Messrs. STEEL & GARLAND, Wharnccliffe Works, Sheffield, and Holborn Viaduct, will exhibit their Wharnccliffe Patent Grate and Coal-Economiser, which was described in the SANITARY RECORD for May 15, 1881, and commends itself to all who interest themselves in the question of heating apartments on the most advantageous and satisfactory principles. Without recapitulating more than is necessary for our present purpose, we may note that instead of the fire-box being placed in a recess some distance behind the plane of the stove-front and chimney jambs, all the heating-surface stands out prominently in the room, thus utilising the heat that would otherwise escape and be lost up the chimney. The ornamental canopy forms of itself a complete hot-air chamber, pure cold air being introduced at the back, or underneath, by a pipe four inches

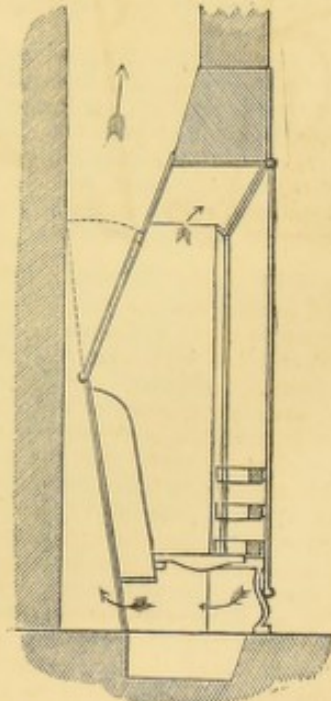
secured by the admission from without of pure cold air, passed through the hot-air chamber. An important recommendation is, that from the smallest quantity of fuel burnt in this grate the maximum of heat is generated. A room of ordinary size (twenty-four feet by eighteen feet) can be efficiently warmed by the consumption of so small a quantity as one pound of coal per hour, the saving, as compared with the consumption of an ordinary register stove, being equivalent to fully 75 per cent. The temperature of a room of the above size can be raised with ten pounds of fuel from 55 to 75 deg. of heat when desired. Messrs. Steel & Garland have just issued a new design, shown by the illustration. This grate is made on the slow-combustion principle, now so much in request; other forms and sizes are manufactured, and the 'Wharnccliffe' is also made as a ship saloon stove, with brass mountings and doors, having guard, fender, etc., complete. Messrs. Steel and Garland have obtained medals at the Exhibitions held at Paris, Philadelphia, London, and Award of the Highest Merit at the late Melbourne Exhibition. They will also exhibit a very handsome Hob Grate, designed by the late B. J. Talbert, and examples of their Holborn and other Slow-Combustion and Ventilating Grates.

Messrs. BANNER, BROS. & CO., Billiter Square, E.C., will exhibit models of Banner's System of Sanitation, showing Soil-pipe, House-drain, and Sewer Ventilating, Railway and other Carriage Ventilators, and Tunnel Ventilation. A Brass Shaft-Sewer ventilated by heated Cone and Cowl combined; Ventilation by Clock-work; a Flexible Tube one inch by sixty feet long, to show power of Cows; Drain-Traps—Lever, Double Dip, and Single Dip; Cows, Rotating and Fixed Finials, Exhaust and Down-Draught Ventilators and Water-Closet. Also Plans of Guy's Hospital, Boro'; Duke of Abercorn's, Baron's Court; Marquis of Exeter's, Burghley; Marquis of Headfort's, Headfort House; Builders' Exchange, 206 Holborn, and John Banner's, Sydenham Hill; Drawings in Section, etc., of Lever Drain-Trap, Double Dip-Trap, Single Dip-Trap, Ventilating Cows and Fixed Finials, showing Drains, etc., in large sizes.

Messrs. DEANE & Co., London Bridge, will exhibit a new grate, Crane's patent, to burn either bituminous or anthracite coal. The grate is ingeniously constructed, easily managed, and is said, from the great draught capable of being created, to be a sure cure for smoky chimneys. In

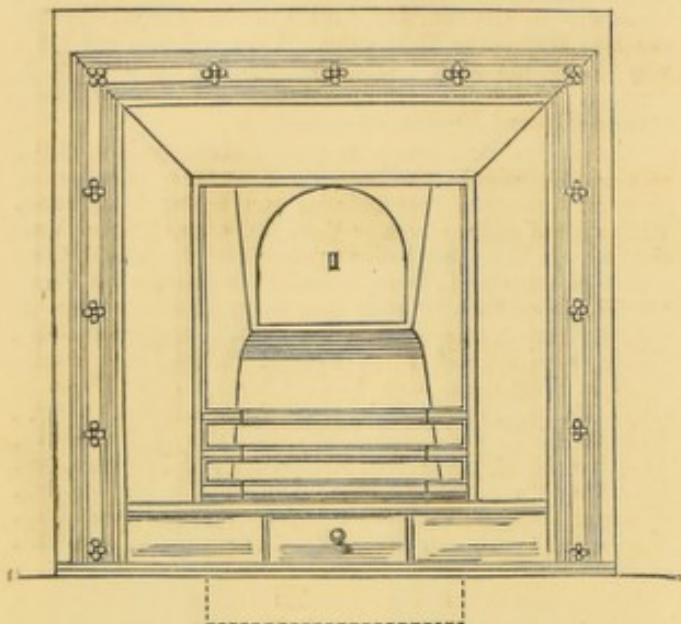


in diameter, which passes up the sides and back through a series of gills, and, having become heated in its passage, proceeds through a perforation at the top of the canopy, imparting a genial and equable glow of fresh warm air through the apartment. The extreme simplicity of this arrangement is apparent, there being no valve or movements of any kind tending to possible derangement. A great advantage is that the 'Wharnccliffe' grate requires no fixing, as it is complete in itself, and even the chimney-breast may be dispensed with. Thorough and efficient ventilation is



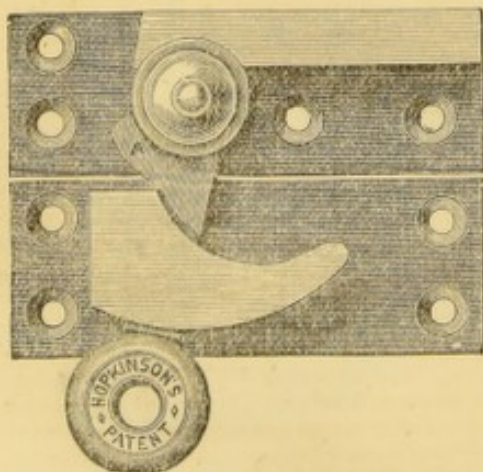
burning anthracite coal it is necessarily non-smokeless, but bituminous coal may be burnt with the best results, that is to say, that by the arrangement of construction a large amount of smoke is consumed, and a clean hearth is always presented.

Our first illustration is a section, and, in explanation, we may say that the fire-box is formed of Stourbridge lumps, fitted into a cast iron frame, so constructed as to form at the back of the side lumps side flues communicating with the bottom of the stove. A register door is fitted above the low back lump. When this register door is closed a strong draught is created, and the smoke, and other products of combustion, are conveyed down the side flues and directly under the fire, the greater part being again drawn through the fire, and the remainder carried into the chimney through an opening below the level of the fire. The front is closed by a raised hearth, as indicated in the drawing. When the fire is well alight, the register door may be opened, and the anthracite is then burned as in an ordinary grate. The stove may be seen in use at Messrs. Deane's show-rooms, 46, King William Street, London Bridge, E.C. Our second drawing represents a full front



view or elevation of this grate, and, having seen it in action, we can add our testimony as to the bright and cheerful fire produced, and the very little attention required to keep it up, one feeding after the first lighting being generally sufficient for the entire day.

Messrs. TONKS & SON, the eminent domestic and general brassfounders, of Moseley Street, Birmingham, will send an interesting assortment of domestic brassfoundry, including a variety of patent bolts and door chains, book-shelf fittings, casement stays, lock furniture, sash fasteners, patent sash line, ventilators, and window blind furniture. We select Hopkinson's Patent Sash Fastener for illustration, a simple and inexpensive article, securing absolute



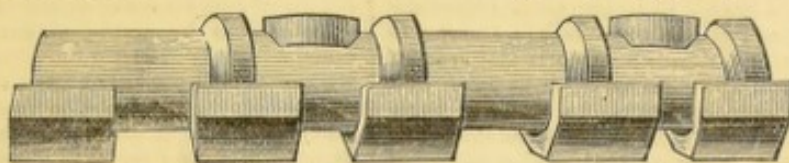
safety from being opened from the outside. In appearance, it is the same as the ordinary sash fastener, with a projection, A, on the left of the arm, forming the patent guard,

which, when the window is fastened, lies up to and immediately behind the opening between the sashes. When any instrument is thrust through the opening to force back the arm, the patent guard instantaneously closing on, and tightly wedging it, effectually prevents the instrument from forcing open the fastener. Being without complicated parts, it is not liable to get out of order. For the same reason, it is not expensive, and can be sold at about the same price as the ordinary fastener. Their Patent Sash-Opener and Automatic Sash Fastener is another article worthy of commendation that will be exhibited. It is intended for opening window sashes and closing them, by means of two pairs of lines, terminating with wooden handles, each having two rings of vulcanised India-rubber to protect the window frame and glass. At the same time, this invention allows a certain amount of ventilation with security, as the window may be opened to a given height, and automatically locked by the apparatus. However exposed the situation, the room may be left with perfect safety, as the sash cannot be operated upon from the outside, and it will not open sufficiently wide for the smallest boy to enter. Hookham's Patent Steel Sash Line and Picture Cord is another of the specialities sent by this firm. The sash line, which is now pretty generally known, is made of flat spring steel, and is bound round with copper wire. It possesses great elasticity and immense strength, is much neater in appearance than other sash lines, and is proof against breaking. The picture cord is made on a similar principle, and of various sizes. The core is of one or more strands of the best pianoforte string wire, covered with a close binding of waterproofed cotton and ormolu wire; and as every length is subjected to a testing strain before it is sent out, it will bear a great weight or strain for an almost indefinite period. Some simple and ingenious fasteners for connecting the wire to the picture ring forms a portion of the arrangement, and enables pictures to be hung securely and rapidly.

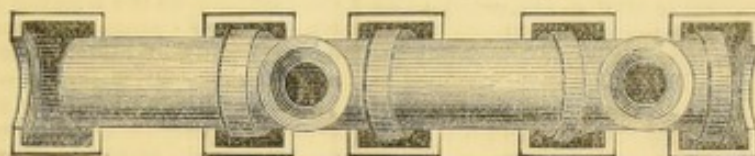
Messrs. MAGUIRE & SON, Dawson Street, Dublin, will exhibit an extensive collection of sanitary appliances, prominent amongst which will be their patent drain joint, as described in the SANITARY RECORD. In this joint the firm claim to have secured, by simple means, everything that can be desired in a drain, at but slight increase of cost. As the drawings show, they provide a hollow cradle of glazed earthenware, in which the pipe and the socket of next drain rests. This has the effect—1st. Of holding the pipe and socket concentric, so that a much more perfect and durable cement-joint can be made than by any other system, the joint being equally spaced all round, without the use of wood wedges, so often used by drain-layers, which wedges rot away in time, leaving a hole under the socket for leakage of sewage. 2nd. It enables the joint to be got at all round, as it holds the pipes steady and even, instead of lying loosely on the ground. 3rd. It enables a second and independent cement-joint to be made on the lower half of the socket where the sewage runs, by pouring in liquid cement round the first joint after it has properly set fast, making a perfectly sound staunch joint, independent of the workman's care, and open to the inspection of all concerned. In addition to this, they provide an open inspection hole, round or oval, with loose cover, on every alternate length of drain-pipe, each hole affording easy means of smoothing perfectly the interior of two joints right and left, and giving perfect facility for the careful inspection of every joint in the drain after it has been laid and finished. Wherever it is desirable, this patent contemplates the use of T pieces, having the branches carried up to the ground level, with air-tight stoppers and covers for occasional inspection of interior of drain when in use, and for enabling the drain to be got at easily if required. This invention has the great advantage of utilising the ordinary cheap forms of pipes in conjunction with the firm's Patent Cradles. The system has been protected by patent, and the Patent Cradles can be had separately wherever contractors may desire to use their own drain-pipes, should they be found to fit. To show the advantage of Maguire's patent, we append an illustration of the old drain-pipe, showing the danger and insecurity that often occurs from

their use, and we cannot too highly commend Messrs. Maguire and Son's invention. This sketch shows three lengths of socket pipes laid—(a) the socket open; (b) an imperfect joint; (c) a perfect joint, as laid generally under the old system. The Patent Self-acting Flushing Tank made by this firm, is an article that has attained just celebrity, and was introduced to meet the necessity, admitted

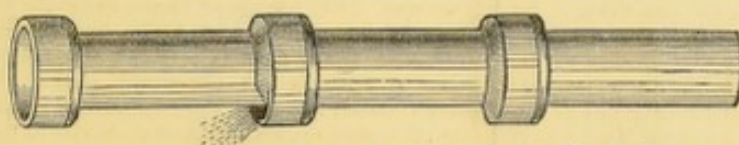
Next in order of this firm's exhibits we may mention Dr. SCOTT'S Hospital Disinfecting Apparatus, made for use either with gas or coal, which has been approved by the Local Government Board. Our illustration represents one intended for gas, and is constructed of an improved composite non-conducting material, with improved non-conducting door, hinges, improved fastener, perforated iron



Elevation of Maguire's Patent Perfect Safety-Joint Drain.



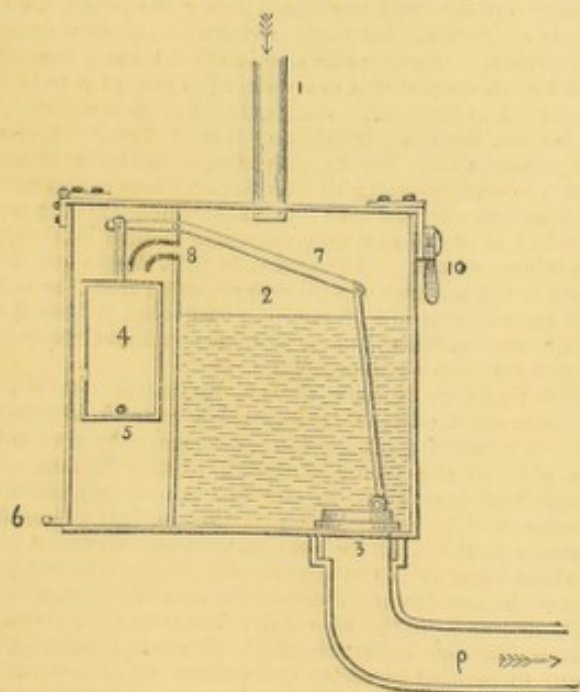
Plan of Maguire's Patent Perfect Safety-Joint Drain.



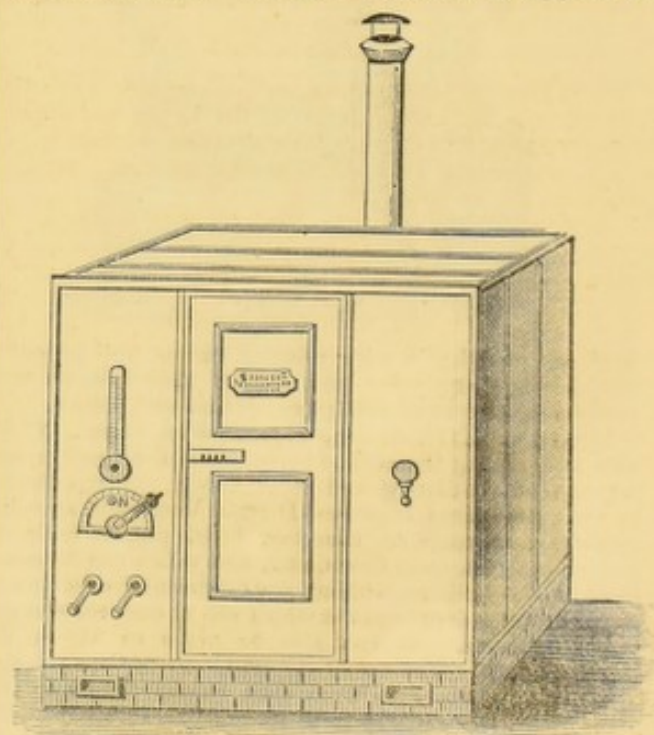
Sketch of Ordinary Defective Drain Pipes.

on all hands, of effectually flushing drains periodically. This cannot be effected by the small amount of water used in closets, and even when bath water is discharged, the outlet-pipe is generally far too small to produce a thorough scour. Hand Flushing Tanks are too often neglected, and the only real safeguard in matters of this description is to have the tank automatic in its action. This is secured by Maguire and Son's patent, of which we append a sketch

shelves, galvanised iron safety-carrying case, with two wicker linings for clothing; inspection valve, gas-heating apparatus, with four valves to regulate heat to desired temperature; improved automatic safety-valve, to prevent heat exceeding 300 deg.; improved pyrometer, indicating from 50 deg. to 400 deg. Fahr.; air inlet-valve; ventilating shaft with outlet-valve. The smaller sizes are suitable for laundries or institutions. The larger sizes are for hospitals and small unions. The same apparatus is supplied with



and description. 1. Rain-water down-pipe, or bath waste-pipe. 2. Tank to collect waste water. 3. Valve to open when water overflows, and discharge water full bore into drain. 4. Balance Cistern, to receive overflow, and by the extra weight of overflow-water to open valve. 5. Dribble-hole in Balance Cistern, to empty same and close valve after flushing drain. 6. Escape-pipe for dribble-water. 7. Iron lever to open and close valve. 8. Overflow pipe from tank to cistern. 9. House-drain to be flushed. 10. Padlock and hasp, when cover is used, for artisans' dwellings and places where it is desired to prevent persons tampering with tank.

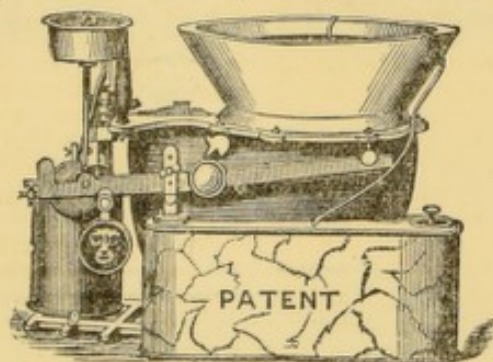


coal or coke furnace heating arrangement where gas is not available. The Improved Furnace is of wrought-iron, with sliding doors and valves. Improved arrangement for consuming all the air of chamber in furnace before doors are opened to remove clothing. A portable one is also manufactured by the firm, on the same principle, for removing from place to place. It is unnecessary for us to say more in connection with these apparatus, which have gained a wide celebrity. A variety of important sanitary appliances

of various kinds will help to make up a very extensive exhibit from this firm.

Messrs. FREDERICK WALTON & CO., Sunbury-on-Thames, and Berners Street, Oxford Street, will exhibit some choice selections of their popular wall decorations, better known as 'Lincrusta Walton', which may be also described as a new Linoleum product. The name 'Lincrusta' is taken from 'Linum', flax, the chief ingredient being solidified linseed oil, and 'Crusta' relief; and it was originally introduced with a view to improve the appearance of the interior of houses with decoration in relief, that by its moderate price should be within the reach of those to whom what may fairly be termed art decoration had hitherto been denied from its great cost. The object of the inventor in introducing this mural decoration was to produce by stamping the effect of carving, and to effect this it was necessary to have a material that, in its earlier stages, was soft and ductile, but that would afterwards become perfectly hard. Unless its use was to be confined to ceilings it must not be brittle. It must resist the effects of damp, and the alternations of heat and cold, and if it could be made a non-conductor on which the moisture of the air would not readily condense, so much the better. To be so workable that the artist could elaborate the designs by undercutting or otherwise, so tough, that the roughest scrubbing would not affect it, so durable that disease germs might be washed off it with dilute acid, an advantage would be gained hitherto unattained, and a material of the highest and most valuable artistic and hygienic uses would have been produced. Such an article is 'Lincrusta Walton'. It is adaptable to all kinds of interior decoration, is easily fixed, and the designs are of the most varied and *recherché* character, every style or ornamentation being capable of production.

The ANTISEPTIC APPARATUS MANUFACTURING COMPANY exhibit their patent appliance for the purpose of preventing sewer or any other foul gas from entering the house. The apparatus, which is now generally known, is self-acting,



fixed, out of sight, in a few minutes, cannot well get out of order, lasts many years, and secures perfect safety from noxious vapours in closets, pipes, drains, and sewers.

Messrs. C. KITE & CO., 117, Chalton Street, N.W., who were among the earliest inventors of the modern description of ventilating and other cowl, are represented by their Registered Improved Dormer Ventilator, specially applicable to roofs of churches, halls, public buildings generally, villas, shop fronts, etc., and which can be easily fixed to the building without any detrimental effect to its appearance; a consideration which will at once recommend it to architects. It can also be made to fit on the ridges of roofs. The patent Albert Chimney Caps are also exhibited. These caps have been before the public for many years, and the numerous testimonials received by the inventors of the effectual prevention of down-draught by their use, stamp them as amongst the most efficient in the market, their moderate price being also much in their favour. Messrs. Kite & Co.'s most important exhibit is probably their Registered Drain Ventilators, which by a system of siphonage perform the operation of ventilating, and so purifying the soil pipes and preventing the entrance of sewer gas into a house, howsoever defective the closet arrangements may be. One is Air-exhaust Ventilator for drawing out sewer gas from soil pipes, drains, etc.: no movable

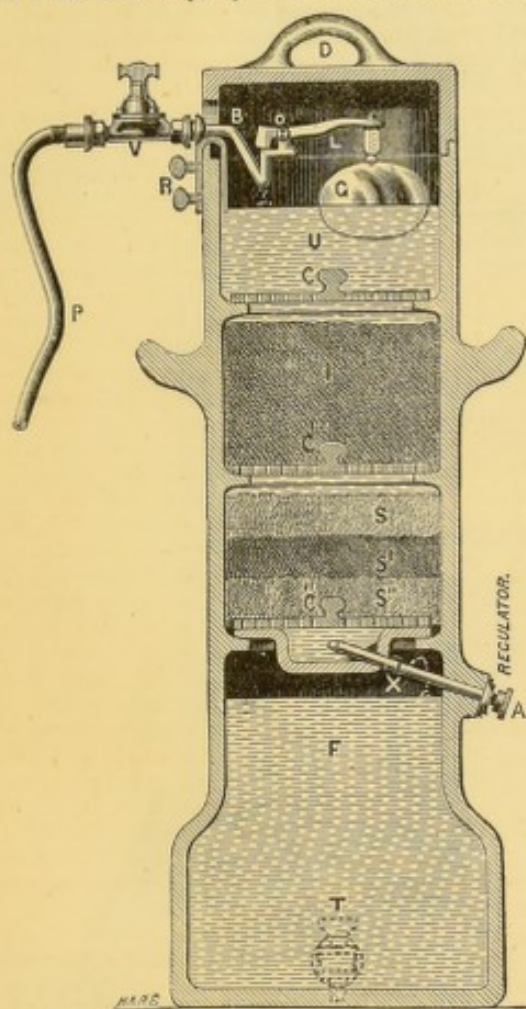
parts: therefore cannot get out of order; and the other an inlet ventilator for driving down fresh air into the drains, ships, mines, etc. They are, of course, connected by pipes, carried down from each to the drain pipe, the one being intended to be fixed at one end of a building and the other on the opposite one. It will be seen that the inlet ventilator is so formed as to drive down a constant current of fresh air into the drains, which being driven along them is, so to speak, siphoned out by means of the exhaust ventilator at the other end. They are formed on scientific principles, and we believe will not fail to effect the required purpose. The exhaust ventilator should be fixed the higher of the two, in order that in still or foggy weather the warm air in the drains will ascend the lower shaft and the cold air descend the shorter one, thus keeping up a continuous current of fresh air through the drains at all times of the year. They are simple in construction, neat in appearance, have no movable parts, and their moderate price renders them probably the cheapest apparatus of the kind in the market.

Messrs. ROBERT BOYLE & SON, ventilating and sanitary engineers, Glasgow and London, display a variety of their celebrated Self-Acting Air-Pump Ventilators, the merits of which are too well known to require any special description from us. They are found in use to create a continuous and powerful up-current, and to be entirely free from down-draught. Being fixtures they can never get out of order or make a noise—most important points. They are here shown constructed to suit different styles of architecture, from the most ornamental and elaborate to the plainest form. The highest testimony has been given in their favour from such men as the late Sir Gilbert Scott, Sir William Thomson, the electrician, and other eminent authorities. Messrs. Boyle also show modifications of their air-pump ventilators, intended for the ventilation of soil-pipes, drains, and sewers, in effecting which they have been eminently successful. A large plan, likewise shown by this firm, demonstrates how their complete system of ventilation is applied to a dwelling house, provision being made for the effecture of the extraction of the vitiated air, and the heat and products of combustion arising from the gas, and for the admission of a supply of fresh air, hot or cold as required, without draughts or currents. The plan seems to be the essence of simplicity, and we understand that experience has proved it to be very successful in practice. A model and plans are also shown of Messrs. Boyle's improved system of Ventilating Steam Ships and Public Works by means of the boiler furnaces, which is well deserving of attention. There is also here to be found an effectual cure for Smoky Chimneys, the action of which is shown in a very surprising manner by means of a working model. Altogether, Messrs. Boyle and Son's stand is one which will well repay a visit; from the artistic and imposing manner in which it is got up, it cannot well escape notice, being one of the principal and most ornamental features in the exhibition.

Mr. ERNEST TURNER of 246, Regent Street, W., exhibits a sheet of plans showing his method of draining various types of town houses. Amongst others we notice the plan of the Home Hospital, Fitzroy Square. The simple and economical system adopted at this institution was favourably reported upon by the medical and sanitary journals at the time the hospital was opened, and a year's working has proved it to be eminently satisfactory.—Description of the London and Provincial Steam Laundry, which is fully described in the SANITARY RECORD of October 15, 1880.—Plan of Fever Hospital, Newton Road, Devon, about to be erected under the designs of and under the superintendence of Mr. Ernest Turner, F.R.I.B.A., 246, Regent Street, W., for the Torquay Local Board, a short distance from Torquay. The object of the Board is to obtain a complete building of moderate size, perfect in its sanitary arrangements, at the lowest cost possible, which may serve as a model for similar buildings throughout the country. The idea is not to erect a large hospital for the curative treatment of such diseases as scarlatina, small-pox, typhus, and cholera, but the isolation of the first few cases which appear, in order to prevent the disease from becoming epidemic. Accommodation is provided for the treatment of twenty patients in eight wards, four wards con-

taining four beds each, and four single-bedded wards. The drainage does not pass into the town sewers. Earth closets are used throughout; these have receptacles which are removed from the outside of the building. The slop-water from sinks, baths, etc., is collected in Field's flush-tanks, from which it is discharged rapidly through glazed drains to a system of pipes laid with open joints to allow it to soak into the ground. Rain-water is collected for use in the laundry, etc. The wards are heated by means of open ventilating stoves. The laundry, which is in rear of main buildings, comprises washhouse, ironing-room, and disinfecting chamber. A mortuary, ambulance shed, etc., are also provided.

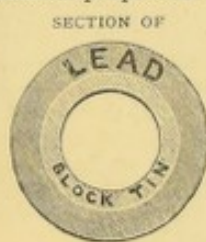
The SPONGY IRON WATER PURIFYING COMPANY, Oxford St., will have a collection of 'Bischof's patent Spongy Iron Filters'. These filters are very generally known and justly esteemed, but we subjoin an engraving of one to be used with a ball-cock only, by which means the whole supply for



domestic use can be readily filtered. A pipe brought from the cistern or reservoir to where the filter is placed is all that is required to effect this object. The filter contains at its base the reservoir for filtered water (F), which is considerably larger than the reservoir of the ordinary domestic portable spongy iron filters of the corresponding size, thus insuring a larger supply of filtered water for immediate use. On the top of the reservoir will be noticed the regulator bowl into which tube (A) is cemented watertight. The latter is provided with a small lateral opening, which forms the only communication between the upper part of the filter and the reservoir for filtered water. The flow of water through the filter is thus completely controlled by the size of such opening. Above the regulator bowl are placed the filtering materials, namely, first prepared sand, and then spongy iron, resting on and separated by perforated bottoms. The prepared sand consists of three distinct layers, S, S', and S'', which must not be intermixed. The spongy iron (I) is covered by a perforated lid (C), which is tied down during transport to prevent the shifting of the filtering

materials, and above which is the reservoir for unfiltered water (U). The filter is covered by cover (D). These filters are made in a variety of other patterns, both for home and colonial use.

Messrs. QUIRCK, BARTON, & Co., Crown Lead Works, Normandy Wharf, Rotherhithe, and 61 Gracechurch Street, exhibit specimens of their Patent Tin-lined Lead-pipe, and Tin-covered Sheet Lead, an improved medium for the supply of pure water to dwellings, preventing lead-poisoning of water, beer, and other liquids. This piping is a combination pipe. It consists of a distinct pipe of pure tin, protected by an outside covering of lead, the two pipes being so united at their surfaces of contact as to be inseparable by any contortion to which the pipe may be subjected. In pliability it does not differ in any appreciable extent from lead-pipe, as it is easily bent to any desired form or angle, without affecting the interior tin-pipe, which comports itself physically as a part of the body of the lead pipe, but yet remains distinct in its metallic and chemical properties. The annexed sketch represents a section of the pipe, and will convey



TIN-LINED LEAD PIPE.

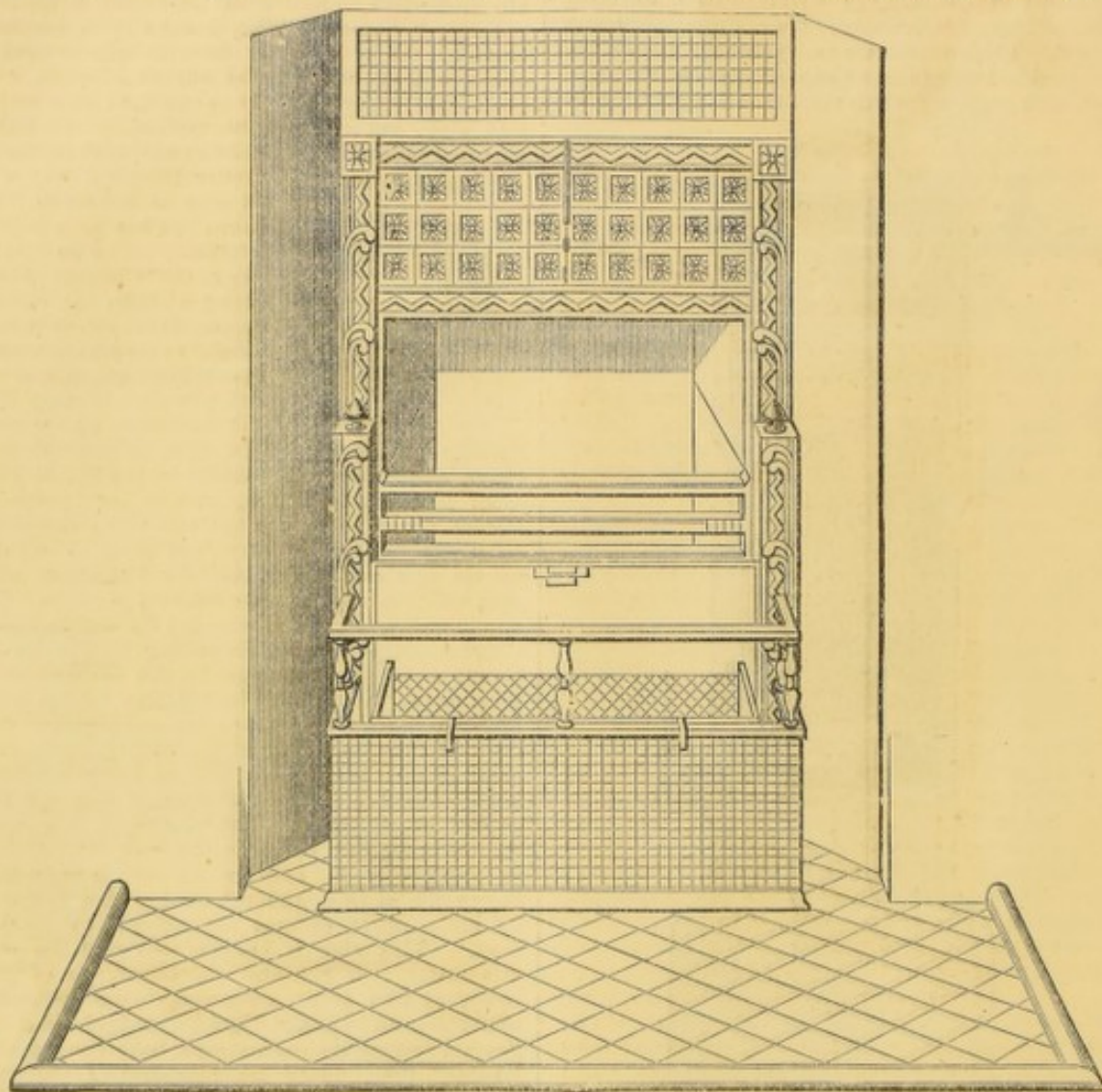
an idea of its form. The inner circle, marked TIN, represents the internal pipe of pure tin, and the outer circle shows the external casing of lead. It will be clearly observed that this is a tin pipe, so formed in conjunction with lead, as to combine the qualities of ductility and pliability of that metal, with the innocuous nature and superior tenacity of the tin. The superior strength which this piping derives from the tenacity of the tin, as well as from other conditions which operate in the process of manufacture, serves to reduce the cost of its employment as a substitute for the ordinary lead pipe, as experience has proved that *this piping, half the weight per yard of lead pipe, will sustain the same internal pressure.* The Patent Tin-lined Sheet Lead is intended for use in lining Water-Cisterns, Baths, etc., or for storing liquids, for which lead is now used. Its advantages for this purpose are equally as great as that of tin-lined lead-piping, for the prevention of lead-poisoning. The sheets are not plated or coated with tin by dipping in a bath of tin, but are made of a distinct sheet of tin covering one side of the sheet lead, and so united together in the manufacture that the two metals cannot be separated. The merits of this Sheet Metal for the purposes before mentioned, are apparent, and its superiority is manifest to any one understanding the nature of lead, and the danger that may arise from its use. Slate cisterns are subject to breakage from frost. This risk is entirely obviated by the use of this metal. It has also the advantage of great durability, as well as of cheapness, to recommend it. The sheets can be supplied tin-lined on both sides if required. Several interesting experiments have been made with the tin-lined pipe, as to its comparative extension under bursting pressure, as compared with common lead-pipe, and those conducted by Mr. Kirkaldy of London, showed an average per cent. of 13.5, of tin-lined pipe, as against 9.4 of ordinary lead-pipe. From these results and many others, it has been proved that the patent pipe of the same diameter, while considerably less in weight, bears a greater strain than the lead-pipe, and notwithstanding its great advantages from a sanitary point, can be supplied at about the same cost.

Mr. M. A. SHAW, Leighton Buzzard, Beds, exhibits his Patent Dustless Cinder Sifter, of which we append an engraving. The object of the invention is to enable cinders to be sifted in each room as the housemaid is laying the fires, and being enclosed in a wood case, with lid at top, no dust accrues in the process of sifting. A galvanised iron slide at bottom is to be drawn out when the bottom part of the case requires to be emptied of the ashes. It is simple in construction, and appears to be perfectly effective.



MR. F. E. EDWARDS, Great Marlborough Street, exhibits his new Smoke Consuming Slow Combustion Grate, of which we append an illustration, showing front elevation with open grating at top for admission of fresh warm air. Mr. Edwards has taken up the question of preventing smoke as it was left by the late Dr. Neil Arnott, and he has introduced a grate which he maintains is free from all the objections made to previous smoke-consuming grates, and possesses the merits of being effectually smoke preventing, inexpensive, and simple. Mr. Edwards adopts the principle of putting a body of coals sufficient for a day or a night's consumption into a fire-basket or chamber, making a fire on the top of the body of coals and allowing the fire

dirty chimney, and provides a door with a chain in front of the grate, which may be handled and used without the slightest inconvenience. In front of the wire cinder basket a fender guard is provided, just sufficient to protect the person from fire, and to make a pretty covering to the basket, the ordinary fender being dispensed with altogether. Outside the fender guard a tile or marble hearth may be provided. At the top of the grate a plate of iron is made movable, so that the setting of the grate may be easily accomplished, and the machinery of the register may be got at in a few minutes, if necessary. In connection with his system, but not as a part of his patent, Mr. Edwards seeks to introduce the plan, well known to

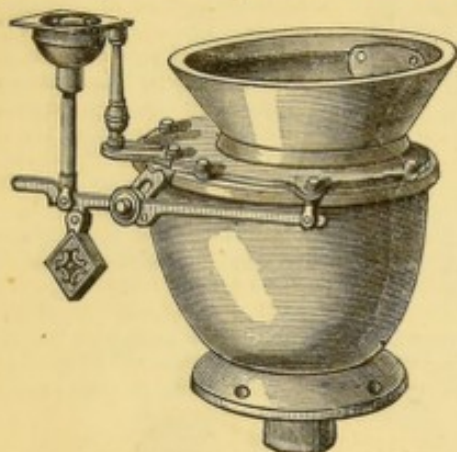


to burn gradually downwards till the whole is consumed. This principle is substantially the same as that adopted in Dr. Arnott's grate, and in the modification known as the *Builder* fire. It also resembles, in some particulars, a grate patented by Mr. Goodchild, an architect of Guildford, in 1857, but it embodies substantial improvements on each method. Instead of machinery to lift the basket of coals as it burns down Mr. Edwards uses what may be called a blind to move down by degrees in front of the body of burning fuel. Mr. Edwards dispenses with a sunk ashpit altogether. He balances his blind in front of the body of fuel by chains and weights, and so arranges them that they can be got at readily in case of anything being wrong, without any necessity for pulling out the grate. He provides a wire basket in front of the grate, which catches all the coal that falls, and allows the dust to fall through it into a trough out of sight, the cinders to be used for next day's consumption. For regulating chimney draught Mr. Edwards dispenses with the common register-door, which cannot be got at except by putting the hand up a hot and

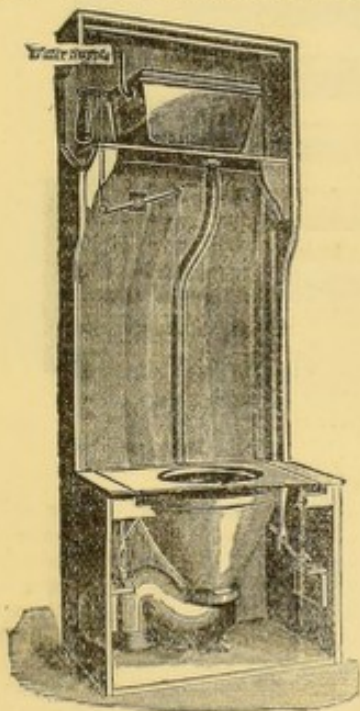
students of sanitary science, of admitting fresh air, entering from an external wall, passing along a channel of suitable dimensions, generally below the floor, becoming warm by contact with the back parts of the grate, and entering the chamber at a temperature of from 90 to 120 degrees, instead of entering the room at from 30 to 50 degrees, by cold air channels or by doors and windows, as at present, occasioning draughts of cold air.

MESSRS. JOHN WARNER & SONS, Crescent Foundry, Cripplegate, E.C., exhibit a variety of their specialities, from which we make a few selections for illustration. Their patent special valve-closet, which has obtained the name of a thoroughly good water-closet, is worthy of attention. It is fitted with improved basins, and Bower's Patent Overflow Sewer Gas-trap combined, and Patent Supply Valve with copper case pneumatic regulator. By the arrangement in the basin splashing is avoided, and a quick discharge is obtained. The overflow (when once charged) is thoroughly sealed against sewer gas. The main valve is so placed as to give a full way and to pre-

vent choking, and it cannot be overdrawn or become foul. The Regulator is simple and thoroughly efficient, and the action is comparatively noiseless. Their Improved Pan Closet has gained considerable popularity, and amongst other places twenty-four of them are in use in



Guy's Hospital, where, in connection with Banner's system of ventilation of drains and soil pipes, they are giving great satisfaction. Another exhibit is the Crescent Water



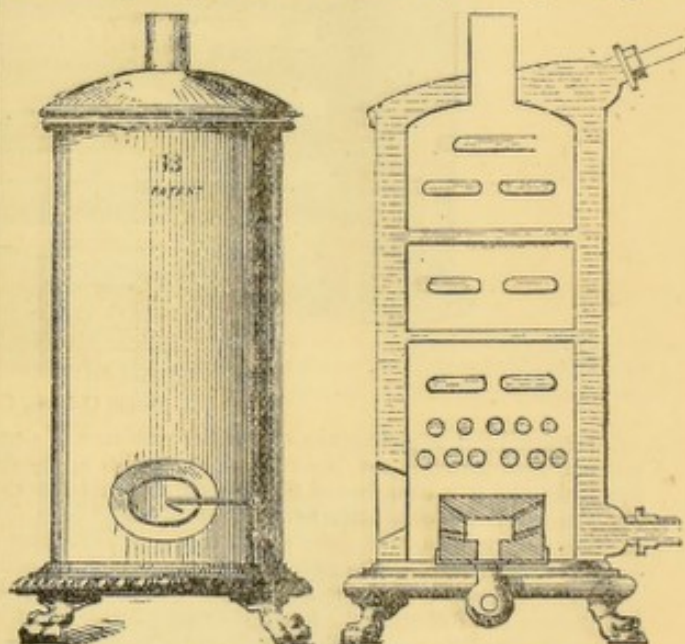
Closet, for asylums, hospitals, factories, railway-stations, schools, colleges, &c., an article which meets the immediate requirements of Water Companies and other persons, whereby a perfect flush may be given to closets without a waste of water. This apparatus is fitted so that the contents of the cistern may be discharged by pulling a chain or wire, or with a simple arrangement in connection with the seat, forms a most perfect self-acting closet. Its parts are so strong and simple in their construction that no derangement can take place. Their portable Water Closet and Commode appeals particularly to the medical profes-



sion. For sick rooms, colonial dwellings, and other places where a constant water supply and good system of drainage

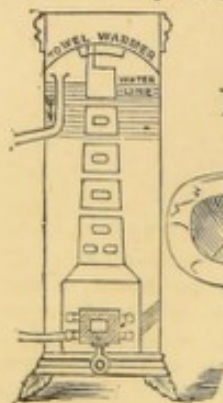
are not established, it will be found invaluable. The pan is made with a self-acting valve, and the basin is fitted to drop into a water groove, so that, when the pump handle is raised, sufficient water passes to cleanse the basin and to form an air-tight joint to the valve, and there is no escape of effluvia from any part of the apparatus. The pail and basin are provided with a lid and handle like the ordinary slop-pail, in order to remove them when necessary. The cistern is made to contain sufficient water for several evacuations, and is complete and compact in every respect. A variety of other useful appliances will be found in this collection.

Messrs. VERITY BROS., 1, Stanhope Street, Easton Road, N.W., exhibit Patent Gas Fires, adapted for use in ordinary fire-places. They consist of a burner made in fireclay, which, being on the atmospheric principle, produces neither smoke, smell, or dust, while it gives out great heat; this is fitted in the grate and concealed from view, by a packing of indestructible fuel. The appearance is that of a coal fire, whether or not in use, without the trouble of constantly cleaning and replenishing. They are as simply managed as an ordinary gas jet, and may be immediately turned out when not required. Over 30,000 of these gas fires are now in use in all parts. Burners on the same principle can be applied to cookery stoves and hot plates, the desideratum being that they are non-corrosive, and retain heat in themselves, so that one of these cooking burners is equal to three of the ordinary kind.—Patent Circulating Copper Boiler heated by atmospheric gas-

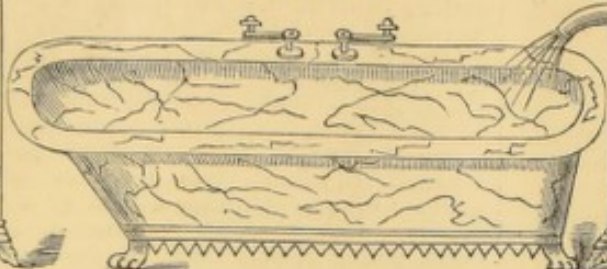


burner. These boilers are made in five sizes:—The No. 1 driving 60 ft. of two-inch pipe; No. 2, 85 ft.; No. 2A, 120 ft.; No. 3, 200 ft.; and No. 4, 300 ft. They are very certain and effective in action, and for hot-water apparatus up to the power named, are all that can be desired. They do not require any attention, and as with all gas apparatus, may be regulated at the burner to give the heat required. They are well adapted for heating pipes or coils in halls, billiard and other rooms, conservatories, etc.—Patent Bath Boiler, to stand at the side of bath, so that water may be heated and drawn off into bath, or for domestic purposes. With this boiler, a charge of hot water sufficient to heat a bath up to 95° can be obtained under twenty minutes. It is very simple in construction, and cannot get out of order. The boiler when once charged remains full, and consequently is not liable to derangement as with the generality of gas boilers, by carelessly lighting the gas before turning on the water. No fixing is required further than to attach the gas and water supplies.—Patent Osborne Combined Boiler and Coil (as supplied for Her Majesty's marine residence at the Isle of Wight). For warming halls, conservatories, offices, billiard-rooms, organ chambers, drying rooms, etc. They are made in various sizes to meet re-

quirements, and the metal used is copper and brass finished off and lacquered, the colour of the metal giving an

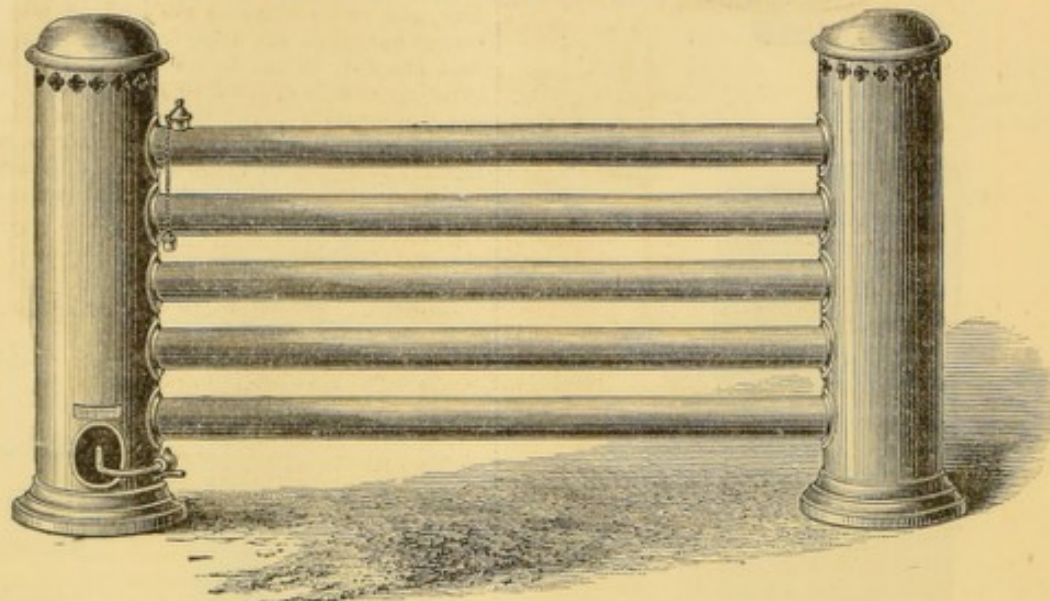


VERITY BROS. PATENT BATH BOILER.



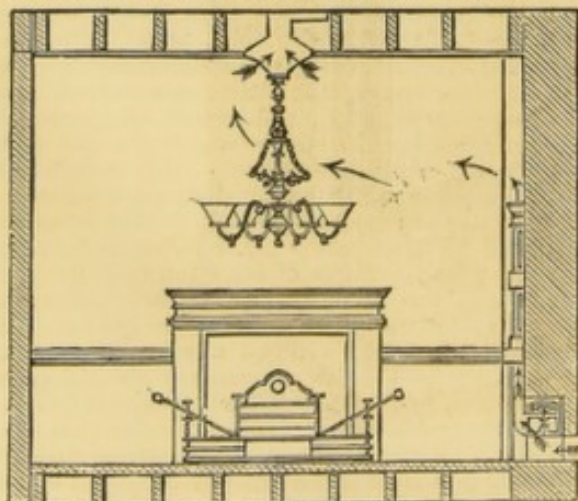
effective appearance. The inner construction consists of a tubular boiler, formed in one of the pillar ends of coil. This is heated by three fish-tailed burners. There is

air is heated by passing over metal or fire-clay plates, which, being in direct contact with the fire, soon become red-hot and so burn the air; it will be seen in this invention it is impossible for this to take place, as *the whole of the heating surface is surrounded with water*. The stove consists of a spiral coil enclosed in a cylinder filled with water, a slow combustion furnace passing up through centre of coil to heat the water, and the cylinder is surrounded with an outer case, so that no heat may be lost. The Patent Air Propeller, driven by two fine pin-hole jets of water, draws the air through the apparatus and drives it in the required direction. The water, after leaving air propeller, is made to pass over fresh air inlet in the form of a fine spray; the air passing through the spray is cleansed from all impurities, and, passing round hot-water cylinder, enters coil at bottom



Patent Osborne Combined Boiler and Coil.

neither smell nor vapour given off, as the products of combustion pass through the boiler, and are taken up by the steam formed in a chamber at the top of pillar; from this chamber a pipe is conducted back again through the boiler, so whatever moisture is generated, becomes superheated before its discharge. The apparatus is very efficient, compact, and portable, which is a great desideratum. It does not require any fixing, as the gas-supply may be attached by means of a flexible tube. These coils may be further ornamented with Repoussée panels if desired.—Patent Warm



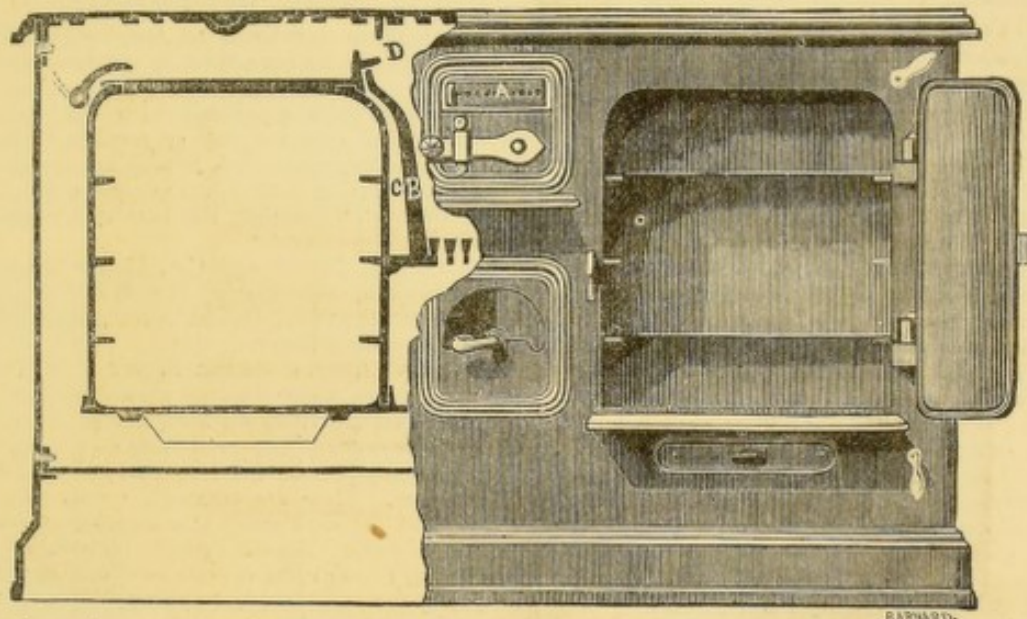
Air and Ventilating Apparatus, for producing a continuous current of pure warm air. In most warm-air stoves, the

and becomes heated as it is drawn through; it may be delivered dry, moist, disinfected, or otherwise. The heat may be regulated to the greatest nicety by opening or closing valve, and these apparatus are made in sizes to deliver from 50 to 600 cubic feet of air per minute, heated up to 200 degrees.—Patent Ventilator or Air Propeller, for introducing fresh air into dwellings, etc., and extracting the vitiated air therefrom. This machine has only one movement, and is very simple in action; numbers of them have been in use continuously for many years without attention. It is driven by a power always at command, inexpensive, and under most perfect control, and not demanding technical knowledge of the most simple description on the part of the attendant—we refer to water, the moving power employed. A cistern placed in the highest available position in the building in which the apparatus is to be used, and a $\frac{3}{8}$ -inch lead pipe conveying the water to the machine, is all that is required. The internal mechanism consists of a drum, with a set of fans worked by a fly-wheel placed on the same axis as fans, which revolves in jewelled centres. The two pin-hole jets of water directed on to fly-wheel, put these fans in rapid motion. The machines are made in five sizes, the average rate of air passing through them being 1,000 lineal feet per minute, or, taking the two extreme sizes, the cubical output per minute may be computed at from 60 feet with a No. 1 size to 650 feet with a No. 5 size. This is with 40 lbs. pressure, but the machine can be worked effectively as low as 18 lbs. The apparatus is perfectly under control by turning down the supply-valve so that the current of air may be regulated to the nicest degree. The fresh air is conveyed from machine into apartment, by a vertical tube fitted against the wall, or any

other convenient position in the room; the discharge outlet being about 5 ft. 6 in. from floor-line, AND PERFECTLY FREE FROM DRAUGHT. The mouthpiece of air-shaft is fitted with a regulator, by which the current may be directed at any desired angle, and provision is made for placing a moistened sponge in the tube through which the incoming air is forced, cleansing it from all dust, fog, etc. (It is expedient that the sponge be removed and cleansed each day, but this can only occupy a few moments.) A chamber is provided for ice to cool the air in summer, and a box can also be added for the introduction of disinfectants or medicinal substances.

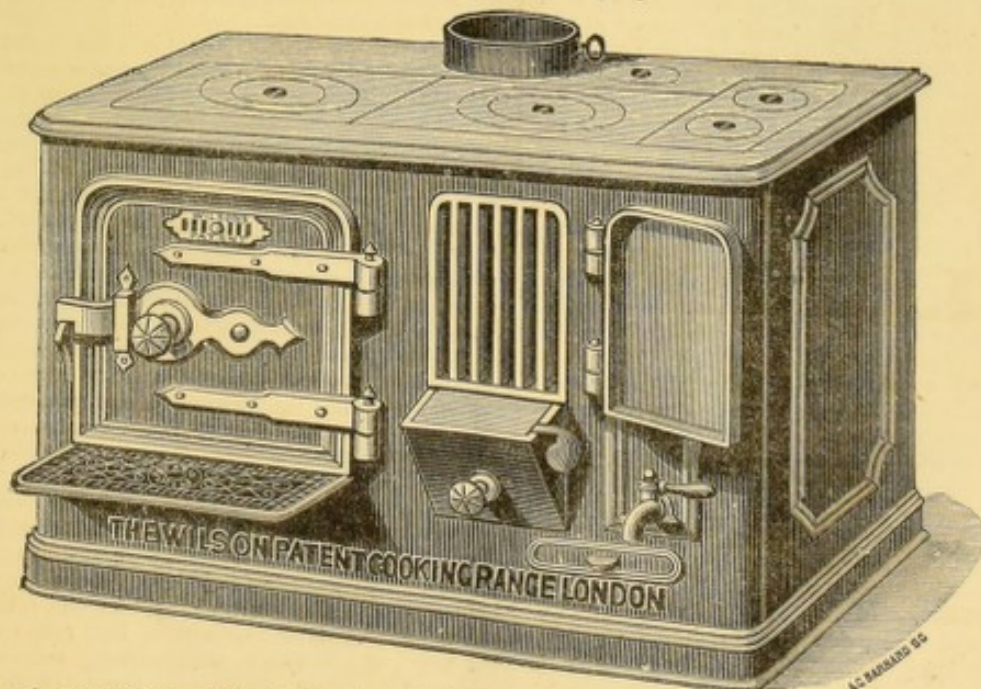
THE WILSON ENGINEERING COMPANY, 247, High Holborn, show several of their now popular Kitcheners and Cooking Ranges, in which the consumption of smoke is almost entirely carried out. We have on a previous occasion given a description of the Wilson invention in the *SANITARY RECORD*, and now append a half-sectional

fire door, is made to travel through flanged chambers, of which the fire-box B itself forms in every case one side; in this passage it is thoroughly heated, and meets the smoke and gases as they leave the fire-box, where the progress of the latter is somewhat arrested by means of a plate called a 'baffle' plate D. At this point the heated air and smoke, etc., mingle, producing almost perfect combustion before travelling round the flues surrounding the ovens and boilers. The range is therefore practically a smoke-consuming one, while but comparatively very little soot accumulates in the flues. To accommodate those persons who prefer to see an open fire in their ranges, the Company have recently introduced one embodying that feature, while retaining all the other advantages of their invention, as shown in the accompanying drawing. Another stove on a much larger scale has just been completed with high-pressure steaming-boiler, adapted for hotels, club houses, and the largest requirements in cooking.



elevation, showing the principle of the range. An air-valve regulates the fire, so that almost all the heat engendered is employed in the range, and but little passes up the chimney, thus rendering a fire in the latter almost, if

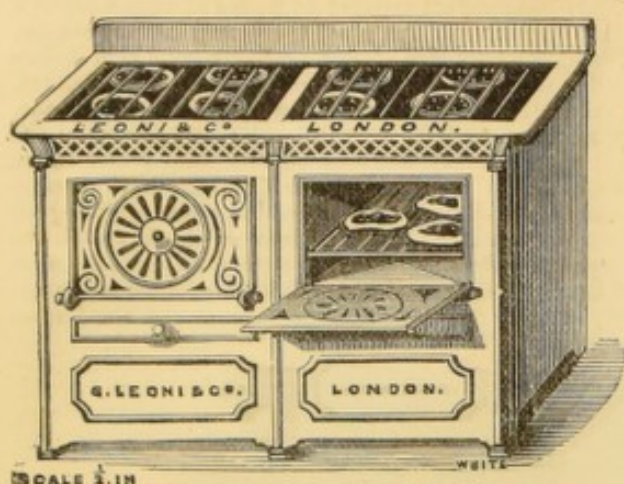
Mr. F. DYER, High Street, Camden Town, is present illustrating his system of heating by hot water, which has been explained in detail in the *SANITARY RECORD* for February 15, 1881.



not entirely, an impossibility. The combustion of the smoke and the noxious gases is ingeniously effected by means of intensely super-heated air. The cold air, in the first place, being admitted through a ventilator A in the

LEONI and Co., Limited, St. Paul's Street, New North Road, exhibit several of their Gas Family Cookers, a drawing of which we append. Mr. Leoni's productions in gas apparatus are too well known to need comment. We may

remark, however, that some important improvements have recently been made in them. Independent of the inside lining of thick fire-clay tiles, made and kilned on Messrs. Leoni's premises, with which all these cookers have always

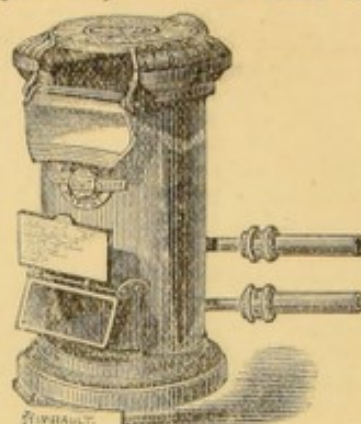


been provided, they are now being made with an outer casing filled with a non-conducting material which prevents the escape of heat; the outside metal walls are of galvanized iron to prevent rust. Two supply pipes of different diameter are now attached for the supply of gas. The larger one is intended to be used on first lighting, to get up the heat quickly. This can then be turned off, and the smaller one used for the remainder of the time. These cookers are remarkably strong and well made, and are admirably adapted for the requirements of a family. They are made in several sizes, to suit the number of inmates of a house, the larger ones containing additional advantages. Mr. Leoni also exhibits some new heating gas stoves of peculiar and novel construction. Amongst these will be found examples in which a combination of fire-clay and asbestos produce a most cheerful and pretty appearance, and the consumption of gas is very small, while the heat given off is very great. Another exhibit of considerable interest is a new patent gas boiler, for heating water for baths or general domestic purposes, by which about thirty gallons of water may be heated to 120 degrees Fahrenheit in twenty minutes, starting at a temperature of about 50 degrees.

Mr. WM. HELLIER, Duke Street, Grosvenor Square, whose name is well known in connection with one of the best instantaneous water-heaters of the day, which we fully described in the *SANITARY RECORD* for May 15, 1881, exhibits several examples of his Heater, and arrangements for Heating Buildings and Conservatories by its means, while retaining the advantage of having a supply of hot water at command for domestic purposes.

Messrs. PORTWAY and SON, Halstead, Essex, are present with a collection of their popular 'Tortoise' slow combustion stoves, which have been fully described by us in the *SANITARY RECORD* for February 15, 1881. These stoves are made in a variety of sizes, to be suitable for either the smallest apartment or for churches or public buildings. They are a strong, neat, and inexpensive stove; they will burn coke, cinders, or almost any refuse, and recent trials prove them to be admirably adapted for anthracite coal, making them entirely smokeless. They are lined entirely with Stourbridge tiles, which are really the only wearing parts, and these can be inserted when new ones are required without disturbing the stove. They are in consequence most simple in construction, and by a peculiar flue arrangement, should coke or bituminous coal be used, all sulphur fumes are carried off, rendering them perfectly safe and reliable for heating conservatories, etc. The cost of fuel is very small, and they will burn for many hours without the slightest attention. Medical testimony, in the possession of the makers, says they may be used in a bed-room without objection by persons suffering from asthma. The newest form in which these stoves have been introduced by Messrs. Portway, is as boiler stoves for heating coils, etc. The boiler is so placed as to be

exposed to the heat of the fire so long as any fuel remains. It has been practically tested and found to answer ad-



mirably. These stoves will be found especially useful in heating halls, whilst the adjoining apartments or conservatory can have a high temperature maintained by means of hot-water pipes connected with the boiler, without any additional cost for fuel or trouble in management. The advantages enumerated, in addition to the well-known power for burning long hours possessed by these stoves, prove them to be among the best and most economical heating appliances extant.

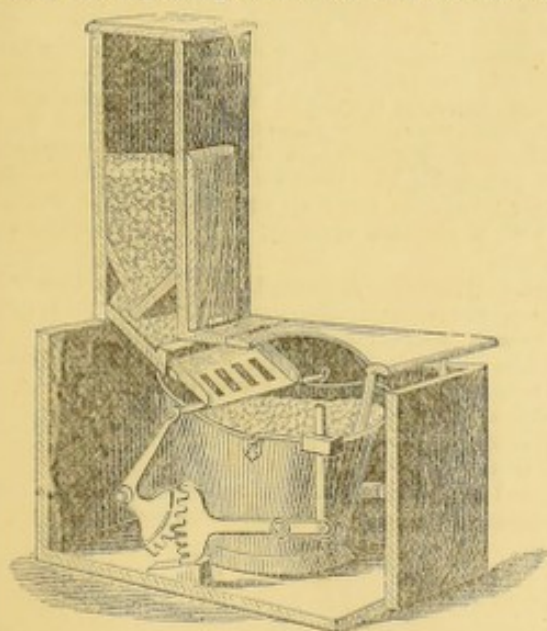
Messrs. J. L. BACON and Co., Upper Gloucester Place, W., exhibit a collection of Hot-Water Apparatus, and Mr. J. CONSTANTINE, Oxford Street, Manchester, shows a new Convuluted Stove.

The SUN-LIGHT COOKING STOVE COMPANY of Manchester, exhibit their cooking stoves bearing this name, and which we described on a former occasion. They are of the 'independent' class, requiring no setting, and may be placed in any part of the kitchen to suit the convenience of the user. They are compact, quick, and reliable in action, and for their small size capable of doing a great amount of work. Special utensils, economising space, and performing two or three operations in one (in the case of one of them), are provided, and the apparatus as a whole is a complete *multum in parvo*. By a recent arrangement a coil of water-pipe fixed on the top of the fire in connection with a cylinder, that may be fixed in any part of a house, secures the usual supply of hot-water for baths, etc., and as the boiler is dispensed with, prevents the accidents that often attend their use.

KOUMISS.—Under this title the AYLESBURY DAIRY CO., Limited, exhibits the well known preparation of milk to which this name has long been given. Koumiss has long been known to the medical profession, especially abroad, as a form of milk in which the albumen and casein are partially digested by the natural process of fermentation, while an abundance of carbonic acid is generated, which makes it sedative to the irritable stomach. There has hitherto been a considerable difficulty in obtaining Koumiss under such circumstances as should make it easily available at a low cost, and delivered from day to day free of charge at the house of the consumer. The Aylesbury Dairy Company have advantages for this purpose, as besides possessing an almost unlimited supply of pure milk, obtained from herds of which the sanitary condition is thoroughly superintended, they have also specially erected premises, covering a considerable extent of ground, and including every appliance for the reception, storage, cooling, and protection of milk, and have the necessary facilities for daily deliveries in all parts of London. For the manufacture of Koumiss they have the advantage of the continuous daily service of Dr. Vieth, of Schleswig-Holstein, a chemist who, before coming to this country to enter the service of the Aylesbury Dairy Company, had received a thorough training in Bunsen's Laboratory, and on the Experimental Dairy Farm of the Schleswig-Holstein Government, and for whose use they have erected extensive and beautifully fitted laboratories. The first step taken by the Aylesbury Dairy Company has been to reduce the price at which Koumiss is

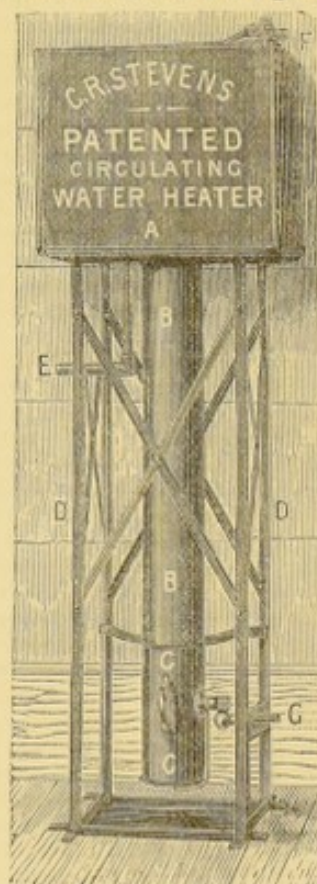
sold to one-half, and to deliver it daily free at the houses of the customer or patient. By the aid of their appliances, and their extensive laboratory, they are able also to secure the greatest care in the working of the Koumiss, and remarkable uniformity in quality; though the quality of Koumiss differs of course, it is well known, according to the stage of fermentation. Fresh Koumiss is particularly rich and delicious as a daily beverage, highly nutritious and digestible, and forms a drink in which the most fastidious palate delights, while the system easily assimilates it. It has in a considerable number of cases formed the sole diet of persons in acute disease, convalescence, and chronic conditions of delicate health, whose stomach rejected every other kind of food. Koumiss of a later date, that is to say, Koumiss which has been kept from four to ten days, naturally loses its sweetness; a greater portion of lactic acid is developed, and the drink becomes one somewhat different in flavour, more decidedly diuretic in its effects, and of a more distinctly medicinal quality. The medical man who orders Koumiss, when he requires Koumiss of advanced state, can state of how many days old he wishes it, and this requirement also can always be complied with. For the public generally, as an ordinary beverage, fresh Koumiss is a table luxury which has much to recommend it, and which is probably destined to considerable popularity, as it is both delicate in flavour, has the advantage of a refreshing creamy effervescence, and is in a high degree digestible, while it has unrivalled powers of nutrition.

The BRITISH SANITARY COMPANY, represented by Messrs. SHARPE & Co., Holborn Circus, exhibit the form of Earth Closet of which they are the Patentees. A reference to the illustration will explain the nature and working of this closet. A is the magazine for containing the dry earth or other deodorising material used; B and B¹ are the sustaining pieces to bear up the weight of the material, and also form the regulating orifice; C is a bevelled shelf,



which is lined with a metallic plate, and carries in front an iron frame or mouthpiece, through which the perforated shovel or spreader, D, travels. The action is communicated as follows:—When the closet is being used, the seat is depressed about an inch, forcing down the rods, E E, on each side of the seat, which raise the long and weighted end of the segmental toothed levers, G and G, which in turn throw back the long end of the lever, H. This *duplex action* is coupled by the cross-bar, J, to which is attached the shovel, D. This is then withdrawn to the back of the bevelled shelf, C, and receives the charge of earth, etc. When the seat is relieved, the weight of the levers brings out the shovel quickly, thus spreading the earth, etc., over the excreta. It is so arranged that the parts are easily accessible, and a door at the back is provided for removal.

Mr. C. R. STEVENS, Loampit Vale, Lewisham, S.E., shows a new patent apparatus, by which a combined mixture of steam and hot air, suitable for heating any description of building, from the smallest to the largest, is equably diffused by means of the ordinary coil of pipes, or is carried round the apartment, as circumstances may seem best. It is constructed to supply a great amount of heat with a small amount of fuel. The construction of the apparatus or heater is as follows:—A small quantity of water is kept supplied to the copper reservoir above the gas or lamp inside the iron casing, by a supply cistern with a ball valve to regulate the supply, or a self acting reservoir with stand, which is connected to the heater by a pipe, and when lighted the heat from the lamp, gas, coke, or coal causes the small quantity of water to be generated into steam, and the heat from the fuel, together with the steam, is driven through the under and back again along the top pipes, from which is carried a small pipe to the chimney, or outside of the building, to take off the particles of combustion. The heater can stand inside or outside the structure; there is no possibility of any particles of combustion entering the buildings or dwellings. The advantages of this apparatus are, that when heated by gas no smoke accrues; there is no danger from explosion, as there is no boiler to burst; and no trouble or attention is required but once a day, therefore a great saving of labour is effected. Mr. Stevens' arrangement is certainly novel, and appears as effective as it is novel, and the danger of having the hot air burned is entirely guarded against by the admixture of the steam.—Mr. Stevens' Circulating Water Heater, for supplying hot water to baths, and for general domestic purposes is simple and ingenious. By the accompanying drawing it will be observed that A is a galvanized tank for



holding hot water; B B, iron flue casing and copper boiler inside; C C, gas burner; D D, iron stand for supporting tank and boiler; E, outlet pipe from tank, for supplying water to any part of the house; F, cold water connection; G, gas connection. The gas is brought up through two concentric tubes, air being admitted through the opening of the inner tube, an atmospheric burner being thus formed. The apparatus is substantially constructed, the boiler being made of copper, and the casing of stove in stout sheet-iron. The circulating tank is supported on an angle-iron stand,

and the whole of the apparatus is connected together ready for fixing. It can therefore be fitted to a house by the builder, and cased in with wood, with a door in front for lighting the gas. It can stand on a landing, box room, etc., or any upper part of the house, from which position the draw-off pipes to bath, hand basins, or sinks can easily be taken. All are provided with an escape pipe for taking off the particles of combustion. $\frac{3}{4}$ or 1 in. pipe is required from the hot water tank to the bath and $\frac{1}{4}$ or $\frac{3}{8}$ pipe for the basins or sinks, or the apparatus can stand in the bath rooms or other convenient place and remain the property of the tenant. When the tank is covered with felt after turning out the gas at night, the water remains hot enough for the bath in the morning without any further expense. Cost of gas for a bath at 95 deg., $\frac{3}{4}$ d.; cold water taken at 50 deg. Time about 30 minutes. The gas can be kept burning all day at a cost of 4d. to 6d. per day, according to the amount of hot water required.

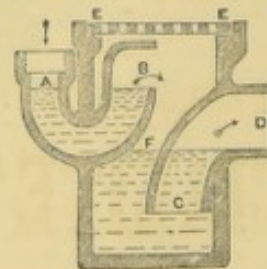
Mr. HENRY NEWMAN and Mr. S. J. NEWMAN, architects, Northampton, exhibit a map, showing a scheme for supplying London and other places in the Thames Valley with a good supply of water, of which the following is a description. It is proposed to collect the water from the highest portions of the Thames water-shed, whereby a good supply of pure water may be obtained comparatively free from the contaminations and impurities found in surface or river water, if taken or collected at low levels (as is done in too many cases). The blue line shows approximately the line of the conduit proposed to be at the level of 300 ft. above datum. This would collect the supply of water from numerous springs and streams all along its course. The conduit would be a tunnel kept at convenient depths below the surface save in some places where it would come to the surface of the ground. There would be regulating valves at most in-takes. The northern tunnel terminates at Chipping Barnet Common, on the north of London, and the southern tunnel, between Merstham and Gatton. From reservoirs at each of these points the water would be conveyed in iron pipes to suitable points for connection with the present pipes, so distributing the water by gravitation, throughout London and suburbs. The water would be forced up to the few parts higher than the conduit (such as Highgate, Barnet, etc.), by hydraulic rams and motors (such as those made by Bailey and Co., Salford) worked by the water flowing to lower parts, so entirely avoiding steam pumping. The map does not show all the details of the scheme; in some places the conduit would follow the contour of the ground more closely than there indicated. There would also be tributary conduits in certain places; also storage reservoirs for storm water, etc. In its completed form, provision would be made for the supply of every place requiring it within the Thames water-shed.

The SANITARY ENGINEERING & VENTILATION COMPANY, Victoria Street, Westminster, exhibit several of their specialities, foremost amongst which are their 'Imperial' Ventilating Tubes for the admission of fresh air without draught, and free from 'blacks' or dust. They are made in a variety of forms and sizes, and can be made quite ornamental in appearance. The most recent form in which these appliances are offered is as an ornamental bracket, having openings by which the air is admitted. Inside the bracket is an air-cleansing water-box, and in this, ice, scent, or disinfectants can be placed at pleasure; at the same time the bracket may be utilised for holding an ornament, etc. 'Weaver's' Exhaust Ventilators in several forms and sizes are also shown, as well as several others, and their 'Imperial' Aerating Filters for cisterns, etc. One of the great recommendations of these filters is, that every part of them is accessible for cleaning. The filtering medium employed is silicated carbon, both solid and granular. Arrangements are made for its aëration, so that water has not the flat and insipid taste when passed through it, which is sometimes found in filtered water, and special provision is made for effectually cleansing the carbon cake. As a portable filter, this apparatus appears to answer the necessary requirements as well as most now in the market.

The exhibit of Messrs. DOULTON and Co., of Lambeth, is of a varied character, and consists of the various articles

of stone, sanitary ware, terra-cotta, etc., interspersed with several specimens of fine hand-painted plaques, medallions, etc., as well as many examples of the celebrated Doulton ware in articles of domestic utility. Amongst the former class we may mention Terra-Cotta, red and buff hard burnt, showing the action of flame, and avoiding the even chalky appearance which gives such tameness to the work. Good terra-cotta should show the flush of the fire, it then has an appearance entirely its own, and cannot be mistaken. Imitations of stonework, or worse still of plaster, should be avoided in terra-cotta. Balusters, Bosses, and Tiles, in Doulton ware, for exterior or interior decoration, Imperishable Faience Tiles, as well as Doulton ware, being all hand-work. Doulton Ware Vases, Jardinieres, etc., etc. Stoneware Traps; Mansergh's; Latham's; Lovegrove's; Reversible; Interceptors and Grease Interceptors; Stoneware Sinks; Doulton's Patent Joint; Stanford's Patent Joint; Opercular Pipes; Irrigation System, are shown. We may particularly mention the No. 6 Lambeth Valve Closet, so arranged that it can at once be screwed down to the existing floor, and being self-contained requires only two joints, one to the supply-valve, and the other to the soil-pipe. By this means the cutting away of floors and trimming of joints are obviated, while the cranks, surface boxes, and similar complications, which, under existing circumstances oftentimes render the fixing of a closet more expensive than the closet itself, are entirely done away with. The Lambeth 'Trapless' Closet is also deserving of notice. The basin is made with a very sharp inclination to the outlet, and the flushing arm is so placed as to render it impossible for anything to be retained, and the general construction is such, that the usual complication of levers, both for the supply and discharge valves is dispensed with, as both are worked by the same spindle with direct action at each end, and a very small weight is sufficient to render the discharge-valve tight. No. 14, or the Lambeth Improved 'Flush-Out' Closet, is a simple, efficient, economical, and durable article, and it is fitted with a socket for inspection or ventilation. The object sought to be obtained in this closet, is to effectually drive the soil and paper from the basin, to get the greatest amount of water to remain in it, and at the same time to offer the least resistance to the action of the flush. There is a variety of Water-Waste Preventers, constructed on the best principles, high pressure ball-valves, bath-locking apparatus, lavatories fitted up with Doulton and Faience decorations, a skeleton lavatory, and Bailey Denton's and other filters.

MESSRS. JAMES STIFF & SONS, London Pottery, Lambeth, exhibit an interesting collection of Sanitary Stoneware, Water Filters, Medical and Chemical Apparatus in stoneware, Plain and Ornamental Architectural Terra Cotta in buff or red, Architectural Lambeth Majolica, and Adamant Terra Cotta Spandril Steps. From amongst the exhibits we select for illustration the New 'Weatherly' Disconnector Waste Water Trap (Registered), for completely disconnecting and trapping the waste pipes of sinks, baths, lavatories, cisterns, etc., from the house drains and public sewers.



The especial advantages of this trap are: perfect disconnection from house drain, easily cleansed syphon trap to waste-pipe, efficient and accessible grease trap, waste-pipe discharge concealed from view, open yard gully, strongly trapped, and prevention of splashing and overflow. The two water seals are entirely separate and at different levels; the curves are perfectly easy and syphon shaped. There are no diaphragms to intercept free passage of the soil, etc. Trap is all in one piece with broad strong foot, so that it cannot

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Hanbury's Nitrite of Amyl
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Extract from a letter on Sea-sickness to THE LANCET, Aug. 10th,
1878:—'I now always recommend patients to carry the drug in capsules,
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and their contents dropped upon a handkerchief as required.—CROCH-
LEY CLAPHAM.'

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Manufactured with great care from the finest
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it affords a perfect food, easily assimilated.
FOOD.

THE LANCET, July 24th, 1880: 'An improved form of Liebig's well-known food. It is excellent in quality and flavour.' See also the BRITISH MEDICAL JOURNAL, Oct. 16th, 1880, and the MEDICAL TIMES, Jan. 1st, 1881.

Sold only in Tins (Trade Mark—a Malt Kiln, with the word 'Malted' on the roof), at 1s., 2s., 5s., and 10s. each, by all Chemists and Italian Warehousemen.

TONGA 'Invaluable in facial neuralgia.'—
MED. PRESS & CIRCULAR, Dec. 29th, 1881.
See Papers in the LANCET of March 6th
and 20th, and May 29th, 1880, by Dr. Mur-
rell, Dr. Ringer, Dr. Lush,
and C. Bader, Esq., for the
record of numerous cases
of severe neuralgic pain
removed by the use of 'Tonga.'
FOR
NEURALGIA.

TONGA, unlike opium and other anodynes, produces its remarkable specific action on the nerves without giving rise to any derangement of the digestive or other organs. Dose—A teaspoonful thrice daily.

TONGA is sold only in bottles at 4s. 6d. and 11s. each, and may be obtained from Chemists throughout the world, or from us, the Sole Consignees and Manufacturers.

EXTRACTUM Is of the exact strength
of the British Pharma-
copœia preparation—
viz., one fluid ounce
equals one ounce of
ergot.
ERGOTÆ LIQ.
A. & H.

By the method of manufacture em-
ployed, the aroma of the fresh ergot is
perfectly preserved, and its medicinal
properties remain wholly unimpaired.

It is quite distinct from any preparation now in use, and A. & H.
will have much pleasure in sending samples free to any members of
the profession interested in this article.

Put up in one pound bottles at 4s. 6d. per pound, bottles included.

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GENERAL LIST OF DRUGS AND CHEMICALS FREE ON APPLICATION.

INTERNATIONAL MEDICAL EXHIBITION,

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QUEEN'S GATE ENTRANCE.

'AMERICAN IMPROVEMENTS IN PHARMACY.'

BURROUGHS, WELLCOME, & CO.,

Importers, Exporters, and Manufacturing Chemists,

SNOW HILL, LONDON.

We offer the following articles, which are recognised by the medical press and the leading members of the Medical Profession as being valuable improvements in Pharmacy, and which are now extensively prescribed in both hospital and private practice throughout the world. We offer no secret remedies. The composition of our productions has always been made known.

The special claims we make for the favour and patronage of Members of the Medical Profession are based upon quality of material and skill in manufacture.

These articles are prepared expressly for the use of practitioners and to be dispensed in prescriptions.

THE BURROUGHS HAZELINE.

ACTIVE PRINCIPLES DISTILLED FROM THE BARK OF WITCH HAZEL (*Hamamelis Virginica*, Linn.). A SUPERIOR SURGICAL DRESSING.

Hazeline is the most concentrated and efficacious product of the Hazel. EMINENT MEDICAL AUTHORITIES commend above any other remedy the use of *Hamamelis* in the treatment of Hæmorrhages, Inflammations, Contusions, Ulcerated Wounds, and Diseases of the Mucous Membrane.

Hazeline is colourless, possesses a peculiar pungent odour and slightly sweet astringent taste. Produces a most soothing and cooling effect when applied to irritated surfaces. It does not stain nor soil.

Dispensed in 4 oz. and 16 oz. bottles.

WYETH'S COMPRESSED SODA-MINT, OR NEUTRALISING TABLETS.

Each small Tablet contains Soda Bi-Carb., 4 grs.; Ammon. Carb., $\frac{1}{4}$ gr.; Ol. Ment. Pip., $\frac{1}{8}$ gtt. Elegant and agreeable form for administering this well-known and popular prescription for disturbed conditions of the stomach arising from acidity, such as Colic, Flatulence, Heartburn, Sick Headache, etc. Dispensed in bottles for 1s., 2s., and 3s. 6d. each. For Notes see back numbers of *British Medical Journal* and *Lancet*.

WYETH'S COMPRESSED TABLETS.

Chlorate of Potash, 5 grs.
Chlorate of Potash and Borax,
5 grs. (2½ grs. of each).

Potass. Bi-Carb., 5 grs.
Soda Bi-Carb., 5 grs.
Ammon. Chlor., 3, 5, and 10 grs.

These tablets are a great convenience in filling medicine chests for travellers.

"Excellent and reliable specimens of a distinct improvement in pharmacy."—*British Medical Journal*.

The *London Medical Record* says:—"Preparations of remarkable merit. They are infinitely superior to the ordinary Lozenge, being more compact, purer, and more soluble." May be sent by post.

For Notes and Reports, see back numbers of the *British Medical Journal*, also the *Lancet*, Feb. 26th and March 5th.

THE BURROUGHS

BEEF & IRON WINE.

A highly concentrated strength-giving nutriment for Invalids. Prepared from the finest Beef, with Iron in a pure medicated wine. Is prescribed with much benefit in cases where neither Wine, Iron, nor Beef can be tolerated separately or in any other form.

The *Lancet* says:—"This is a really valuable preparation."

For Notes and particulars, see *British Medical Journal*, April 16th.

Dispensed in 10 oz. and 20 oz. Bottles.

LAWTON'S ABSORBENT COTTON FOR SURGICAL AND DENTAL USE.

Mr. THOMAS BRYANT writes:—"One of the most valuable introductions into surgical practice of the present period."

Medical Times and Gazette says:—"An admirably prepared article. It is exquisitely soft and fine. In consequence of its being perfectly cleansed from all impurities, it is so absorbent that when a wad of it is dropped into water it immediately becomes soaked through. Valuable to surgeons and gynaecologists for taking up discharges or applying medicated solutions."

Is put up in neat packages of 2 oz., 4 oz., and 1 lb. each.

WYETH'S DIALYSED IRON.

(WITH DROPPER.)

A pure Neutral Solution of Peroxide of Iron in the Colloid form; each fluid oz. contains 27.68 grs.

(R. FER. WYETH, 3 fluid oz. with Dropper.)

Mr. THOMAS BRYANT writes:—"I consider Wyeth's Iron the best, and always prescribe it."

Does not injure nor cause any discoloration of the Teeth.

Dispensed with Dropper.

BURROUGHS, WELLCOME, & CO., SNOW HILL, LONDON.

'McK. & R.' THE CAPSULED. PILLS.

Originated by McKESSON & ROBBINS, Manufacturing Chemists, New York.

Trade Mark Registered. The Profession and Trade are warned against imitations.

PECULIAR MERITS OF THE 'McK. & R.' PILLS.

THE covering entirely disguises the taste, and, because of the ovoid form, they are easily taken by persons who cannot swallow round Pills—even when coated with sugar.

The Pills are perfectly sealed by a complete envelope of pure transparent gelatine—applied while the mass is soft—protecting all delicate substances from the oxidising influences of the atmosphere, and keeping the Pills in a perfectly soluble condition. The capsule dissolves very quickly when placed in the mouth. They are not subjected to that injurious application of heat, which so greatly impairs the ordinary coated Pills.

LIST OF FORMULÆ of the British Pharmacopœia and other Standard authorities.

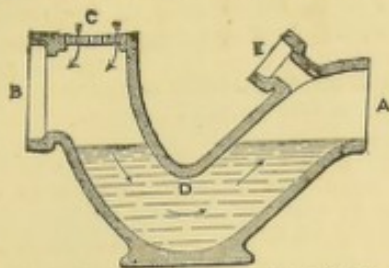
Purest Quality and Exactness in Composition can be relied upon with confidence by the Profession. The dash denotes fractions, as 1-2 for half.

Acid Salicylic (see Salicylic Acid.)	Colocynth Comp. and Hydrarg. 5 gr.	Pepsin , Pure, Concentrated, - 1 gr.
Aloes, Barb. B.P. - 5 gr.	{ Pil. Coloc. Comp., 3 gr.	Each Pill equal in digestive properties to
{ Aloes, Barb., Pulv., 2 1-2 gr., Conf. Rosæ,	{ Pil. Hydrarg., 2 gr.	5 gr. Pepsine B.P.
{ 1 1-4 gr.	Colocynth & Hyoscyamus, B.P. 5 gr.	Phosphorus, 1-30, 1-50, & 1-100 gr.
{ Saponis, Pulv., 1 1-4 gr. Ol. Carui.	{ Pil. Coloc. Comp., 3 1-3 gr.	Phosphorus and Iron.
Aloes, Dilute (Dr. Hall's Dinner Pill) 4 gr.	{ Ext. Hyoscy., 1 2-3 gr.	{ Phosphor. Pur., 1-50 gr.
{ Aloes, Barb. Pulv. Ext. Glycyrrh.	Conii Comp., B.P. - 5 gr.	{ Ferri Redact., 2 gr.
{ Saponis, Pulv., Theriacæ, aa, 1 gr.	{ Ext. Conii, 4 1-6 gr., Theriacæ	Phosphorus and Nux Vomica.
Aloes, Socotrine, B.P. - 5 gr.	{ Ipecac., Pulv., gr. 5-6	{ Phosphor. Pur., 1-50 gr.
{ Aloes, Soc., Pulv., 2 1-2 gr., Conf. Rosæ,	Copaiba and Cubebs - 5 gr.	{ Ext. Nuc. Vom., 1-4 gr.
{ 1 1-4 gr.	{ Pil. Copaiba, 3 gr.	Phosphorus, Nux Vomica, and Iron.
{ Saponis, Pulv., 1 1-4 gr. Ol. Myristicæ.	{ Oleo Resinæ Cubebs., 2 gr.	{ Phosphor. Pur., 1-50 gr.
Aloes and Assafoetida, B.P. 5 gr.	Digitalin (Pure Crystal) - 1-60 gr.	{ Ext. Nuc. Vom., 1-4 gr.
{ Aloes Soc. Pulv., Pulv. Saponis	Dinner Pill , Dr. Hall's (see Aloes Dilute).	{ Ferri Carb., 1 gr.
{ Assafoetida, Rosæ Conf., aa 1 1-4 gr.	Dover's Powder , (see Ipecac. Comp.) 5 gr.	Phosphorus and Quinia.
Aloes and Iron, B.P. - 5 gr.	Ext. Colocynth Comp., B.P. - 5 gr.	{ Phosphor. Pur., 1-50 gr.
{ Aloes, Barb. Pulv. 1 gr. Ferri Sulph. 3-4 gr.	{ Coloc. Pulvæ, 1 1-5 gr., Saponis Pulv.,	{ Quinæ Sulph., 1 gr.
{ Pulv. Cinnam. Co., 1 1-2 gr.; Conf. Rosæ,	{ 3-5 grs.	Phosphorus and Valer. Zinc.
{ 1 3-4 gr.	{ Ext. Aloes Soc., 2 2-5 gr., Cardam. Sem.,	{ Phos. Pur., 1-50 gr.
Aloes and Myrrh, B.P. - 3 gr.	{ 1-5 gr.	{ Zinci Valer., 1 gr.
{ Aloes, Soc., 1 gr., Croci 1-4 gr.,	Ergotin - 3 gr.	Plumbi et Opio, B.P. - 5 gr.
{ Myrrhæ, 1-2 gr., Conf. Rosæ, 1 1-4 gr.	Each Pill contains the active principles of	{ Plumbi Acet., 3 3-4 gr., Confect. Rosæ,
Aloes and Myrrh, B.P. - 5 gr.	30 grains Ergot of Rye, or 30 minims of the	{ 5-8 gr.
{ Aloes, Soc., 1 2-3 gr. Croci, 5-12 gr.	Liquid or Fluid Extract.	{ Pulv. Opii, 5-8 gr.
{ Myrrhæ, 5-6 gr. Conf. Rosæ, 2 1-12 grs.	Ferri Carb., B.P. - 5 gr.	Plummer's (see Hydrarg. Subchlor. Co.)
Alternative (see Calomel Co., B.P.)	{ Ferri Carb. Sacch., 4 gr.	Podophyllin - 1-4 & 1-2 gr.
Anti-Bilious (see Cathartic Comp. U.S.P.)	{ Conf. Rosæ, 1 gr.	Podophyllin Comp.
Anti-Malarial (see Quinia Comp.)	Ferri et Quinæ Cit. - 2 gr.	{ Podoph. Res., 1-2 gr.
Aperient (see Podoph. Comp.)	{ Ferri Cit., 1 1-2 gr.	{ Ext. Coloc. Co., 2 gr.
Arsenious Acid , - 1-50 gr.	{ Quinæ Cit., 1-2 gr.	{ Ext. Hyoscy., 1 gr.
Great care is exercised to insure exact quantity	Ferrum Redactum - 1 gr.	Purgative (see Cathartic Comp. U.S.P.)
in each	Hydrarg. B.P. (Blue Mass) 1, 2, 3, & 5 gr.	Quinia, Bi-Sulph. 1-4, 1-2, 1, 2, 3,
Assafoetida Comp., B.P. 5 gr.	Hydrarg., Colocynth & Hyoscyamus.	4, & 5 gr.
{ Assafoetidæ, Galbani, aa 1 3-7 gr.,	{ Pil. Hydrarg. 1 gr.	Quinia, Bi-Sulph. (Soluble Sulphate) dis-
{ Myrrhæ, 1 3-7 gr., Theriacæ, 5-7 gr.	{ Ext. Coloc. Co., 3 gr.	solves in 10 parts of Water, while it requires
Blue Pill (see Hydrarg.)	{ Ext. Hyoscy. 1 gr.	700 parts of Water to dissolve the Ordinary
Calci Sulphid. - 1-4 & 1-2 gr.	Hydrarg. Iod. Rub. - 1-16 gr.	Sulphate of Quinine.
Calomel, Coloc., and Hyoscyamus.	Hydrarg. Iod. Vir. - 1-4 gr.	Quinia Comp. (Anti-Malarial.)
{ Hyd., Subchlor., 1 gr.	The Proto-Iodide is freshly prepared, and	{ Quinæ Sulph. Acid. Carbolic
{ Ext. Coloc. Co., 3 gr.	is perfectly preserved from oxidation by the	{ Cinchonid. Sulph. aa, 1 gr. Mentha
{ Ext. Hyoscy., 1 gr.	capsule covering.	{ Camphor, aa, 1-8 gr.
Calomel Comp., B.P. (Plummer's) 5 gr.	Hydrarg. Subchlor. Comp. B.P., 5 gr.	{ Acid. Arsenios, 1-40 gr. Capsici Pulv.,
{ Hyd., Subchlor., Res. Guaiac. Pulv. 2 1-4 gr.	(See Calomel Comp.)	{ 1-4 gr.
{ Antim. Sulph., aa, 1 1-8 gr. Ol. Ricini.	Hydrastis (White Alkaloid) - 1-2 gr.	This Pill is largely prescribed in the most
Calomel and Opium	Representing the tonic properties of Hy-	severe malarial districts of America with re-
{ Hyd. Subchlor., 2 1-2 gr.	drastis Canadensis.	markable results.
{ Opii Pulv., 1 gr.	Ipecac. Comp. Pulv. (Ipecac. & Opium)	Rhei Comp. B.P. - 5 gr.
Camphor, Monobromide - 2 gr.	5 gr.	{ Rhei Pulv., 1 1-4 gr., Myrrhæ Pulv., 5-8 gr.
An elegant form for administering this salt.	An agreeable medium for exhibiting this	{ Aloes Soc. Pulv., 1 gr., Theriacæ, 1-2 gr.
Monobromide of Camphor is very difficult to	exceedingly nauseous compound.	{ Saponis Pulv., 5-8 gr., Ol. Menth. Pip.
dispense in solution.	Ipecac. and Squills, B.P., 5 gr.	Rhei Comp. et Hydrarg.
Cathartic Comp., U.S.P. (Purgative)	{ Ipecac. Co. Pulv., 3 gr., Ammoniac.	{ Pil. Rhei Comp., 3 gr.
{ Ext. Jalapæ Pulv., Ext. Coloc. Co. Pulv.,	{ Pulv., 1 gr.	{ Pil. Hydrarg., 3 gr.
{ 1 1-3 gr.	{ Scillæ Pulv., 1 gr. Theriacæ	Rheumatic (see Salicylic Acid Comp.)
{ Hyd. Subchlor., aa, 1 gr. Gambogiæ	Iodoform - 1 gr.	Salicylic Acid - 2 & 5 gr.
{ Pulv., 1-4 gr.	Iron and Compounds (see Ferri.)	Salicylic Acid Comp. (Rheumatic.)
A very popular prescription. Dose—one	Laxative Vegetable (Improved Cathartic)	{ Acid. Salicylic 5 gr.
to three.	{ Res. Podoph., Ext. Coloc. Co. Pulv.,	{ Morphia Hydrochlor. 1-8 gr.
Cathartic, Vegetable. —Improved Cath.	{ 1 gr.	Saponis Comp., B.P. (Pil. Opii) 5 gr.
(See Laxative Veg.)	{ Ext. Hyoscy., Jalapæ Pulv.,	{ Opii Pulv., 1 gr.
Colocynth Comp., B.P. - 4 gr.	{ Ext. Tarax., aa, 1-4 gr. Res. Leptand.,	{ Saponis Pulv., 4 gr.
{ Coloc. Pulvæ Pulv., 4-5 gr.	{ aa, 1-2 gr.	Squills Comp., B.P. - 5 gr.
{ Aloes, Barb. Pulv., Potass. Sulph.,	{ Ol. Menth. Pip.	{ Scillæ Pulv., 1 gr. Ammoniac. Pulv.
{ Scammon., Pulv., aa, 1 3-5 gr., Ol. Caryoph.	Dose—one to three.	{ Zingiber. Pulv., aa, 4-5 gr. Saponis Pulv.,
Colocynth Comp., B.P. - 5 gr.	Lead and Opium. (See Plumbi)	{ aa, 4-5 gr.
{ Coloc. Pulvæ Pulv., 1 gr., Potass. Sulph.,	Liver Pill (see Cath. Co., U.S.P.)	{ Theriacæ, 1 3-5 gr.
{ Aloes, Barb. Pulv.	Mercury (see Hydrarg.)	Strychnia - 1-50 gr.
{ Scammon., Pulv., aa, 2 gr.	Morphia, Hydrochlor., 1-8 & 1-4 gr.	We use great care to insure exact quantity
Colocynth Comp. and Calomel 5 gr.	Neuralgia (see Phosphorus & Combinations).	in each.
{ Ext. Coloc. Co., 4 gr.	Opium (see Soap Comp.)	Zinc, Valerianate - 1 gr.
{ Hyd., Subchlor., 1 gr.		Zinc, Phosphide - 1-4 & 1-2 gr.

We would recommend practitioners to prescribe these Pills in original Bottles of 100 each, whenever convenient so to do.

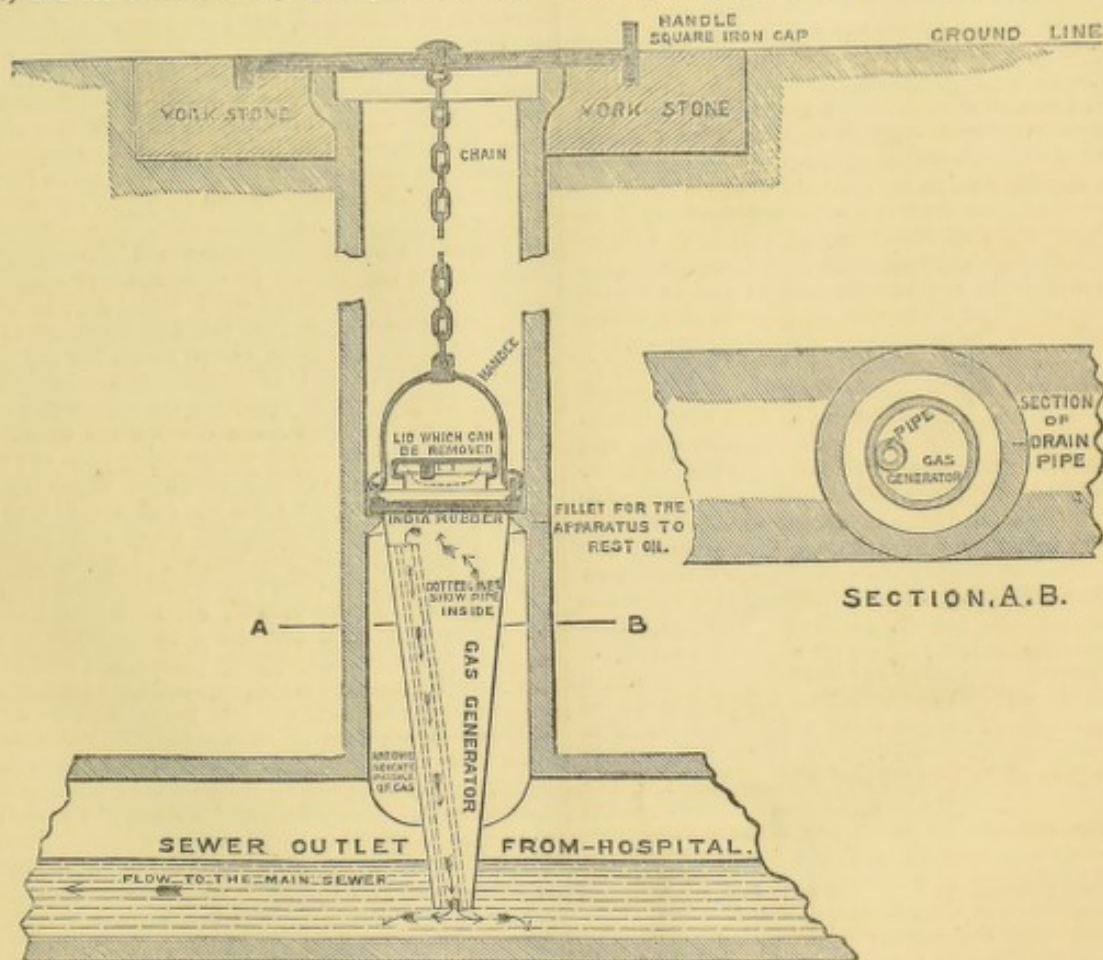
PRIVATE FORMULÆ.—Private Formulæ of 3,000 or more Pills prepared to Order.

be set out of position. This trap is invented to carry out in drainage traps the principle of disconnection already applied to sinks, etc., by the 'Weatherly Disconnector Waste Water Trap', and is very economical in price. Weaver's Ventilating Sewer-Air Trap is also worthy of remark. It



has been awarded a certificate of merit by the Sanitary Institute of Great Britain, and has been highly commended by many medical officers and sanitary engineers. Soper's Hospital Drain Disinfector is another sanitary invention of considerable merit, and besides the use we illustrate, it is also applicable for portable uses, such as ambulances, manure heaps, etc., and for steamers carrying large numbers of

ordinary drain-pipe, and at the socket end of each is a plain saddle-shaped cap, fitting into a corresponding opening in the pipe. By this means examinations or junctions may be made at any time without let or hindrance to the performance of the functions of the drain, and no overflow of sewage will take place during the execution of such works; neither is the gradient in any way disturbed. This is worthy of especial attention, as, in the usual manner of making connections, a hole is either knocked in the side of the pipe for the insertion of the end of the intended subsidiary drain, or several pipes are displaced to allow a junction to be put in, during which operations the sewage escapes into the open trench. The latter method is almost as objectionable as the former, inasmuch as the work cannot be performed without chipping the ends of the pipes, thereby causing short bearings and imperfect joints. It is an acknowledged fact that a line of sewer once disturbed for this purpose, cannot be again thoroughly restored. By the removal of the plain cap at the socket end of the pipe, and by substituting a junction cap in lieu thereof, a connection for a subsidiary drain is most simply and effectually made. The caps, being flanged all round, afford opportunities for stopping and making these, as well as the socket joints, sound and tight.



passengers. Our illustration represents it as arranged for the complete disinfection of hospital sewage before its junction with the public sewers, accomplished by the continuous generation of chlorine gas in immediate contact with the sewage matter. By this invention the mephitic air in hospital drains is disinfected as completely as the sewage matter, and it is manufactured to suit drains of all sizes. This invention is in constant use at Stockwell Small-Pox and Fever Hospitals and elsewhere. For the remainder of Messrs. Stiff's exhibits we must refer our readers to the catalogues of the firm distributed from their stand.

Messrs. THOMAS SMITH & Co., Canal Potteries, Old Kent Road, have a good collection of Sanitary Stoneware, comprising most articles usually classified under that head. One of the principal features in the exhibit is Herbert J. Jones's Patent Drain Pipes, the principal advantages of which are, that they are made 2 ft. 6 in. longer than the

When the drain is first laid, the apertures for the caps offer every facility for making the internal joints smooth and perfect, and these need not be again disturbed.

The SILBER LIGHT COMPANY, Whitecross Street, E.C., have a collection of their lamps for burning mineral oil, with the well-known patent burners of Mr. Silber, which have been described on a previous occasion in the SANITARY RECORD. A number of improved gas burners of Mr. Silber's invention are also shown, as well as a new stove for burning mineral oil, constructed on new and interesting principles.

Messrs. J. and M. CRAIG, of Kilmarnock, who are represented by their London agents, Messrs. John Finch and Co., Buckingham Street, Strand, exhibit a collection of their specialities in drain-pipes, tiles, bricks, etc., including Buchan's Patent Drain-pipes and fittings, Buchan's Grease Traps, and the Improved Drain-pipes of the same

inventor, that are too well-known to require further comment. There are some good examples of white and coloured glazed bricks, and a variety of other articles of a kindred character, and Messrs. Finch and Co., show a very handsome porcelain bath and fittings, etc., with which their name has become so intimately connected.

Messrs. STRODE & Co., Osnaburg Street, N.W., in a tastefully fitted erection, exhibit some high-class examples of London made Gas-fittings and other brass work, including their well-known Sun-burners. They also show an improved Bath Heater of simple construction, capable of providing a bath at 110° in half an hour. This Bath and Heater can be placed for use in any room to which a supply of cold water can be conducted; any existing cistern, as long as it is at a higher level than the top of the heater, can be made available. The only other requisites are a gas pipe for the supply of the burner, and a waste-pipe for emptying the bath. The advantages of this system are portability, simplicity, and cleanliness. The water runs through the heater without coming in contact with the products of combustion of the gas, and any required quantity of pure hot-water can be obtained, from a single quart (boiling) in a few minutes, to a bathful (110°) in half an hour.

THE PORTABLE GAS APPARATUS COMPANY, 47, Millbank Street, Westminster, S.W., exhibit their Portable Gas Machines, for making gas from mineral oils. They are simple, effectual, and safe, stronger, give a great pressure, make gas of a high and uniform quality, give a steady flame, deliver a large amount of light for the rating, occupy small space, require no lubrication, and are said to be less liable to require repairs than any other gas machine in the market. There is no clockwork arrangement in a tin or sheet-iron casing, which, when out of order, would require skilled workmen from the manufactory to put in repair. The only moveable part about the machine is an ordinary steam regulating cock, which can be seen while the apparatus is working, and is not at all likely to require any repairs. They are made entirely of cast-iron, copper, and brass, neither tin, soft metal, nor solder being used in their construction. Being in every way perfectly self-acting and self-supplying, and the production of the gas regulated by the consumption; requiring no attention whatever after they are started (which does not occupy more than a few minutes), there is not the slightest danger in working, and a servant of ordinary intelligence can manage them. Neither gas-holder nor purifiers are required, and all waste refuse and nuisance is entirely avoided. The gas manufactured by this apparatus is suitable for all purposes to which coal gas is applied. It is obtained from gasoline (a perfectly pure hydro-carbon liquid) by the aid of heat generated by the machine itself. The gas does not deteriorate after working the machine any length of time, it is of great purity, and does not give off in burning any of the sulphur or ammoniacal impurities so injurious to pictures and decorations; neither does it consume so much oxygen from the atmosphere as the ordinary coal gas, and is made without nuisance or trouble, and at a comparatively small cost.

Messrs. J. WEEKS & Co., King's Road, Chelsea, show their Warming and Ventilating Appliances that can be adapted to any character of building. This coil, which is for use in connection with any ordinary hot-water apparatus, may be described as follows:—It is in appearance like an ordinary hot-water coil, except that the pipes are vertical instead of horizontal. It consists of upper and lower water-chambers connected by vertical pipes. Through the centre of each hot-water pipe runs a smaller air pipe, open at the two ends, so as to admit cold air from the outside, warm it as it passes through the hot-water tubes, and discharge it thoroughly warmed into the room or building. At the top, the air-pipes are continued about one-and-a-half inches into a chamber, the open top of which is covered by an ornamental iron grating. The lower box or chamber is connected by a zinc tube or other channel with the external air. It has also flaps or doors for opening into the house or room. The effect of this arrangement is, that when the apparatus is in operation, the heated external surface of the coil (or part seen) warms the air of the room in the ordi-

nary way; but while this is going on, the air in the small inner pipe becomes rapidly hot, and naturally rises quickly into the chamber, and thence through the grating into the house, drawing in its course a constant current of fresh air from the outside, which in its turn passes through the coil, and becomes warm before entering the room. By this means from 900 to over 2,000 cubic feet of warm fresh air, are introduced into the room by a coil of the size exhibited, in proportion as the temperature of the water in the apparatus varies from 120° to 165°. By means of the upper chamber, before mentioned, the air can be admitted dry, or rendered moist, at pleasure. This coil can be fixed to any existing hot-water apparatus. One of the chief merits of this invention is, that there are no tortuous channels, no fans or machinery for forcing in air in defiance of the laws of nature, as is generally the case in ventilators. This coil is admirably adapted for schools, churches, hospitals, prisons, halls, staircases, in fact all classes of buildings, whether public or domestic. It supplies a long-felt want, viz., a simple and satisfactory method of introducing warm air into buildings without draught.

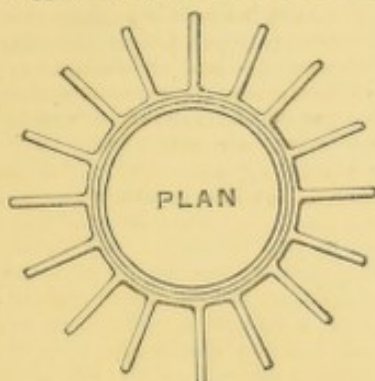
Mr. ROBERT RENTON GIBBS, of Liverpool, displays his system of Hot-Water Heating Apparatus, effected by a boiler in the basement, and coils conducted throughout the building.

Messrs. MUSGRAVE & Co., Limited, of New Bond Street and Belfast, have a handsome collection of their Patent Slow Combustion Grates and Air Warmers, which have been before the Public for some time. They are adapted for every variety of room, as well as for factories, workshops, or cellars. Some of them are of most elaborate construction, and ornamented with tiles, etc. They also exhibit a new Smokeless Stove Grate called the Ulster. The grate is very similar in appearance to a well-designed register stove grate of the usual make, and, in addition, it is provided with a chamber for holding fresh fuel, which replenishes the fire as it burns away, but cannot become ignited until it reaches its proper position in the fire-place. When the grate is in operation the supply of fresh coal is gradually parting with those constituents which form the heavy black smoke so often seen rising from our chimneys, and these highly valuable products, which in ordinary grates escape into the chimney and are lost, are in this grate retained by intercepting traps and made to pass through the burning fuel, and are thus consumed, adding immensely to the heating power and brilliancy of the fire.

THOMAS WALLER & Co., 47, Fish Street Hill, E.C., exhibit several good and useful apparatus, one of which is their Patent Cooking Stove, constructed with one or two boilers and ovens for supplying steam for cooking purposes and hot water for bath, scullery, hot linen closet, etc. When a house is required to be warmed, T. Waller & Co. fix their patent warm air generator at back of the stove in the space usually occupied by brickwork in forming the flues, by this means the whole house is warmed by one fire. As a kitchen range is used all the year round, being lighted first in the morning and kept alight the last in the evening, it will be seen that this is the simplest and cheapest plan of warming the house, the first being the only cost. Warm air ventilators are fixed so as to turn the warm air on when required. A current of warm air can thus be supplied day and night, keeping the house always warm. Another useful invention shown by the firm is their Patent Fire-Contracting Stove, by which the fire can be increased or diminished at pleasure, without the least trouble or delay, by one of the most simple contrivances possible, viz.:—the ordinary poker; by this simple invention, all those unsightly contrivances made use of to lessen the fire-place, such as false backs, false bottoms, false cheeks, fire-balls, and fire-baskets, are entirely superseded. This is effected by means of sliding cheeks protected by an iron box, so that they cannot be disarranged by the bricklayer in fixing. They exhibit, in addition, their Patent Ventilating Apparatus, the object of which is to thoroughly ventilate water-closets. It prevents the entry of sewage gas and other offensive smells into the dwelling through the water-closet. By fixing a tube or duct at the back of the water-closet, with an open mouth extending above and below the seat, the sewage

gas, which enters the closet through defective joints in soil-pipes or syphon-pipes (which frequently become dry) is entirely carried away by the ventilating shaft, through and above the roof of the house. The flap, or cover, being fixed on an incline, acts in the same manner as a blower to a fire-place. This ventilator is equally suitable for hospitals and sick rooms, by connecting the ventilating tube with the chimney or fire-place.

The THAMES BANK IRON COMPANY, Upper Ground Street, Blackfriars, S.E., have an excellent display of various kinds of Hot-Water Apparatus, including Pipes, Coils, Connections, Boilers, etc. One of the most notable features in this Exhibit is their Improved 'Base-Burner Gill Stove'. We append three illustrations of this stove, show-



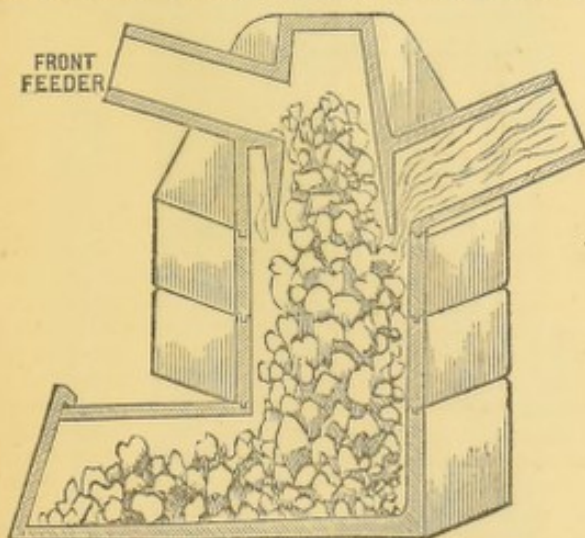
Ring Segment.

ing plan and ring segment, elevation, and sectional elevation. By a simple arrangement of casting it is built up in



Elevation.

segments (three or more according to required power of stove), each fitting in a perfectly air-tight joint. The castings supporting each other from the base upward require



Sectional Elevation.

no bolts, and are free to expand, when heated, without injury to the stove. The heating surface of the gills is very great; a 12 inch stove, 3 feet 6 inches high, containing 50 superficial feet, and the gills being vertical on the body of the stove, give off the heat very rapidly, and being so placed they intersect and the more readily diffuse the current of heated air passing through them. The smoke flue can be carried off in any direction to suit the convenience in setting, and the opening into smoke flue is protected by an internal flange. This flange also prevents combustion

higher than the opening of smoke flue; and the top casting being elongated forms a reservoir, supplying fuel as that under is consumed. The stove is fed from the top or the front as may be required—simply throwing in the fuel to fill it, and there is no danger of choking the smoke flue, or interfering with the working of the stove. No fire-bars or dead-plates are required, the fire burning on a plain base, the ashes being easily removed through a nozzle in the base-piece, having a sliding door fitted, and by this, and with a damper in smoke flue, the draught is regulated. When properly set the liability to burn the air through inattention is reduced to a minimum, inasmuch as the greater the heat of the surface of gills so much the more rapidly is the air impelled through the stove, and the area of gills exceeding that of the fire-box—in the proportion of nine to one—it will at once be seen that the temperature of burning fuel is rapidly reduced, and given off into the building. Freedom from all fire hazard is a valuable feature of this system, and a further recommendation is its very moderate price. The Company also show an Independent Vertical Steam Boiler, made of the best Staffordshire plates, 42 inches by 24 inches, with 5 inch cross tubes in the fire-box, well made and fitted, at a remarkably low price. There is a new Slow-Combustion Stove, with some very meritorious points, and considerable economy in burning; and tubular, and saddle boilers, etc. In addition to these a new cast iron Ornamental Skirting for hot-water pipes is exhibited, which will prove an addition to the appearance of any room. One of the most recent establishments fitted with this arrangement is the United Arts Gallery, New Bond Street.

Mr. HARRY HUNT, of 117, Newington Green Road, London, N., exhibits the celebrated Crown Jewel Base Burner Warming Stove, specially constructed for burning anthracite coal, coke, and other smokeless fuels.

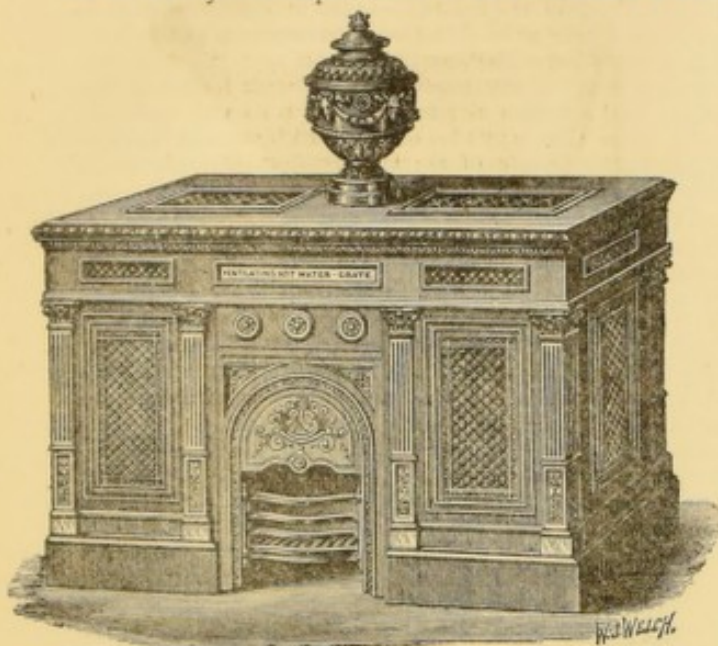
This stove is now made with improved arrangement for admitting pure warmed air, also a ventilator fixed in the chimney, to take off the over-heated or vitiated air, by these means rendering it a purely sanitary stove, and one that can be recommended for maintaining equal temperature in dwelling-houses. If placed in the hall it will warm the house throughout to any required temperature, night and day through the winter, as it burns continuously, and only requires feeding about every twelve hours with fuel. The Crown Jewel is the only stove hitherto produced that efficiently and economically burns the anthracite smokeless coal. One of these

stoves, with about twenty-five pounds weight of coal, will warm a building, containing about 20,000 cubic feet, to a temperature of 65 degrees in winter weather for twenty-four hours, which cannot be done with five times the weight of bituminous coal burnt in ordinary grates. This stove is elegant and cheerful in appearance; the grate is enclosed with talc windows, which admit of the fire being seen burning. The parts in contact with the fire are made of a superior kind of iron, that will stand the continuous intense heat of the anthracite coal. These stoves are now being made in all sizes to meet all requirements.

Mr. GRIFFIN, 69, Fenchurch Street, exhibits his Patent Ventilating, Heating, and Smoke-Consuming Register Stove, constructed to burn coal, coke, or anthracite, and which can be applied to any style or design. An air-chamber is formed by covering in the recess behind the grate with an iron plate; fresh air is introduced into it, which takes up all the heat radiated, and passes warmed into the room through a ventilator, rises to the ceiling, thence descends to the fire, and passes into a separate air-chamber, becomes superheated, and is delivered in jets into, around, and over the fire, and enters the pipe into the chimney. Perfect ventilation is effected by the continuous

circulation and renewal of a larger volume of fresh air than any other grate, warmed (not superheated) before entering the room. It can, if desired, be employed to medically fumigate or disinfect an apartment, which can be kept at an equal temperature throughout. There is a more economical consumption of fuel, the smoke is consumed to a minimum; further, a smoky chimney becomes an impossibility. The glowing heat, and bright and cheerful appearance of the fire, is a special recommendation, as it produces the greatest amount of radiation it is possible to effect.

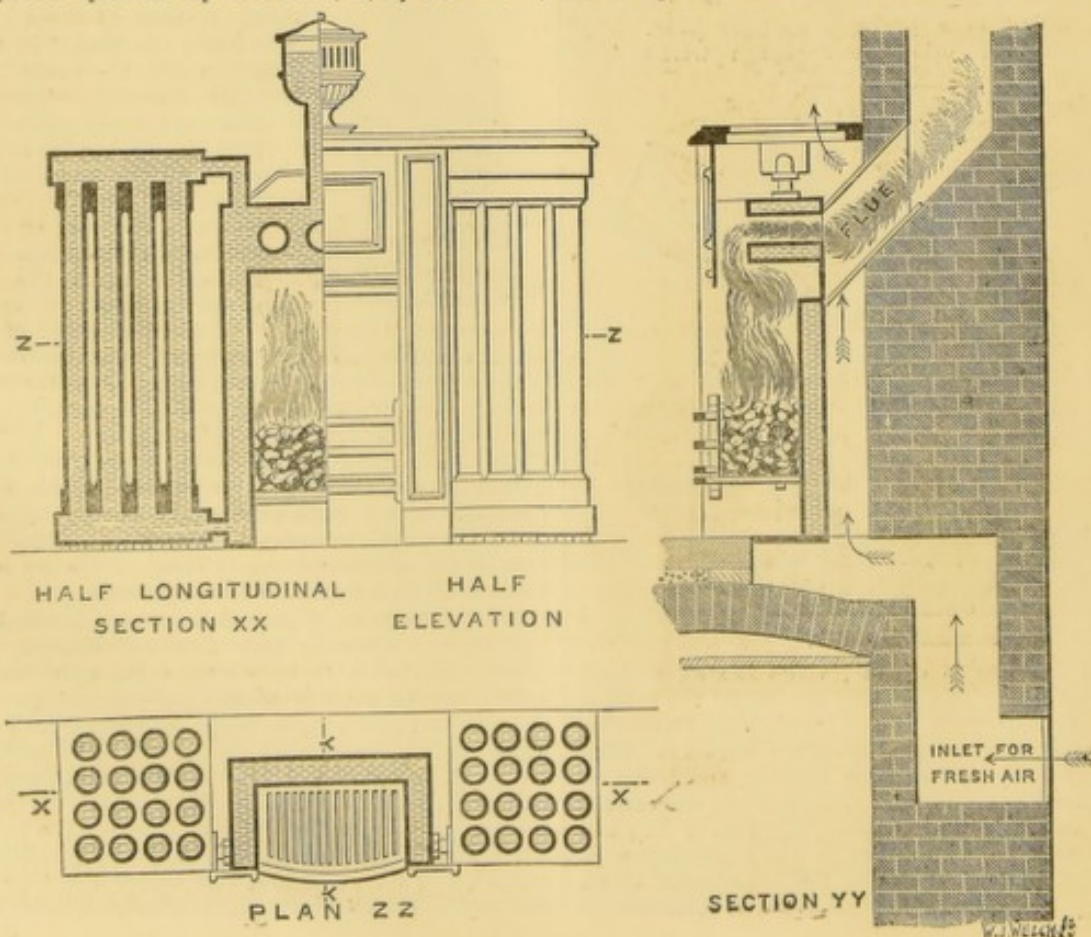
SMOKE-CONSUMING REVOLVING FIRE-GRATE, H. SAXON SNELL'S patent, No. 5195, 1880. This invention has for its object an improvement in the construction of fire-



grates, whereby that portion containing the coal or other fuel is caused to revolve upon a pivot, and in such manner that the fuel, when placed upon the top of the fire, is, by the inver-

sion of the grate, brought undermost, and thus the products of combustion are more perfectly consumed before being discharged into the open air. Many mechanical contrivances have been brought before the public of late years for effecting this object, but all of them are more or less objectionable from the complication of their parts, whereas the simplicity of the arrangement secured by this patent is very obvious. The arrangement by which the gratings alternately forming the lower part of the grate are opened for the purpose of placing fresh fuel upon the fire is of a very simple nature, and can easily be manipulated with an ordinary poker. Particulars of this stove may be obtained of the manufacturers, Messrs. Potter and Sons, of 298, Oxford Street, W.

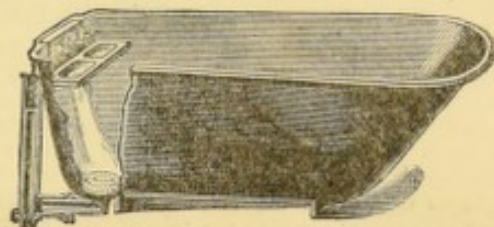
MESSRS. J. F. FARWIG AND CO., Queen Street, Cheap-side, are exhibitors of George's Patent Calorigens for heating buildings by means of gas, or with coal or other fuel. The principle of both stoves is somewhat similar, excepting that in the one a gas burner is provided, and in the other a fire-box. These stoves are well-known to most of our readers. The internal arrangements of the gas stove will easily be understood. In rooms or buildings where a chimney is not available, two holes must be made in the wall to allow the pipes to pass through. The cylinder is to be attached to the ends of the pipes with the open end upwards. On lighting the gas the action is as follows: The products of combustion will leave the stove by the upper pipe, and be discharged into the cylinder; at the same time a current of air will pass down the cylinder, and through the lower pipe, supporting combustion. One end of the pipe, for the supply of fresh air, is to be inserted in the opening at the bottom of the stove, while the other end is carried either through the floor or wall, to communicate with the external air. Where an ordinary fire-place is used, the opening may be closed by a thin sheet-iron plate, or otherwise, but in such a manner that there may be no openings round the edges for air to pass, and thus interfere with the draught of the stove. The importance of this point is too often overlooked by those employed to fit up grates and stoves. The coal stove is similar in construction. The pipe containing the damper is to connect the back of the stove with



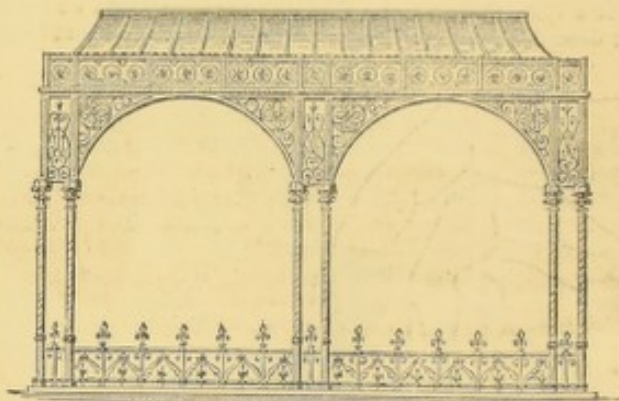
the chimney or flue for carrying off smoke. One end of the pipe is to be inserted in the opening at the bottom of the stove, while the other end is carried either through the floor or wall, to communicate with the *external* air. The fire in the stove heats the coil contained therein, thereby causing the air to rush in through the pipe and out at the opening, thus affording a constant supply of pure warm air, which, in its passage, rises to the top of the room, then spreads itself over the whole area, gradually descends towards the floor, and eventually passes away through the fire-box and up the flue, thus affording perfect ventilation to an apartment closely shut up in every other respect. When the stove is required for warming halls, passages, staircases, etc., it may be placed in any convenient position in communication with the part to be warmed. For example: place the stove in any room at the lowest part of a cold damp house, keep the door of this room constantly open, keep the fire burning in the stove during the day, and in less than a week the dampest house will be found to be perfectly dry, as a constant current of pure warm air, even in misty weather, will be flowing from the room to the top of the building, carrying away all moisture from walls, etc. The cost of fuel for the coal stove is about twopence per day.

STEVEN BROS. & CO., Architectural and General Iron-founders and Sanitary and Hot-Water Engineers, 35 and 36, Upper Thames Street, London, and Milton Iron Works, Glasgow, have an extensive collection of their manufactures, consisting of Baths, Enamelled Iron with patent fittings, Coils for Hot Water, Coal Cases, Hot-air Stoves, Register Stoves, Slow Combustion and others, Lamp Posts and Lanterns, Urinals, Water Closets, Dry Closets, Lavatories, Ornamental Staircases, Kitchen Ranges—open and close fire, with all the latest improvements for economy and ventilation, including patent ventilator for carrying off all the smell of cooking; Railings and Grates, Finials and Weather Panes, Verandahs, Patent Hot-water Valves, Kitchen Sinks, Patent Drain Traps, Gully Gratings and Manholes, Stable Fittings, Rain-pipes and Gutters, Balusters, Hot-water Boilers, Pipes, and Fittings, and Columns. The chief features of their Kitcheners, one of which we illustrate,

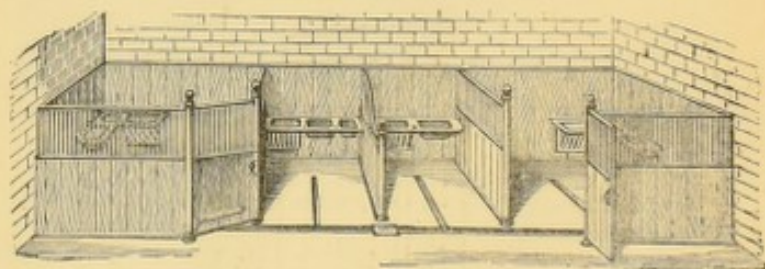
check, which is a perfect economiser, gives nearly double the heat with less fuel than is usually consumed in kitcheners, making it impossible for the servant to burn away the fuel unnecessarily, to the damage of the range. 3. These kitcheners are all fitted with ash-pit linings and return flue ends, the fire-place and back of ovens are also made up thus, being a considerable saving of labour and material in setting. 4. The hot-plate is made in parts, which enables any necessary repairs to pipes, etc., to be effected without taking the range to pieces. 5. They have swing brackets to allow the plate rack being folded back when not required. 6. Tile covings fitted in the most approved manner with screws, which admits of a new one being



inserted in case of breakage with very little trouble, and the bottom grate is loose and rests on a frame, and can be



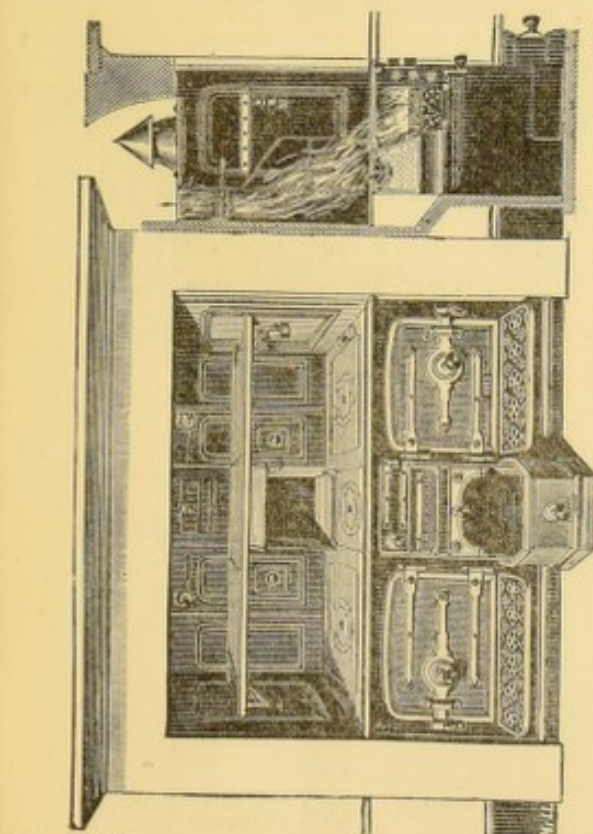
replaced in half a minute without breaking away or disturbing the fire-place. This firm have received the first award for kitchen ranges at the Melbourne Exhibition. We also illustrate one of their improved cast-iron enamelled



baths, a verandah, and an example of their stable fittings, all of which are notable for good workmanship and finish.

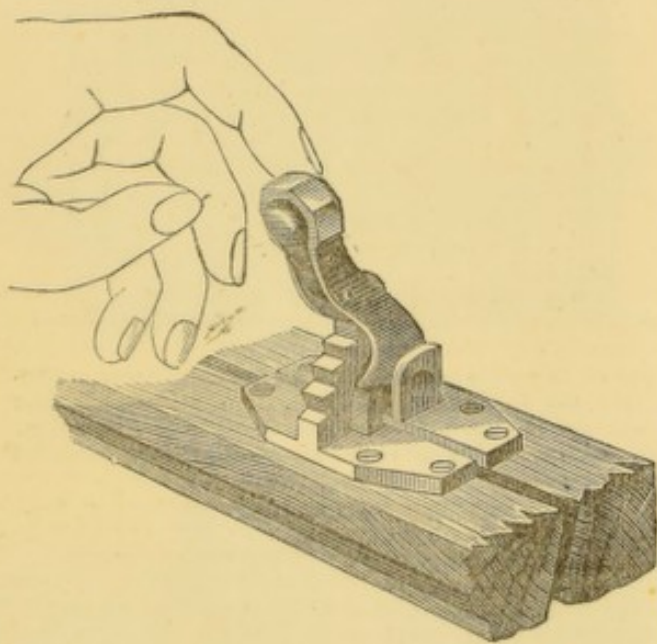
Mr. JAMES HOWORTH, of Farnworth, near Bolton, sends samples of his Popular Exhaust Ventilators and Blowers. Mr. Howorth's inventions are well-known, and his ventilators were selected for the buildings of the Paris Exhibition in 1878. A recent addition shown here is an Exhaust Ventilator for mines, or large mills, which is equally as efficacious in its action as the original introduction for ordinary buildings, the Archimedian screw being the basis on which the arrangement is founded.

Mr. ROBERT ADAMS, Great Dover Street, Borough, S.E., whose name has been long associated with improvements in connection with doors and windows, exhibits several new inventions in this direction. Amongst these, a new window sash claims our attention. It is well known that numbers of accidents yearly occur in the cleaning of windows, and Mr. Adams having this fact before him, has endeavoured

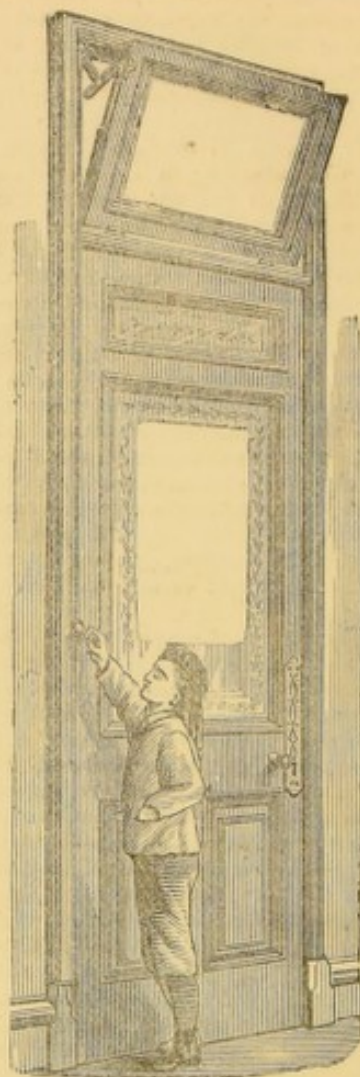


are—1. They contain a most perfect self-acting ventilator, placing it beyond the power of the cook or attendant to interfere with its action, thus doing away with the principal objections to kitcheners. 2. The little patent box-

to obviate the danger by introducing a sash that can be applied to existing windows at a comparatively small cost. To both upper and lower sashes a metal plate or tongue is fixed, and secured by simple mechanism. By placing a key in a hole in the sash frame, these tongues are shot forward into the window frame, which secures the sashes, and they can be lifted up or down in the ordinary manner to clean the outside of the window. The sash is unlocked, so to speak, by turning the tongues into the sash frame, the sash can then be swung, and the outside cleaned from the inside of the room. It is then replaced, thrown up, and the top one brought down and swung in the same manner, so that no steps are required for the work. This invention should recommend itself to all those in a position to afford such a safeguard against danger. A new secure sash fastener of simple construction is also shewn. It is fixed in a perpendicular position in the form of a segment of a circle, and is ratcheted. A lever with a tongue is drawn over this, and fixed in one of the teeth. Having several teeth, should anything such as dirt have accumulated, the window can, notwithstanding, be secured, as the tongue will be sure to lay hold of one of the teeth. A new cord-holder for venetian or other blinds, called the 'Toby', will be found a considerable improvement on existing modes for this purpose. It is automatic in action and combines cheapness and simplicity with security. Mr. Adam's Three-Catch Espagnolette Bolt, though not so new as the inventions we have just described, is nevertheless an improvement on that form

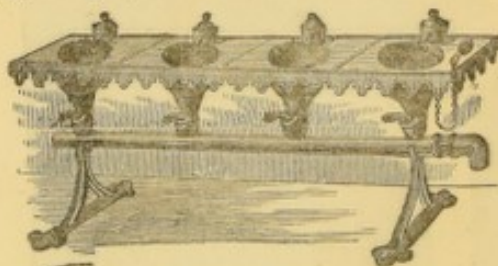


of fastenings which are so common in France and other continental cities, where what are commonly called French casements are in use. Of late years, these windows have been much on the increase in England, and the Espagnolette Bolt is now commonly used for them. It will be recollected that in the original, by turning the handle, a bolt is shot at top and bottom of the window, but by his invention Mr. Adams adds a latch in the centre of the window, on a line with the handle, and the three are shot simultaneously. This gives greater security, and prevents the windows from shaking. The Patent Secure Fan-Light Opener is an invention of a sanitary nature, of which an immense number has been fixed in various parts of the metropolis and elsewhere, and of which we append an engraving. They can be fixed to any form of fan- or skylight, can be made to open up or down, and inwards or outwards. The mechanism is of a most simple character, being composed, as shown in the engraving, of a crank, attached to the fan-light, one arm of which has a slot, up and down which the other arm works, connected with a single rod brought down by the side of the door, the opening or closing being effected by a simple handle or cog-wheel, working on an endless screw. No less than seventy-three of these appliances are fixed at the



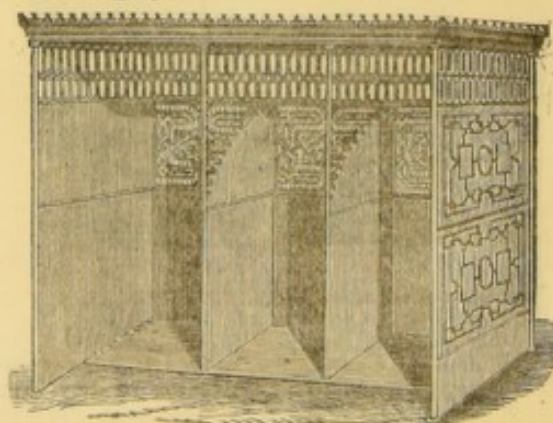
Lying-in Hospital, Old Street, where they are giving great satisfaction.

Messrs. WALTER MACFARLANE & Co., of the Saracen Foundry, Glasgow, whose architectural and sanitary iron-



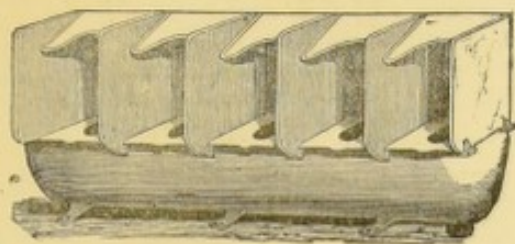
Wash-hand Range.

work have a world-wide reputation, are present with a few of their leading specialities in this class of work. They



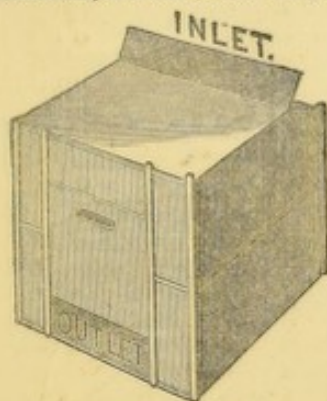
Urinal.

exhibit two ornamental screens, about 16 feet high, that may be adapted to various purposes. There is a handsome ornamental circular urinal, with a large lamp on the top, another of the plain ordinary character, a row of public water-



Dust Bin.

closets enclosed in ornamental iron casing, another set open, their patent domestic dust-bin, examples of lamp posts, with public fountains attached, a large circular cattle trough, with dog trough underneath, and handsome lamp pillar and lamp



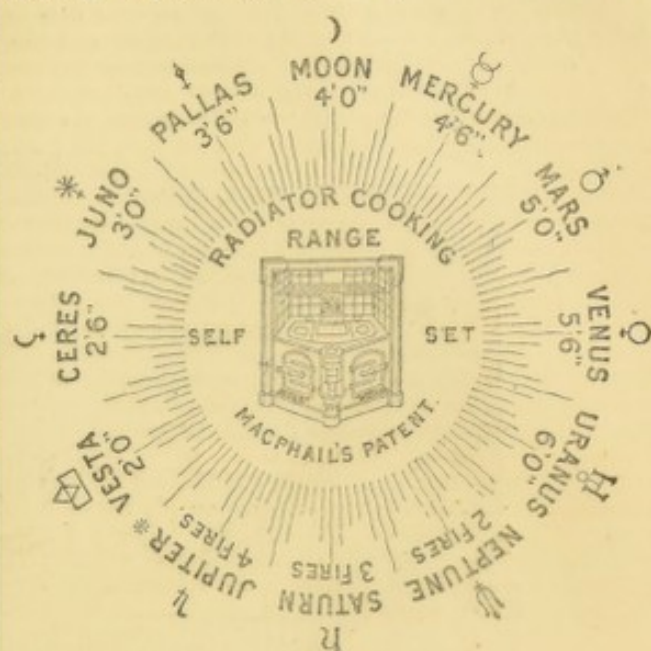
Water Closet.

springing from the centre, and other horse and cattle troughs of a plainer description, lavatories, etc. There is, in addition, a variety of public fountains, from the simplest to the most ornamental in character, and we may fairly say this exhibit stands alone in its leading characteristics.

Messrs. YOUNG & POSTANS, 35, Baker Street, W., exhibit, amongst other chemical and pharmaceutical preparations, will include the following for antiseptic and sanitary uses:—Thymol, Thymol Solution. The new antiseptic Resorcin. Resorcin is a diatonic phenol extracted from certain plants, as assafoetida, and produced synthetically by the action of potash on chloro-phenyl sulphuric acid. Resorcin is soluble in almost all proportions in water. Carbolic Acid Gauze, Carbolic Acid Lint, for surgical dressings, Permanganate of Potash, and Salicylic Acid (pure natural).

The 'RADIATOR' RANGE COMPANY, Bo'ness, N.B., and 43, Cannon Street, E.C., exhibit their new Kitchen Range on the principle named above. We append an engraving, shewing the range in a small size, and it will be observed it is different in shape to any existing kitchener. The fire-box is circular, and extends outwards, the ovens on either side receding slightly inwards at an angle, but both being well beyond the front framework of the range. Behind the fire-box is a boiler, which is larger in all cases than can be obtained in any other range of the same size. By lifting off a plate over the boiler, and on a level with the hot plate, we discover a square shallow fire-box for grilling, and by removing a door at the back of this, a communication with the flue is obtained, and a small opening on each side of the front fire-box admits draught to the grilling fire. The dampers or valves, instead of being at the back of the hot plate, as in all other ranges, are here fixed in the front, near the bottom, so that a servant has not to reach over a hot range to draw them in or out. It is claimed for this range that, owing to the circular shape of the fire-box, and the heat radiating in all directions, that three separate roastings can be carried on simultaneously in front of it, thus leaving both the ovens perfectly free to be used for baking pastry, etc., or as hot closets, and the heat can be turned off one or both of these as required. The

fire can also be regulated to a nicety by means of sliding doors, and only one flue is required for the whole, thus materially economising time in cleaning, and preventing choking. It practically burns nearly all its own smoke, and

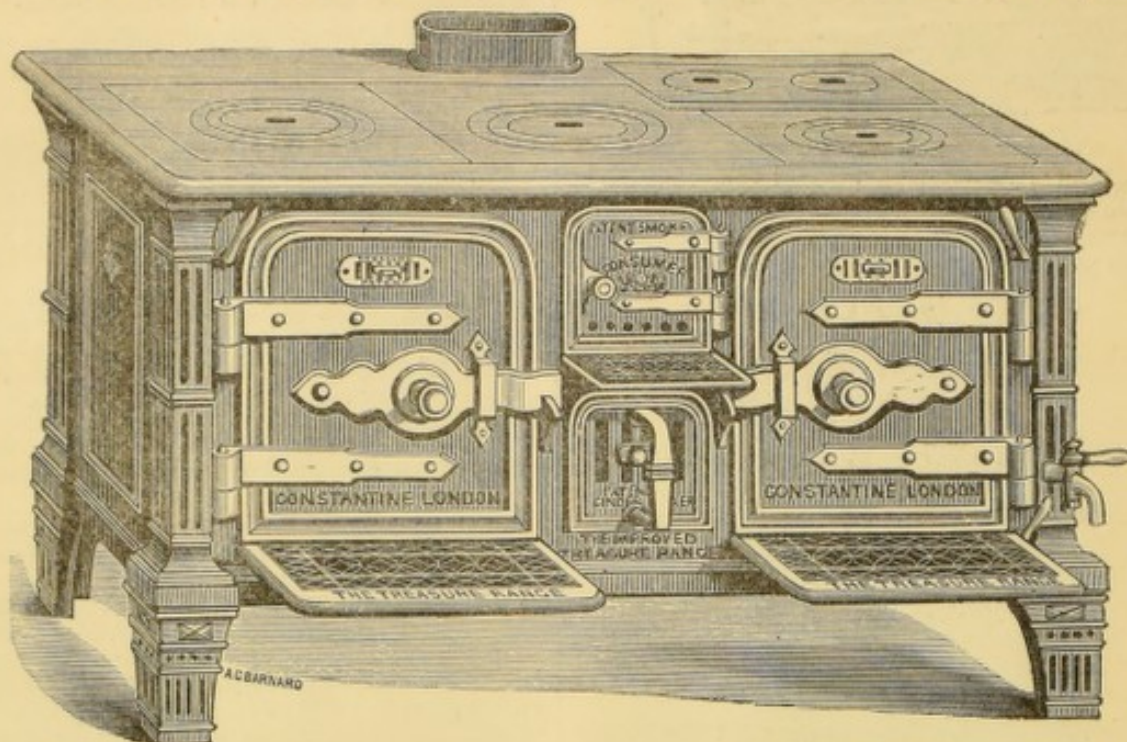


a great recommendation is the small quantity of fuel it burns, the inventor, Mr. Macphail, confidently asserting that 8 cwt. of coal will last as long as one ton in most other ranges. The Radiator range requires no setting, having merely to be placed in the opening provided for such articles. Grates for sitting rooms on the same principle are now in course of construction, and will shortly be ready for sale. At the exhibition in course of organisation by the Fog and Smoke committee, we shall have an opportunity of seeing these novel grates.

Amongst the kitchen-ranges an old and valued favourite is to be seen. This is the 'TREASURE' RANGE of Mr. CONSTANTINE, of Fleet Street, which has recently undergone several important improvements. The 'Treasure' Range has been before us for many years. It is of the 'independent' character, and requires no setting, and except from the fact that it stands on short legs, there is little difference in its appearance from that of an ordinary close fire range. Intended to be placed in the usual opening of a kitchen fire-place (although it may be stood anywhere most convenient to the user), the advantage of having it open at the bottom is that dust and dirt, that must in time inevitably collect in all ranges, that are not set in brickwork, can be constantly swept away. The fire box is small, the cost of fuel is of the very lowest, and anthracite coal burns in it in excellent form. The heat can be regulated to the greatest nicety, and it may even be used on the slow-combustion principle. It will effectually cook everything that the largest and most costly range can accomplish, and it is made from a small size suitable for the artisans' dwelling to those adapted for the largest hotel or public institution; and it can be arranged to supply hot-water all over the household. We give an illustration of one of these ranges with double oven, back, boiler, etc. Mr. Constantine starts upon the principle, no longer a theory, that to obtain the greatest heat from a given quantity of fuel, while providing proper ducts for its eventual discharge into the chimney, this heat should be arrested in its progress around the ovens and boiler in every practicable manner, ere its final exit takes place. The improvements we have mentioned consist in admitting, from every possible point, constant currents of cold air, which, becoming warmed in their progress, is at last discharged in a highly heated state over the fire, where, combining with the smoke, the nearest approach to perfect combustion takes place, and the products that find their way into the chimney are devoid of soot, and comparatively harmless. To carry out this, Mr. Constantine adopts a loose corrugated fire-box, with an

interstice or chamber around the three sides, with small openings at bottom and top. Underneath this are the fire-bars, elongated and feathered at their lower points, the centre one being tubular, for the purpose of receiving and distributing a constant supply of heated air. Under this again is a flat plate, perforated at the sides to corresponding openings in the corrugated fire-box; and this arrangement provides a heating chamber between the two. The air is admitted from the front, below this plate, and after passing

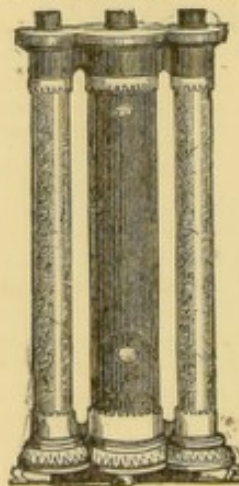
the whole construction, viz., that of retaining the heat over the surfaces it has to travel as long as possible, which has the further advantage of reducing the cost of fuel. One other feature we desire to point out that nearly the whole of the interior fittings are loose, that is to say they are not fixed or secured, but each one drops into the place assigned for it, which, in the case of breakages or wearing out, enables new portions to be replaced without expense, and has the further advantage of enabling all the passages to be



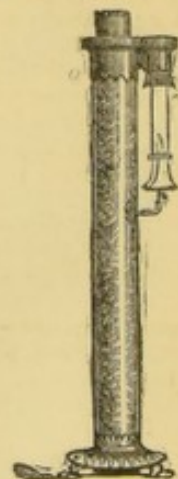
through the chamber before mentioned, becoming hotter and hotter every moment, and one current being sent through the centre tubular fire-bar, it enters the chamber of the corrugated fire-box still increasing in its volume of heat, and is discharged over the top of the fire to mingle with the smoke and rob it of all its impurities, etc. But a still further supply of fresh air is introduced through the medium of the fire-door, the improvement in which has been made the subject of a separate patent, and although only taken out for the small requirements of a kitchen range may, in our opinion, be utilised in its present or a somewhat similar form for the largest furnaces. This door is formed as a kind of box with triple chambers, the upper portion being about double the thickness of the lower part, and projects in this form into the fire. Air is admitted through a row of small holes at the bottom, and travelling upwards through a series of grooves in the first chamber is admitted into the second through two small openings, which it descends, and is then admitted to the third, up which it has to travel over a quantity of zigzag projections, which may be likened to small diaphragms, each one arresting its progress for a time, until having passed them it enters the wider portion of the chamber and is then emitted on to the fire through three small horizontal openings. Thus we have a constant current of highly heated air at all times and on every side of the fire, mixing with it and purifying it. The fire-bars are hollowed on the top part of their surface, which necessarily holds the burnt dust, and acts as a non-conductor, causing them to last a longer time than ordinary shaped ones. Another advantage in the improved 'Treasure' Range is that the boiler is an independent portion of the whole, and not a fixture as in most ranges. A chamber is formed to hold it, into which it is placed. The side nearest the fire has parallel openings, and a space all around it to allow the heat to encompass it. The chamber around the oven has a series of gills, over which the heat has to pass; and the bottom has a loose plate, which taken up, discovers another row of gills on the under portion. It will be seen from this description that the same idea pervades

thoroughly cleaned from time to time without difficulty, and only one flue is necessary for the whole. Mr. Constantine has evidently most carefully studied every detail calculated to improve his apparatus, and to render it as perfect from a sanitary point of view as human ingenuity could suggest, and he who attempts to introduce a new kitchen-range to surpass the 'Treasure', will find he has a 'hard nut to crack'.

Messrs. RITCHIE & Co., St. Swithin's Lane, whose 'Lux-Calor' Hygienic, Condensing, Heating, Lighting, and Ventilating Gas Stove has been a subject of much interest during the past year, and which has been described on a previous occasion in the *SANITARY RECORD*, are present with this interesting apparatus. The stove is certainly of



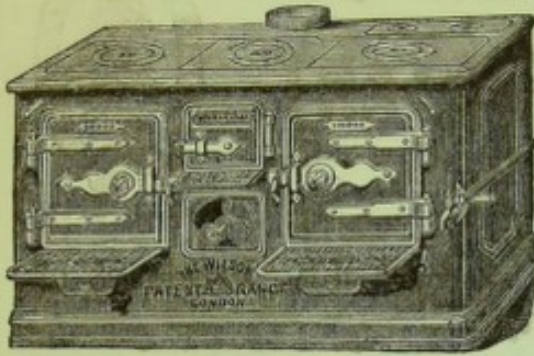
For Heating.



For Heating and Lighting.

novel construction, more particularly so as combining lighting with the other necessary attributes of a heating appliance, and as all the products of combustion are condensed and discharged in the form of a liquid, containing the sul-

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**THE 'LUX-CALOR'
HYGIENIC CONDENSING GAS OR OIL STOVE**
(RITCHIE'S PATENT).



TRADE MARK.

Light and Heat from Gas or Oil, without deleterious vapours. Gives forth greater heat than any Stove in proportion to consumption of fuel. Absolutely innocuous to the most delicate Flowers, Pictures, Gilding, etc.

This being a Ventilating Stove, it is specially suited for Sick Rooms, Hospitals, etc.

Beware of spurious imitations.

CAUTION.—Manufacturers and vendors of Stoves, externally similar, but internally defective, frequently untruly represent that their Stoves are made on the principles protected by Ritchie's Patents and are used by Messrs. Veitch and Co. in their conservatories.

The only Stoves manufactured under Ritchie's Patents, or used by Messrs. Veitch and Co., are protected by the above Trade Mark.

RITCHIE & CO., 23, ST. SWITHIN'S LANE, E.C.

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THAMES BANK IRON COMPANY,
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SANITAS: THE BEST DISINFECTANT.

(KINGZETT & ZINGLER'S PATENTS.)



Certificate from Professor H. E. ROSCOE, LL.D., F.R.S., President of
the Chemical Society.

‘THE OWENS COLLEGE, MANCHESTER, April 24th, 1881.

‘I have pleasure in certifying that “SANITAS OIL” and “SANITAS POWDER” are in every respect equal to one or other of the disinfectants now on the list of the Marine Department of the Board of Trade. Also, that these two substances act partly as antiseptics, like Carbolic Acid, and partly as oxidants, like Condyl’s Fluid. Also, that the Sanitas preparations contain no hurtful or poisonous ingredients.

‘Yours, &c.,

(Signed)

‘H. E. ROSCOE.’

‘**SANITAS FLUIDS**’, No. 1 and No. 2, are unrivalled for Disinfecting Sick Rooms and Dwelling Apartments generally. Non-poisonous and give no stain.

‘**SANITAS POWDER**’ exhibits more intense Antiseptic and Oxidising properties than any other disinfectant powder, and is used by above **430 Local Boards of Health** and other Public Bodies.

‘**SANITAS OIL**’ is the strongest liquid Antiseptic and Oxidant available, and is free from toxic properties.

**SEE OUR STALL AT THE INTERNATIONAL MEDICAL AND
SANITARY EXHIBITION.**

For information as to the other ‘Sanitas’ preparations, general directions for use, and prices, apply to

**THE SANITAS CO. (LIMITED),
BETHNAL GREEN, LONDON, E.**

phur and poisonous gases, the burning of coal gas is rendered in this apparatus a perfectly safe proceeding. Where gas is not obtainable, mineral oils can be used instead, and there are numerous uses for which such an appliance may be found of inestimable advantage.

MESSRS. SHANKS & SON, Tubal Foundry, Barr Head, near Glasgow, exhibit their Patent Bath Fittings and Bath—by their improved arrangement, hot, cold, and discharge taps are arranged in one piece—which is admirably adapted for ship use, or rooms where space is limited; several lavatories of the most approved construction, and handsomely mounted, with others of a less expensive character for schools, offices, etc.; their patent 'Crown' wash-out closet and trap; and valve closet working from the main, with supply valve and improved brass air regulator for after-flush; several water-waste preventers, and their patent 'Safety' slop sink, embodying several improvements which enhance its sanitary value.

MEDICAL SECTION.

The attention of medical visitors is particularly directed to *The Western Gallery*, upstairs (entrance from QUEEN'S GATE), where will be found most of the Surgical Instruments, and many important Pharmaceutical Exhibits.

DR. T. ANDERSON, 17, Stonegate, York, shows an Ophthalmometer.

THE ST. JOHN'S AMBULANCE ASSOCIATION exhibits a variety of appliances adapted for ambulance work, consisting of an Ambulance Hamper, Ambulance Knapsack, Ambulance Litters, and a Stretcher.

MR. C. HEATHER BIGG, C.E., of Wimpole Street, sends some interesting Orthopaedic Appliances.

MESSRS. F. CALVERT AND CO., Bradford, near Manchester, send a collection of Pharmaceutical Preparations.

YOUNG'S PARAFFIN LIGHT AND MINERAL OIL COMPANY, LIMITED, West George Street, Glasgow, show sample of refined Paraffin and Splints.

THE NEWRY MINERAL WATERS COMPANY, Newry, Ireland, send a quantity of their well-known Aërated and Mineral Waters.

MR. A. B. CORTIS, F.C.S., Worthing, has a collection of Disinfectants on show.

MR. WILLIAM COWAN, Avenue Street, Springburn, Glasgow, exhibits a Vaccination Shield.

MESSRS. SAMUEL GULLIVER AND CO., Aylesbury, send a collection of the celebrated Aylesbury Aërated and Mineral Waters.

MR. J. H. HAYWOOD, Castle Gate, Nottingham, has a good collection of Surgical Appliances.

MESSRS. W. B. HILLIARD AND SONS, Renfield Street, Glasgow, exhibit a collection of Surgical Instruments and a Surgical Operating Table.

MESSRS. HORN AND SON, Elgin Road, Croydon, exhibit a Regulating Digtorium.

DR. RICHARD NEALE, Boundary Road, N.W., sends a Punkah or Chemical Lung.

MR. SAMUEL NEWMAN, Railway Approach, London Bridge, exhibits a good assortment of Medical Dietetic Articles.

MR. N. H. NIXON, of University College Hospital, introduces several Appliances for the Ward and Sick Room.

MR. JAMES PACKHAM, Katherine Street, Croydon, shows Mineral and Aërated Waters.

DR. G. H. PHILIPSON, Eldon Square, Newcastle-on-Tyne, sends the original McIntyre Splint.

MESSRS. J. POORE AND SON, Andover, Hants, exhibit their Aërated and Mineral Waters.

MR. HY. J. PRATT, Blossom Street, York, shows samples of his Cod-liver Oil Jelly.

MESSRS. JOHN RICHARDSON AND CO., Friar Lane, Leicester, make a good display of their specialities, consisting of Chemicals, Drugs, Medicine Chests, Pharmaceutical Preparations, and Thymol Soap.

MR. T. P. TEALE, Cookridge Street, Leeds, contributes an interesting collection of Surgical Instruments.

MR. JOHN WALSH, of Brackley sends Aërated and Mineral Waters.

A Model of a Bed-Lift is shown by MR. THOMAS WILMHURST, Grosvenor Road, Millbank, S.W.

MR. M. PILLISCHER, New Bond Street, exhibits Apparatus used in the investigation of disease, a choice collection of Electrical and Optical Instruments, and some fine Microscopes.

THE PATENT ELASTIC COTTON COMPANY, LIMITED, Rye Hill Park, Peckham Rye, have a variety of samples of their Elastic Cottons and specimens of their Hospital Furniture.

A Diet Chart is exhibited by W. S. BERTRAM, Bennett Street, St. James's Street; and Feeding Bottles are shown by Mr. E. O. DAY, 78, Waterloo Road, S.E., by GEORGE WELLS, North Street, Westminster, and by THOMAS MARSHALL, 46, Leadenhall Street.

A Naso-Oral Respirator is exhibited by Dr. J. HUNTER MACKENZIE, Northumberland Street, Edinburgh; and Disinfecting and Clarifying Materials are sent by Mr. PETER SPENCE, Pendleton Alum Works, Manchester.

MR. F. W. BREWSTER, St. Stephen's Club, Westminster, exhibits a new Life-Saving Apparatus (from Drowning).

MESSRS. FOSTER AND GREGORY, Lonsome Chemical Works, Streatham Common, S.W., contribute a good collection of Pharmaceutical Preparations.

MR. E. A. SCHNEIDER, Cambridge Villas, Chesterton Road, Cambridge, exhibits a variety of dietetic preparations.

MR. P. HINCKES BIRD, F.R.C.S., Norfolk Square, W., sends a Disinfectant; and Messrs. G. BRITON AND CO., Castle Street, Holborn, have an assortment of Respirators.

MR. W. S. MITCHELL, M.A., Rosaville Road, Fulham, S.W., exhibits a compact School Collection for use in teaching the Chemistry of Foods.

MR. E. SIMPSON, Somerleyton Road, Brixton, S.W., shows Artificial Human Eyes.

MESSRS. IHLEE and HORNE, 31, Aldermanbury, are exhibitors of various modes by which luminous paint may be utilised, such as providing luminous ceilings for hospitals, luminous life-buoys, boards for lanterns, leather, cloth, etc.

MESSRS. JAMES HOW and Co., Farringdon Street, show an apparatus for estimating urea by means of hypobromite of sodium.

MESSRS. POCOCK BROTHERS, Southwark Bridge Road, exhibit several air and water beds, and a model padded room.

MR. R. R. SCHRAMM, Belmont Street, Chalk Farm Road, exhibits a variety of appliances for the sick-room, crutches, surgical instruments, surgical operation table, and trusses; and the well-known house of SALMON, ODY and Co., 292, Strand, send a good assortment of their excellent trusses.

MESSRS. R. J. WINTER and Co., Goodge Street, Tottenham Court Road, send various appliances for the ward and sick-room; and a similar collection is contributed by Messrs. MONK and Co., Great Russell Street, with invalid furniture, and operating chairs.

MR. J. R. CORSAN, Gray's Inn Road, exhibits an assortment of chemists' fittings, hospital glass, and sanitary tablets.

MESSRS. ELLIS and Co., Fleet Street, exhibit their portable Cabinet Turkish Baths.

The selection of exhibits by Messrs. MAW, SON, and THOMPSON (Aldersgate Street), is of an exhaustive and varied character, worthy of the character of the firm. It consists of a collection of articles used in the investigation of disease, appliances for the sick room, appliances used for the treatment of the sick and wounded during war,

electrical apparatus of comprehensive character, and an extensive assortment of surgical instruments.

MR. HEATON HOWARD, M.R.C.S., Devonshire Road, South Lambeth, contributes an Inflating Nasal Plug.

MESSRS. MOTTERSHEAD AND CO., Exchange Street, Manchester, have an attractive stand well filled with a variety of Medical Dietetic Articles, Batteries, and Chemical Glass.

MR. A. E. FRADELLE, 246, Regent Street, W., contributes an interesting collection of Photographs of Medical Men.

MESSRS. LETTS, SON, and Co., Limited, King William Street, E.C., send a good collection of medical ledgers, and diaries, and medical prescription copyists.

MESSRS. J. and A. CHURCHILL, New Burlington Street, exhibit a large collection of the works published by them on the Art and Science of Medicine.

THE CHARITABLE BLANKET COMPANY, LIMITED, Dantzic Street, Manchester, exhibit a variety of their Chartaline Blankets (Henry's Patent), which have achieved a good reputation, the sale having so largely increased as to necessitate the formation of the present company. On hygienic and sanitary grounds they have much to recommend them. They are composed of a layer of wadding between two outer sheets of specially prepared paper, duly perforated for the purposes of ventilation; they are extremely light, warm, cleanly, and very cheap. One Chartaline Blanket is declared by competent authorities to be equal in warmth to two woollen blankets, and at the same time costs but a fraction of the price of the latter. It is almost needless to say that the properties of paper in preventing the too rapid radiation of heat are too well known to render further comment necessary. The Chartaline Blanket is also made and is on view at the exhibition for hospital purposes, having a disinfectant placed between the perforated sheets of paper. While retaining all the other advantages of the blanket, it has the additional merit of containing antiseptic elements. These articles are also made as coverlets for beds, and it is now intended to print and otherwise ornament them, so as to render them as attractive as eider-down quilts, while the cost will be considerably less.

MESSRS. SAVORY AND MOORE, New Bond Street, many of whose preparations have a world-wide reputation, make a conspicuous display in an admirably arranged show-case. This firm may fairly claim to have been pioneers in all matters connected with ambulance improvements and aids to military surgery, for which they have received medals at both the London and Paris International Exhibitions, and these appliances form part of their interesting collection. The Medical Field Panniers made by Messrs. Savory and Moore have long been favourably known in the army, and are most useful, especially for detachment service, as they can be strapped on a mule's back with perfect ease. Great improvements have recently been effected in these valuable articles, and they now completely carry out the *multum in parvo* theory; for, although their weight has been greatly reduced, they, nevertheless, contain in separate compartments all necessary instruments, drugs, stimulants, etc., far too numerous to mention here. Perhaps the most ingenious contrivance is the operating table, which can be set up at a moment's notice, being formed from the lids of each pannier, which are double. Another exhibit, of equal merit, is the firm's 'Army Regulation Medicine Chest', a strongly bound box, containing over one hundred drugs, and about sixty articles, from a packet of pins to a stethoscope. On opening the lid of the chest a convenient counter for dispensing is at once formed, and as the whole of the medicines and other matters are arranged on shelves or in compartments, the surgeon can put his hand on what he requires instantly, without any trouble. The Medical Field Companion is another important feature of Messrs. Savory and Moore's stand, and is well adapted for a small party of troops during a 'reconnaissance', or for an exploring party, as, although it weighs under ten pounds, it contains many useful drugs and necessary appliances. There is, in addition, the Surgical Haversack, now used by the army in connection with the

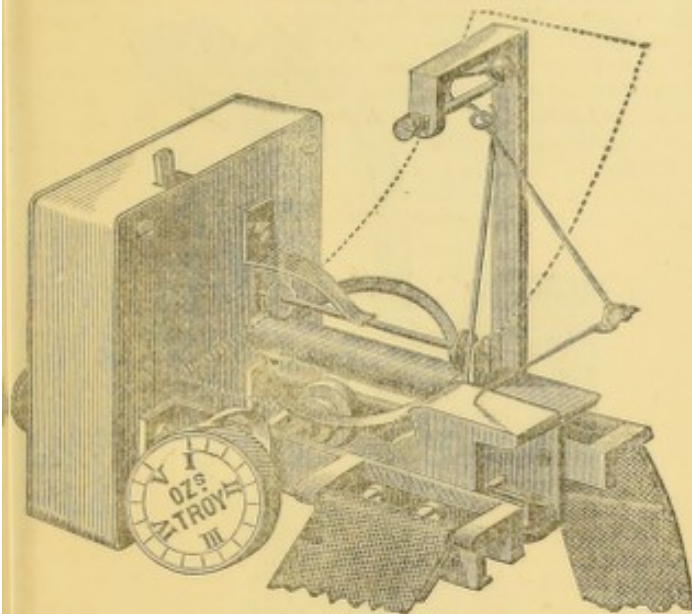
new regulations issued to the bearer companies. This is smaller than the Medical Field Companion, and contains all that is necessary for the first dressings of the wounded, and has lately been adopted by the volunteers to be carried by the ambulance orderly when on the march. A series of Medicine Chests of all sizes are arranged round the show case, notably among them being one made by the firm expressly for the Khedive of Egypt, which well deserves inspection. Last, but not least, in this department is the Chemical Cabinet, designed by the late Professor E. A. Parkes, and constructed by Messrs. Savory and Moore, which has been supplied to the Government for use in expeditionary services, and is too well known and appreciated amongst chemists as the 'Parkes Cabinet' to need any further description. Although the display of Appliances for Military Surgery is, perhaps, the most interesting and instructive feature of the exhibition, the other exhibits of this firm, which consist of an artistically arranged assortment of many drugs and preparations, is no less worthy of notice. Amongst these are the Patent Medicated Gelatine Preparations for internal administration, hypodermic injection, and ophthalmic purposes. The gelatine lamels consist of thin pliable and often transparent sheets of uniform thickness, subdivided into squares, each square containing a known quantity of gelatine and a known quantity of some medicine in a concentrated form, so that a waistcoat pocket may contain enough blisters, narcotics, and other medicines to supply a regiment of soldiers or an emigrant ship. The 'Lamellæ Cantharidis' is an excellent form of blister in sheets. Of course the digestive ferments of this firm are shown, consisting of Pancreatin, Pepsin, and Peptodyn, and also their fluid preparations, such as the Neutral Essence and Saline Essence of Pancreatine, and the Elixir and Saline Essence of Pepsine.—Amongst Foods, Messrs. Savory and Moore show two most important and well-known preparations, viz.: their 'Infants' Food', malted upon Liebig's principles; and also Pancreatic Emulsion, which, as an article of diet in cases of consumption and wasting, is invaluable.—Fluid Meat, a Peptonised Preparation containing the whole of the nutritive constituents of lean meat, is also specially deserving of notice.—Thirty Varieties of Fluid Extracts of Drugs are also shown on Messrs. Savory and Moore's stand; and their improved Disinfecting Carbolic Acid Vaporiser for disinfecting the air, furniture, bedding, clothes, etc., is a most ingenious and useful little apparatus.

The Silvertown Patent Leclanché Medical Battery will be exhibited by the INDIA RUBBER, GUTTA PERCHA, AND TELEGRAPH WORKS CO., Limited, Silvertown, Essex, and 100, Cannon Street. This Battery has gained a very extensive reputation, gives a constant current of high tension, and is so arranged that its strength may be very easily varied either by increase or diminution, and that the current may be either administered in the constant or intermittent form. It remains in good order for about two years, requiring, meantime, little or no attention, and at the end of that time the manufacturers undertake to restore it to its original usefulness for a similar period at a very small expense. Thus it seems to deserve the favour which it has attained, and it is likely to be of more and more use in proportion as the excellent handbooks on medical electricity now current enable practitioners fully to avail themselves of this valuable therapeutic agent.

MESSRS. MARRATT AND ELLIS, 63, King William Street, London Bridge, E.C., show a case of specimens of their Artificial Eyes, in the manufacture of which they have succeeded in effecting long-required improvements of so advanced and beneficial a character as to render their integral value superior to every prior production of their kind. Of these the most apparent is a transparent aqueous chamber, identical in appearance with that of the natural eye, with which also it is made to correspond, in all cases, in every essential particular. Not the least advantage, however, in practical utility is the extreme hardness of the new material. Impervious to the pungent eye-moisture which was so destructive of previous manufactures, it is said to preserve its brilliance and colour to the last; while its attendant durability, exceeding by at least

four to one that of its predecessors, diminishes to more than the same extent, for obvious reasons, the hitherto considerable cost to the wearer.

DR. DUDGEON, 53, Montagu Square, W., exhibits a Pocket Sphygmograph, two and a half by two inches; weight four ounces. The movements of the artery are conveyed to a steel spring, whose pressure can be raised by an excentric wheel from one to five ounces. No wrist-rest is required, and it can be applied with equal ease, whether the patient is standing, sitting, or lying. The tracings of the needle's movements are made on smoked paper, which



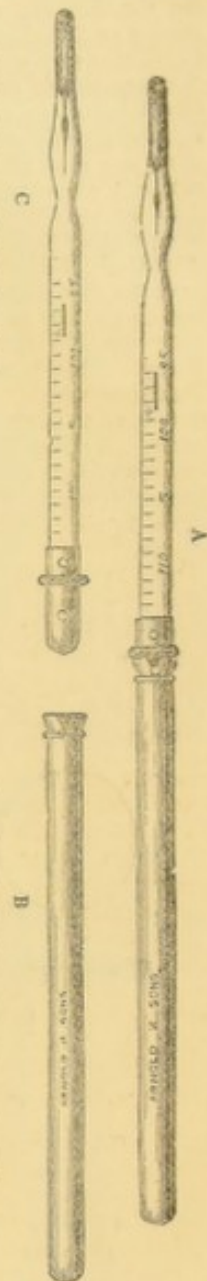
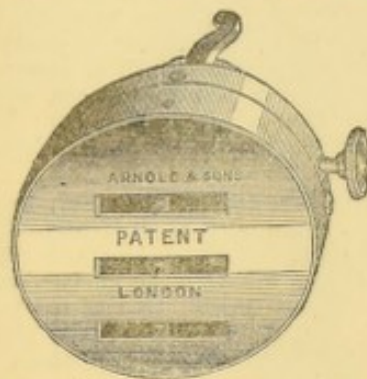
is driven through the instrument by clock-work at a uniform rate. The instrument can be applied, and the tracing made, almost as quickly as the pulse can be felt with the finger. The tracings represent the movements of the artery magnified fifty times. Manufactured by J. Gautier, 19, Crawford Street, W. Agents for the Midland Counties, Messrs. Salt and Sons, Birmingham.

The exhibition is rich in Appliances for the Ward and Sick Rooms. These are exhibited in a variety of interesting features by THOMAS ALLEN, Bristol; ALMONT AND CO., High Street, Stratford; E. J. ALMONT, Stratford Bridge Works; H. BELL, Guildford Street, York Road, Lambeth; DR. E. DIVER, Yately House, Kenley, Surrey; E. HILTON, Canonbury Road, Islington; JOHN WARD, Tottenham Court Road; and by Mr. J. B. PARKER, Bradninch, Exeter, who shows a new form of Revolving Bed, by which the position of the sick can be changed in any direction, without the least exertion on his part, for cleanliness, change of linen, and for the relief of natural wants. It can also be used for the application of the wet sheet, and the hot-air bath at home. It is likewise adapted for the use of women during their confinements, and for a variety of other purposes, including the safe custody of violent lunatics.

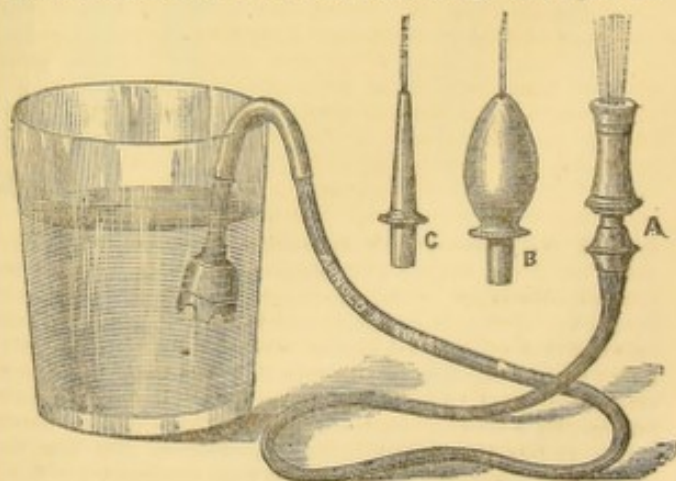
The principal makers in London of dental instruments and specialities are well represented. Messrs. W. and J. JAMIESON, 10, Broad Street, Golden Square, amongst a general assortment of dental appliances, call especial attention to their gold cylinders, blocks, and pellets, a branch of their manufacture with which they have particularly identified themselves. These are shown in a variety of examples, and are shown loose, and to be used as pellets, called Style A., short, compact, but not hard, for use as cylinders only; Style B., crystal elongated cylinders, crystal elongated blocks, crystal blocks, and crystal polygon blocks. Cylinder fittings accompany the cylinders. Messrs. Jamieson claim for their gold, in the form of blocks and cylinders, that it is unequalled for softness and cohesiveness under manipulation, for density when finished, and that it can be adapted to the irregularities of the walls of cavities with greater facility, and also a saving of time by its use. They believe it to be the best gold used in the profession, which belief they contend, is supported

by the testimonials in their possession. Particular stress is also laid by the firm on their amalgams, of which samples are exhibited.

MESSRS. ARNOLD and SONS, West Smithfield, have a large exhibit of their excellent inventions.—Pocket Clinical Thermometer. Of all the pocket companions now essential to a practitioner, none is more indispensable than a good thermometer. Messrs. Arnold and Sons have attempted to make the scale more legible by colouring it red and indelibly, and the attempt has been successful. The instruments, also, have been carefully tested as to accuracy. The woodcut A shows the thermometer with case attached; C, the instrument without the case; and B, the thermometer case.—Mallam's Instantaneous Vaccinator (Patented). This little instrument



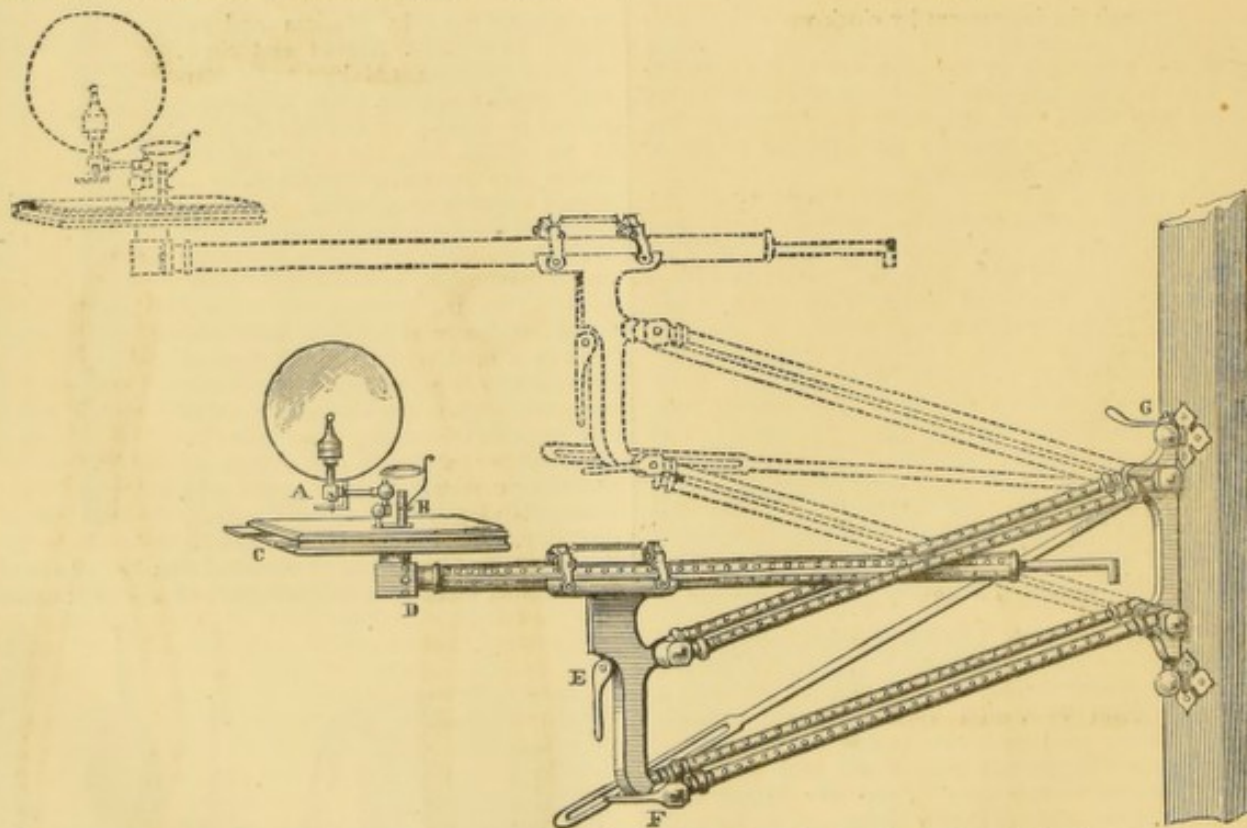
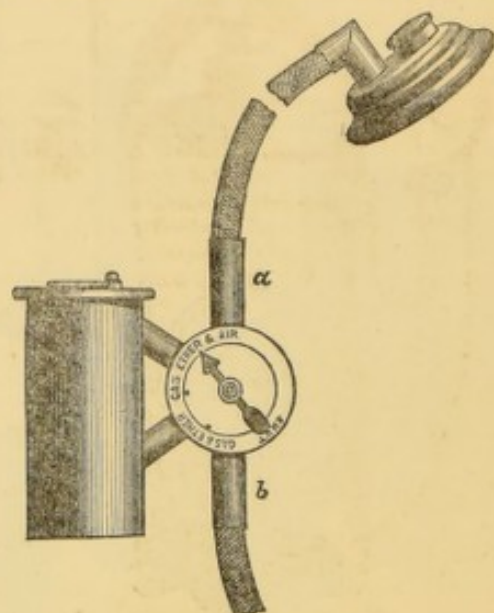
is designed by Mr. Mallam and patented by Messrs. Arnold and Sons, Surgical Instrument Makers to St. Bartholomew's Hospital. The perforated surface is concave, so as to fit the arms of an infant, and the depth of the blades can be easily regulated by a simple screw arrangement. The simplicity of the instrument, together with the celerity with which the operation can be performed, will of itself recommend it to the profession.—Combined Douche for the Eye, Ear, and Nose. This is a modification of the Syphon Douche now in general use. The instrument, as shown in the woodcut, consists of a metallic inlet valve, attached to an India-rubber tube, with a small metallic sheath or covering, to prevent the tube from collapsing over the edge of the glass, and a metallic mount, on which can be fixed an eye-rose, a nasal or an aural douche. In cases of ophthalmia, children over four years of age look upon the



rose-douche as an amusing toy, and will get out of bed and use the douche themselves whilst the nurse is elevating the tumbler of water. The advantage of this arrangement over the old-fashioned method of holding children down by main force, and syringing the eye with a squirt, is at once apparent. The force of the water coming out of the douche, can of course be regulated to a nicety, by raising or lowering the tumbler. The rose-douche marked (A) is also very useful for irrigating wounds, and assists in the removal of dressings. The rose douche (B) may be used to apply an antiseptic or an hæmstatic solution. No harm can be done even to such a delicate organ as the ear by using this kind of douche (C), as the water issues from the nozzle in a continuous stream, and is far more efficacious than an interrupted one. The metal nozzles are much more cleanly than India-rubber, and do not so soon get out of order. It has also been tried, but does not answer, to have the rose made of vulcanite. This simple and useful instrument can be carried in the waistcoat pocket, and is very durable and cheap.—Patent Flexible Throat-Spray. This instrument is an improved form of Spray Producer, which, having a pliable tube, can be readily adjusted, so as to give a spray for the nose, throat, or posterior nares. By this simple arrangement (which is patented) one instrument is made to answer the same purpose, which formerly required three distinct spray-producers. The price is also lower than that of the cheapest vulcanite sprays.

The DENTAL MANUFACTURING COMPANY, Broad Street, Golden Square, Manchester, and Hanley, Staffordshire, and who have just issued the first number of a new monthly journal, *The Dental Record*, make an interesting display of their various manufactures. One of the principal of these is their operating bracket, nickel plated throughout, with gas-reflector attached, and of which we

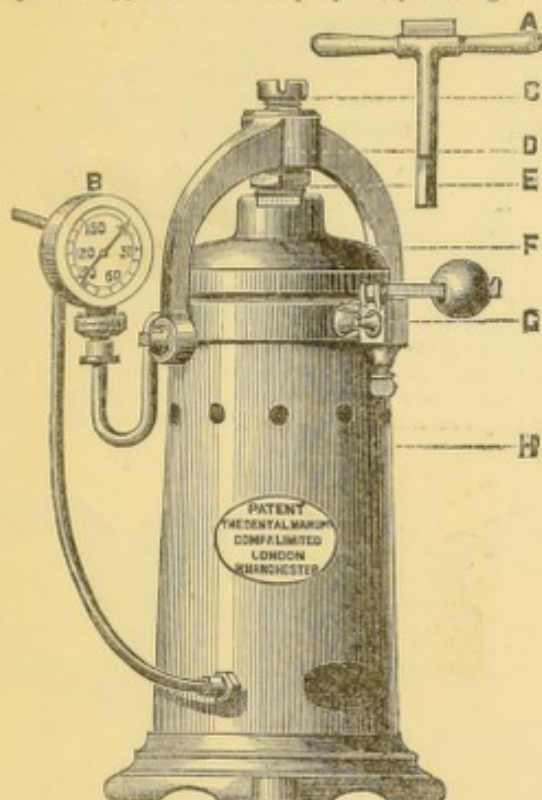
it enables us to adopt a reflector for operating with at night or on dark days; an arrangement much neater than a separate reflector, and at the same time more convenient, as it gives the operator a table for his instruments and gold, and a Bunsen burner and annealing tray. If desired, however, both the burners may be removed (by simply unscrewing), and a spirit lamp inserted into the recess in the table. Spirit lamps will be supplied for those who have not the convenience, or do not desire to use gas. Another appliance, which we also illustrate, is an apparatus for the administration of nitrous-oxide gas and ether,



append an illustration. This bracket is pronounced as the most complete, useful, and elegant operating bracket at present before the dental profession, and is the only one adapted for gas. It has plain and Bunsen flames. It has an extension of 2 feet 9 inches when at its shortest, and 4 feet when at its longest distance from the wall. It has a vertical range of 19 inches, is instantaneously fixed in any position by a short lever, and requires the use of one hand only. It has the fullest lateral movements that can be obtained in any bracket. Having been designed for gas,

It consists of an ordinary face-plate, having only an outlet valve, which can be closed by a twist of the finger and thumb, an indianette bag, of about three gallons capacity, and the part as in the illustration. This latter is of novel construction; it has in communication four tubes, two passing to the cylinder at the side, which contains sponge saturated with ether; A passes to the face-piece, and B to the gas-bag. The handle of the tap has an indicator, pointing to words on the side. In use, the instrument hangs in front of the patient, about a foot from the

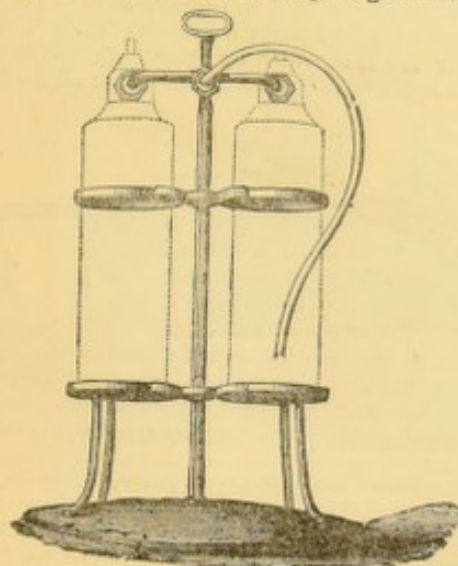
mouth, or may be attached to the person of the operator. The B form of the company's patent safety combination vulcaniser and press, for celluloid and rubber, is likewise shown. This has been patented in most continental countries, and in America. It is alleged of this, that it is the most perfect apparatus for its purpose, yet designed. It



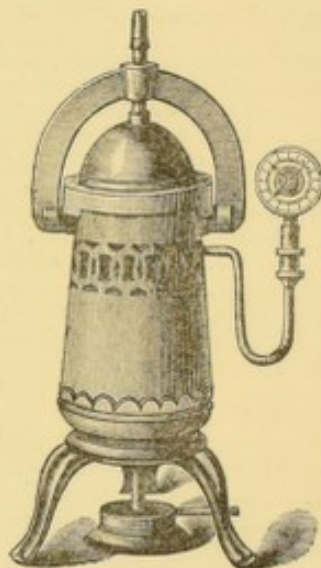
is strong and well made, has no complicated machinery to get out of order, and the self-acting gauge perfectly controls the supply of gas at any point between 10lbs. and 150lbs.; therefore, celluloid or any kind or thickness of rubber may be vulcanised accurately.

MESSRS. SMALE BROTHERS, Great Marlborough Street, have also an excellent assortment of dental instruments, tools, and appliances.

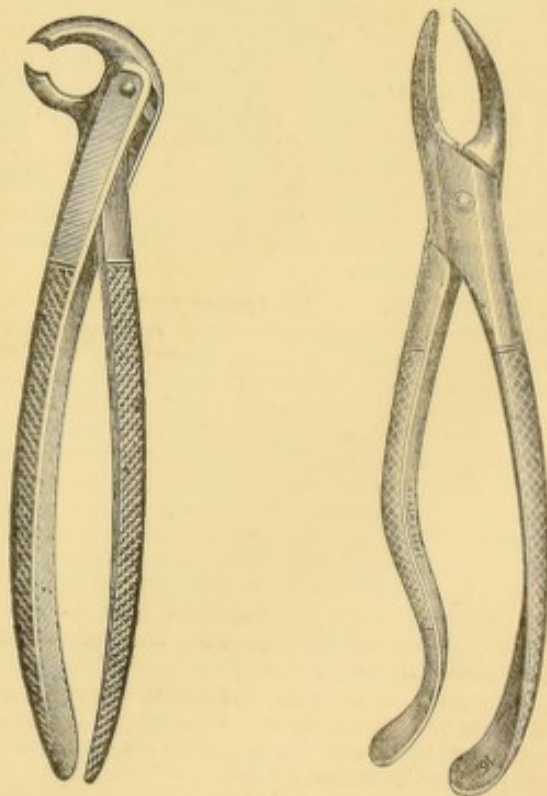
MESSRS. CLAUDIUS ASH AND SONS, Broad Street, Golden Square, are extensive exhibitors of dental appliances, and in one or two features connected with this profession they undoubtedly stand pre-eminent. Of mineral teeth and dental rubbers they are, we believe, the largest makers in Europe; and the perfection, as regards colour and general appearance, to which they have succeeded in bringing their pink or coral-colour rubbers, is probably unequalled. Noticeable amongst the 'appliances', is Napier's portable gas stand for liquid gas bottles, which



we illustrate. This apparatus will hold two bottles of liquid gas—which are secured in position by rings and wedges—and is fitted with a double union which connects both bottles with the face-piece. By this arrangement the bottle in use can be entirely emptied without fear; for, should there be not 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 to 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, bronzed, and the unions of gun metal, the whole being light and portable. The ordinary gas-key can be used, but if desired, an improved key is supplied with the stand, 14 inches in length, which enables the operator to turn the gas on or off without stooping. Their portable vulcaniser is another appliance to which they call attention.



This is fitted with Gartrell's patent steam-pressure and gas-regulating gauge, but in its other features is somewhat similar to other vulcanizers. Their display of dental tools is unique and interesting, and they are particularly strong in the article of forceps, which they manufacture of every



conceivable shape and size. Morrison and White's gas engines, dental chairs, Stewart's improved reflector,

mineral teeth of all kinds of shades, sizes, and lengths, dental rubbers, and the usual adjuncts for the dentist's use figure amongst this excellent display.

Appliances for the sick-room, including a collection of surgical instruments, are shown by Messrs. EVANS and WORMULL, Stamford Street, Blackfriars; and Messrs. A. E. FARMER and Co., 17, Devonshire Square, Bishopsgate, exhibit pharmaceutical preparations in connection with sick-room appliances. BATTLE and WATTS, 32, Lower Whitecross Street, FLETCHER and FLETCHER, North London Chemical Works, Holloway, GALE and Co., 15, Bouverie Street, MARTINDALE, New Cavendish Street, T. and H. SMITH and Co., 12 Worship Street, ZIMMERMANN and Co., 21, Mincing Lane, BURGOYNE, BURBIDGES and Co., Coleman Street, PAUL METZ, Jewin Street, Cripplegate, and T. MORSON and SON, Southampton Row, W.C., all exhibit collections of pharmaceutical preparations, drugs, chemicals, etc.

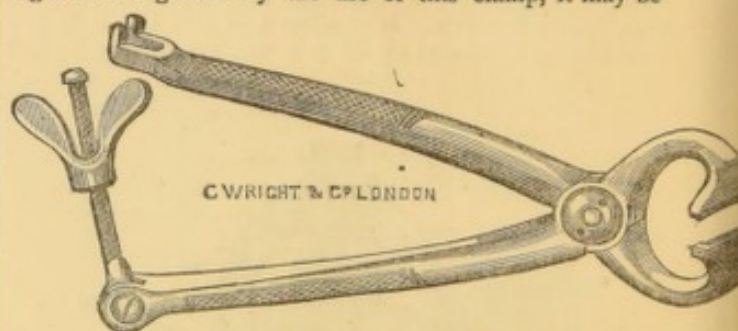
The collection of Surgical, Electrical, Chemical, and Ophthalmic Instruments and Appliances is not extensive but of a high order of merit, and embraces all the leading names in addition to the few we have already mentioned in each of these branches of manufactures: Messrs. JAS. COXETER and SONS, Grafton Street East, show both surgical instruments and electrical apparatus; Mr. W. GROVES, Bolsover Street, medical batteries; Mr. DAVID MARR, Little Queen Street, W.C., surgical appliances, surgical instruments, microscopes, and steam-spray producers, the last-named a speciality with Mr. Marr; MAYER and MELTZER, Great Portland Street, surgical instruments; Mr. J. B. THISTLETON, Old Quebec Street, electrical and physiological apparatus; TOWNSON and MERCER, Bishopsgate Street, chemical apparatus, and graduated instruments; JOHN WEISS and SON, Strand, electrical and surgical instruments; J. L. PULVERMACHER, Regent Street, W., electrical instruments; WILLIAM RUSSELL, George Street, Portman Square, surgical instruments; SALT and SON, Bull Street, Birmingham, surgical instruments; W. H. BAILEY and SON, Oxford Street, surgical appliances; HY. CROUCH, Barbican, microscopic and ophthalmic apparatus and optical instruments; A. A. DAVIS, Buckingham Road, Southgate Road, N., microscopes and optical instruments; DONKIN and VECQUERAZ, Tabernacle Walk, Finsbury, electrical apparatus; A. W. GERRARD, Liverpool Road, N., medical apparatus; J. B. MEDLAND, Borough High Street, London Bridge, microscopical apparatus; MILLIKIN and DOWN, St. Thomas Street, Borough, surgical instruments; ROBINSON and SON, Wheat Bridge Mills, Chesterfield, surgical appliances; P. W. SEYMOUR, Guy's Hospital, electrical apparatus; JAMES SWIFT and SON, University Street, microscopes and microscopical apparatus; F. A. DARTON, St. John Street, West Smithfield, surgical and physiological instruments; and ROSS and Co., 164, New Bond Street, microscopes and optical instruments.

MR. P. BOURJEAUD, 49, Davies Street, W., has an attractive case of Surgical Appliances. Amongst these will be found Spiral Elastic Stockings, Knee Caps, and Thigh Pieces, Spiral Elastic Abdominal Supporters, to be worn either during or after pregnancy; Spiral Elastic Belts and Air-Pads for slight cases of inguinal hernia; Spiral Elastic Belts, Thigh Pieces, and Air Pads for femoral hernia; and Spiral Elastic Belts and Air Pads for umbilical hernia. Spiral Elastic Belts and Air Pads for prolapsus uteri; Spiral Elastic Belts and Hypogastric Air Pad Supporters for the displacement of the womb; Mr. Bourjeaud's New Truss, free from steel bands, with regulating spring; and a new Umbilical Truss of the same character; Spiral Elastic Corsets or Spinal Supports; and the exhibitor's new Suspensory Bandage.

MR. JOHN CARTER, New Cavendish Street, sends a variety of his Invalid Mechanical Furniture, and a kindred class of exhibits, which are favourably known to those interested in such appliances.

MESSRS. C. WRIGHT AND CO., Surgical Instrument Makers, New Bond Street, show a good assortment of

general instruments, including Benham's Clamp, as used for the treatment of hæmorrhoids by crushing, which we illustrate. Without enumerating the many other advantages to be gained by the use of this clamp, it may be

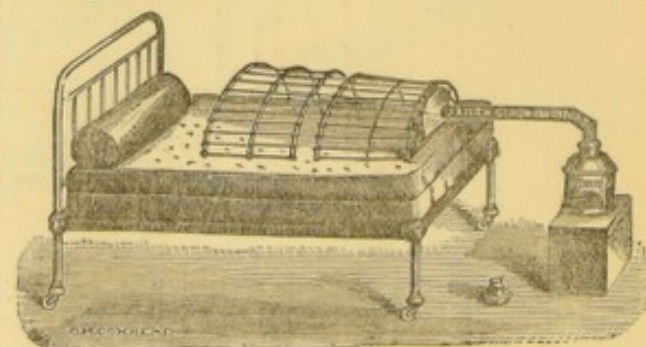


pointed out that it so completely crushes the pile as to leave only a slight fringed remnant, without any pain or bleeding, rendering the convalescence of the patient a matter of a few hours. Another article of interest shown by the firm is Benham's Steam Antiseptic Spray Producer, of which they are also the sole manufacturers. Our illustra-

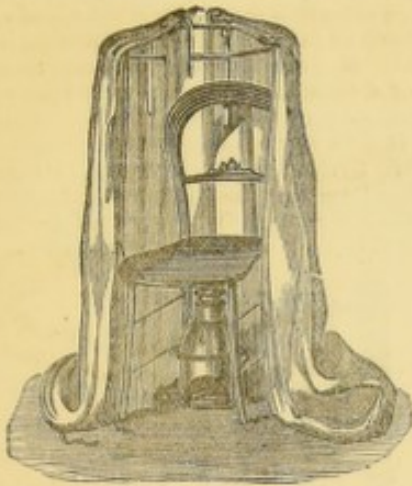


tion represents the apparatus, which is composed wholly of metal, and is provided with an excellent safety valve and glass gauge for ascertaining the contents of boiler; the handle is also of a very convenient form, and can be held for a considerable time without tiring the hand. The apparatus is constructed to produce an uninterrupted spray for upwards of an hour, and, being inexpensive and portable, is well adapted for operating and dressing for hospital or private practice.

MESSRS. JAMES ALLEN AND SON, Marylebone Lane, the well-known makers of Medical Baths, and numerous appliances for the invalid and sick room of metallic substances, exhibit several of their specialities in this direction, the principal of which is their Portable Turkish Hot Air and Vapour Bath, of which we append two illustrations, showing its application in two forms. It is claimed to be



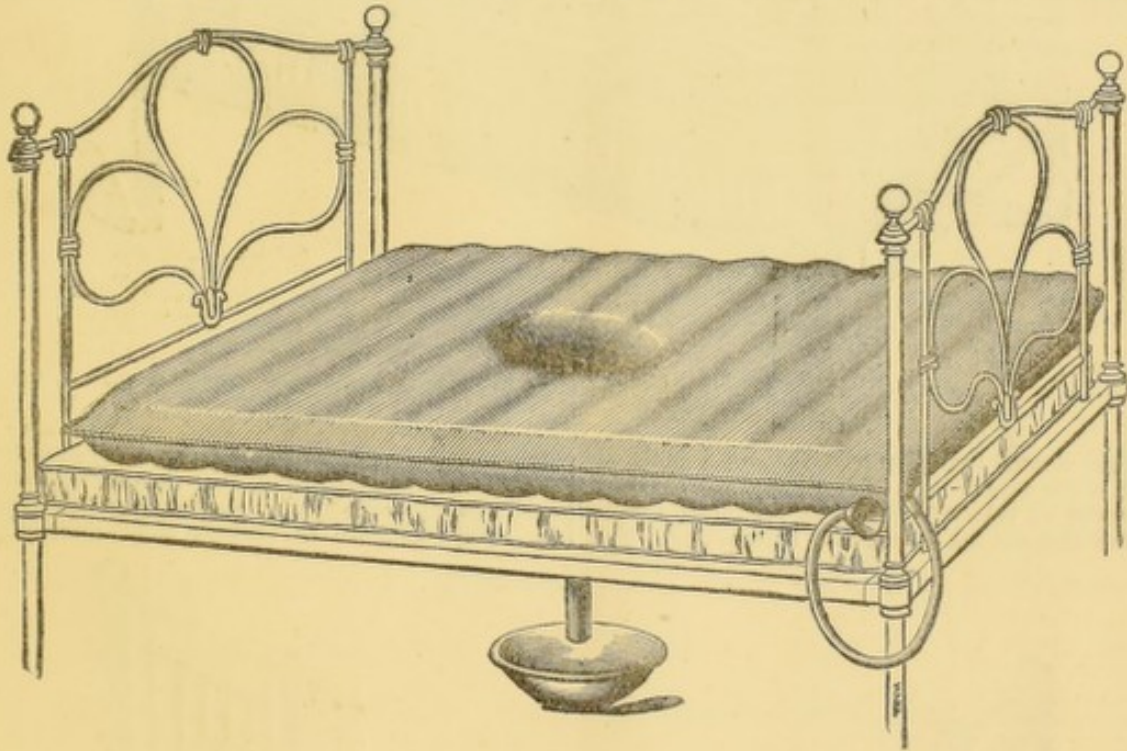
capable of generating a larger amount of heated air and vapour than any other portable apparatus. A bath of either, or the two combined, can be obtained in a few minutes, and may be taken from 15 to 40 minutes at a cost



of about threepence. The second illustration shows its application attached to the under part of a chair, with cloak, tinned iron supports, etc.

MESSRS. HOOPER AND CO., Pall Mall, have an interesting collection of their celebrated Elastic Water or Air

Mattresses, Cushions, etc, for Invalids, to be used on an ordinary bedstead or couch. One of the most important of these is their Elastic Central Tube Water or Air Mattress, specially constructed for conveying away the evacuations in cases of paralysis, disease of the spine, accidents, debility, old age, etc., of which the accompanying drawing will enable the reader to form a good idea. The advantages this bed offers can scarcely be over estimated, and it has received high commendations from a large body of the profession. Their Lever Invalid Bed-Lift or Elevating Bed and Elastic Water Mattress, affording a ready means of raising an invalid, is an equally meritorious invention. Provision is made for the use of the bed-pan (the lift on which the patient rests having a suitable opening for the purpose); for ablutions; for elevating the back and head; for ventilation and adjustment of the bedding, etc. The principle of this elevating bed being the simple lever without pulleys, cranks, or wheels, the invalid is raised, and again replaced, with great facility. Much pain and exhaustion are thus spared to the invalid, and the attendant's labour is materially lightened. Air and Water Cushions, and articles of a kindred character, make up the remains of this interesting exhibit. Messrs. Hooper have had the honor of supplying Her Majesty, their Royal Highnesses the Prince and



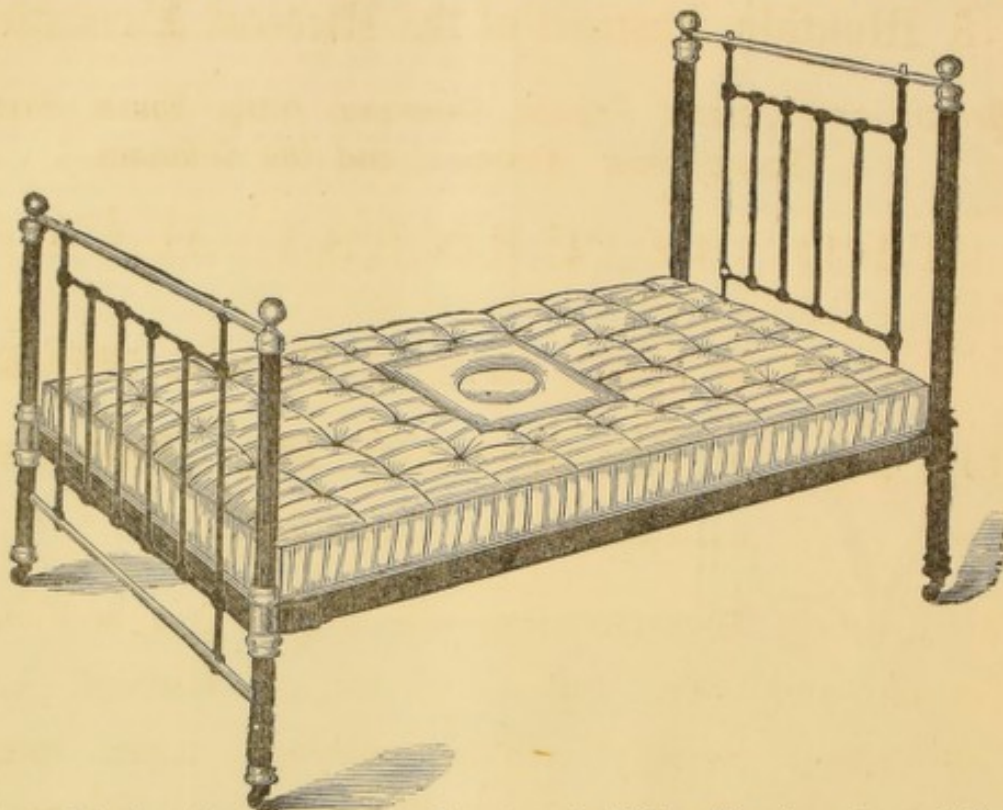
Princess of Wales, and the principal Courts of Europe, with these Appliances. The firm also exhibit Seltzer Water as originally introduced by the late Mr. Hooper.

MESSRS. TAPLING AND CO., Gresham Street, exhibit an Invalid Bedstead (Dalton's patent), the special appliance of which can be adapted to any bedstead, either in hospital or private houses, by simply removing the laths. The object of the patent, a self-adjusting invalid bedstead, is to enable the nurse, by simply pulling a ring attached to a cord, to lower a hair-stuffed plug, shown on the accom-

panying drawing, and having placed thereon a metal or earthen pan of the same shape, it is allowed to ascend by an arrangement of balance weights of the most simple character, and this pan fits exactly into the opening. The

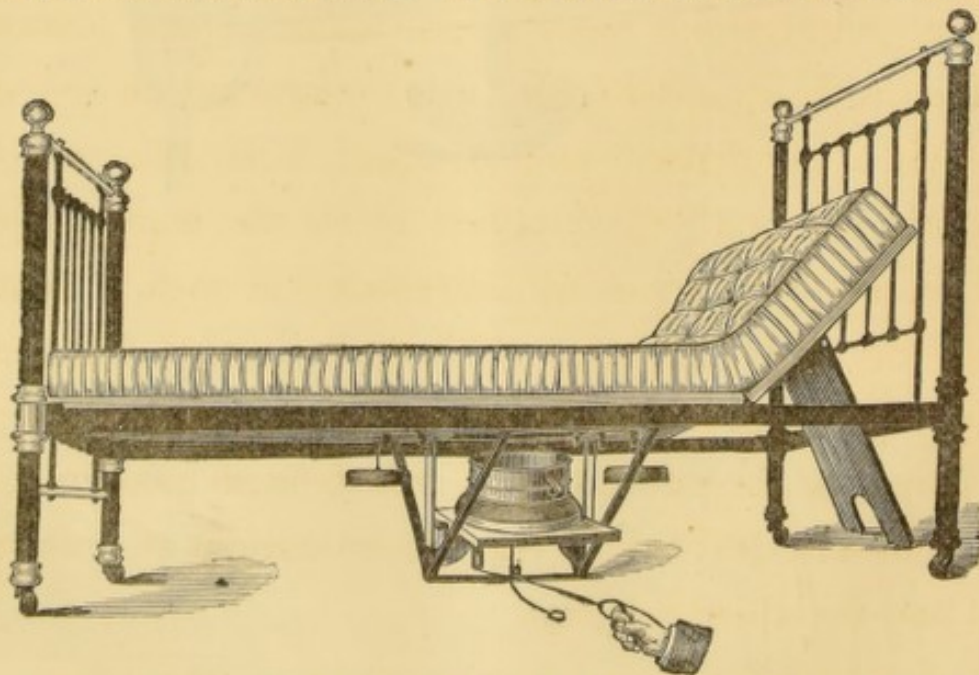
inconvenience attending the slightest change of posture. A handlift is fitted to and both ends are attached to the centre by hinges. Not only can the appliance be adapted to either side of a bedstead, but by turning both ends on the centre it becomes portable for transmission. The appliance, as a whole, is well worthy of attention.

Mr. T. W. STIDOLPH, High Street, Dartford, sends samples of his Improved Institution Bedstead, with Indestructible Cloth Sacking. The principal feature in these bedsteads is that the sacking is endless, and may be con-



stantly shifted. The noise and rust incident to iron laths, and the fretting and wear of mattresses on the same, are by this arrangement entirely avoided, and the tension can be always kept to the extreme point, thereby giving it

stantly shifted. The noise and rust incident to iron laths, and the fretting and wear of mattresses on the same, are by this arrangement entirely avoided, and the tension can be always kept to the extreme point, thereby giving it



second illustration shows this arrangement. When the patient has used this appliance it is lowered by the same means, removed, and the hair-stuffed plug raised in its place, and the bed again made complete. The patient is thus enabled to remain perfectly still, and is spared the pain and

almost the advantage of a spring mattress. For examination, and for cleansing when soiled, the sacking can be instantly released and removed with the same facility as a round towel, while the open frame promotes cleanliness, which bedsteads with open joints and dovetail joints and laths do not possess to the same extent.

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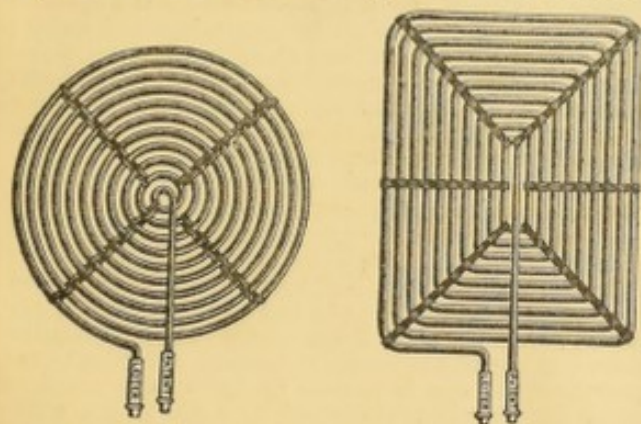
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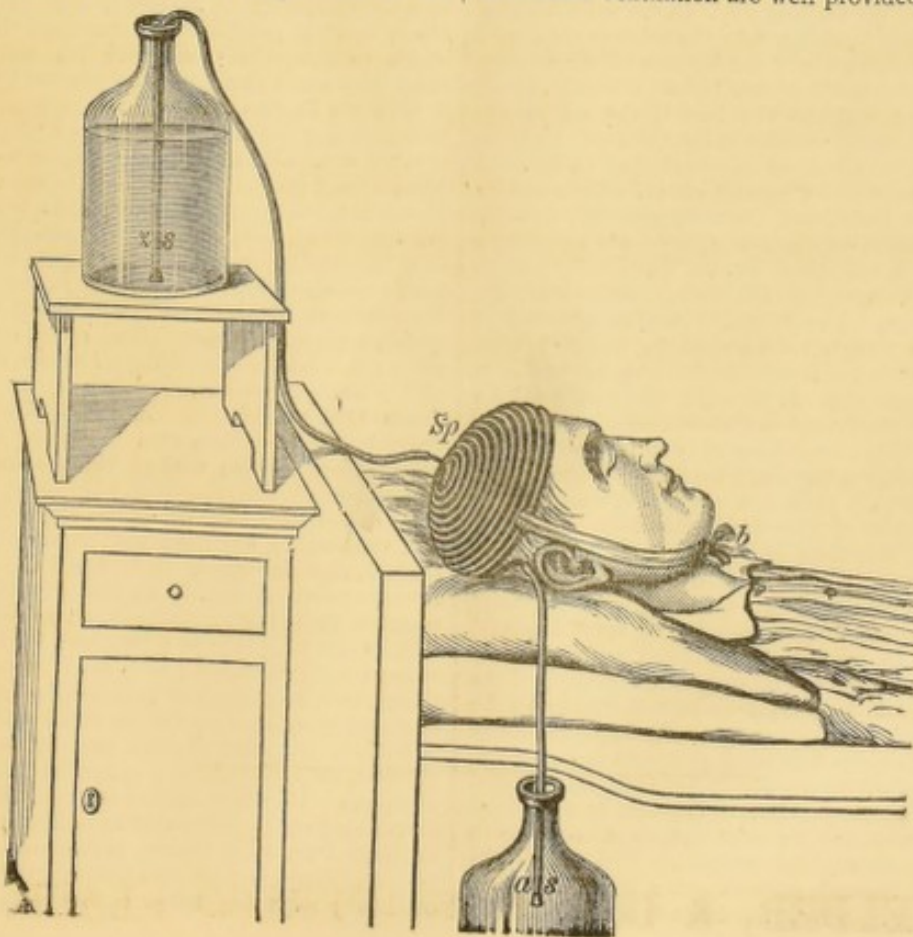
Messrs. KROHNE and SESEMANN of Duke Street, Manchester Square, are also well represented by Surgical and Orthopædic Instruments and Appliances, but the greatest novelty in the last-named department is a collection of Leiter's Pliable Metal Temperature Regulators, a new apparatus for continuous application of warmth or cold to different parts of the human body, and a new glass irrigator for wounds, artificial feeding, washing out, and injecting the stomach, etc. It would require more space than we have at our command here to do full justice to this invention, which has, we believe, been patented in most civilised countries. Passing over the old and ordinary methods of applying heat or cold to local parts of the body, we come to the method of constant water circulation employed by Richardson, Thornton, Esmarch, and others, with India-rubber appliances, which have largely taken the place of ice-bags, and more primitive methods. To Leiter, however, belongs the merit of having produced, by the employment of pliable metal tubing, a temperature regulator which will fulfil the requirements of the surgeon and physician for local application of warmth or cold in a constant and easily-regulated manner. The advantages of the new material

part to which it is applied. Numerous other objections, well-known to the profession, are attendant upon the use of India-rubber, all of which are obviated by the use of the pliable metal tubing. This invention consists in coiling and forming into various shapes, composition metal tubing having an inside diameter of from a sixteenth to an eighth of an inch, as in the subjoined sketches, which show two of the simplest forms; but they can be easily and rapidly made of any size, and the metal being so ductile, they are bent to the required shape by the merest pressure. They are provided with an inlet and outlet pipe, and the mode of application is shown in the next engraving, the flow of water in the first place being started by siphonage. When the upper or supply-bottle is nearly empty they can be reversed, and the flow of water continued for the required time by constantly carrying on this plan. For hot-water application the arrangements are the same, with the addition of a little lamp with a circular wick, burning methylated spirit or petroleum. Above this is a little boiler having a spiral coil inside through which the water circulates, and becomes heated before descending to the metal pad on the patient. A thermometer is affixed in a vertical position by the side of the lamp, and the tube leading to the pad is carried down it, the temperature can thus always be seen at a glance. Leiter's glass irrigator is a funnel-shaped vessel of glass, having a long tube connected with its lower part, on the end of which is fitted a vulcanite plug. The advantages claimed for it are, that it can be kept cleaner than those made of tin, zinc, or other metals, while, on account of its funnel-form, a greater and more uniform hydraulic pressure is obtained than with irrigators of cylindrical or other shapes. Messrs. Krohne and Sesemann's catalogue contains a number of illustrated examples showing how the irrigator, and the metallic temperature regulators can be utilised.

MR. T. McILROY, Charlotte Street, Fitzroy Square, exhibits his *post-mortem* or Anatomical Weighing Table, which, fitted with a complete weighing machine enclosed underneath, gives the weight of the body or any part thereof, from $\frac{1}{4}$ ounce to 600 pounds. It will raise and revolve at any given height, carry off fluids, etc., and drainage and downward ventilation are well provided for. There is also

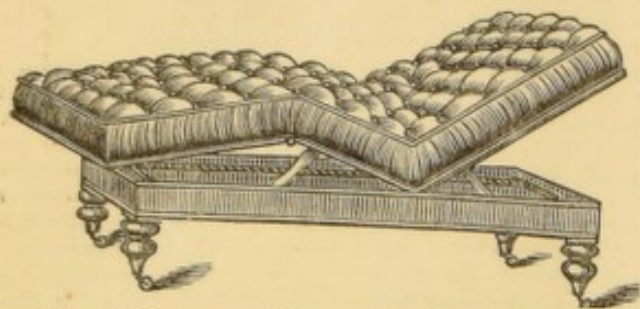


over India-rubber will be seen at a glance, for, being a bad conductor, the circulation of a large quantity of iced water is required to produce a reduction of temperature of the



an Examining Chair of ingenious construction, with almost every conceivable movement required for such an apparatus; an Operating Table of similar construction as regards its various movements; and an Operating Chair for fistula, invented by Bozeman of New York.

MR. WM. HAMILTON, Ship Street, Brighton, shows an Invalid Couch called the Grasshopper, which we illustrate,



capable of being moved into any required position. It is also made with movable arms and post-rest.

MESSRS. R. W. WINFIELD AND CO., Cambridge Street, Birmingham, and Holborn Viaduct, the eminent Brass Bedstead Manufacturers and General Brass Founders, exhibit several Appliances for the Ward and Sick Room, Lamps, Gas Fittings, etc. A very useful article consists of a 'Kettle Bracket', which combines a light with a burner for boiling, etc., and by the peculiar arrangement of the kettle and pan sold with it, enables the food to be most delicately cooked, and without any odour. There are some Improved Patent Lamps for burning paraffin oil and other volatile oils, well worthy of attention, intended always to keep a full supply of oil to the wick, whatever the quantity in the reservoir may be. At the upper part of the body is a horizontal division dividing it into two unequal parts, the upper part constituting the wick dipping cup or vessel, and the lower and larger part the oil storage reservoir of the lamp. At one side of the divided body of the lamp is a hollow cylinder or barrel, in which a cup-shaped piston or lifter works freely. The upper part of the barrel projects into the wick dipping cup, its open top being a little below the level of the top of the dipping cup. In the wick dipping cup are overflow pipes opening into the storage reservoir. In the barrel, and a little above the bottom of the storage reservoir, is a series of perforations, through which the oil from the reservoir flows into the barrel, the oil in the reservoir and barrel being thereby maintained at the same level. The cup-shaped piston or lifter is raised or lowered in the barrel by means of an endless chain, which can be actuated outside the lamp, and the arrangements, broadly speaking, are somewhat on the principle of the moderator lamp. There are a variety of Patent Ventilating Lamps for Gas, and several examples of Gasaliers, Brackets, etc., of very choice design. The firm also exhibit a variety of Decorated Copper Panels to be used in building construction, suitable both for domestic and hospital architecture. The few specimens of Metallic Bedsteads shown present some very pretty and novel features. There are also Fenders, Fire Dogs, and Brasses of the Queen Anne period, Metallic Umbrella Stands, Fire Screens, and Spark Guards of the 17th and 18th century styles, examples of Wrought Iron Work of the 12th and 13th centuries, Church Furniture, Lecterns, Metallic Clock Cases, etc. There are also a Patent Combined Chair, Couch, and Bedstead for the use of Invalids, and a Cot designed specially for Children's Hospitals. This consists of three essential parts—the middle or seat part, the head part, and the foot part, together with a fixed framing supporting the three parts. The seat part is jointed at one extremity to the head part and at the other extremity to the foot part. The several parts can take the following positions respectively. The head can be raised into a nearly vertical position and lowered into a horizontal position. The seat in its normal position is horizontal, but its front can be raised so as to make the seat take an inclined position. The foot can be moved from nearly vertical position into a horizontal position. The several parts can be fixed in any of the positions

into which they are brought. The head and foot parts are each provided with counterbalance weights, so that they are easily moved into any required position. The edges of the head part have rods affixed to them, constituting prolongations downwards of the sides. The lower ends of these rods are attached to connecting rods jointed to the lower end of the foot part. When the head part is moved in any direction the foot part moves by the action of the rods described in a like direction—that is to say, if the head is brought upright the foot part is lowered, and if the head is depressed into a horizontal position, the foot part is raised into a horizontal position. In the case of a child's cot, side rails are attached to the framing, and the movable foot part is dispensed with.

MR. W. H. LLOYD, Harborne, Birmingham, exhibits a collection of his excellent Bronchitis Kettles, and a new combined Vapour Bath, Food Warmer, and Bronchitis Kettle. This little apparatus provides the sick chamber, not only with apparatus for regulating the degree of moisture required, but with the means of producing hot water for tea or coffee, or of heating milk, gruel, broths, or soups in a few minutes in the simplest manner, and practically, without trouble. It consists (1) of a movable stand, containing a lamp for burning methylated spirit; (2) a kettle with an elongated spout for throwing a fine spray of steam in any desired direction; (3) a shorter spout which can be substituted for the other when hot water for making tea or coffee is required; (4) a water bath, with earthenware basin, in which milk, gruel, broth, or other food may be heated as required. The whole apparatus is sent out in a neat japanned tin box, in which it can be kept when not required for use. The kettle and the lamp are so adjusted as to their contents, that the latter will continue to burn for three hours, during which period the kettle will discharge steam, and when the light expires there will remain a small quantity of water. Thus the kettle will never be in danger of burning. The cost of the spirit is about one half-penny an hour. An excellent vapour bath may be extemporised by means of this apparatus. The kettle fitted with the short spout is to be placed under the seat of a chair, with the spout directed backwards, and the lamp lighted. The patient is then to be enveloped loosely in blankets, and to be seated in the chair, leaving sufficient space within the blankets for the steam to completely surround his body. The blankets must be secured at the neck to prevent the escape of steam.

MESSRS. BENHAM AND SONS, the old-established ironmongers and sanitary engineers, of Wigmore Street, W., exhibit a variety of useful appliances adapted both for hospital and general use. They consist of an Independent Hospital Cooking Stove, requiring no brickwork or setting, burning wood, coal, or any fuel, capable of boiling, steaming, baking, roasting, stewing; made in various sizes; used at several military hospitals in the colonies, etc., and for camp at Cyprus. A Disinfecting Oven, heated by steam, either by direct action, moist or dry, by jacketed sides; capable of destroying all insect life, etc. Another of the same character, heated by gas; very useful where steam is not available. A Ward Kitchen Range, with oven, boiler, hot-plate, etc., heated by coal and gas, combined or separately; used at Manchester Union Infirmary and elsewhere. A Hospital Slop Sink, of enamelled cast iron, in polished deal frame, very cleanly, very capacious, and thoroughly trapped; used at the Radcliffe Infirmary, Oxford, and elsewhere. A Hospital Coal Cellarette, 'The Londonderry,' strong, light, and capacious; filled at top, emptied at bottom; mounted on silent wheels; made in various sizes. There is a Hospital Bath, strong and portable; on silent wheels; with draw-off cock; and a Child's Hospital Wash Stand of polished deal and slate top, with enclosed closet; as used at the Evelina Children's Hospital. A Child's Hospital Clothes Bin, of polished deal, in two drawers, with hinged lids; as used at the Evelina Children's Hospital. They also exhibit Siemens' Improved Gas Fire, for burning anthracite coal in an ordinary open grate, Anglo-German Porcelain Stove, presenting a clean enamelled surface, beauty of form and order; giving out pure inodorous heat; requiring little attention; and the Davy Wash-

ing Machine, as improved by Benham and Sons; simple and effective in its action; used at the Langham Hotel, Manchester Union Infirmary, etc. A Centrifugal Wringing Machine, adapted for hand power or steam; made by Benham and Sons in various sizes, is used in all large laundries. Their Ventilating Globe Light is shown as fixed to ceiling of room, with pipes for removal of gas products and vitiated air of room carried between the joists to the chimney shaft. Fresh air is also admitted by other pipes to feed the lamp and replace the air removed. Made in various ornamental forms and various materials, bronze, porcelain, glass, etc., and in plain inexpensive pattern for hospital use. Lately fitted throughout the New Nottingham University College, Museum, and Free Library; 200 lights in all.

Messrs. BURROUGHS, WELLCOME and Co., of 7, Snow Hill, exhibit the following preparations:—Wyeth's Compressed Peptonic Tablets. The introduction of a convenient mode of administering pepsin and other digestive ferments has long been a desideratum. Of the value of pepsine and pancreatine in the treatment of the various forms of dyspepsia there can be no doubt. Each of these tablets represents the full medical activity of twenty grains of pepsine and pancreatine. They are elegant in appearance, and from their peculiar form can be swallowed without difficulty.—Kepler's Malt Extract.—The value of extract of malt as a medicinal agent is as yet hardly fully appreciated. Kepler's extracts are generally liked by patients, and are often taken readily when other forms are not retained. It is a good plan to begin with a teaspoonful three times a day, but the dose may be rapidly increased to a tablespoonful or more. One of the best vehicles for taking the extract of malt is a little warm milk, but some people prefer it alone, whilst others like it with soda-water. It speedily improves the powers of assimilation, and in cases of consumption, scrofula, and many of the wasting diseases of children a wonderful improvement in the patient's condition may be noticed after even a fortnight's treatment. The introduction of Kepler's extract of malt is a decided advancement in therapeutics.—Wyeth's Compressed Tablets of Chlorate of Potash.—These are a great improvement on the pharmacopœial lozenge. They are extremely useful in removing the huskiness in the throat from which so many public speakers unfortunately suffer. To clergymen, lecturers, and public singers, they are invaluable. In tonsillitis and in the enlarged tonsils of children, they may be given with confidence. Each tablet contains five grains of chlorate of potash.—Burroughs' Beef and Iron Wine.—This is an excellent preparation, and is a great improvement on the *vinum ferri* of the *British Pharmacopœia*. For convalescents from acute illnesses it is an admirable restorative. For dwellers in large towns who are unable to make a good breakfast, a tablespoonful in a little water about eleven o'clock, with, perhaps, a dry biscuit, will be found most useful. It is well adapted to the treatment of children suffering from rickets or general mal-nutrition. Each fluid ounce contains the nutritive value of two ounces of beef with four grains of citrate of iron.—Wyeth's Dialysed Iron.—This is a neutral solution of oxide of iron in the colloid form, obtained by endosmosis. It has the great advantage over most other preparations of iron that it has no unpleasant smell or taste and does not irritate the stomach. It may be given with confidence when other forms of iron disagree. In anæmia and chlorosis it may be regarded as a specific, and in many cases of what may be called malignant anæmia it is certainly most beneficial. It is the best antidote we possess for poisoning by arsenic.—Wyeth's Compressed Soda-Mint Tablets.—Each tablet contains four grains of bicarbonate of soda, a quarter of a grain of carbonate of ammonia, and a sixth of a drop of oil of peppermint. They are well adapted for cases of dyspepsia with flatulence, acidity, and heartburn. The soda and carbonate of ammonia act as antacids, whilst the antiseptic action of the peppermint checks butyric acid fermentation.—Fellows' Hypophosphites.—Fellows' syrup of hypophosphites contains the hypophosphites of iron, quinine, strychnia, lime, manganese, and potash. The phosphorus is so lightly combined with the bases that it

is equivalent to free phosphorus. This preparation is largely prescribed in what is commonly called 'general debility', and it is especially useful when the debility has arisen from sexual excesses or some functional derangement of the reproductive organs. In the languor which often follows too frequent seminal emission it is highly recommended. It is the best form in which to give the hypophosphites to obtain their constitutional effect.—McKesson and Robbins' Capsuled Pills.—These beautiful little pills are certainly worthy of attention, and are a wonderful improvement on the old-fashioned bolus. Being oval in shape and completely covered, they may be taken by even the most fastidious patient without the slightest difficulty. That they are active we have abundant evidence. The introduction of bisulphate of quinine is certainly a novelty. On breaking open one of the phosphorus and nux vomica pills, the smell of phosphorus is very perceptible, and in a few minutes distinct fumes can be seen rising from the pill mass. The sulphide of calcium pills will be found most useful in boils and carbuncles, and in the treatment of scrofulous glands in the neck. Messrs. Burroughs and Wellcome are the European agents.—The Burroughs Hazeline.—Hazeline is a clear pellucid fluid, containing in a concentrated form the active principles of *Hamamelis Virginica*, the American Witch Hazel. It is largely employed for arresting venous hæmorrhage, and proves equally efficacious whether the blood comes from the nose, lungs, stomach, bowels, or other organ. It is especially indicated when the blood comes up easily and the bleeding is not attended with any expulsive effort. It has been used with success in cases of dysentery when there is much blood in the motions. In the treatment of bleeding piles it is almost a specific. It is given internally in fifteen-drop doses three or four times a day, and is also used as a local application. It is useful in many affections of the mucous membranes.

Messrs. J. F. MACFARLAN & Co., North Bridge, Edinburgh, exhibit two classes of preparations, the first being opium alkaloids and other substances used in medicine; and the second, antiseptic preparations used in Prof. Lister's system of surgical treatment. In the first case are morphia, codeia, narcotine, narceine, thebaine, papaverine, and pseudomorphine, with many of their salts. Among these are the muriate, sulphate, acetate, meconate, and tartrate of morphia. The last is now used to a considerable extent for hypodermic injection, it having the advantage over the acetate, in forming at once a clear solution in water, and the solution being free from acidity. There are muriate and sulphate of codeia, both of which are readily soluble in water. They show in glass basins, crystallisations of codeia and of morphia meconate. The other preparations which they exhibit in this class, are chloroform, salicin, alvin, chrysophanic acid, and sulphate of beberine, all of which are prepared by them on a large scale. In the second case is displayed a complete set of the Listerian antiseptic dressings, including antiseptic gauze, with bandages made from it, carbolic lint, jute, and tow; cat-gut ligatures, silk sutures, and oiled silk protective, in all of which carbolic acid is the active agent. They have also boric lint and wool, salicylic wool, pink jaconet, and eucalyptus gauze. The firm has given great attention to the production of this class of preparations, from their first introduction, and takes special pains to have the articles of uniform quality, never failing to contain a sufficiency of the antiseptic ingredient.

MESSRS. ALLEN AND HANBURYS exhibit, side by side with their Finest Cod-Liver Oil, made by the ordinary process, for which they obtained the highest award at Philadelphia and a silver medal at Paris, their 'Perfected' Cod-Liver Oil, prepared in an altogether new and special way, and which is now well known for its almost absolute freedom from the usual nauseous taste and smell and property of not 'repeating'. They also show their new Malted Farinaceous Food, which they have patented, and which differs from other forms of Liebig's Food, in that the malt is present in a soluble, concentrated, and most active form, rendering the food not only most nutritious but self-digesting. Being cooked, it requires neither boiling nor strain-

ing. Their pure Extract of Malt is also shown. Besides the above, there is a large assortment of various Pâtes de Jujube, including a beautiful series of medicated ones, which are intended to supersede the ordinary hard, rough, and angular lozenges. These were first made at the suggestion of Dr. Prosser James. Chisma, which has recently come into notice as a valuable parasiticide, as well as an inoxidizable basis for ointments, is also shown. A large jar of the Fluid Extract of Tonga, and a few samples of ordinary pharmaceutical preparations, such as Fluid Extract of Ergot, Tincture of Henbane, etc., of very excellent quality, complete Messrs. Allen and Hanburys' own exhibits. We must not pass over a new remedy for whooping-cough, from the United States, for which Messrs. A. and H. are agents, and which they exhibit, viz.: Page's Vaporiser and Cresoline. It is said to be a most valuable specific for the disease, and is already in extensive use throughout America. For further particulars of the above, we would refer our readers to the handbills, which can be obtained at Messrs. A. and H.'s stand.

MESSRS. YOUNG AND POSTANS, 35, Baker Street, London, W. Their exhibits include the following collection of 'Medicated Effervescent Granules', and other Pharmaceutical preparations: Granular Effervescent Bismuth and Pepsine; Granular Effervescent Bismuth, Pepsine, and Steel; Granular Effervescent Bismuth, Pepsine, and Quinine; Granular Effervescent Bismuth, Pepsine, and Strychnine, (introduced at the suggestion of the late Dr. T. H. Tanner); Granular Effervescent Bismuth and Iron; Granular Effervescent Bismuth, Iron, and Strychnine; Granular Effervescent Bismuth, Iron, and Quinine; Granular Effervescent Iodate of Iron; Granular Effervescent Iodate of Quinine. (Introduced at the suggestion of Dr. C. Cameron.)—Granular Effervescent Hypophosphites of Lime, Iron, and Soda. Young and Postans' 'Phosphorised Cod-Liver Oil'—Phosphorus Capsules, Phosphorus Pearls, Phosphorus Emulsion, prepared as suggested by Professor Redwood.—Resorcin; a fine specimen made by Merck of Darmstadt. Eugenol; pure natural Salicylic Acid; Goa Powder, and resublimed Chrysophanic Acid; Wood Oil, or Gurjun Balsam, for Leprosy; also, Liquid Extract of Ergot and Digestive Solution of Pepsine, from Messrs. Hamilton, Long, and Co., the State Apothecaries, Dublin. Maw's New Precipitate Collector, Hollow Suppositories with Stoppers, Pessaries, and Bougies, Enema-Apparatus, Invalid's Requisites, and a Stand containing a Complete Set of Apparatus and Re-agents for Testing Urine; and a Portfolio, etc., containing a Collection of Clinical Temperature Charts, as used at various hospitals in England, Scotland, and Ireland.

MESSRS. MACKAY, MACKAY AND CO., Bouverie Street, E.C., send a collection of chemicals used in medicine, manufactured by Mackay, Mackay and Co., preparations of Phosphorus, Bismuth, Iron, Cerium, Iodine, Bromine, Potassium, Zinc, Lead, Mercury, Sodium, Morphia, Strychnia, Quinine, Acids, Liquid Extracts, Decoctions, Infusions, Tinctures, Syrups, Wines, and Liquors; also special preparations of Quinine, Bismuth, Cerium, Cod-Liver Oil, Salicylic Acid, Saxceres Bark, and Iron, Beef and Iron, Epulixon, Chlorodyne, Santal, Copaiba, Chian Turpentine, Cantharides, Effervescing Saline, Collodion, Chloral-Hydrate, Croton-Chloral-Hydrate, Euonymin, Iridin, Pepsin, Salein, Podophyllin, Barks, Roots, Gums, Leaves, Pills (pearl-coated and capsuled), Suppositories, and Disinfectants.

MESSRS. F. NEWBERRY AND SONS, 1, King Edward Street, Newgate Street, London, as agents for W. R. Warner and Co., Philadelphia, U.S.A., have a handsome case containing the Sugar-Coated Pills manufactured by that firm, which have attained great popularity. It is claimed that sugar is the only proper material with which to coat a pill:—1, Because it is more soluble than gelatine, glue, chalk, or talc, of which gelatine and glue are the same in substance and properties. 'Sugar-coated pills are more soluble than gelatine-coated or compressed pills.'—Professor Remington's paper read before the American Pharmaceutical Association, Boston, 1875. 2, That ac-

cording to their process, no sub-coating of insoluble shellac or gum mastic, or 'oily' surface polishing is necessary. 3, That the direct application of heat is entirely avoided, and the masses can be coated when so soft as not to admit of being dipped in a hot solution of gelatine. 4, Sugar as a coating is not incompatible, as is the case with gelatine, etc., when brought into contact with certain kinds of food, astringent fruits, or wine containing tannin, by which the gelatine is converted into a condition of the basis of leather. 5, The preservative properties of sugar, and the tendency to attract rather than yield moisture, prevent the subsequent drying and hardening of the pills. 6, A round substance is more easily swallowed than one which is elongated, flattened, or pointed, there being no art in deglutition that would enable it to pass endwise. 7, The colour and shape of some varieties of oviform gelatinised pills, are so inelegant, by comparison with the spherical white sugared pill, as to be repulsive to sensitive patients. 8, Actual experiments which are enabled to be performed as to solubility, and the administration of a dose of cathartic pills, the effect of which is soon apparent, will practically demonstrate the truth of the claims put forth by Warner and Co.

MR. J. N. DAVIDSON, Manufacturing Pharmaceutical Chemist, Dundee, has an interesting collection of preparations, one of the most important being a Compound Cod-liver Oil Emulsion, which is also shown in another form, in which quinine is added; and in a third formulæ, called Compound Phosphorised Cod-liver Oil Emulsion; and in a fourth, in which quinine is present as well as phosphorus, the quantities being, in addition to the oil, one-fifteenth of free phosphorus in each ounce, and one grain sulphate of quinine per ounce. In each case the emulsion is perfect and permanent and does not separate. It may, perhaps, be considered singular that a Dundee chemist should have been left to discover a means of treating cod-liver oil by which its nauseating scent and taste have been entirely removed; and which some persons consider has reduced the famous preparation of Dr. de Jongh into insignificance. Certain it is that Mr. Davidson has so succeeded in medicating this popular oil as to make it tasteless and scentless; and he makes no secret of his process. He turns the oil into paste by mixing 75 per cent. of it to 25 per cent. of pepsine, hypophosphite of lime, and lactophosphate of lime. The result is a paste that may be eaten like butter, and of most unobjectionable character. A host of the profession in North Britain speak in the highest terms of Mr. Davidson's formula, and it is, no doubt, calculated to displace a variety of the preparations of the oil now in the pharmacopœia. Mr. Davidson has also succeeded in preparing a concentrated sweet rennet, which makes delicious curds and whey in ten minutes, which will be found an excellent addition to the many preparations that find their way into our households.

Amongst the disinfectants, the exhibits of the SANITAS COMPANY, Limited, Bethnal Green, London, hold an important position. Whether viewed as a disinfectant, a deodoriser, or an antiseptic, it is equally valuable, and it is peculiar as being the only known preparation that can claim to be both antiseptic and disinfectant in its properties; and unlike most other agents, it is not only non-poisonous, but is healthful, and leaves no stain on linen or furniture. It is unnecessary for us to enter into any history relating to the invention of 'Sanitas' through the experiments of Mr. Kingzett and Mr. Maximilian Zingler. That is well known to the sanitary world, and to the medical profession generally, and the pages of the *Sanitary Record* have borne testimony to its value on several occasions. We have here merely to note the fact that it is being exhibited, and to draw the attention of the general public to the various preparations for domestic uses made by the Company, all of which contain, in a greater or less degree, the disinfecting properties of 'Sanitas.' The simple fluid called Sanitas is the strongest antiseptic known, but we must refer the reader to the pamphlet published by the Company for an account of the many uses to which it has

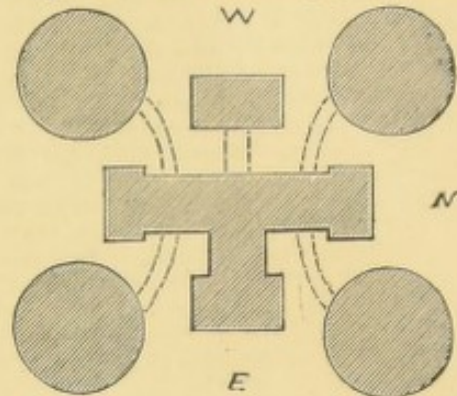


been applied. 'Sanitas' Oil, produced during the making of the 'Sanitas' fluid, is the oxydised oil of turpentine, and has been found of invaluable use to the medical practitioner for various purposes, such as the irrigation of wounds, the anointing of sores or ulcers, fumigating apartments, etc., and, although of an oily nature, may be said to be an extremely concentrated form of the aqueous fluid, and is used in the preparation of all the 'Sanitas' products. The toilet fluid is another form of the aqueous character, called Toilet Sanitas, and is intended to take the place of the so-called toilet vinegars, or it may also be used in the bath, though the ordinary fluid, in the proportion of one pint to ten gallons of water, produces a luxurious bathing medium. The Sanitas Disinfecting Powder is packed in dredgers in a similar manner to carbolic acid. It is believed to be a more powerful anti-septic and oxydising agent than any other preparation of the kind, and it is perfectly healthful and pleasant. It is also made as a toilet and nursery powder, free from all mineral and poisonous matters, healing and soothing in its properties, and is specially recommended for infants. There is, in addition, the Sanitas Tooth Powder, and, without going so far as to say it is a specific for toothache, it is calculated to arrest decay; and used by persons, suffering from decayed teeth, and the constant liability to toothache, it, generally speaking, has a tendency to give relief, and to exert a soothing influence. Sanitas Oil is utilised for soaps, and the company manufacture a toilet soap with which the most fastidious can scarcely find fault. It lathers quickly and easily, glides smoothly over the skin, and produces a smoothness and softness to which few other soaps can lay claim. We have it also as an ordinary household and disinfecting soap, as a soft soap, and even as a furniture cream. Thus, in providing ourselves with the different preparations of Sanitas, we are surrounding ourselves with valuable, pleasant and useful agents, which reduce the dangers of infection to a minimum, and provide us with some of the most necessary articles required in the household.

MESSRS. W. H. SCHIEFFELIN AND CO., William Street, New York, have sent a handsome case and collection of their popular Coated Soluble Pills and Granules which have attained much notoriety in the United States, and received a silver medal at the Paris Exhibition, 1878, and first award at Sydney, 1879. The coating of these pills, which is to some extent a secret, is an inert, soluble compound, dissolving upon the tongue in all cases almost instantly, entirely tasteless, perfectly transparent and colourless, thus disclosing to the eye the exact colour and appearance of the principal ingredients, and at the same time certain substances, such as proto-salts of iron, phosphorus, etc., are effectually protected against oxidation, etc. The firm maintain that the action of their pills are as prompt as any uncoated ones, which they contend is not the case with those coated with other substances.

The pen and ink drawing exhibited by Mr. FRANCIS E. JONES, architect, 20, Cockspur Street, illustrates an hospital on the 'circular ward system' of Professor John Marshall, F.R.S., adapted to a confined site such as that of University College Hospital. A circular system of wards has already been adopted on a large scale at Antwerp, for the hospital now in course of erection. There, however, the site is practically unlimited. The object of the design now alluded to is to shew the suitability and superiority of circular wards for a confined and enclosed site. The ward towers placed at the four angles of site, fall beyond a line drawn from angle to angle of the cross-shaped administrative buildings, by which they are, therefore, unobstructed as regards light and air; and, in addition, only one point on the circumference of the ward-tower is as near the houses on the opposite side of the street as the whole long side of an oblong ward would be. There is also an uninterrupted view and current of air through three open corridors, the immediately west of the main block of administrative buildings from end to end of the site. The sizes of the circular wards are—internal diameter, 60 ft.; total length of wall, 188 ft.; with 21 beds, floor-space per bed, 134 ft. 6 in., and with wards 15 ft. high, 2017.0 cubic ft. per bed.

A similar oblong ward for 20 beds would be about 85 ft. long and 28 ft. wide, or length of wall 226 ft., floor-space per bed 119 ft.; air-space 1785 ft. cube; that is to say, in spite of the 38 ft. extra length of wall, 15 ft. 6 in. less floor-space per bed, and 232 cubic feet less air-space in the case of the oblong ward. The external polygonal shape given



to ward towers, is for appearance sake, as well as with a view to economy, owing to the extra cost of 'circular work'; internally the wards are to be circular. The ward appurtenances placed on each side of the corridor provide lavatories, bath-room, water-closets, ward-scelleries, sinks, etc. These could be placed in the spandril pieces left at the angles of the site if preferred, unless their too prominent appearance be considered sufficiently detrimental to outweigh the possible advantages of so placing them. Each ward-tower consists of an arched base for coals, heating chamber, etc., and of three independent circular wards of 21 beds each, surmounted by a flat roof available as exercising ground, the portion round the central shaft being possibly glazed for use as a day-room. The towers thus formed are reached from the cross-shaped buildings (in which are all staircases) by open corridors. A main corridor runs the entire length of the long arm of the cross, with small wards, etc., on one side only. This corridor terminates in an operating and clinical theatre on the first floor, and on the ground floor are the entrances for the visiting surgical and medical staffs respectively at either end. In the eastern arm of the cross is the residential accommodation; in the western, wards for cases requiring special isolation. The basement is devoted entirely, with the exception of towers, to the out-patient department; in all, six consulting rooms (top light), two being for special cases (eye and skin), special waiting rooms, and entrances for male and female patients and for students at each end, casualty room, and dispensary. For further information respecting the advantages claimed for the 'circular ward system', see Professor Marshall's pamphlet read at the Social Science Congress, 1878, and published by Smith, Elder, and Co.

A Plan for the Re-construction of University College Hospital on its present site is shown by Dr. G. V. POORE and A. WATERHOUSE, Esq., A.R.A. The following is Dr. Poore's description of the plan. The plan has been accurately adapted to the present site; this being a matter in which there was no choice. It is by some thought advisable that hospital wards should be in one-storey buildings, and this rule might be followed if cost were no object, and if there were no high buildings in the immediate neighbourhood. In London, however, the cost of space necessitates high buildings, and it may well be that, in a crowded city, the sanitary conditions become rather more favourable as we ascend, and rise out of the lower impurities. It would be an advantage, no doubt, if the out-patient department could be removed to an area distinct from the rest of the hospital. This, however, is impossible, and any plan to be of service must be applicable, not only to the present site, but to the work, as at present carried on, on that site. The main principle of the scheme is, that each pavilion should be a building complete in itself, and that at all times it should be impossible to pass from one pavilion to another, from one storey to another, or from one ward to another, without going into the open corridor.

It might be objected that great inconvenience would be thus caused to those who have to visit the wards, but a doctor visiting the wards of an hospital should regard himself rather as walking from house to house than from room to room, and should be clothed accordingly. The building resembles the letter E, the horizontal limbs formed by three pavilions pointing towards the open space in front of the College. Every part of the building is thus made accessible to what pure air there may be on this space. The width between the centre pavilion and those to the north and south of it is from 72 to 80 feet, or nearly the width of Tottenham Court Road. The pavilions are connected at their western extremities by open corridors, through which the wind would be able to blow, and thus the entire area would be thoroughly ventilated. The private wards and residents' rooms occupy a building on the western side of the connecting corridor, while the staircase-turrets are on the eastern side, midway between the pavilions. The position of the connecting corridors and staircases is such, that, in the event of extension along Grafton Street or University Street, they would still be in a convenient position for a larger hospital. The building is 5 stories high, and stands about 63 feet above the pavement—the basement storey 16 feet (9 above the pavement), three stories of wards (13 feet each inclusive of floor) 39 feet, and top storey of 15 feet, exclusive of sloping roof. The basement is lighted by large windows and skylights, and would extend over the whole area, exclusive of the space of 36 by 36 feet, which is appropriated to the back yard. The roof of the basement extending between the pavilions would serve for two recreation courts for patients. The general construction of the basement would resemble, it is thought, that of the large drapers' shops, and would be as light as possible. In it would be found accommodation for casualty rooms, out-patient waiting hall, out-patient consulting rooms, two small casualty wards, containing one bed each, dispensary, dispensary store, and electrical room, in the southern half; board room, secretary's office, residents' dining room, inquest room, steward's and housekeeper's offices, etc., in the northern half; cellars under the Central Pavilion (which would be difficult to light), and baths and heating apparatus, under the residents' building to the west. It is thought that the out-patient department might be ventilated by windows and tubes, and that the foul air might be carried off through special ducts communicating with the furnaces, which would be necessary for the baths and heating apparatus. In this way the nuisance of the out-patient department would be reduced to a minimum. Next as to the three stories devoted to wards. They would be exclusively devoted to patients, and each pavilion would contain three wards. The wards in the north pavilion would be 120 feet long. Those in the centre pavilion 80 feet long, and those in the south pavilion 88 feet. All wards are 25 feet wide. Altogether in this way we should get 21,600 square feet of floor space available for patients; and giving 120 square feet to all patients, children as well as adults, we should get accommodation for 174 patients. In addition to this, there would be 24 beds in private wards, making 198; and if the children and chronic cases were allowed 100 square feet instead of 120, the building would accommodate considerably more than 200 patients. The w.c.'s and sculleries are in slightly projecting turrets at the east end of the pavilions. These turrets meet in an arch at the top of the third floor, and over this arch (in the top storey) the seats in the lecture theatre would be arranged. The w.c.'s and sculleries are purposely made as small as possible. If they be large enough that is sufficient. Excess of cubic space in these apartments is mere waste, adds greatly to the expense of the building, and tends to encourage untidiness and dirt. A kitchen with a large kitchen range, etc., attached to a ward is quite unnecessary, a few gas-jets sufficient to cook a chop and heat water or liquid food is all that is required. The top storey is 15 feet in height, exclusive of the roof. Here one would propose to place every thing which may give rise to offensive emanations, and those apartments for which light and air are especially necessary,

thus: A. In North Pavilion—(i) The dead-house and *post mortem* room (communicating by a special lift with the 'back yard', into which the hearses drive for the removal of the dead); (ii) Registrar's rooms; (iii) Urine laboratory; (iv) Dispensing laboratory and clinical lecture theatre. B. In Middle Pavilion—(v) The operating theatre, etc. C. In South Pavilion—(vi) The kitchen, etc., with a few servants' bed-rooms. The advantages both for lighting and ventilating possessed by rooms on the top stories is too obvious to call for any remarks. The necessity for a maximum amount of light in *post mortem* rooms, laboratories, and operating theatres, is also obvious. Next as to the building occupying the west side of the area. The bottom of the building would be occupied by the baths and heating apparatus; the first and second floors by rooms for 10 residents (2 rooms each); the third and fourth floors by private wards and small wards: and there would be here a partial fifth story, extending over the staircases and west building, affording accommodation for 2 wards for infectious cases. The corridors are 8 feet wide, except in the space between the staircases, where they are 12 feet wide. Here there might be seats, and these wider corridors would serve as rallying points for students waiting to visit the wards with the physicians and surgeons. The corridors are open so as to allow of the free flushing of the area by the west wind, but Louvre boards might be provided as some protection against weather, when necessary. These corridors, it is thought, while serving a most useful purpose, would form an architectural feature of some beauty. The entrances would be (1) for patients, in University Street; (2) for management and students, in Grafton Street. The out-patients' exit would be through a revolving grating in Gower Street. There is no grand entrance, since it takes up room, and serves no useful purpose. The staircases, in separate buildings are 6 feet wide, and in the centre of each is a lift going from the bottom to the top of the building. The double staircases, and the fact that the staircases would be between walls, would render the building a safe one in case of fire. No nurses' rooms have been provided, because it is believed that when a nurse is on duty her proper place is in the ward, and that when she is off duty she is better out of the hospital altogether. They would live, as at present, in a separate house.

HUNYADI JANOS, exhibited by the APOLLINARIS COMPANY, Limited, 19, Regent Street, London, S.W.—This is an aperient natural mineral water from the Hunyadi János Bitter Salzquelle, Buda-Pesth. It is the type of a good aperient water, containing as its chief elements sulphate of soda and sulphate of magnesia. These it contains to an extent far beyond that of the waters previously in use, and which it has largely superseded, such as Püllna, Friedrichshall, etc. In addition to its great richness in these aperient salts, it has the advantage of the natural combination with the carbonate and chlorate of sodium, and of containing a considerable amount of free carbonic acid; conditions which, as Dr. Schwartz has observed, greatly increase the tolerance which the system shows to this aperient water, and must render it more palatable than other bitter waters. Its use had attained extraordinary proportions in Germany before its reputation reached this country; the amount sent from the springs having risen from 40,000 bottles in 1863 to 1,500,000 in 1875. Since that time it has won the approval of the medical profession throughout Great Britain, France, and America, and it has helped to initiate an important therapeutic movement which is now in progress in this country, in the use of very much smaller doses of the saline aperients than had previously been the practice. Therapeutists such as Prof. Macnamara, Prof. Aitken, and others have noted with surprise how remarkably constant, gentle, and valuable an effect may be obtained by the use of the relatively small doses of sulphates and chlorides, with carbonic acid, contained in half a wineglass to a wineglassfull of Hunyadi János water. The former dose is adequate for all ordinary purposes if taken at night; while a wineglassfull taken in the morning, mixed with either warm water or taken in a little hot milk, which completely covers its flavour, suffices to produce a rapid painless

aperient action. It appears to be tonic rather than debilitating to the intestine, and powerfully aids in relieving the hepatic and splenic organs and relieving internal congestions. The uses of Hunyadi János are too numerous to be here enumerated, and extend over the whole series of congestions of the viscera; the gout, rheumatic and obese diatheses, habitual constipation, whether in adults or in children; and all diseases which require the use of a moderate evacuant, tolerably rapid and yet safe in its action.

APOLLINARIS WATER—**APOLLINARIS COMPANY, Limited**, 19, Regent Street, London, S.W.—Not very much need, perhaps, be said of a water which has now become a household word throughout the civilised world. Apollinaris Water springs from a deep rocky source at the Apollinaris Brunnen, Arheil, Rhenish Prussia. This source is alike unparalleled for its outflow of mineral water, and for its richness in carbonic acid gas. The measured outflow of water, carefully ascertained and certified by scientific experiments, amounts to 300 litres every four minutes, equal to 144,000 quarts daily, or 40,000,000 bottles yearly, being four times as much as the quantity of water actually used for bottling, which, according to the official statement, amounts to 10,000,000 bottles yearly. The quantity of carbonic acid gas (as reported by G. Thilenius, president of the Balneological Section of the Medical Society of Berlin, April 19, 1879) exhaled from the spring is so great that, notwithstanding all precautions to prevent its escape and preserve the whole of the gases for bottling purposes, it is impossible in calm weather and with medium barometric pressure to prevent the escape of such a quantity of gas as prohibits too near approach to the opening of the spring. The water is bottled exclusively with its own natural gas, and by a method devised in 1852 by Professor Bischof, and described by Thilenius in his paper, as well as by Kekulé and Hofmann, as most satisfactory, since it supplies the water in bottle with the exact proportion of its own gas as it exists in the spring at the depth of 60 feet from the surface, whence the water is taken. In order to utilise the richness of the spring in carbonic acid gas the water intended for consumption is drawn off at a depth of 60 ft. below the surface, a depth equal to three atmospheric pressures, and is bottled with a quantity of its own gas drawn from the spring exactly equivalent to that which the water contains at the depth at which it is drawn. Professor Thilenius speaks in this report with surprise and admiration of the minute care and of the 'grandiose' liberality with which the operations of bottling are conducted at the spring, the whole organisation being arranged in such a manner as to ensure the most perfect results. The mean analyses of the spring most recently made by MM. Bischof, Kyll, and Mohr, are:—

Carbonate of Soda	0.9555
„ of Magnesia	0.3775
„ of Lime	0.2608
Chloride of Sodium	0.3765
Sulphate of Soda (Glauber's Salts) ..	0.2128
Oxide of Argillaceous Iron	0.0175
Silicated Acid	0.0137
	2.2043

Apollinaris Water has been described by Dr. Balthazar Foster, as 'without a rival'. This was practically the case when it was first introduced on so extensive a scale into England, France, and America, as a pure table water *par excellence*, or, as it has been more picturesquely called, 'the Queen of table waters'. The remarkable success achieved and the universal favour with which Apollinaris was regarded by physicians throughout the world, and by the public generally, as a new element in daily dietetics, and as a means of substituting a pure, most pleasant and healthy table drink for the alcoholic liquors which have been gradually falling in public estimation, have led to the introduction into the market of a great number of competitors. Apollinaris remains not only at the head of the list, but must be regarded as an enterprise entirely without parallel in the history of mineral waters for its extent, completeness, and the great capital invested, and for the high scientific sanction under which the bottling at the well

has been conducted, including the personal investigations and reports of such men as Oscar Liebreich, Hoffmann, Kekulé, Odling, in concert with Frankland, Bischof, Virchow, and others. Imitation is the sincerest flattery, and this compliment has been paid to the Apollinaris Water by a host of competitors, many eagerly imitating its mode of bottling, the appearance of its labels, and the especial recommendations which have been given to it by the most eminent authorities throughout the world. The sale of Apollinaris is stated to exceed that of all the other German mineral waters put together. Its use in hospitals is considerable, and is steadily increasing. It was in England where the luxury and high hygienic value of an absolutely pure and pleasant table-water was first adequately appreciated, and that Apollinaris first achieved its great success. Other nations have learnt the lesson and confirmed the verdict, and Apollinaris now enjoys a cosmopolitan reputation of the highest kind.

The aerated waters exhibited by Messrs. BLAKE, SANDFORD, AND BLAKE, are intended to afford accurate doses of the ingredients from which they are named, and not merely accurate, but sufficient also to effect the purpose desired by the prescriber. As has been frequently seen of late, by reports of examinations performed by Public Analysts, under the authority of the 'Sale of Food and Drugs Act', the terms 'Soda', 'Seltzer', 'Potash', etc., have been indiscriminately applied to water charged with fixed air, although in many cases containing no alkaline ingredient, or, if any, an inappreciable quality. This may be well enough where only an effervescing draught is required; but both doctor and patient will be glad to be assured that they can be supplied with the prescribed remedy in so agreeable a draught. In addition to aerated waters, Messrs. Blake will exhibit a soluble combination of Guaiacum and Lithia, to be administered in the form of pills; and capsules containing Thymol, which was prescribed with advantage in cases of dyspepsia by the late Dr. Leared.

MR. H. K. STEVENS, Amptill, Beds., is present with the celebrated Water from the Flitwick Mineral Springs, of which he is the proprietor. These valuable Mineral Springs, yielding a large supply of tonic and invigorating waters, and rising within 40 miles of London, have only lately been discovered. Mr. Stevens has already brought them under the notice of Professor White, and many medical men in the neighbourhood of London and Bedford. Strongly impregnated with iron, sulphur, magnesia, etc., it has been tried with great success on many long-standing cases of debility, dyspepsia, asthma, and rheumatic gout, and also in a modified form for outward application in skin disease. Carefully attested cases of cure, and medical evidence, will shortly be made public. Mr. Stevens will be glad to send samples to any medical men, chemists, or others interested in the valuable properties of the waters. The following analysis was made by Professor W. White, when it was found to contain in each gallon:—oxide and carbonate of iron, 144.0; sulphate of magnesia and soda, 59.20; carbonate of lime, 11.54; muriate of magnesia (chloride), 15.16; silica, 3.40; carbonate of magnesia, 5.42; carbonate of soda, 0.22; ulmic, malic, and other acids, constituents of vegetable matters, 13.32. The taste of the water may be inferred from the above analysis, which is not at all unpalatable, and in colour it is somewhat of an orange yellow.

The exhibitors of mineral and other waters, independent of those we have already named, are numerous, and amongst them is THE MALTINE MANUFACTURING Co., Limited, Great Russell Street, W.C., with the Victoria Bitter Water, and their well-known preparation of Maltine; THE HARZER NATURAL MINERAL WATER COMPANY (LIMITED), London Wall, London, E.C.; THE GEROLSTEIN WATER COMPANY, 17, Philpot Lane, THE AEscULAP BITTER WATER COMPANY, Saracen's Head Buildings, Snow Hill, THE ARSENICAL WATER Co., of Court Street, ETIENNE, Brabant, Belgium; T. T. HIRST and Co., 11, Queen Victoria Street, THE BELLTHAL BRUNNEN Co., 3, Crown Square, S.E.; E. GALLAIS, Margaret Street, Regent Street, ALEXANDER

JAMIESON, St. Mark's Crescent, Regent's Park, and THE GENOVEVA MINERAL WATER CO., 3, Great Tower Street.

The exhibition of Schering's chemicals by Messrs. ZIMMERMANN, their London Agents, is distinguished by one most important novelty, Cinnamic acid. In a patent taken out by J. A. Zimmermann under the 12th July, 1880, for the manufacture of bitter almond oil, benzoic acid, etc., it will be found that a process communicated by Dr. Emil Jacobsen of Berlin is described for the synthetic production of certain aromatic acids and ethers, and the simultaneous production of chlorides of organic acids in the presence of certain metals or their salts. The particulars of that patent will disclose that without the presence of these metals or their salts, the conversion will not take place, except with great difficulty, expense, and waste. Cinnamic acid being one of these products promises a most important history in the arts and medicine; for the former, because of its cardinal mission in the manufacture of artificial indigo; in the latter, on account of its recently discovered powerful and convenient antiseptic properties. Experiments have been made in several hospitals of Berlin, and, as we are informed, most successfully, in the dressing of wounds and surgical operations. These antiseptic properties seem to give it a foremost rank before all others; but as we are told that Professor Langenbeck of Berlin, under whose direction experiments have been made at the Charité Hospital in Berlin, intends to visit this city at the time of the Medical Congress, it is perhaps better to refrain from prematurely entering into particulars. The specimen exhibited shows white transparent silver flakes, and it may be taken as the very first sample brought to this country. That its manufacture is being conducted on a commercial basis seems to indicate the good size of the sample exhibited. The other fine specimens of the Schering's factory products are so well known, except that, like all the products of that factory, they are stamped by the most perfect workmanship in appearance, and are freely inviting a searching examination for the most perfect chemical purity by the facility with which samples are offered to the practical examiner. A peculiar looking and new product is the tannic acid patent crystals. Its golden hair-like appearance gives it a special claim to attention. The soft extract of tannic acid has hitherto been dried by high temperature; this now is a specimen of the soft extract forced through a thin sieve, and the streams proceeding from it have lost all their moisture in the ordinary temperature of the atmosphere. The advantage is obvious, that while at a high temperature it cannot be avoided that part of the tannic acid will decompose into gallic acid, this new process at ordinary low temperatures will not give occasion to such decomposition, and warrant a pure tannic acid in a most convenient form. The advantage is, perhaps, only of importance to the commercial application of the acid, inasmuch as, therapeutically, the acid will only be given in its most perfect form as levisimum, of which a very fine sample is exhibited. The iodoform exhibited certainly shows a brighter colour and more substantial crystal than its rival specimens exhibited.

MESSRS. FELTOE AND SONS, Albemarle Street, Piccadilly, whose 'Spécialité' Sherry has gained an extensive and well-earned reputation amongst the profession and private families, exhibit this popular sherry and a new 'Spécialité' Lime Juice Cordial. This Cordial is said to be made of the pure juice of limes, with but a little saccharine matter, and contains no sulphuric acid. It is most pleasant to the taste, and quite devoid of that unpleasant flavour too often attaching to lime juice cordials; it is warranted not to become mildewed by exposure to the air. Dr. J. M. Crombie pronounces it to be a safe and excellent antidote for thirst.

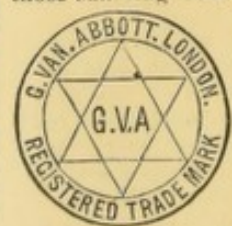
MESSRS. J. AND C. LLOYD AND CO., Verulam Street, Gray's Inn Road, will exhibit their patent Cooked Malted Farinaceous Food, in various sized canisters. This article is alike suitable for infants, children, and adults, either in health or sickness. It requires neither boiling nor straining. It is composed of the most nutritious and finest selected

cereal grains and pulse, combined with the active constituents of pure fresh malt meal, in such proportions as to render the mixture as nearly as possible chemically identical with the constituents of the human body itself. It is therefore valuable for every-day use, both in health and sickness, and for every condition of life; alike suited to the youngest child, the most robust adult, and the weakest invalid. Being thoroughly cooked, it is quickly and easily made; and being palatable, it is attractive, instead of, as so many foods are, repulsive. This New Food is unlike any other, having special qualities and virtues of its own, such as are possessed by nothing else. It is excellent for breakfast, instead of bread-and-milk or bread-and-butter, for dinner is delicious as custard with stewed fruit, or as baked pudding, and is of inestimable value for supper. It also contains a great amount of nutriment in a small bulk, and in a convenient and easily-digested form. It is presented to us with high credentials, and Professor Attfield, F.R.S., etc., who has made a chemical analysis and microscopical examination of it, calls it 'a true food, rich in all the elements necessary to the formation of flesh, fat, bone, and muscle, and therefore greatly superior to mere starchy foods'.

MESSRS. SAVORY and MOORE also exhibit, as the agents of Delacre's Extract of Beef Company, Limited, their excellent and now well-known preparation, which they have aptly named 'Extractum Carnis'. It appertains to the character of meat broth, from which the water has been evaporated; and it contains all the substances from which meat broth derives its flavour and quality, such as creatin, sarcin, the chlorides, phosphates, etc., and has all the principles of meat, without fibrine, albumen, gelatine, and fat. The salting, smoking, and drying of meat renders it barely wholesome, and certainly not palatable, so that those processes are never likely to be able to compete with that of extraction, and even if fresh meat can eventually be brought to England in low temperature chambers, the importance of 'Extractum Carnis' will in no way be interfered with, as it is always certain to be an invaluable stimulant for convalescent persons and delicate children, whilst for exploratory expeditions, public establishments, travellers, and sailors, its advantages are never likely to be surpassed. The scene of operations of this company is at Uruguay, South America, and the fine flavour of the cattle from that district and the River Plate is too well known to require further comment here. The Delacre Extract is free from fat and gelatine, and each pound is said to contain all the soluble nutritious constituents of about 36 pounds of best beef, exclusive of bone and fat. Moreover, an important feature in this particular extract is that it is perfectly soluble, and dissolves in hot or cold water, without leaving any insoluble deposits whatever. We have no doubt its several advantages will soon cause it to become as popular here as the best known preparations of a kindred character.

MR. VAN ABBOTT, 5, Princes Street, Cavendish Square, exhibits a variety of dietetic preparations, including Prepared Taraxacum or Dandelion Powder, to be used as a diet drink by those suffering from torpid liver, indigestion, scrofula, etc.,

either alone or mixed with coffee. It is also a good wholesome tonic for adults and children. — Chocolate, with Liebig's Extract of Meat, in cakes, sticks, and lozenges, with or without sugar. Particularly suited for phthisical or debilitated patients, and especially for travellers, as it enables them to carry in a small compass a wholesome and strengthening meal, as the chocolate is good for either eating or mixing. — Callard's Ivory Jelly for Invalids, with or without sugar. This jelly, which contains phosphates in notable quantity, is prepared from ivory, is very delicate in flavour, and well adapted for invalids. — Acorn Coffee or Café de Glands. A very useful preparation for children and invalids, particularly those suffering from indigestion, scrofula, or inefficient nourishment of the system. It is a good tonic, and can be used either alone or mixed with ordinary coffee. — Specially prepared Clear Ox-Tail Soup,



for invalids, without vegetables, farinaceous substance, or gelatine. — Preparations for Diabetics, etc.:—1. Real Turtle, Mock Turtle, and Ox-Tail Soups. Free from starch, and as free as possible from fat and seasoning; excellent in quality and flavour. 2. Extract of Vegetables, for flavouring Extract of Meat, Soups, Gravies, Hashes, etc. A remarkably well-flavoured and powerful essence. A few drops give quite an appetising taste to beef-tea, broth, etc. — Gluten Macaroni. Used the same way as ordinary macaroni, but without sugar, in puddings. — Gluten Flour, for diabetes, debility, indigestion, and coroulence. — Gluten Vermicelli, which may be used for broth and soups, without sweet vegetables, as carrots or turnips, etc., and puddings without sugar. — Gluten Semola, for debility, diabetes, indigestion, etc. — Bran Gluten Biscottes. This bread is said to be superior to any other form hitherto produced for the use of diabetics. — Gluten Chocolate without Sugar. — Whole Wheat Meal Biscuits, without Sugar. — Dietetic Extract of Vegetables, for flavouring Liebig's Extract of Meat, Soups, Gravies, Hashes, etc. — Hypophosphite of Lime Biscuits, for delicate children, especially those suffering from deficiency of bone, weak joints, or debility. Each biscuit contains five grains of the hypophosphite of lime. — Dietetic Bran Biscuits for Dyspepsia, etc. Mr. Van Abbott is so well known in connection with invalid cookery, and particularly in catering for diabetic patients, that his preparations will be inspected with considerable interest by the profession.

MR. BONTHTON, 106, Regent Street, who has well identified himself with diabetic cereal foods, exhibits his various specialities in the form of Bread, Biscuits, and Powder for Diabetic Patients. Speaking of these foods, Dr. Pavy, in his recent work on Diabetes, p. 245, says:—'Mr. Bonthron, of 106, Regent Street, has recently succeeded in producing some Gluten Biscuits and Bread which are more eatable than anything of the kind I have ever yet met with. The biscuits present somewhat the character of a cracknel; they eat short and crisp, and are readily reducible in the mouth, have no unpleasant taste, and, consumed with other food, possess the power of cleansing the palate. The bread is moist, and will not keep good for more than about ten days. Its consumption, therefore, involves a frequent supply. It serves to increase the variety at the command of the diabetic; and, independently of this, possesses the advantage of presenting an approach to the condition of ordinary bread.' Mr. Bonthron has recently brought out a new Bran Biscuit, which he shows here for the first time, and which has a decided improvement in flavour over any that have preceded it. He alleges that he has treated the bran in an entirely different manner. All silica and bitterness or tannin are entirely eradicated; the biscuits are short and crisp to the taste, and appear not at all unsuited for general purposes, as well as for the diabetic patient.

PEPTONISED MILK.—The whole current of medical and chemical research has of late years tended to show in an increased degree the value of the introduction of peptonised elements into the diet where it was desirable to give easily digested food. The Lumsden Lectures of Dr. W. Roberts, F.R.S., in 1880, called attention very prominently to the advantage of the use of milk-peptone in nurseries as an infant diet in sickness, and sometimes also in health. The object is to change the casein of the milk into peptone without materially altering the flavour and appearance of the milk. This process, for which Dr. Roberts gives careful indications, is one which can only be carried out successfully by a skilled chemist, and with the aid of a properly fitted laboratory. Both these requisites are possessed by the AYLESBURY DAIRY COMPANY in a most perfect degree; and hence, having also an expensive organisation for the purpose of the daily delivery of milk, they are enabled to supply peptonised milk from day to day, where required, to perfection, and at a cost which brings it within the reach of all.

WHEY.—Whey, like other milk products, requires to be carefully and scientifically prepared, in order to meet the necessities of medical practice. The whey supplied by the AYLESBURY DAIRY COMPANY is prepared under the

superintendence of Dr. Vieth, and is made without acid, and free from fat and casein. The whey thus prepared contains the valuable mineral ingredients of milk in full quantity, the chlorides being very greatly increased in proportion. The salts in milk include 67 per cent. of phosphates to 33 per cent. of chlorides; on the other hand, the salts in whey contain 40 per cent. of phosphates to 60 per cent. of chlorides, a dietetical indication which at once explains much of the special value of whey in medical treatment.

The Preparations of Meat-Juice by Mr. MANN S. VALENTINE, Richmond, Virginia, U.S.A., are exhibited by Messrs. COREYN, STACEY and Co., High Holborn. This extract of meat has been in use for some few years in the States, but has not as yet been brought into that prominence in the United Kingdom that its merits appear to deserve. Dr. Oscar Liebreich, Professor of Materia Medica in the University of Berlin, and Dr. Rudolf Virchow, Professor of Pathology in the same University, speak of it in the highest terms. These gentlemen say, amongst other things, that, 'the colouring matter of the muscles which, as is well known, is identical with the colouring matter of the blood, is retained in this preparation in a completely unchanged condition, as in no other meat extract known to us. The Meat-Juice contains also a certain quantity of albumen in solution'. After observing that the samples in their possession had undergone no perceptible change for four months, they add, 'Provided, therefore, that "Valentine's Meat-Juice" is so produced as to continue to retain its original purity, it is to be regarded as a real acquisition to the dietetic remedies prepared for sanitary purposes.' The judges of the International Exhibition at Philadelphia, 1876, said: 'It more nearly represented fresh meat than any other extract of meat', and some of our own leading professional journals speak of it in similar terms. A two-ounce bottle contains the equivalent of a pint and a half of the ordinary extract of beef. Mr. Valentine informs us that he uses only the flesh of selected cattle of the choicest Durham stock found in West and South-West Virginia, of an average weight of 1,500 lbs., that he often slaughters 10,000 lbs. of beef daily, and that his expenses might be reduced some thousands of dollars monthly, if he used a coarser grade of stock, which he will not consent to do.

Medical Dietetic Articles are sent by the popular firm of BRAND AND CO., Little Stanhope Street, Mayfair; by H. and T. KIRBY and Co., in combination with medicine cases and pharmaceutical preparations. Mr. JOHN W. RICHARDS, Great Russell Street W.C., sends a collection of medical dietetics; Messrs. SOUTHALL BROTHERS and BARCLAY, Birmingham, contribute an assortment of surgical dressings, splints, and medical dietetics; EVANS, LESCHER, and WEBB, Bartholomew Close, have a miscellaneous collection, consisting of numerous drugs, lime fruit drugs, and cordials, Materia Medica Cabinet, and medical envelopes; concentrated food is shown by GEYELIN and Co., Belgrave House, Argyle Square, W.C.; M. and LEOPOLD HOFF, 3, Charterhouse Buildings, exhibit the different medical dietetic articles that have become connected with their name; KOPF'S EXTRACT OF MEAT CO., Limited, Draper's Gardens, are present with their dietetic specialities, and a further collection of dietetics is contributed by Messrs. E. CHAPMAN and Co., Duke Street, Portland Place. THE BRITISH SIPHON MANUFACTORY, Gresham Buildings, Basinghall Street, show an assortment of syphons and seltzogenes for aerated waters; and Dr. ROBERT LEE, Savile Row, W., sends an inhaler. Dr. CHARLES RENNER, Portsdown Road, Maida Vale, shows specimens of calf-lymph; and the various preparations of vaseline are shown by the CHESEBROUGH MANUFACTURING CO., Holborn Viaduct; JEVES' SANITARY COMPOUNDS CO., Limited, Bishopsgate Street, send their soaps and disinfectants; Mr. EUGENE RIMMEL, of the Strand, exhibits some pretty aromatic vaporizers and disinfectants; and CONDY'S FLUID CO., Falcon Street, E.C., send an assortment of their popular disinfectants.

FOREIGN MEDICAL EXHIBITS.

Dr. JEAN BUFALINI, Siena, Italy, sends a Plessimeter.

C. H. BURK, Archiv Strasse, Stuttgart, exhibits a collection of Pharmaceutical Preparations.

Signor ARISTIDE CONTI, Castrocaro, Florence, Italy, exhibits a variety of Chemicals.

W. F. W. ECKELL, Christiana, Norway, exhibits a group of Medical Dietetic Articles of native manufacture.

J. H. DE BASSY, Spnisstraat, Amsterdam, sends a variety of Splints.

Dr. MARONE EMMANUELE, Campobasso, Italy, shows an Auto-Stethoscope.

Messrs. GANERNACK and REINBOTH, Louisenstrasse, Dresden, contributes some Electrical Apparatus.

W. J. HAUCK, Kettenbrücken Gasse, Wieden, Vienna, exhibit an interesting assortment of Optical Instruments and Physiological Instruments.

MAX KAHNEMANN, Spandauer Strasse, Berlin, sends an Apparatus for Antiseptic Treatment and a collection of Surgical Bandages.

Dr. GIAMBATTISTA LAURA, Via Cavour, Turin, is present with an interesting collection of Microscopic Sections.

JOSEF LEITER, Mariannen Gasse, Vienna, shows Medical Appliances of a varied character.

EDWARD LIPOWSKY, Heidelberg, sends Appliances for the Ward and Sick Room.

Professor PIETRO LOVETA, Bologna, Italy, sends a Cystotome.

Messrs. R. and H. MATHIEU, Fils, Boulevard St. Germain, Paris, will have a case of Surgical Instruments of French manufacture.

EMANUEL MERCK, Darmstadt, Germany, sends a collection of chemicals.

American Dietetic articles will be contributed by Messrs. J. and L. MURDOCK, Boston.

M. NACHET, Rue St. Severin, Paris, sends Microscopes and Physiological Instruments.

Dr. FRANCESCO OLIVETI, of Naples, sends a collection of Obstetric Instruments.

The International Society for the Manufacture of Wound-Dressing Materials, Schaffhausen, Switzerland; have an assortment of Antiseptic Surgical Dressings.

Mons. A. TRIPIER, Rue de Hanovre, Paris, sends some plans for the Ventilation of Theatres.

Dr. VAJDA, Nagler Gasse, Vienna, sends an Urethral Irrigator.

H. WINDLER, Dorotheen, Strasse, Berlin, has a collection of Physiological Apparatus.

BÄCKMANN and BURMEISTER, Stockholm, shows a collection of Medical Apparatus.

CARL BERG, Manteuffel Strasse, Berlin, has an assortment of Chemical Apparatus.

Turkey will be represented by J. CAUZUCH, Grande Rue de Pera, Constantinople, with an assortment of Pharmaceutical products.

The GODESBERGER MINERAL WATER CO., Market Platz, Bonn, Germany, will exhibit their Mineral Waters.

W. J. HAUCK, Kettenbrücken Gasse, Vienna, send Inhalation Apparatus.

Dr. ISENSCHMIDT, Sophien Strasse, Munich, Bavaria, sends a Model of the Larynx for Teaching.

H. KAPPELLER, Jun., Kettenbrücken Gasse, Vienna, has a collection of Clinical Thermometers and a Urinometer.

American Surgical Instruments are to be sent by D. W. KOLBE and SON, Arch Street, Philadelphia.

HEINRICH KARL, Olmutz, is present with his Pharmaceutical Preparations.

Professor LABUS, S.S. Andrea, Milan, sends a Model for Laryngoscopic Operations.

Dr. LANDOLT, Rue Volney, Paris, sends a Telemeter.

J. PAUL LIEBE, Dresden, contributes a collection of Medical Dietetic articles.

EDWARD LOEFLUND, Stuttgart, shows a sample of Malt Extract.

ERNEST RUCHONNET, Romanel-sur-Lausanne, Switzerland, sends a collection of Mineral Waters.

VICTOR SCHMIDT and SON, Albe Gasse, Wieden, Vienna, will show a collection of Drugs.

Dr. W. A. SEDLITZKY, Salzburg, Austria, sends various Pharmaceutical Preparations.

Dr. TARTENSON, Rue de Chateaudun, Paris, exhibits various Pharmaceutical Preparations.

A variety of Dental Instruments and Appliances is sent by Mr. S. S. WHITE, Chestnut Street, Philadelphia, U.S.A.

Appliances for the Ward and Sick Room are shown by DR. BARDA, 49, Rue Blanche, Paris; and Pharmaceutical Preparations are exhibited by G. PR. CHIMICA BARONI, Modena, Italy, by ARTURO D. CIULLINI, Dicomano, near Florence, and by W. H. SCHIEFFELIN and Co., New York.

Surgical Instruments are shown by WILHELM DEICHE, Dresden, by EDWARD MESSTER, Friedrich Strasse, Berlin, and by C. WATTER BIONDETTI, Bâle, Switzerland.

A very useful case of Medical and Surgical Apparatus for use in cases of railway accidents is exhibited by the COUNCIL OF THE ROYAL HUNGARIAN STATE RAILWAY, Buda Pest.

Medical Apparatus is contributed by DR. LOUIS GRÖSZ DE CSATER, Universitäts Gasse, Buda-Pest; and a collection of Artificial Legs is sent by C. GEFFERS, Schiff Bauerdam, Berlin.

AUGUST WEMSCH, Worms-on-Rhine, exhibits an Inhalation Apparatus.

FOREIGN SANITARY EXHIBITS.

Plans for public buildings are shown by M. BORDIAN, Rue Joseph II, Brussels. A full-sized model of a system of drainage, with water-closets, sinks, baths, and gullies, fixed in position and working, and some screw-joint drain pipes, are sent by Mr. C. W. DURHAM, Michigan Avenue, Chicago, U.S.A., as well as a variety of House Drainage Appliances in use in America; plans of the Roman Baths at Vienna are shown by Dr. VON HEINRICH, Römisches Bad, Vienna.

FREDERICK SIEMENS, Fabrik Strasse, Dresden, shows a model of Crematory Apparatus; photographs and plans of the Sanatorium Modum, and Landietord will be shown by Dr. THANLOW, Modums, Kuranstalt, Norway; and plans of the Baths, Rancegno, are sent by Drs. WAIZ BROTHERS, Connans, Austrian Tyrol.

WILLIAM BENDER & SONS, Sophien Strasse, Stuttgart, send a useful assortment of woollen underclothing.

LÉON LORNZÉE, Rue Royale, Brussels, exhibits several Lamps for Mines, Hygienic Apparatus for Mines, Designs for Life Boats, and several Diagrams.

MISCELLANEOUS SECTION.

The foreign exhibits in this section consist of a medical work by Dr. FRANCIS HOEBER, Bad-Homburg, near Frankfort-on-Maine; a collection of books from EDWARD LIPOWSKY, Heidelberg; Dietetic Articles from AUGUST PLANCK, Getreidemarkt, Vienna; Medical Works from Dr. THANLOW, Modums Kuranstalt, Norway; and from Dr. F. VALLARDI, Via Disciplini, Milan, Italy.

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BARNARD, BISHOP, & BARNARDS'

SLOW COMBUSTION

ORIGINAL & SOLE MANUFACTURERS OF THE
(REGISTERED)

Specially adapted for burning 'ANTHRACITE', or Smokeless Coal, as advocated by the 'Fog and Smoke Committee of the National Health and Kyrle Societies'.

Descriptive Catalogues Post Free.

OR

'NORWICH' STOVES,

Descriptive Catalogues Post Free.

Known as the 'COUNTRY PARSON'S' FIRE-GRATE.

One of the great advantages of these Stoves (amongst others) is that they will burn 'ANTHRACITE', or Smokeless Coal, which has been so strongly recommended by the various speakers at the recent discussions at the Society of Arts on the subject of 'London Fogs'.



SLOW COMBUSTION or 'NORWICH' STOVES, known as the 'Country Parson's' Fire-Grates (Registered), can be seen in action at 95, Queen Victoria Street, E.C.

LONDON FOGS! There is but little doubt that the dense fogs which envelope London are to be attributed to the vast amount of

UNCONSUMED SMOKE, which pours forth from the chimneys of our Dwelling-Houses. This evil is to be remedied by the universal use of

BARNARD, BISHOP, & BARNARDS' SLOW COMBUSTION STOVES.

It has been proved by experiment that these Stoves consume 50 per cent. less coal than the ordinary fire-grates, which fact in itself would diminish the evil by one-half, but, added to this, it must be taken into consideration, that from these Stoves scarcely any smoke escapes, the combustion being so perfect: this is one of their chief merits. That they are a certain cure for a smoky chimney is sufficient evidence upon this point.

FACTS such as these should command the attention of all whose desire it is to abate an unhealthy, intolerable, and ever increasing nuisance.

By the general adoption of these Stoves, it may be confidently asserted that the Black Fogs which now so continually descend upon the Metropolis would be entirely averted. The principle involved, and the proper method of treating with a greatly increasing evil, are a part of Sanitary Reform which the Public should well consider.

LONDON FOGS! The *Building News* of October 29th says:—'Dense rolling volumes of black smoke are impossible by the use of Stoves of this construction, and we believe if every householder in London were obliged to use them, 50 per cent. of the smoke which now renders the winter season unendurable and vitiates our atmosphere would be saved.'

These Stoves were exhibited at the Heat, Light, and Ventilation Exhibition, at the Alexandra Palace, Muswell Hill, where they were to be seen daily in action, and they have been pronounced by competent Judges to be the best form of Stoves for burning 'Anthracite' or Smokeless Coal. They can still be seen in action daily at

91, 93, and 95, QUEEN VICTORIA STREET, E.C.

THE DENTAL MANUFACTURING COMPANY, LIMITED,

35, BROAD STREET, GOLDEN SQUARE, LONDON, AND
71A, GROSVENOR STREET, MANCHESTER.

MANUFACTURERS OF NON-POROUS MINERAL TEETH.

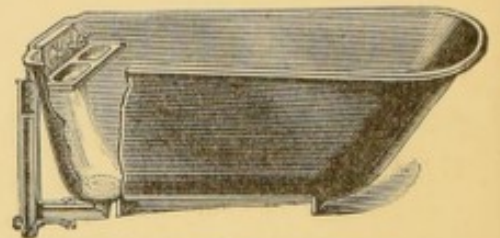
DENTAL RUBBERS.
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FOSSILINE STOPPING.
INSTRUMENTS OF ALL KINDS.
CHAIRS.
SALIVA EJECTORS.

A FULL LINE OF AMERICAN INSTRUMENTS KEPT IN STOCK

ADVANTAGES OF STEVEN'S PATENT BATH

1. The largest complete Bath, with fittings, in the smallest possible space.
2. The fittings being inside the Bath, are better seen and more easily reached by the person bathing, without getting out of the water. This is most important to Invalids where a certain temperature has to be maintained.
3. More easily fixed, costing nothing for trimming woodwork round fittings.
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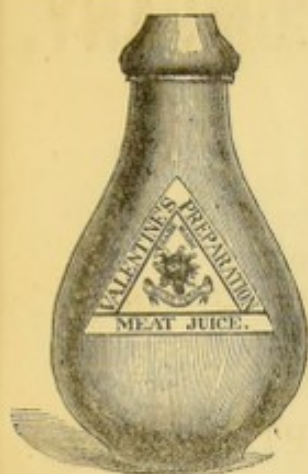
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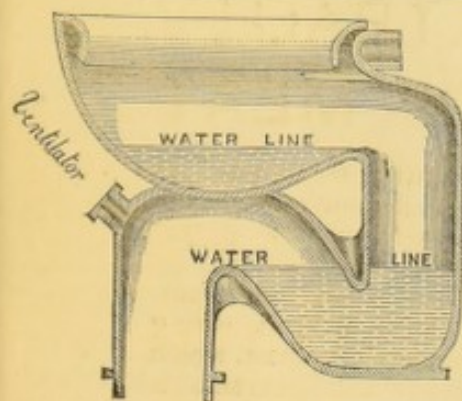
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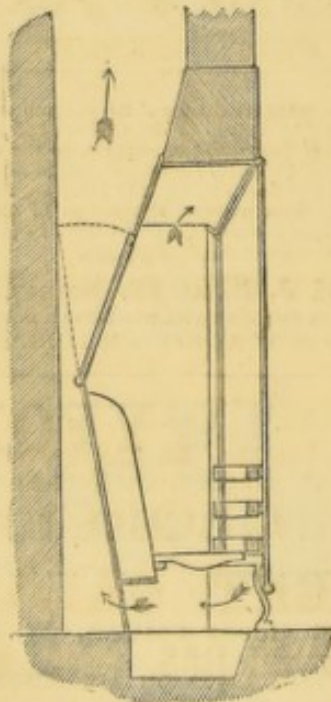
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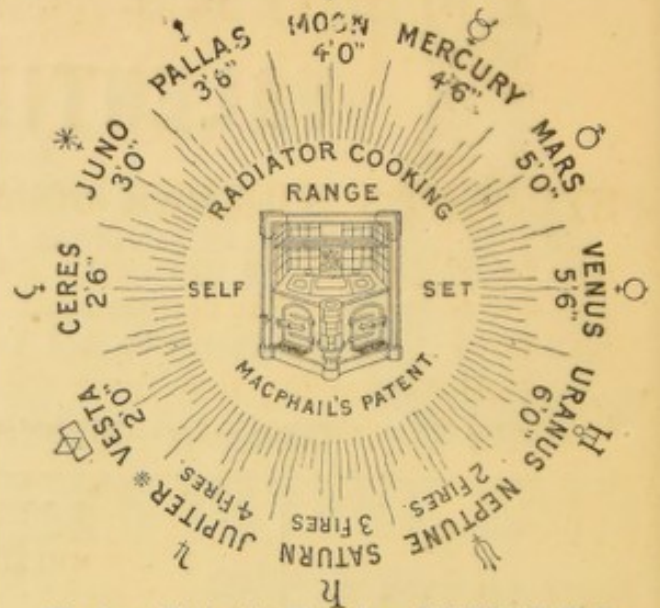
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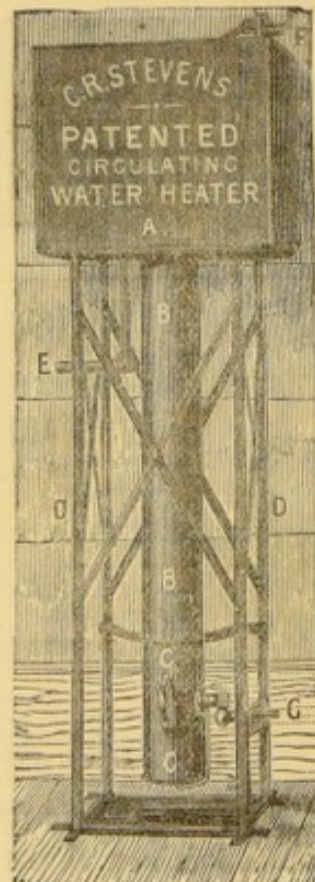
- A. Galvanised Tank for holding Hot Water.
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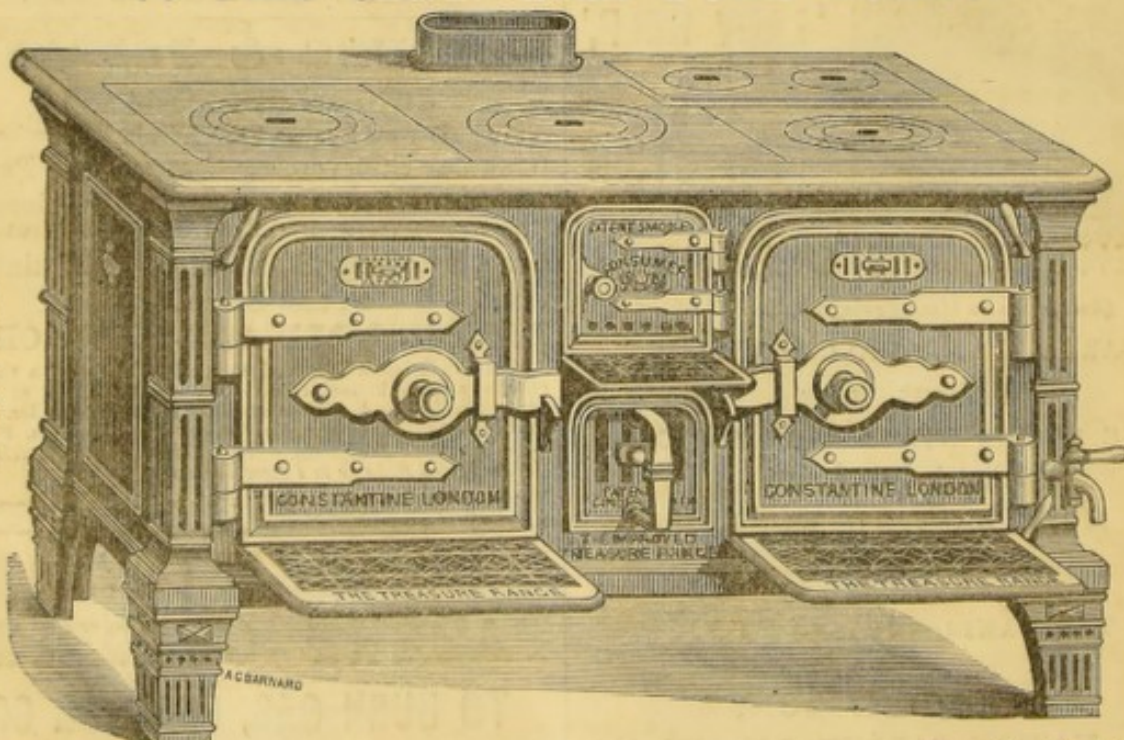
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