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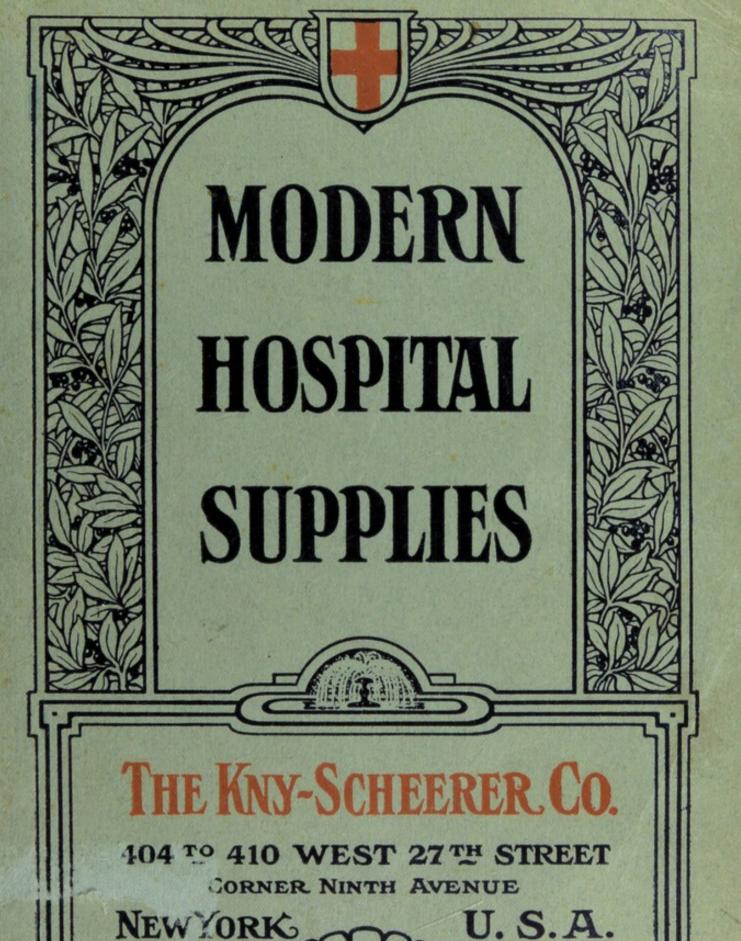
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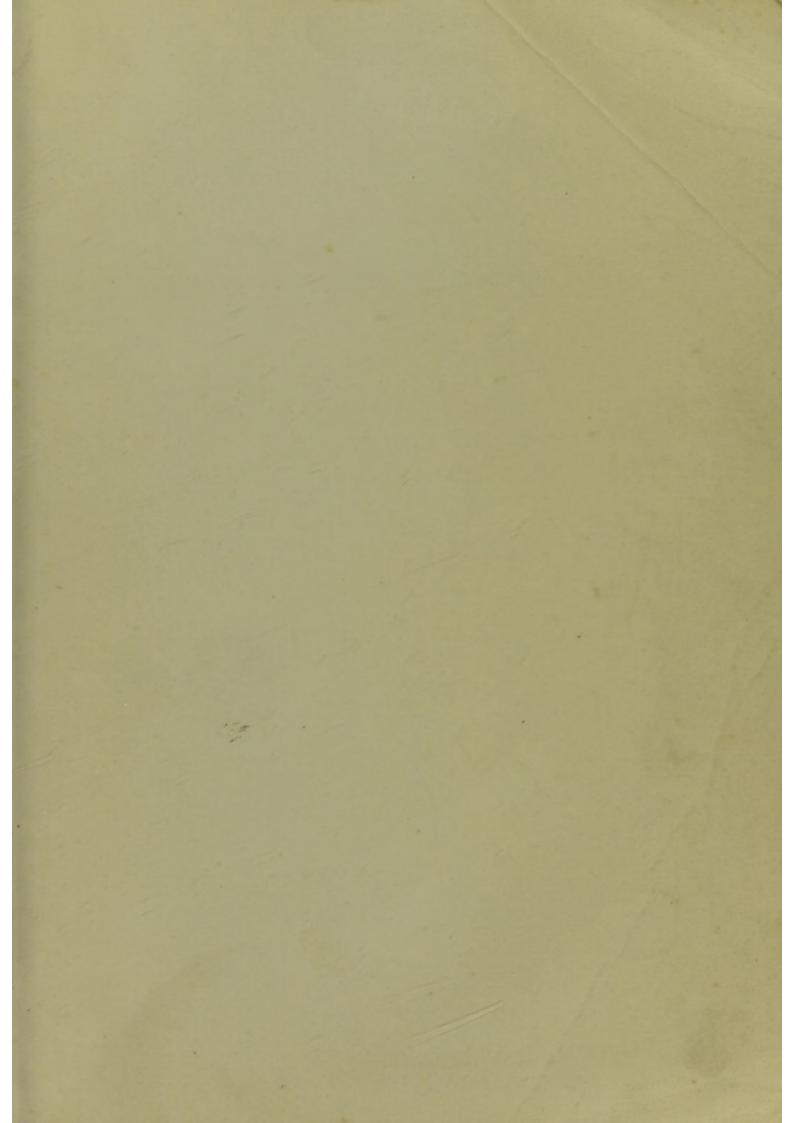


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M 7490









Illustrative and Descriptive Catalogue.

ASEPTIC SURGICAL SUPPLIES



8 Medals Awarded, Paris Exposition, 1890

Gold Medal Awarded, Pan-American Exposition, Buffalo, N. Y., 1901







The above illustrations of the two GRAND PRIZES and four GOLD MEDALS awarded to us at the late Worlds Fair in St Louis, reflect the general approval with which K-S quality has long been regarded by the surgical profession. All our products are guaranteed and bear our trade-mark for identification.

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ASEPTIC SURGICAL SUPPLIES

General Collections

M

7490



N PRESENTING this Tenth Edition Catalogue of modern Hospital Supplies, we aim to place before the Surgical Profession a standard book for reference, embracing the latest and most improved designs of Aseptic Operating Furniture and sterilizers indorsed and recommended by the prominent surgeons of this country and Europe.

Our furniture is strongly constructed, but with due regard to easy mechanical adjustment. All crevices and projections are avoided, making every part easily accessible for cleaning. All furniture is finished in white enamel, hand rubbed and baked, unless otherwise specified. We can finish to match any wood if desired.

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When ordering by telegraph mention the "Code Word" instead of number and the following prefix of 3 letters.

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DOV " How soon can you ship

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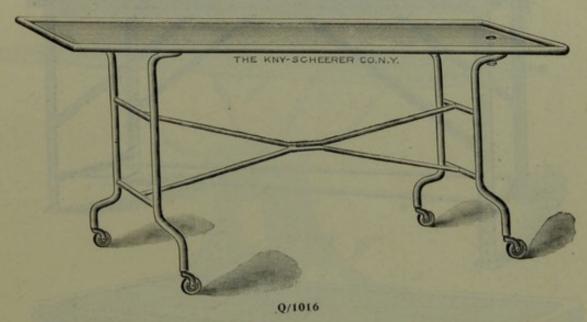
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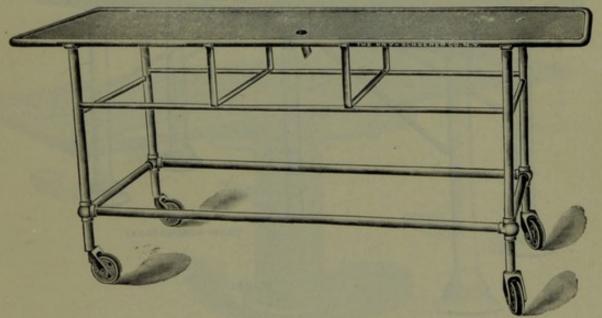


We manufacture these stands in a variety of sizes and styles, with high or low platforms, with or without seats, straight or circular form. When ordering, please state the number of persons to be accommodated.

Prices for special designs sent on application.

Post-Mortem Tables.

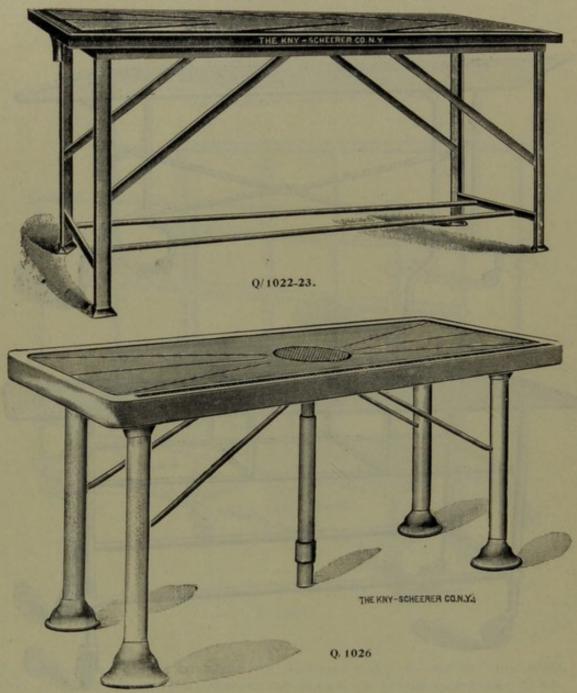




Q/1018

| Code BACENO | enameled and baked, 72 in. long, 24 in. wide; with drain pipe at foot end, height of head end from floor, 32 in,; height of foot end from floor, 28 in. Mounted on large rubber wheels | |
|-------------|--|-------|
| Q/1018 Po | ost-Mortem Table, tubular wrought iron frame, with heavy steel top, all white enameled, with drain in centre, mounted on large rubber wheels, dimensions, 24 in. wide, 72 in. long, 32 in. high. Price | 32.00 |
| | Packing | 1.00 |

POST-MORTEM TABLES-Continued.



Q/1022 Post-Mortem Table, strongly constructed of wrought angle iron, well braced, white enameled, with grooved slate top and drainage spout. Dimensions, 24 in. wide, 72 in. long.

Q/1023 Post-Mortem Table, same as Q/1022, but with non-absorbent stone top, with drainage groove and spout. Size, 24 in. wide, 72 in long.

Q/1026 Post-Mortem Table, designed by Dr. F. S. Mandlebaum for the Mt. Sinai Code BAHIA

Hospital, N. Y. The table top is of marble, 3 in. thick, 24 in. wide, 78 in. long, recessed, sloping toward the centre to a drainage pipe 8 in. diam. covered by a brass strainer fitted to a metal collar recessed into the marble, and attached to a drainage pipe to be connected to the sewer. A brass rule 72 in. long, graduated in Centimeters, is recessed into one side. are massive and bolted to the top as well as to the floor

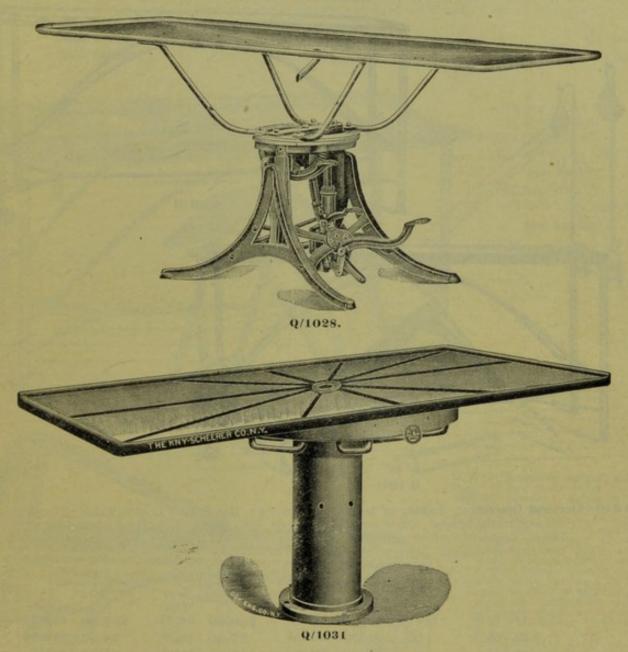
Packing.

200.00

1.50

bear THE KNY STEMAN NEW YORKUST

POST MORTEM TABLES - Continued.



Q/1028 Post Mortem Table, revolving, adjustable top of heavy steel, with centre Code BAKUM drainage, mounted on a pneumatic base with pedals for elevating or tilting the top to facilitate the presentation of subjects to students, the table is strongly constructed and finished in white enamel on top, aluminized base, dimensions

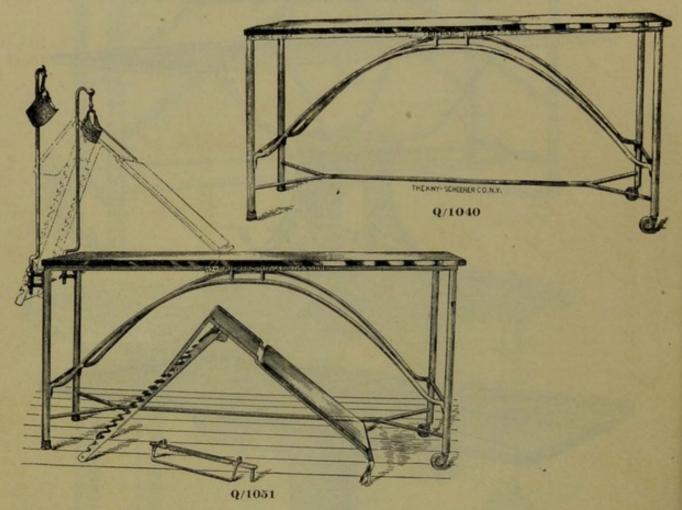
2.00

Packing

Q/1031 Post Mortem Table, designed for the New York Lying-in Hospital. Made with Cole BALAK a heavy cylindrical base, with centre drainage tube to connect direct with the sewer connection in the floor. The top is of slate, groved, draining to the center and is revolving on ball bearings. Dimensions, 38 in. wide, 78 in. long 175.00

Packing..... 3.50

General Operating Tables.



Q/1040 General Operating Table, of heavy construction, the frame is of tubular wrought iron, substantially braced, white enameled, fitted with heavy 1-in. thick glass top, with polished edges, or white enameled steel top, mounted on two heavy rubber wheels and two rubber sockets.

| | French | ystal Polish Plate Glass ch thick | | inary Green R Plate Glass 1 inch thick | | Heavy Steel White Ename | led |
|------------------|-----------|---|-----------------|--|---------------|-------------------------|-----------------|
| Top, 24 x 72 in. | Price, | \$80.00 | Code BALCH | \$60.00 | Code BALSA | \$57.00 | Code BAMBERG |
| 22 x 66 " | | 75.00 | BALKAN | 57.00 | BALUK | 54.00 | BAMPUR |
| 22 x 60 " | | 70.00 | BALOG | 54.00 | BALUM | 51.00 | BANFF |
| Crating ar | nd Packin | g | Service Service | | | | \$2.0 |

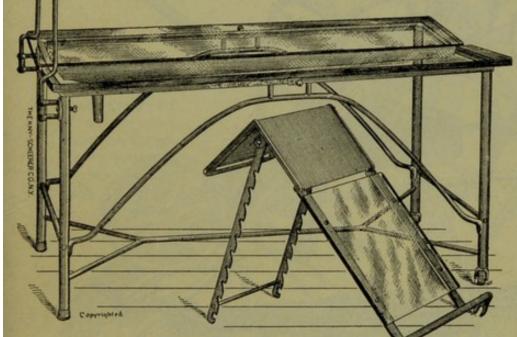
Q/1051 General Operating Table. Like Q/1040 but with a detachable Trendelenburg frame with heavy ½-in. glass top, fitted with nickel-plated adjustable stirrups and straps.

Mounted on heavy rubber wheels and rubber sockets.

| | Crystal French Plate Glass 1 in. thick. | | ry Green Plas 1 in. thick | Heavy Steel Top. | | |
|-------------------------|--|----------------|---------------------------|---------------------|---------|----------------|
| Top, 72 x 24 in. | Price, \$100,00 | Code BANKOK | \$80.00 | Code BANGUL | \$77.00 | Code BANOKS |
| 66 x 22 " | 95.00 | BANGOR | | BANMOR | 74.00 | BANPOL |
| 60 x 22 " Crating as | 90.00 and Packing | BANKS | | BANNA | 71.00 | S2.00 |

GENERAL OPERATING TABLES-Continued.

Q/1055 General Operating Table. Made of tubular iron, the top consists of two glass plates slanting and draining to a gutter running the full length of table, fitted with Trendelenburg's attachment with heavy ½ in. glass top and nickel-plated adjustable lithotomy stirrups and straps, mounted on 2 heavy rubber wheels and 2 rubber sockets.



Q/1062

Dimensions of top, 22 x 60 inches.

Polished plate glass, 1 inch thick..... 105.00

Code BARAK

Rough plate glass, 1 inch thick...... 87.00

Code BARCUS

Crating..... 2.50

Q/1055

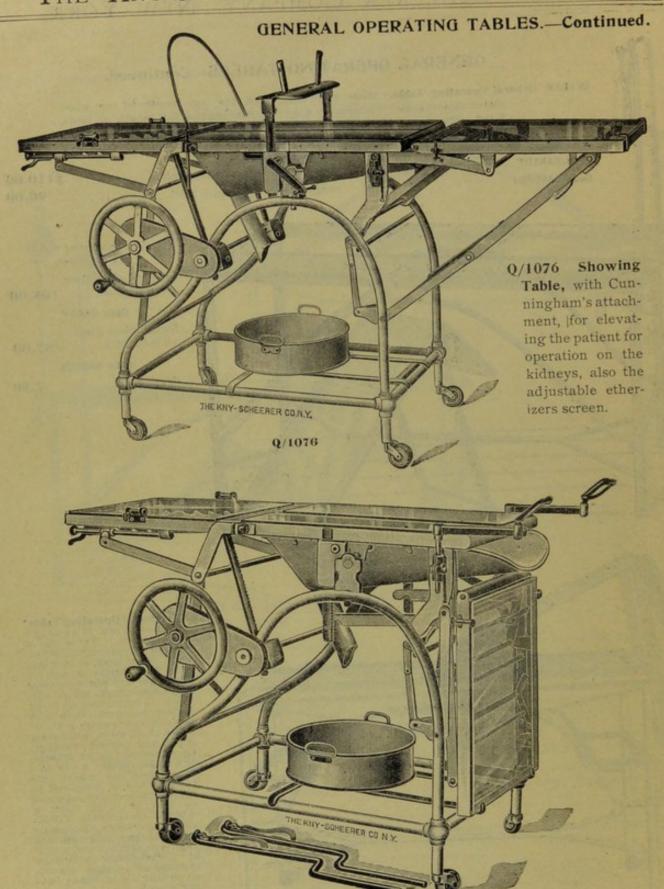
O/1062 General Operating Table*
Code New York Hospital
BARDAU pattern. Table is of
tubular iron frame, 24 in.
wide, 56 in. long, 35 in. high,
with deep metal trough for
drainage: a French crystal
plate glass top, 17 x52 in., 1 in.
thick, is supported by four
corner brackets, flush with
table frame, leaving a 2½ in.
space on all sides. facilitating
rapid and perfect drainage.
On either end is an etherizer's glass shelf, 8 x 18 in.;
fitted with an metal side
table, 12 x 24 in. concaved to
insure perfect drainage can
be secured to any part of
table; a detachable Trendelenburg frame with opening
to pass the hand into the
vagina or rectum; and a pair
of nickel-plated lithotomy
stirrups with straps. Mounted on four 2½ in. heavy rubhar wheels

Price, complete \$135.00 Packing 2.50

Note label which our goods bear



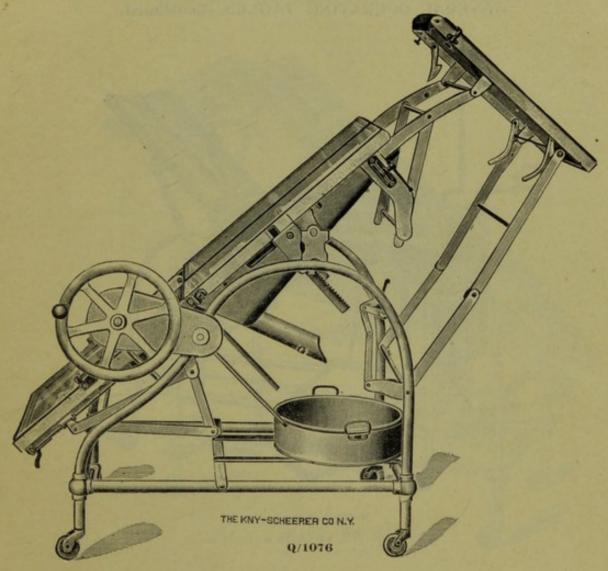
for purpose of identification.



Q/1076 Showing Table, with adjustable heel stirrups, secondary drainage pan and showing the foot end dropped back out of the way of operator.



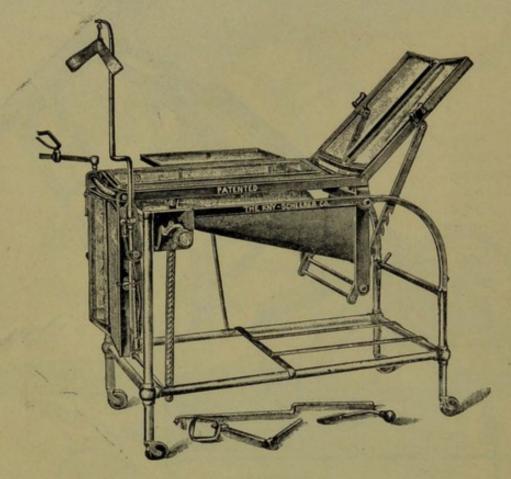
GENERAL OPERATING TABLES-Continued.



Q/1076 **General Operating Table. Dr. Clement Cleveland's 1906 model, designed for the N. Y. Woman's Hospital. The table frame is strongly constructed of tubular iron and is equipped with a side wheel by means of which the position of the table is controlled by the anesthetizer. The prime feature of this table is the flexing of the thighs when the patient is in the Trendelenburg posture, relaxing the recti and psoas muscles, an advantage possessed by no other table; it also admits of the regular Trendelenburg posture without flexing the thighs. The base is so arranged as to make a firm table when in the Litnotomy position and the foot end drops down and back allowing the drainage pan to be drawn out for drainage and the use of a weighted specula. The top is fitted with an apron beneath the glass to lead all drainage into the pan, preventing the water running over the side frame. The Cunningham's attachment facilitates raising and holding the patient during operation on the kidneys, and the adjustable screen frame shields the field of operation from infection from the respiration of the patient. The Lithotomy and Heel Stirrups, also Shoulder Rests are adjustable and are nickel plated. Dimensions of top, 20 x 72 in.; total height, 32 in.



GENERAL OPERATING TABLES-Continued.

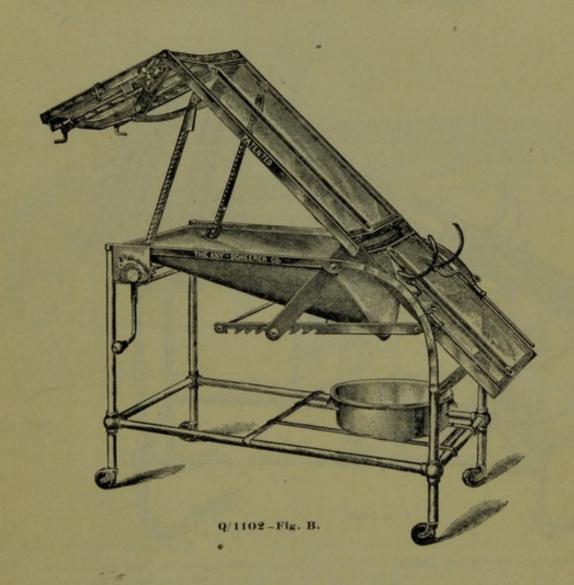


Q/1102-Fig. A.

SHOWING THE STIRRUPS ADJUSTED.

Q/1102 General Operating Table. Dr. H. J. Boldt's improved pattern. The base code BARILE is strongly constructed of tubular wrought iron. A prime feature is the drainage pan which is the full width of the base and is designed to receive all fluids, while the top of the table which is mounted above the base, is four inches less in width to insure all side drainage passing into the pan below and admits of tucking in of towels etc. to avoid wetting the surgeon while leaning against the table, the top is comprised of 6 polished glass plates ¾ in, thick and has a centre drain, an easy mechanical adjustment permits the elevation of the top to the Trendelenburg posture by means of a crank and ratchet bars made of milled tool steel, the head end can be elevated above or dropped below the plane of the table, the foot end can be adjusted to any angle to avoid a sharp bend at the knees, and is arranged to drop back out of the operator's way for plastic work. The shoulder rests are adjustable to any length, and take the weight of the patient off the knees, the Lithotomy and

GENERAL OPERATING TABLES-Continued.



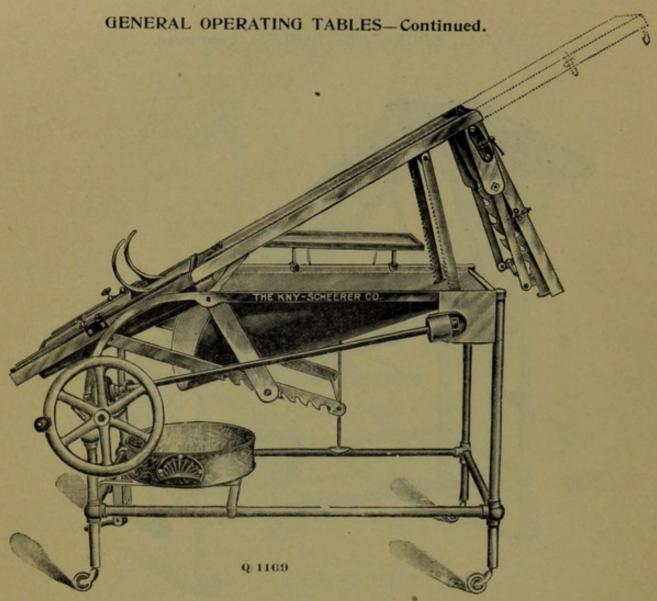
the Heel stirrups can be raised or lowered or turned inward or outward as may be required and held securely by an ingenious clamp. All fittings are nickel-plated, dimensions of top 22 in. wide, 72 inches long, height 33 inches, mounted on heavy clinched or rubber tire wheels.

Price complete \$125.00 Q/1104 General Operating Table. Dr. H. J. Boldt's pattern; the same as Q/1102

Code BARION except with the top of heavy indestructible copper in place of plate glass.

> 2.00 Packing.....





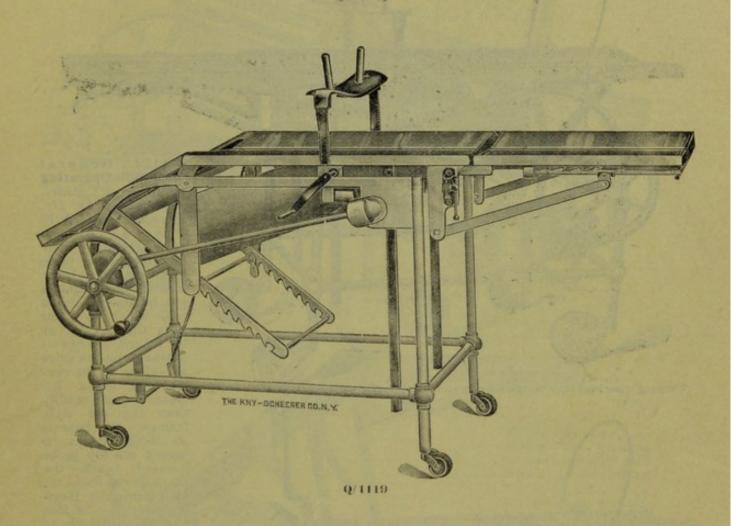
Q/1009 General Operating Table. Dr. H. B. Delatour's modification of Dr. Bold's pattern. This table possesses all the advantages of the table illustrated as Q/1102, but has in addition a side wheel attachment with milled steel gears and milled steel ratchet bars by means of which the patient is elevated noiselessly and with ease to the Trendelenburg posture by the Anaesthetizer without in any way interfering with the surgeon. The table is fitted with a unique brake which works automatically to check the table when it is lowered to avoid jarring the patient. A foot pedal attachment releases the ratched for raising or lowering the head end quickly. The table frame is constructed of wrought iron, white enameled; the top is fitted with \(\frac{1}{2} \) in. polished plate glass and the table is complete with adjustable heel stirrups, lithotomy stirrups and shoulder rests nickel-plated, dimensions, 22 in. wide, 72 in. long, 33 in. high.

Code BARLT

Note label which our goods bear

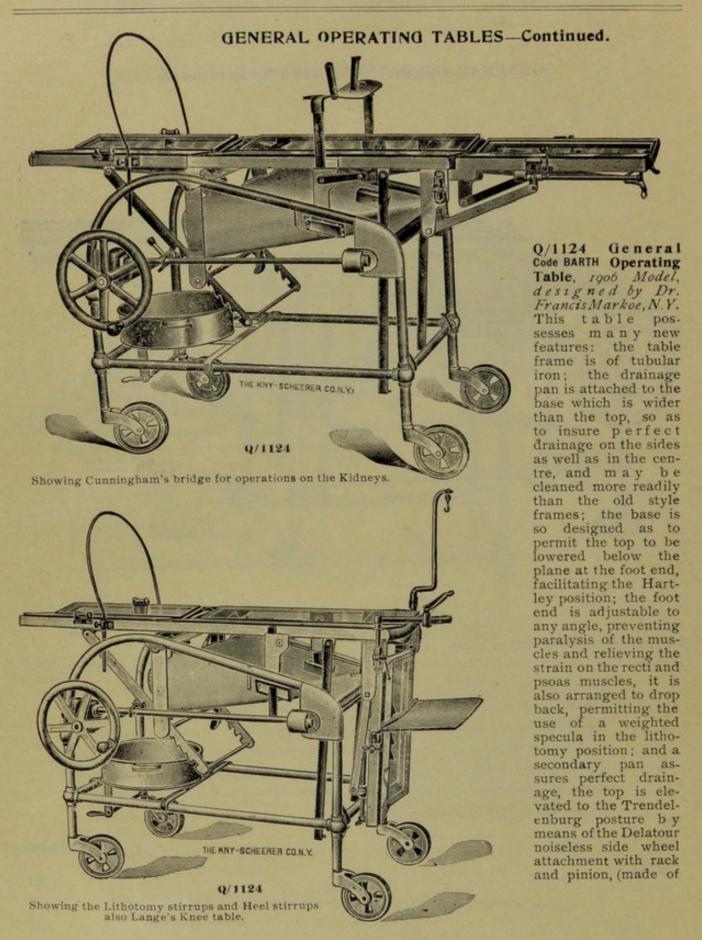


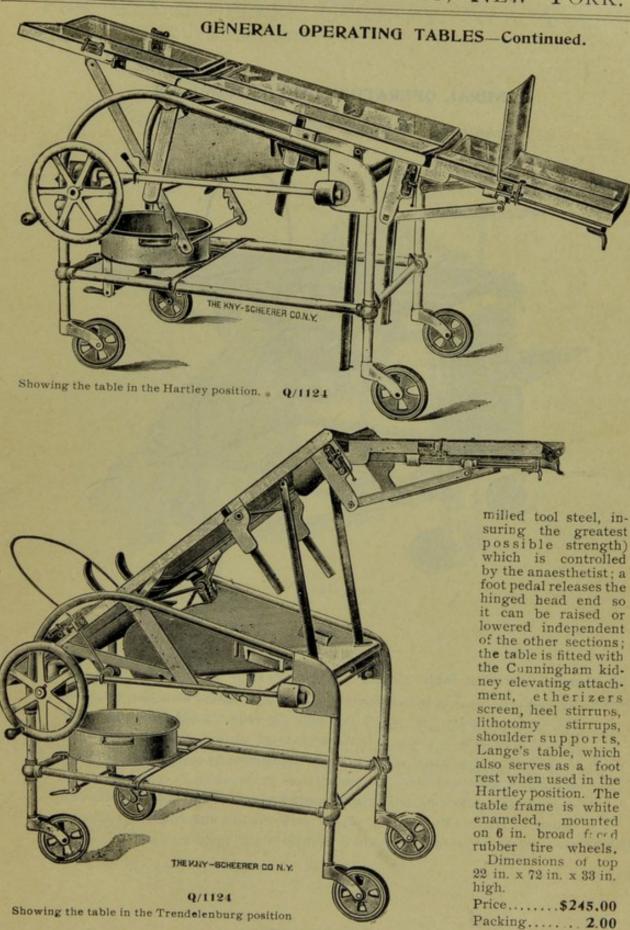
GENERAL OPERATING TABLES-Continued.



Q/1119 General Operating Table. DR. H. B. DELATOUR's pattern; the same as Q/1109, Code BAROT but fitted with Dr. Cunninghams attachment for elevating the patient for operations on the Kidneys or for Gaul Bladder work, the patient rests comfortably and may be held to either side securely, the top plate is depressed and has rounded edges to avoid injuring the patient and is fitted to milled tool steel ratchet bars, when not in use, this top plate offers no obstruction as it is removable by simply lifting it off until wanted, fitted with the Etherizers screen as shown in Q/1124 which is flexible to admit of any adjustment to protect the field of operation.

2.00



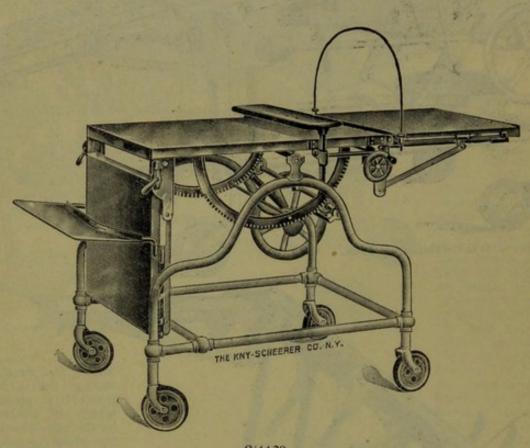


Note label which our goods bear



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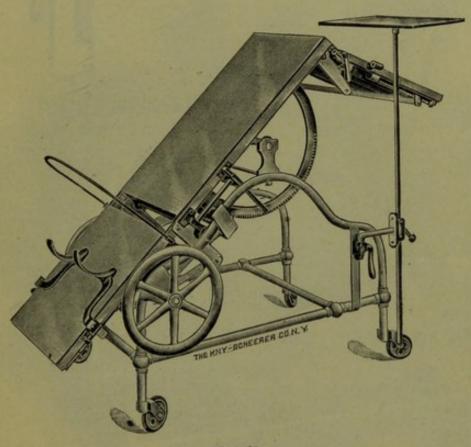
GENERAL OPERATING TABLES-Continued.



Q/1129

Q/1129 General Operating Table, designed by Dr. Francis Markoe for St. Luke's Code BARUM Hospital, N. Y. The base is made of tubular wrougth iron, white enameled, the top is of nickel steel which is practically indestructible, the solid nickel always presenting a clean, bright, impervious surface, the top frame is so to the base as to admit of easy and quick adjustment to any position by means of a side wheel attachment and milled steel gears which is controlled by the anaesthetizer, affording both the Trendelenburg and the reversed Trendelenburg or Hartley Position, for plastic work, the foot end drops back allowing the surgeon a comfortable position and the small table attached to the foot

GENERAL OPERATING TABLES-Continued.



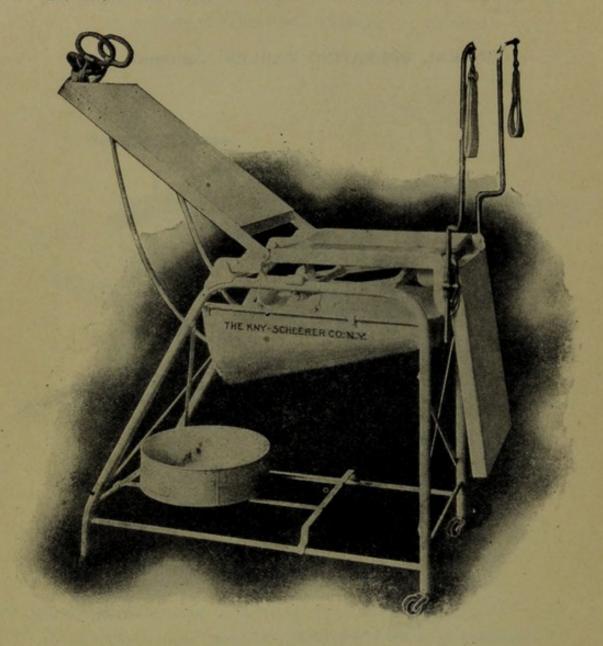
Q 1129

end is arranged to permit a Kelly Pad to be passed down effecting perfect drainage. The shoulder rests are held by a unique method doing away with all screws or clamps, fittings comprise Leg Crutches, and Heel stirrups, and swinging instrument table, Kidney Elevator and Etherizers Screen.

Dimensions, 18 in. x 75 in. x 35 in. high.

| Price | \$300.00 |
|---------|----------|
| Packing | 2.00 |

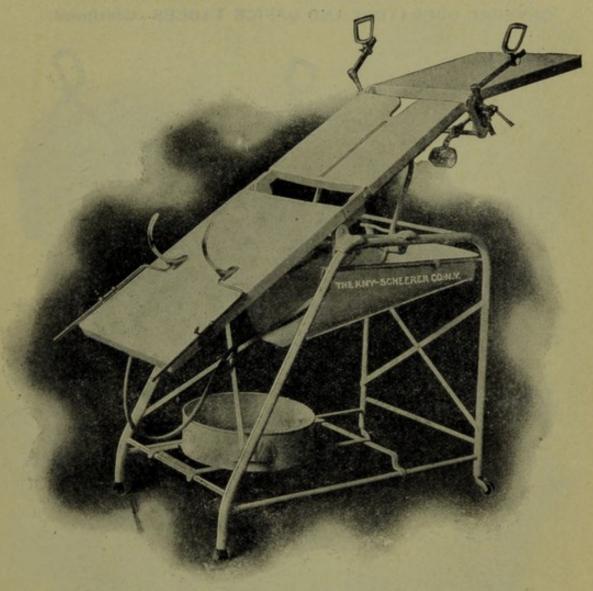
GENERAL OPERATING AND OFFICE TABLES-Continued.



Q/1143

Q/1143 General Operating and Office Examining Table. This is one of the most unique Code BARUTH designs of tables we have ever offered to the Surgical Profession. It is designed to meet the requirements of an all around operating table as well as office examining chair and table for the consulting surgeon at a moderate price. It combines by a very simple arrangement of counter balance weights, the advantages of most easy adjustment and manipulation, enabling the surgeon with little effort to readily acquire any position desired; when the foot end is detached the drain pain may be drawn out, facilitating perfect drainage in Vaginal irrigation.

GENERAL OPERATING AND OFFICE TABLES-Continued.



Q/1143

Above illustration shows Trendelenburg position, with adjustable shoulder rests attached, also adjustable heel stirrups.

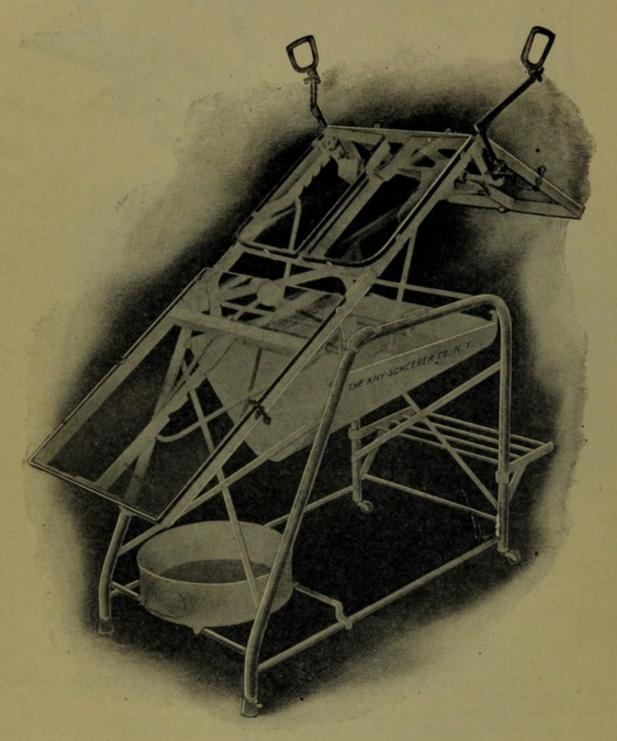
The center section is slotted for perfect drainage and is also constructed with a U to facilitate cystoscopic and vaginal work.

The table can be furnished with an adjustable head clamp for eye, ear, nose, and throat work.

The foot end plate is readily detachable, which gives the surgeon a closer and more comfortable position to work in; the table is handsomely finished in white enameled baked with nickel-plated fittings.

| Dimensions of top 18 in. x 72 in. x 33 in. high. Price, Table fitted with Adjustable Leg holders with straps, and Heel stirrups | \$55.00 |
|--|---------|
| " Head Clamp as shown in Illustration, see Q/1270 | 25.00 |
| " Shoulder Rests | 6.50 |
| Packing. | 1.50 |

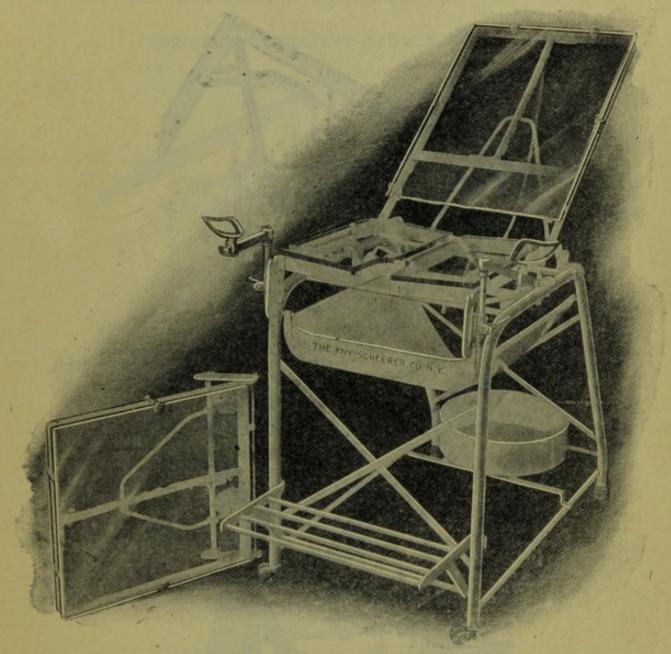
GENERAL OPERATING AND OFFICE TABLES-Continued.



Q/1144

Q/1144 Operating Table and Chair, the same as Q/1143 but fitted with plate glass top in place of the enameled steel top making a much finer appearing table, this table admits of all adjustments from the Horizontal for general surgeon to the Trendelenburg posture, posture for platic work or cystoscopic examinations.

GENERAL OPERATING AND OFFICE TABLES-Continued.



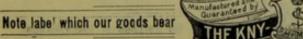
Q/1144

The above shows the table with the foot end detached for cystoscopic examinations of Vaginal irrigations for which the drain pan may be drawn out; a detachable step and adjustable heel stirrups are also shown in the above illustration.

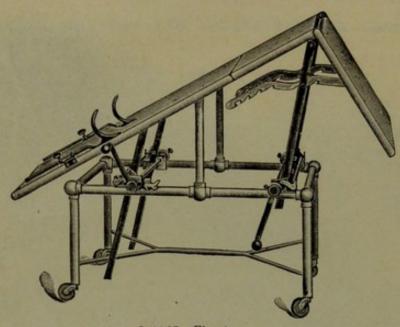
| Dimensions of | top 18 in. | wide, 72 in. | long, 33 in. | high. |
|---------------|------------|--------------|--------------|-------|
|---------------|------------|--------------|--------------|-------|

| Code BARVER | Q/1144 | Table with Leg Holders, and Heel Stirrups | \$80.0 |
|-------------|--------|---|--------|
| Code BARWIN | Q/1150 | Adjustable Shoulder Rests | 6.5 |
| Code BASALT | Q/1153 | Steel Steps | . 7.5 |
| code BASUR | Q/1155 | Sim's Attachment | 10.0 |
| ode BATAK | Q/1158 | Bierhof's Arm Rest for Cystoscopy | 6.0 |
| ode BATOKI | Q/1159 | Cushion | 6.0 |
| | | ng | |

For other accessories, see pages 39 and 40.

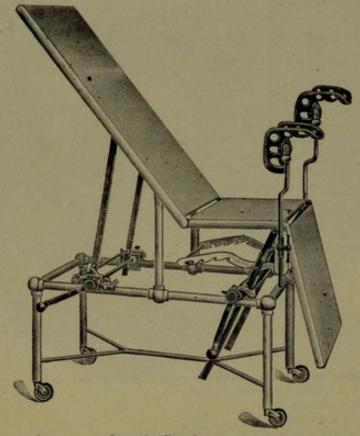


GENERAL OPERATING TABLES .- Continued.



Q'1165. Fig. 1.

Elevated for the Trendelenburg posture with adjustable shoulder supports.



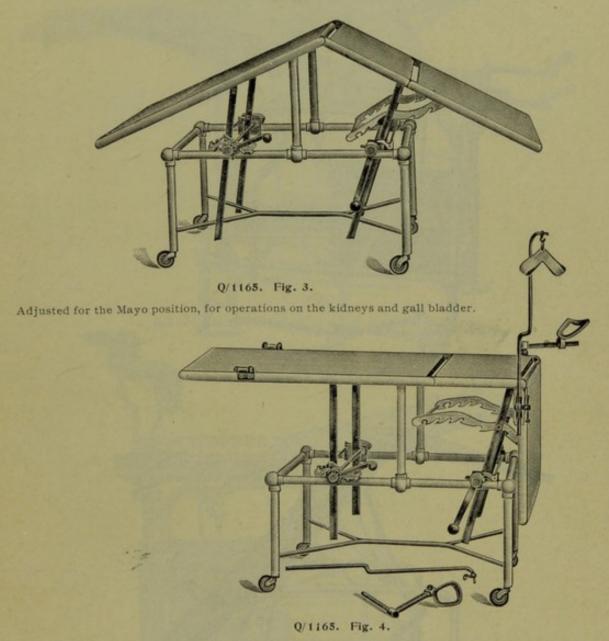
Q/1165. Fig. 2.

Adjusted for Cystoscopic and general examinations showing Dr. Bierhof's knee crutches Q/1287.

Guaranteed by S

for purpose of identification.

GENERAL OPERATING TABLES-Continued.



Adjustable for Plastic Operations, showing the adjustable Lithotomy stirrups and Heel stirrups.

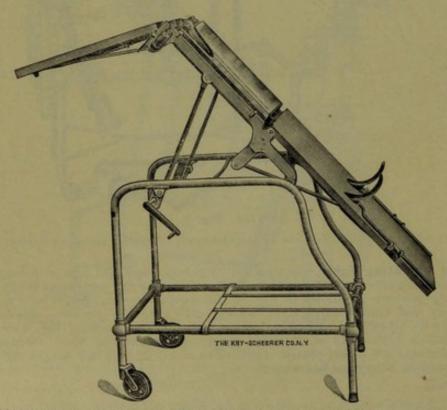
Q/1165 General Operating Table, constructed of tubular wrought iron with hinged top of enameled steel, arranged to facilitate elevating the patient to the Trendelenburg posture, as shown in Fig. 1, for cystoscopy as shown in Fig. 2, for Kidney and Gall stone as shown in Fig. 3 by a unique elevating device doing away with all extra attachments and complicated mechanism; Fig. 4 shows the adjustable Lithotomy stirrups for plastic work and the Heel stirrups. All attachments are nickel-plated, dimensions of top 22 x 72 in., height, 33 inches, mounted on heavy rubber wheels.

| Price | | 0.00 |
|--|-------------------------------|------|
| If Bierhof's stirrups as shown in fig. | 2, are not desired, deduct 18 | 8.00 |
| Packing | | 1.50 |

GENERAL OPERATING AND OFFICE TABLES-Continued.



Q.1171 Fig. 1. Showing the foot end detached; also the Stirrups.

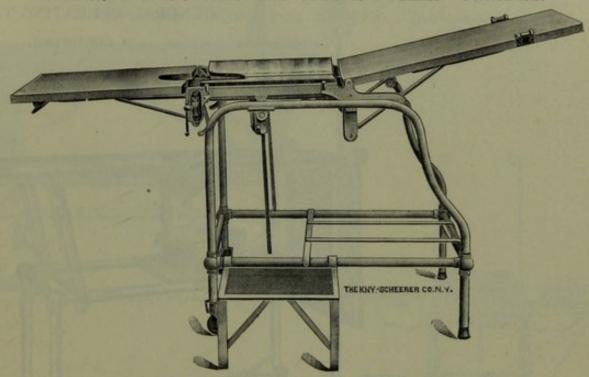


Q/1171 Fig. 2. Showing the Trendelenburg posture with Shoulder Supports.

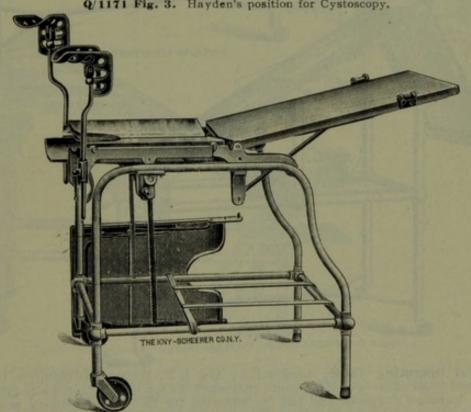
Q/1171 General Operating and Office Table. Dr. J. R. Hayden's modification of Dr. Code BAURUP

JOHN VAN DER POOL'S DESIGN. The frame is made of tubular wrought iron with counter weight to avoid tipping; the top has a large U cut out of two sections and is fitted with a sliding drain pan which may be drawn out to extend under the foot end affording perfect drainage; the three sections may be adjusted to any desired positions, and the top can be elevated to the Trendelenberg posture by means of a simple mechanical device; the top has 3% in. thick plate glass in the centre, and heavy steel at the head and foot end.

GENERAL OPERATING AND OFFICE TABLES-Continued.



Q/1171 Fig. 3. Hayden's position for Cystoscopy.

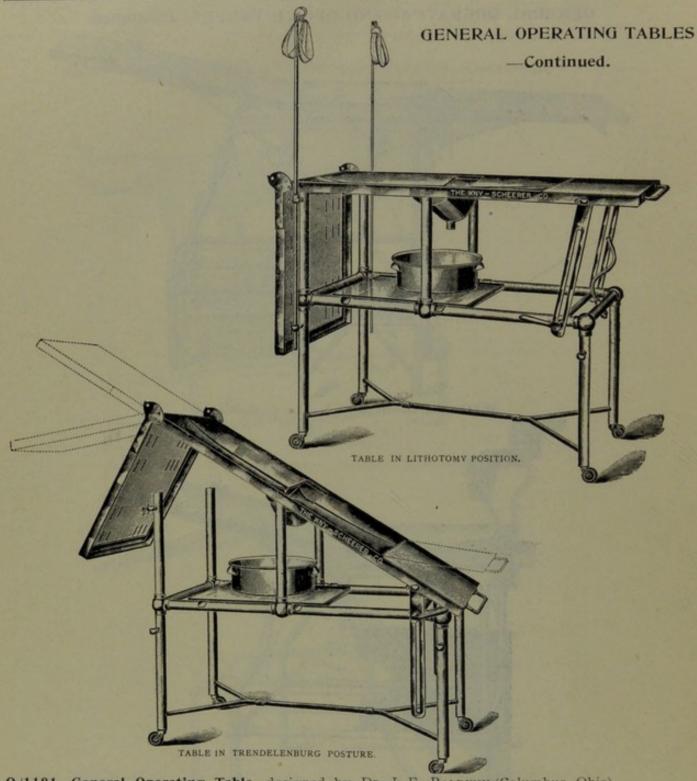


Q/1171. Fig. 4. Showing knee crutches with drain pan extended.

The centre section is fenestrated for abdominal drainage and has a U cutout to facilitate cystoscopic and vaginal work.

Dimensions of top, 22 in. wide, 72 in. long, 34 in. high. Mounted on two 4" rubber tired wheels and two rubber sockets.

| Price with | Heel Stir | rups, L | ithotomy | staffs | with | straps, | step | and | side | **** |
|-------------------|-----------------|---------|----------|--------|------|---------|------|-----|------|---------|
| table for instrun | nents | | | | | | | | | \$70,00 |
| Price Knee | | | | | | | | | | |
| Packing | and the same of | | | | | | | | | 2.00 |



Q/1181 General Operating Table, designed by Dr. J. F. Baldwin (Columbus, Ohio).

Code BAYERN Constructed entirely of steel, white enameled, the top is fenestrated and grooved for drainage purposes and can be adjusted for the Trendelenburg posture. This adjustment is easily accomplished and is under the control of the anaesthetizer; the head end can be raised independently. The foot end can be raised, making the table 6 feet long, 20 in. wide, 36 in. high. The stirrups may be used on either end of the table.

Q/1182 Operating Table, the same as Q/1181 but with the top of polished plate glass code BAYONO % in. thick...... \$70.00

Code BEAVER meled iron Packing



90.00

2,00

GENERAL OPERATING TABLES-Continued.

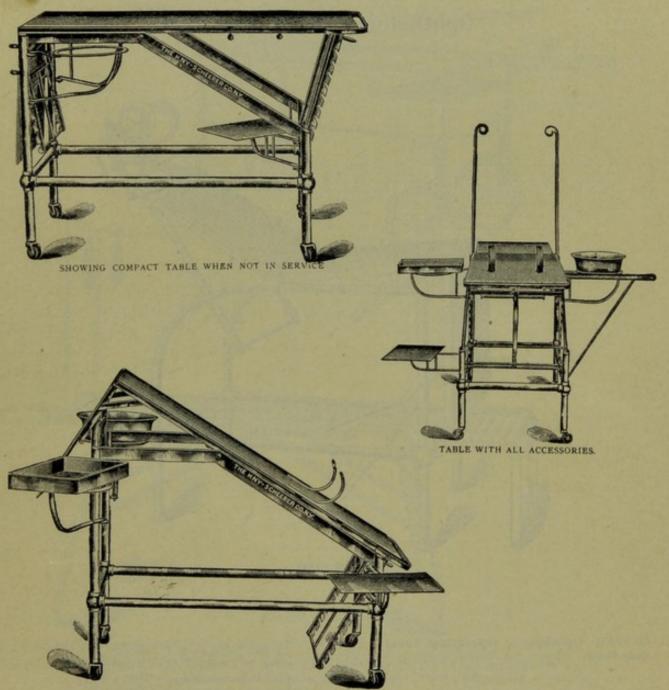


TABLE IN TRENDELENBURG POSITION

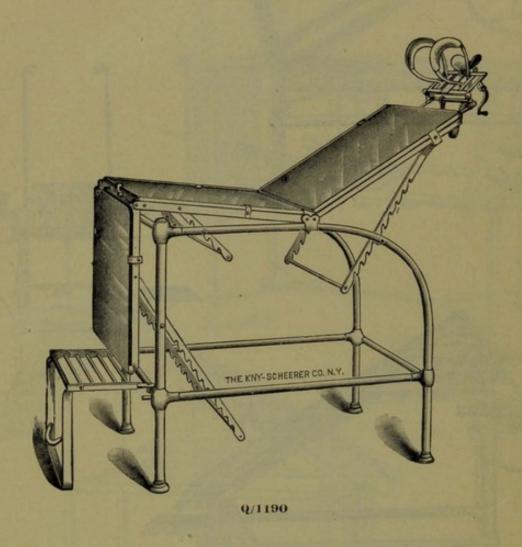
Q/1186 General Operating Table, designed by Dr. August Schachner (Louisville, Ky.)

Code
BEDFORD Constructed of wrought iron and steel white enameled, the top is so hinged that in the various positions the height remains unchanged, two swinging racks to support instrument tray and hand or sponge basin; a table adjustable to either side for operations on the hand or foot, or to facilitate the Sims' posture, and anesthetist's table, shoulder stirrups to relieve the drag at the knees in the Trendelenburg posture, and nickel-plated lithotomy stirrups. This table is so constructed that the anesthetizer can quickly drop the head in case of chloroform narcosis. Total length, 72 inches, width, 22 inches.

Price of table, with brackets \$80.00 Packing....



Ophthalmic Operating Tables.



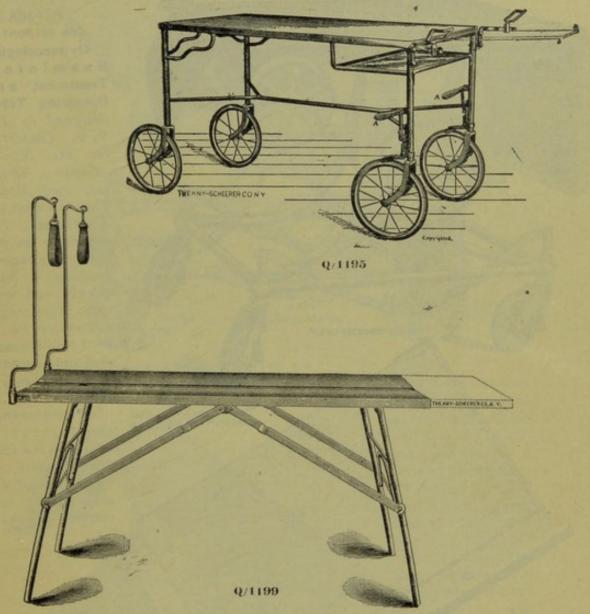
Q/1190 Ophthalmic Operating Table. Prof. De Wecker's model, consisting of strong Code BEINE from frame, white enameled, with top of three adjustable sections, fitted with ½-in. glass, with novel and perfectly adaptable head-clamp, a firm step, which can be turned in under, out of the way, when not required. Frame is 19 in. wide, 33 in. long, 29 in. high. Total length of top when extended, 55 in.

| Price, complete | | | | | | | | | | | | | \$ 90.00 | |
|-----------------|------|------|------|------|--|------|------|--|------|------|------|------|-------------|--|
| Packing | | | | | | | | | | | | | 1.50 | |

Head Clamp Separately, see Q/1270.



OPHTHALMIC OPERATING TABLES-Continued



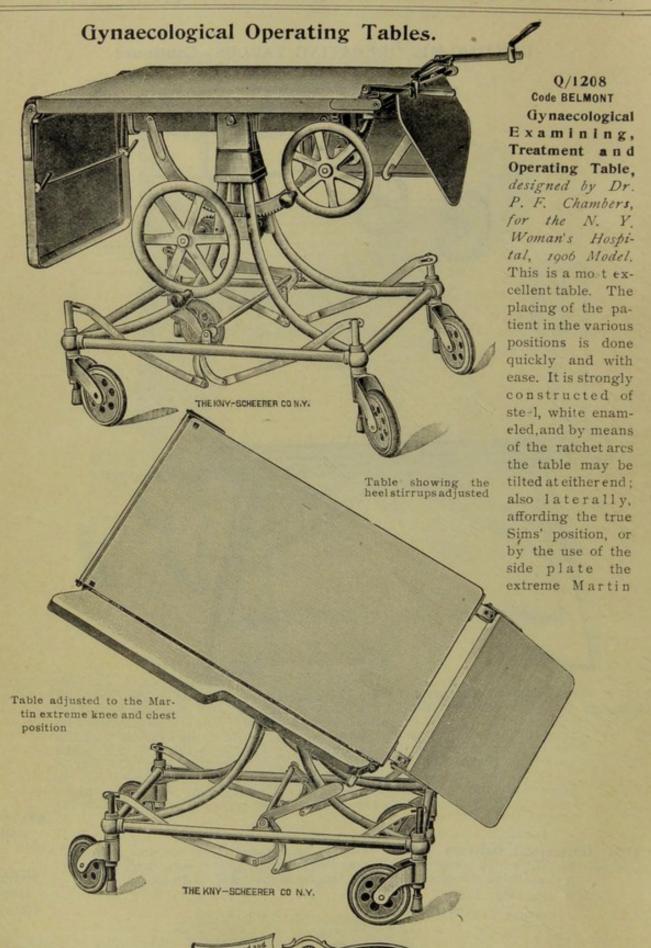
Q/1195 Gynæcological Treatment Table. This table was designed by Dr. Victor E. Code BELFAST Neesen, of the Women's Hospital of New York, to serve the three purposes of transportation, plastic operation, and treatment. The wheels have cushion tires clinched on to make it noiseless in wheeling, and are swiveled so that it can be turned or pushed in any direction. When once placed in position for operating, brakes (AA) render it immovable. Stirrups support the feet in dorsal position, and Sims's slide (BB) support the legs in Sims's position. In place of the stirrups, Edebohls's uprights can be inserted. An aseptic instrument tray or drawer (CC) made of plate glass pulls out so as to be over the ment tray or drawer (CC) made of plate glass pulls out so as to be over the operator's lap

1.50 Packing..... Q/1199 Obstetrical Delivery Table. Strongly constructed of steel, white enameled, Code BELINO

70.00 1.00 Packing.....

10.00 Heavy Canvas Pouch

\$90.00



for purpose of identification.

Note label which our goods bear

GYNAECOLOGICAL OPERATING TABLES-Continued.

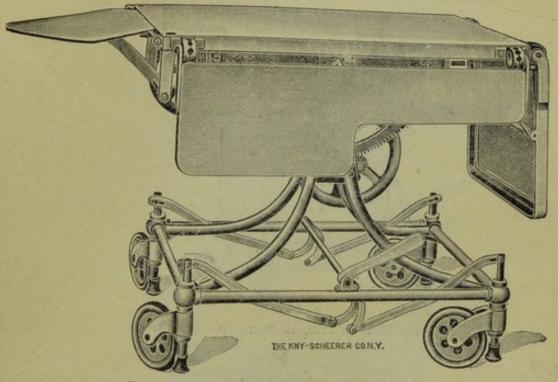


Table showing the Sims' position.

Q/1208



knee and chest posture. It is mounted on large 6 in. wheels with broad faced rubber tires and has a simple mechanism for raising the castors free from the floor, making the table firm and steady for operative work. The heel stirrups are nickelplated and are adjustable to any position. Fenestrations in the top permit of attaching

cushions.....\$150.00

Cushions and pillow for same\$10.00

Packing 1.50

Table showing the Trendelenburg position.

Q/1208

Note label which our goods bear

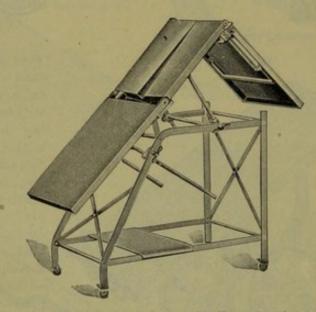


for purpose of identification.

Examining and Operating Tables.



Showing Table in Trendelenburg posture.

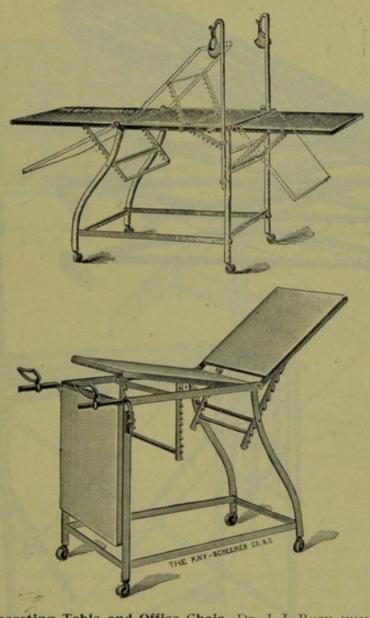


Showing Table with Stirrups for Examinations.

Q/1218 Examining and Operating Table, strongly constructed of wrought iron finished Code BELOIT in white enamel; this table is designed for an inexpensive aseptic office table and admits of adjustment for the Trendelenburg posture or plastic operations; a drainage pan is suspended under the center section, Complete with leg holders, Gynaecological Stirrups and head rest.



Portable Operating Tables.



Q/1225 Portable Operating Table and Office Chair, Dr. J. J. Buchannon. This table is constructed of wrought iron and strongly hinged and braced, making a firm table or chair; it is easily adjusted to any desired position, from the horizontal to the Trendelenburg posture or for office examinations, it is mounted on swivel castors and finished with the best white enamel; table can be folded into a compact space for transportation.

Code BELPORI

Code BELUM

Price of table fitted with Leg Holders and straps and adjustable Heel stirrups

Price of Heavy Canvas pouche for carrying same.

Source

\$20.00

Price of Cushion for same

Irrigator Rod and Irrigator 1 qt. capacity fitted with tubing, nozzle

Complete with Stirrups, Cushion, Pouche and Irrigator

N. B.—This table is of superior construction and finish and should not be compared with the ordinary manufacture to be found in the market, made only with a view of selling at a cheap price.

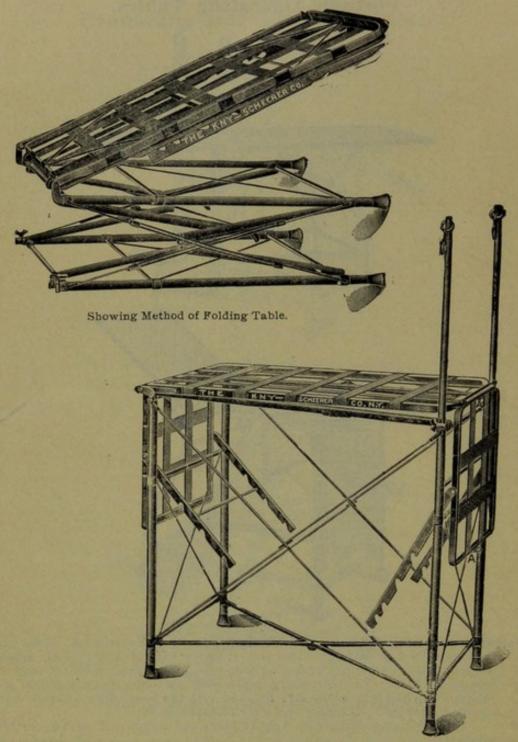


3.00

33.00

Code BENKIA

PORTABLE OPERATING TABLES-Continued.



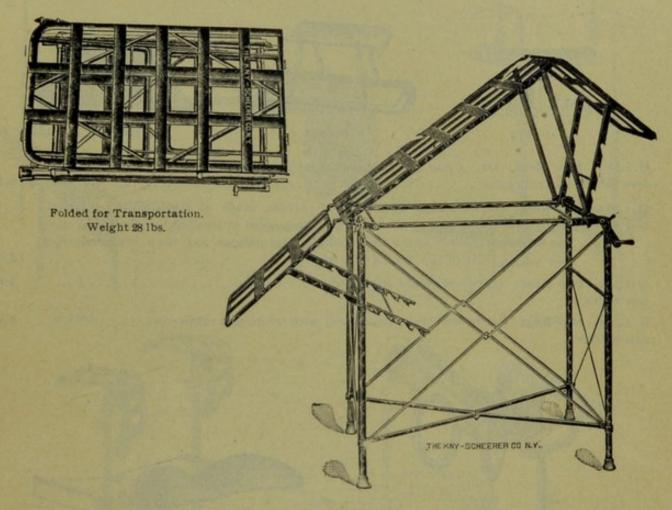
Q/1236 Operating Table, Portable, DESIGNED BY DR. J. BENTLEY SQUIERS, NEW YORK.

Strongly constructed, entirely of COLD-DRAWN steel tubing, making the lightest aseptic operating table on the market; the top is adjustable to the Trendelenburg posture by leverage, one of the steel lithotomy stirrups being used for this purpose. This is easily accomplished by detaching one of the stirrups from its place and slipping it in a circular slot provided in the end shelf of the table and using same as a handle or lever for further description, see page 37.

The steel frame is Oxydized copper plated fitted with nickel-plated stirrups. \$90.00 Price including a carrying case



PORTABLE OPERATING TABLES-Continued.



Q/1237 Operating Table, Portable, the same as Q/1236 but fitted with milled tool Code BENOIT steel rack and pinion with crank for elevating the top.

To fold the table it is only necessary to fold back the top, which is hinged together, bend the hinge in the center of the bottom braces, which fold, and the two ends slide together by the side braces folding; there is no fastening of screws or clamps necessary to set up or to fold the table.

For operating on the face or head, the head end raises above or below the plane of the table, for the lithotomy position the foot end drops and the stirrups may be adjusted to any height.

Dimensions: 19 inches wide, 67 inches long, 34 inches high, and can be folded compactly to 6 inches thick, 20 inches wide, 35 inches long, and weigths only 28 pounds complete. Furnished with a fibre case for transportation.

The steel frame is oxydized copper plated.

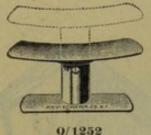
Price, with stirrups and carrying pouche\$100.00

Packing..... 1.00

Note label which our goods bear



ACCESSORIES TO OPERATING TABLES-Continued.



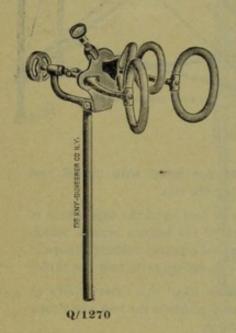


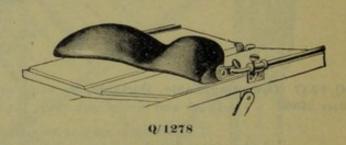


Q/1254

0/1264-65

| Q/1252 Hip Rest, Dr. Chas. McBurney's adjustable, telescopic, made of brass, Code BENZIN nickel-plated | 6.50 |
|---|-------|
| Q/1254 Hip Rest, Dr. Steward McGuire's pattern, made of steel, white enameled, Code BEPUNG with detachable top, to avoid lifting the patient in bandaging; the plate may be with drawn from under the bandage after patient has been removed from | |
| the table. Size of top, 3 x 8 x 6 in. high | 12.00 |
| Q/1264 Hip Rest, hardwood, white enameled | 4.00 |
| Q 1265 Hip Rest, hardwood, white enameled, with white soft rubber top | 5.00 |





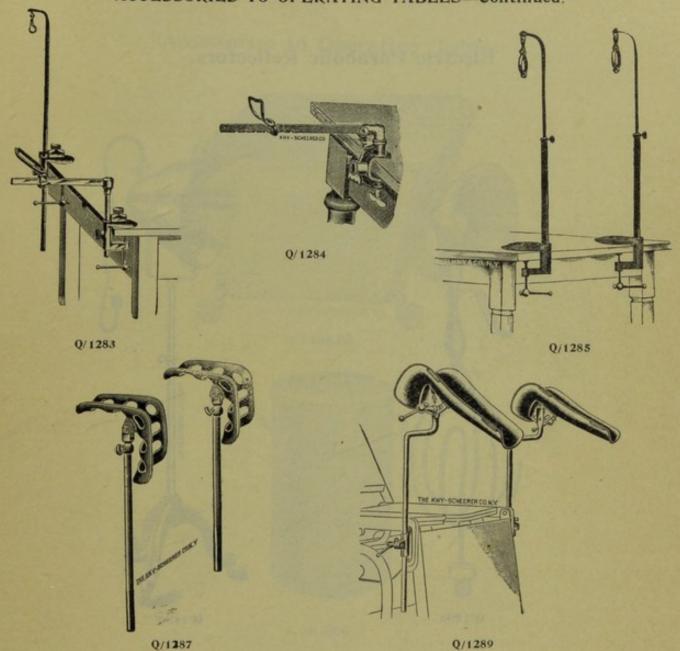
Q/1270 Head Clamp, adjustable to any size, can be titled forward or backward, holds Code BERGH the head firm, complete with socket, to attach to any table. Frame is nickel plated, loops are rubber covered......\$25.00

Q/1278 Shoulder Rest, for use in supporting the patient in the Trendelenburg posture, Code BERING made with steel back, stuffed with hair and entirely covered with vulcanized soft rubber, with nickel plated attachment.

> Price complete with sockets 18.00



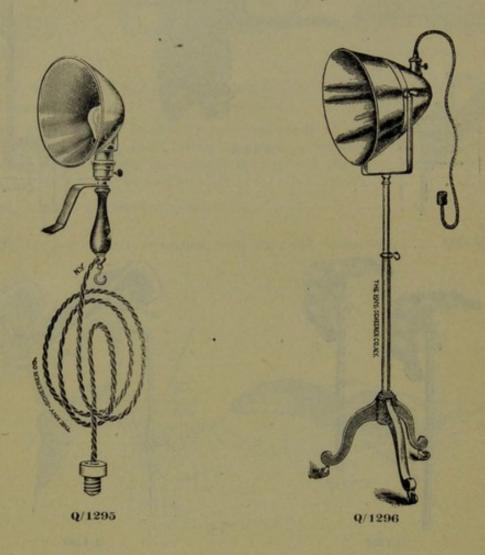
ACCESSORIES TO OPERATING TABLES-Continued.



| Q/1283 Stirrups, Combination Heel Stirrups and Lithotomy Stirrups, with duplex Code BERLIN spring socket, which may be attached to a table or bedstead. Made of | |
|---|---------|
| composition bronze, nickel-plated | \$12.00 |
| Q/1284 Stirrups for the Heels, adjustable, plated, with enameled duplex clamp sockets to attach to table or bedstead | 7.50 |
| Q/1285 Stirrups, Edebohl's Lithotomy Stirrups, telescopic, made of steel with bronze table clamp | 9.00 |
| Q/1287 Stirrups, Bierhoff Knee Crutches, adjustable, nickel-plated | 18.00 |
| Q/1289 Stirrups, Knee and Leg Crutches, adjustable | 18.00 |

lets label which our goods bear

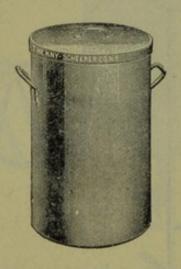
Electric Parabolic Reflectors.



Accessories to Operating Tables.



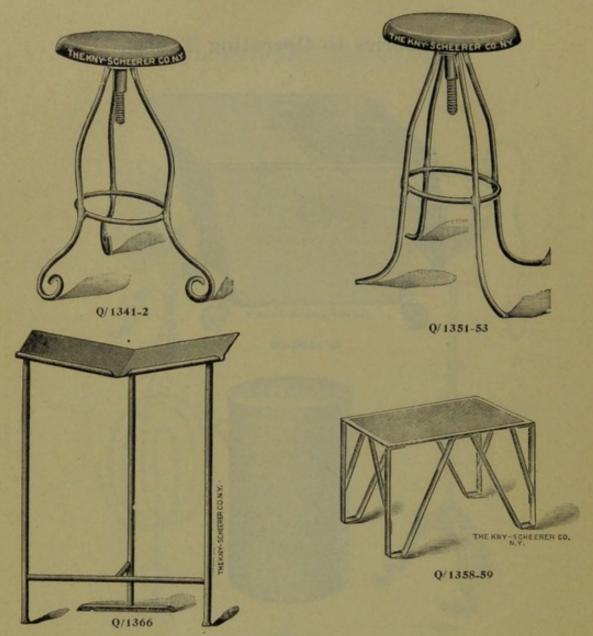
Q/1305-06



Q/1309

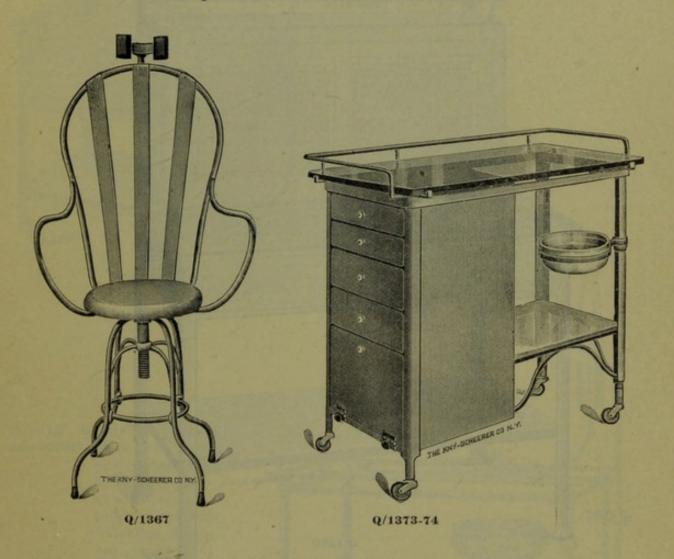
| Q/1305 Waste Trough, for receiving soiled dressings, etc. Made of heavy stee., | |
|---|---------|
| Code BEVERN with strong hinges and reinforced cover, made in two parts; the rubber wheels are mounted on special corner reinforcements so as | |
| to relieve all strain on the body and to strengthen it. No sharp corners inside or outside. White enamel finish. Dimensions: | |
| height 20 in., top 18x18 in.; on rubber wheels | \$21.00 |
| Q/1306 Waste Trough, same as above; height 24 in., top 24x24 in.; Code BIANCA mounted on rubber wheels | 30.00 |
| Q/1309 Waste Trough or Linen Hampers, made of steel, with stamped round Code BIGHAT edge bottom, set in, with plain lift-off cover, side handles, white | |
| enameled inside and outside, 15 in, diameter, 24 in, deep | 6.60 |

ACCESSORIES TO OPERATING TABLES.



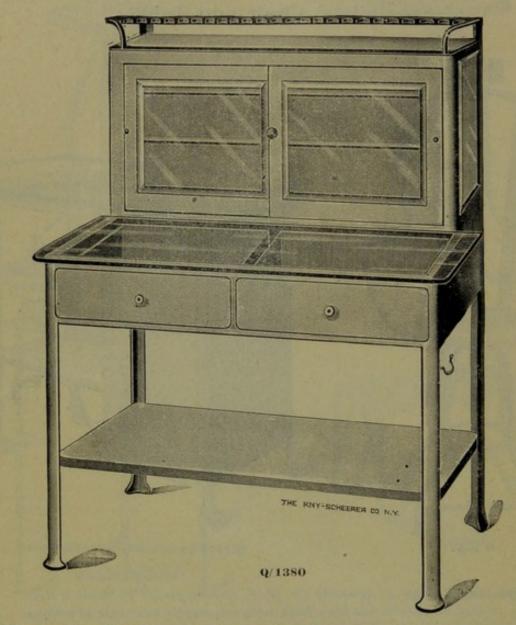
| Q/1341 Surgeon's Stool, strongly constructed of wrought iron, with reinforced support for revolving seat which is made of stamped steel 13 in. in diameter. The braces are round and smooth, avoiding crevices. Stool is finished entirely in white enamel, adjustable in height from 19 to 25 in | \$5.50 5.50 |
|---|----------------|
| Q/1351 Surgeon's Stool, strongly constructed of wrought iron, with reinforced support | |
| Code BISMARK for revolving seat which is made of stamped steel 13 in. in diameter. The | |
| braces are round and smooth, avoiding crevices. Stool is finished in white | |
| enamel, adjustable in height from 19 to 25 in | 6.00 |
| Q/1353 Surgeon's Stool, same as above, but adjustable in height from 25 to 31 in | 6.00 |
| Code BLANC | |
| Q/1358 Foot Stool, for Surgeon to stand on, strongly constructed of wrought iron and | |
| Code BOBECK steel, all white enameled, dimensions, 10 in. wide, 14 in. long, 8 in. high, | |
| with rubber top | 6.50 |
| Q/1359 Foot Stool, like O/1358 but 12 in, wide, 18 in, long, 12 in, high, with rubber top | 9.00 |
| Code BOBILE | |
| Q/1366 Perineal Table, DESIGNED BY DR. C. A. LANGE, made of steel with slanting top | |
| Code BOGEN and spout, a very convenient accessory in perineal operations; dimensions | |
| 10x20 in., height 24 in | 6.00 |
| | |

Specialists' Chair and Table.



| Q/1367 Spe Code BOGLEY | ecialists' Chair, designed by Dr. W. P. Brandegee, N. Y., made of steel, white enameled, has high back with adjustable head rest and adjustable seat | \$18.00 |
|---------------------------|--|---------|
| Q/1373 Specode BOGNOR | drawers 2 in. deep, two steel drawers 3 in. deep and a closet with drop door, all enclosed in a dust proof steel cabinet, guard rail around the three sides of top. The top is of white opaline glass 16 in. x 30 inches, and opaline shelf, to one corner is attached a swinging bracket with ring and white porcelain enameled basin | 55.00 |
| Q/1374 Sp Code BOGOTA | ecialists' Table, the same as Q/1373 but fitted with ½ in., polished plate glass top and shelf | 55.00 |
| Q/1376 Me Code BOHLEN | Packing | 5.00 |

Specialists' Tables



Q/1380 Specialists' Table, combined with Instrument Cabinet, designed by Dr. Code BOHNER Chas. L. Miner, Ashville, N. C. This combination affords at once a convenient and elegant article of office furniture. The Cabinet is made of round angle steel frame smoothly joined and white enamel finished, nickelplated fixtures and has a rail arranged to hold spray tubes and bottles. The interior is fitted with French plate glass shelves and beveled plate glass is mounted in the doors, which are equipped with ball bearing rollers and slide from side to side, being secured by a lock and key.

The base is made of steel, fitted by two steel drawers, secured by lock and key, also a hook to hold an automatic cutoff and tubing from a compressed air tank. The top and shelf are of French polished plate glass, % inches thick. Dimensions of Cabinet 20 x 36 x 8 in. deep. Base 24 x 36 x 30 in. high.



SPECIALISTS' TABLES.—Continued



Q/1403 Table, designed

Code BOISE for the N. Y. Woman's Hospital. Made of round angle steel frame, with four steel drawers, all inclosed in a dusttight steel case, guard rail around the top. The top and shelf are of white opaline glass 5% in. thick; dimensions 18x30 inches, mounted on robber castors.

\$65.00

Q/1413 Code BOLOGNE

Table, the same as above but fitted with 1 in. thick polished plate top and shelf.

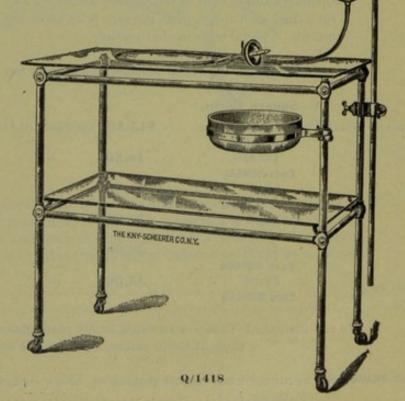
Price \$55.00

O/1418 Specialists' Table. Code BOMBAY Made of Iron,

white enameled. fitted with adjustable telescopic irrigator rod and Valentine improved irrigator; adjustable swinging bracket with ring and glass basin. The top and shelf are of polished plate glass & to 4 inch thick, 20 in, wide, 36 in, long; supported on rubber bearings and rubber casters.

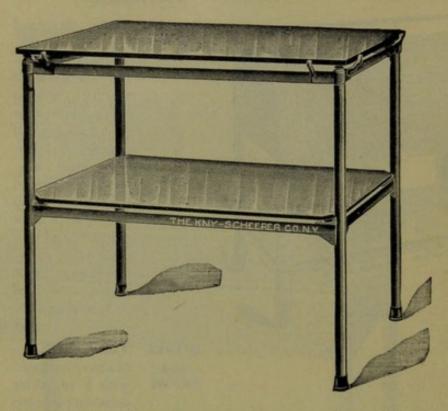
Price complete..\$48.00

Packing..... .75





Instrument and Dressing Tables.



Q/1442 Tables for Instruments and Dressings, strongly constructed of tubular wrought iron, all joints riveted, finished in white enamel; the glass top rests on Rubber Cushions and is held in position by corner claws. If desired this table can be furnished with rough plate glass or with steel top and steel shelf, white enameled. Special sizes made to order.

Prices for tables with crystal polished plate glass top and shelf, 1/2 to 5%-in. thick:

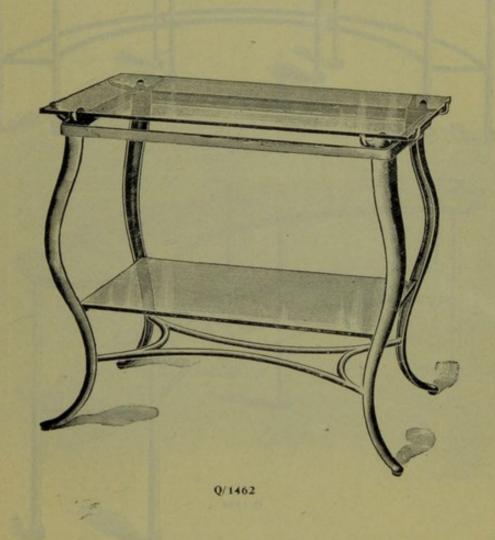
| A-Square Form. | | | | | | B- | Oblong Fo | rm | | | |
|----------------|----------|-------------------------------------|-----|------|-------|------------|-----------|-----------------------------------|----|-----|--------|
| Sizes of | Glass To | ops, 16x20 incl | hes | \$\$ | 13.50 | Sizes of (| Glass To | ps, 14x26 in | | s\$ | 515.00 |
| " | " | 18x221/2 Code BONSAL | " | | 16.50 | " | " | 15x28 Code BOSTO | ** | | 18.00 |
| " | | 20x25 Code BORACA | 26 | | 21.00 | " | " | | ** | | 21.00 |
| и | ** | 22x27½ | ** | | 24.00 | | " | 18x33 | ш | | 24.00 |
| | " | Code BOREK 24x30 | " | | 27.00 | " | " | | ** | | 27.00 |
| a | | Code BORNEO 24×36 Code BOSLAR | et | | 33.00 | " | " | Code BOYNE 22x36 Code BRACH | ** | | 30.00 |

We can furnished Tables with extra heavy plate glass approximating 1/4 to 3/4-inch thick at lower prices. Larger size to order only.

| Code BRAHIM | Set of rubber-lined casters instead of rubber socket, extra per table | 2.00 |
|-------------|---|---------|
| | Packing50 | to 1.00 |

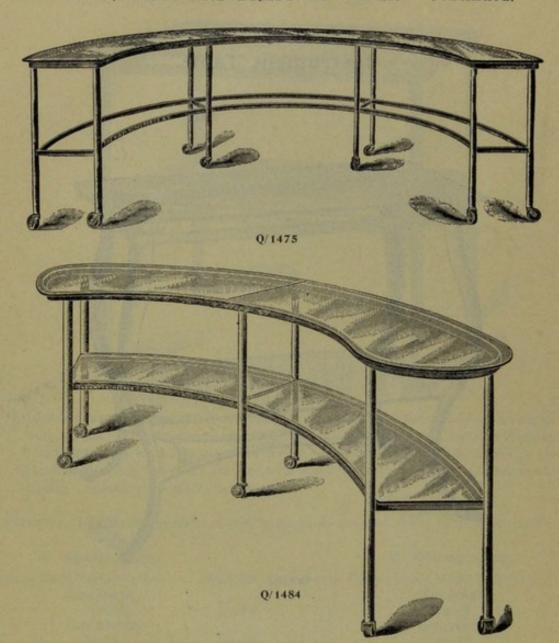


Instrument Table.



Q/1462 Instrument Table, new model made of steel, white enameled, the legs are made of round angle steel presenting a splendid appearance, the French plate glass top is § in. thick and rests on rubber tips and is held in place by claw corners, the shelf rests on rubber tips likewise. Dimensions of top 24 in. wide, 36 in. long.

INSTRUMENT AND DRESSING TABLES-Continued.

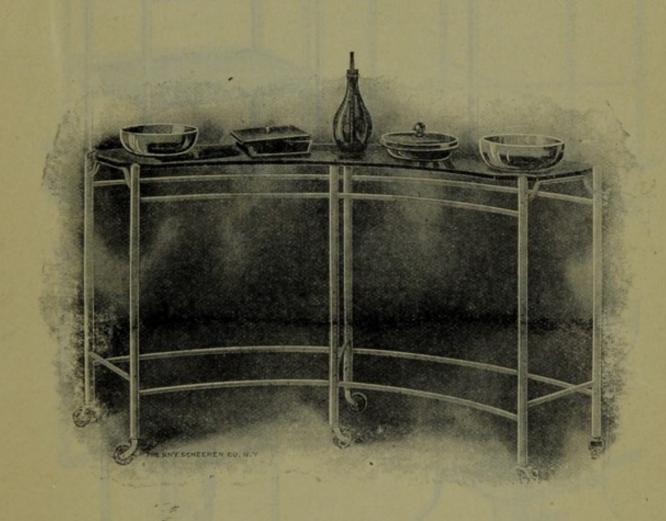


Q/1484 Instrument and Dressing Table, circular form, as made for Dr. Howard A. Code BRESLAU Kelly (Baltimore, Md.) Constructed of tubular wrought iron, white enameled, with % in. crystal polished plate glass top and shelf; table is mounted on six strong rubber wheels. Length 72 in., width of top 15 in., 36 in. high.

Price...... 90.00



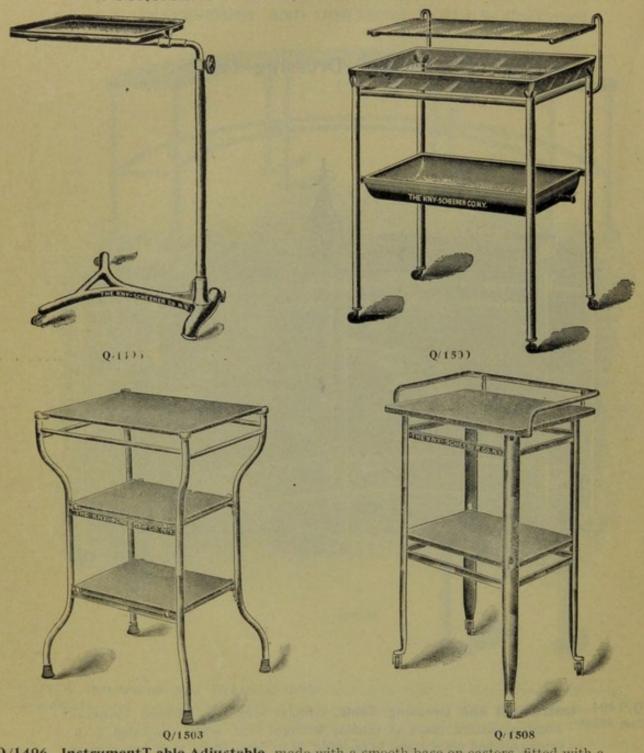
Physicians' Dressing Tables.



Q/1491 Instrument and Dressing Table, circular form, St. Thomas Hospital, Code BREST London, pattern, made of tubular wrought iron, white enameled, § in. thick polished plate glass; 14 in. wide, 64 in. long, 35 in. high; mounted on six rubber casters.



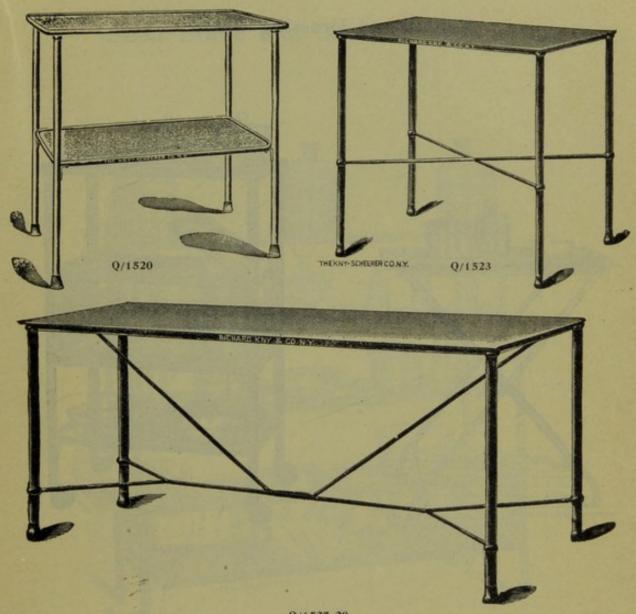
INSTRUMENT AND DRESSING TABLES-Continued.



| Q/1490 Instrument i able Adjustable, made with a smooth base on castors, fitted with a | |
|--|---------|
| Code BRETON detachable enameled tray 12x19 in.; designed to extend over the patient on | |
| the operating table | \$ 9.00 |
| Q/1500 Instrument Table with glass tray top 17x21 inches and metal tray below, and | |
| Code BRIE glass shelf 7x21 inches | 33.00 |
| Q/1503 Instrument Table made of wrought iron, white enameled fitted with heavy | |
| Code BRIENZ 1/4 inch thick polished plate glass top and 2 shelves; mounted on rubber tips, | |
| dimensions of top 16 inches wide, 20 inches long | 7.50 |
| Q/1508 Etherizer Table made of iron white enameled, top of porcelain enameled iron | |
| Code BRINLEY which is impervious to Ether or Alcohol with guard rail, 1 shelf of enameled | |
| steel; mounted on castors, dimensions of top 16x20 inches | 12.00 |
| Packing on any of the above | .75 |
| | |



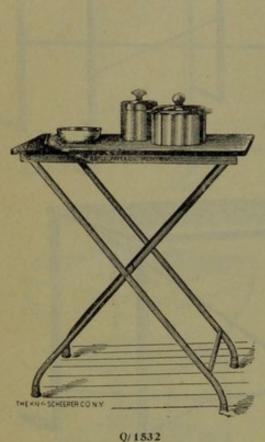
INSTRUMENT AND DRESSING TABLES-Continued.

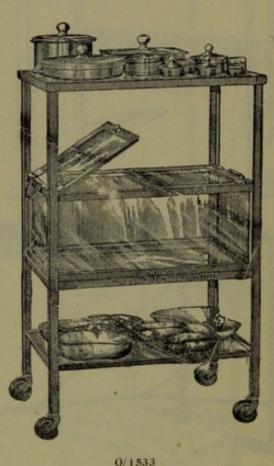


Q/1527-29

| Q/1520 Instrument Table, constructed of tubular wrought iron, with heavy steel top Code BRISTOL and shelf, all white enameled. Dimensions, 18 in. wide, 30 in. long | \$12.00 |
|--|---------|
| Q/1523 Instrument and Dressing Table, strongly constructed of tubular wrought iron, | |
| Code BRITIAN steel top all white enameled. Dimensions, 20 in. wide, 28 in. long, 32 in. high Packing | 10.00 |
| Q/1527 Dressing Table, strongly constructed of tubular wrought iron, with heavy steel top, all white enameled. Dimensions, 20 in. wide, 48 in. long, 32 in. high Q/1528 Dressing Table, strongly constructed of tubular wrought iron, with heavy steel | 18.00 |
| Code BROCK white enameled. Dimensions, 24 in. wide, 60 in. long, 32 in. high | 22.50 |
| Q/1529 Dressing Table, the same as Q/1528, dimensions 24 x 72 x 32 inches high | 27.00 |
| Code BRODAY Packing | 1.00 |

Tables and Dressing Cases.





Q/1532 Folding Instrument and Dressing Table. United States Navy pattern.

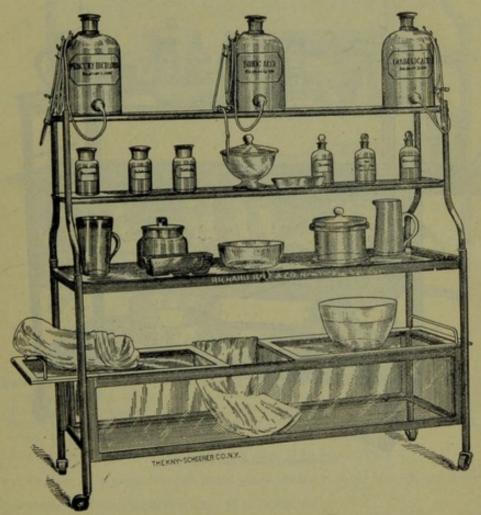
Code BROHL Designed by Dr. C. A. Siegfried, Surgeon, U. S. N. Metal top 16x26 in.,

height 30 in.; all white enameled, mounted on rubber sockets\$15.00

60.00

Manufactured and SCHEERERC SCHEERERC

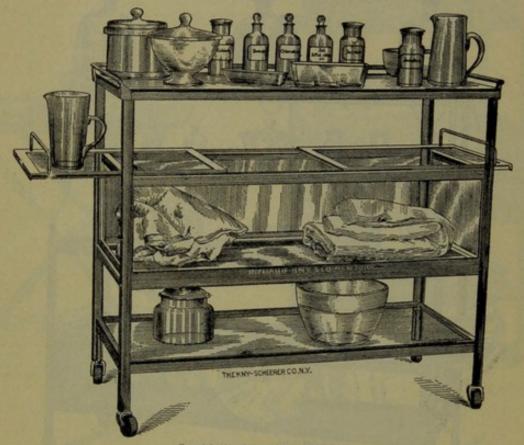
Shelf Stand and Dressing Case.



Copyright by RICHARD KNY & Co., 1895,

| Code BUCHE | is made of tubular wrought iron, hand riveted, white enameled. The case |
|------------|--|
| | below has all-glass panels and dust proof sliding top doors. Size 22 x 58 in., |
| | depth 12 in., three shelfs of crstal polished plate glass, 1/2 to 3/8 in. thick. |
| | Lower Glass shelf, 22 x 60 in. Total height, 60 in, \$170.00 |
| | Crating and packing 2.50 |

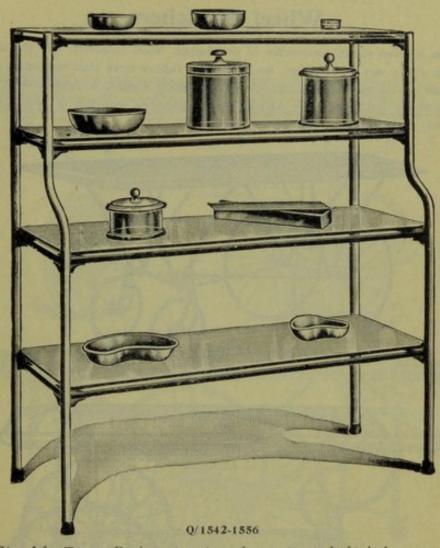
SHELF STANDS AND DRESSING CASES-Continued.



Copyrighted by RICHARD KNY & Co., 1896.

Q/1539 Shelf Stand and Glass Dressings Cabinet Combined. Made of wrought iron, Code BUCHEIM white enameled, with guard-rail on three sides. Top and shelf, 24 in. wide x 48 in. long, are of crystal polished plate glass, ½ to %-in. thick. The glass case in centre is 12 in. deep, of dust proof construction, with all plate glass panels and sliding doors.

SHELF STANDS-Continued.



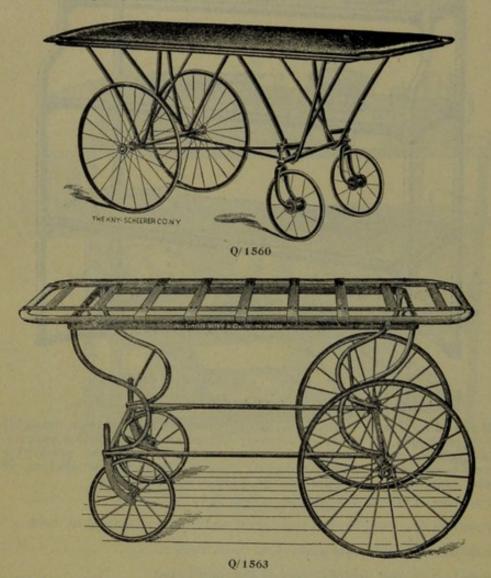
Q/1542 Shelf Stand for Trays, Basins, etc., strongly constructed of tubular wrought iron, white enameled, all joints are securely riveted and braced at the corners, the glass rests on rubber cushions and does not touch the metal, permitting the frame to be cleaned without removing the glass. Two lower shelves, 20 in. wide, 48 in. long; two upper shelves, 14 in. wide, 48 in. long.

| wide, 48 in. long; two upper shelves, 14 in. wide, 48 in. long. | |
|---|---------|
| Four shelves of crystal French plate glass, ½ to %-in. thick | \$65.00 |
| Code BUCHOLZ Q/1544 Four shelves of crystal French plate glass, extra heavy, 1/4 to 3/6-in. thick Code BUCKOW | 50.00 |
| Q/1545 Four shelves of rough plate glass, ½ to 5%-in. thick | 45.00 |
| Q/1546 Four shelves of steel, white enameled and hard baked | 40.00. |
| Q/1547 Four shelves of white Porcelain enameled iron | 75.00 |
| O/1551 Shelf Stand, same as above, but of smaller dimensions. Two lower shelves, 18 in. wide, 40 in. long; two upper shelves, 12 in. wide, 40 in. long. Four shelves of crystal French plate glass, ½ to 5 in. thick | |
| Code BUFBAY O/1553 Four shelves of Crystal French plate glass, extra heavy, 1/4 to 3/8-in. thick | |
| Q/1554 Four shelves of rough plate glass, ½ to 5%-in. thick | 38.00 |
| Q/1555 Four shelves of steel, white enameled and hard baked | 33.00 |
| Q/1556 Four shelves of white Porcelain enameled iron | |
| Packing | 1.25 |

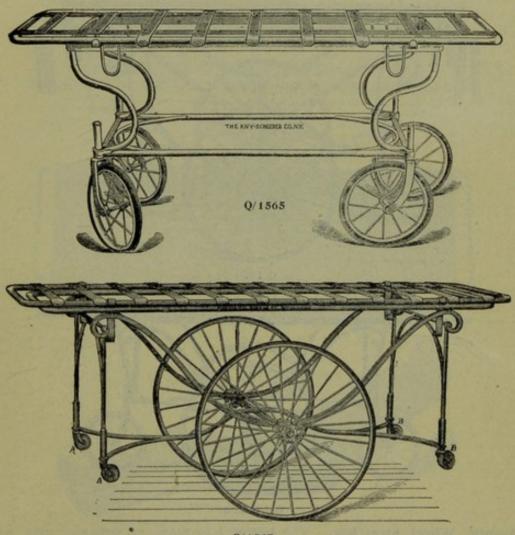
These stands can be made circular form, and of any size.

Wheel Stretchers.

Special attention is drawn to the construction of our Aseptic Wheel Stretchers. We give all joints especially careful consideration, with a view of durability, the wheels have rubber tires clinched on to avoid the difficulty found in other forms by the tires slipping off. This is essentially superior to other makes. We can furnish stretcher carriages with the plain rubber tire wheels at a corresponding reduction in price. Carriages can also be furnished with ball bearing bicycle wheels when desired.



WHEEL STRETCHERS_Continued.

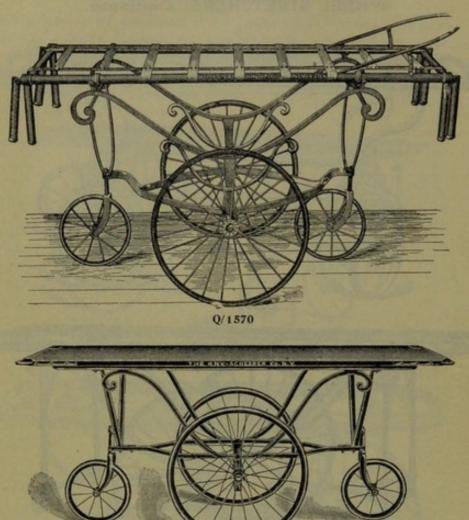


Q/1567

| Q/1565 A. Code BURGEL | septic Wheel Stretcher, strongly constructed of wrought iron, with detachable top, 66x21 in., with steel slates, mounted on four 12-in, swivel wheels, with heavy clinched-on rubber tires; all white enameled; the frame is forged and is of especially strong construction particularly at the swivel sockets. This carriage can be moved sideways, making it easy to run close to the bed or operating table | \$54.00 |
|--------------------------|---|---------|
| Q/1567 A Code BURMA | septic Wheel Stretcher, light but very strongly constructed, mounted on two 24-in. wheels with heavy rubber tires clinched-on, and four swivel heavy rubber wheels, 2½ in., at each corner, which are adjustable in height, by means of which the patient can be placed in either the horizontal or inclined | |
| | position. The steel slat top is detachable to be carried, furnished with four legs, all white enameled. Dimensions 20x66 in | 54.00 |
| | Packing | 1.50 |



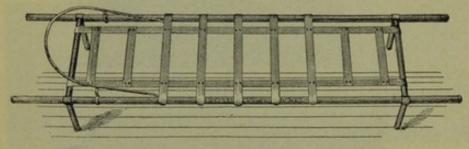
WHEEL STRETCHERS-Continued.



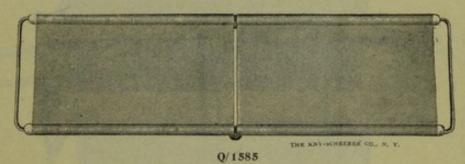
Q/1576-78

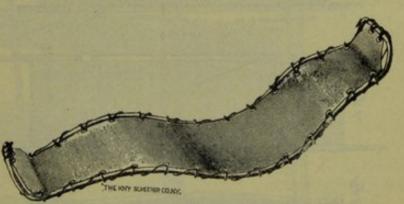
| Q/1570 Aseptic Wheel Stretcher. The carriage is made of wrought iron, white code BUSECK enameled, and is of graceful appearance. Mounted on two 24-in. and two 12-in. heavy clinched-on rubber tired wheels. The latter have a swivel movement, which permits of turning corners of the narrowest hallways. The detachable stretcher top is constructed of seamless cold drawn steel tubing, and is exceedingly right, the handles are hinged and drop when not in use. The headrest is adjustable. Length of stretcher, 83 in.; length of carriage, 46½ in.; height, 34 in \$120.00 |
|--|
| Q/1576 Code BUTIE Wheel Stretcher. Frame made of wrought iron, white enameled, mounted on two 24-in. and two 12-in. wheels with clinched-on cushion rubber tires. The small wheels swivel, permitting the carriage to be turned in its own length. The detachable top is made of wood, finished in white enamel; dimensions 22x72 in |
| Q/1577* Wheel Stretcher. Carriage made like Q/1576 and fitted with detachable stret- Code BYRUTH cher top like on Q/1570 made of iron white enameled |
| Q/1578* Wheel Stretcher. Carriage made like Q/1576 and fitted with detachable stret- Code BYTELE cher top like on Q/1565 made of iron white enameled |

Stretchers and Litters.



Q/1581-82





Q/1588

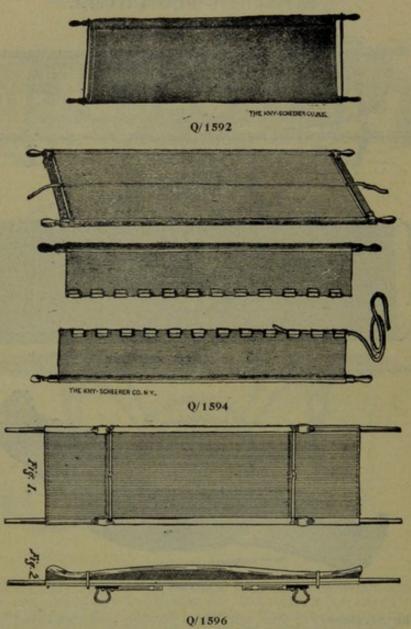
| Q/1581 Carrying Stretcher, of iron, with drop handles and detachable steel bottom, Code CABANA same as shown in Fig. Q/1570 | \$45.00 |
|---|---------|
| Q/1582 Stretcher, the same as Q/1581 but made of iron with straight handles, without Code CABELO head rest | 30.00 |
| Q/1585 Portable Stretcher (Dr. Chas. McBurney's), made entirely of the best steel tubing, 20x70 in., strongly hinged in center to fold. Cross-bars are hinged to the poles at one end so as to permit of their being folded compactly without being detached. Canvas top has full length loops for the steel poles and is divided across the center, which permits of its being withdrawn from under the patient without any inconvenience to patient or attendant. | 30.00 |
| Q/1588 Carrying Stretcher, tubular wrought iron frame with canvas top, divided in the center to facilitate its Code CACCIA easy removal in place of the lacing as shown in illustration. This stretcher is especially arranged for carrying patients up and down stairs comfortably. Packing for above. | 12.00 |

Hote label which our goods bear



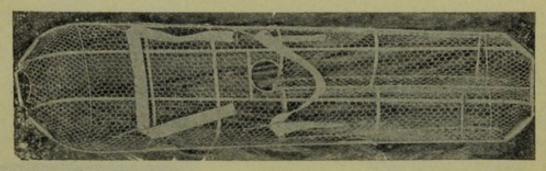
for purpose of identification.

STRETCHERS AND LITTERS-Continued.

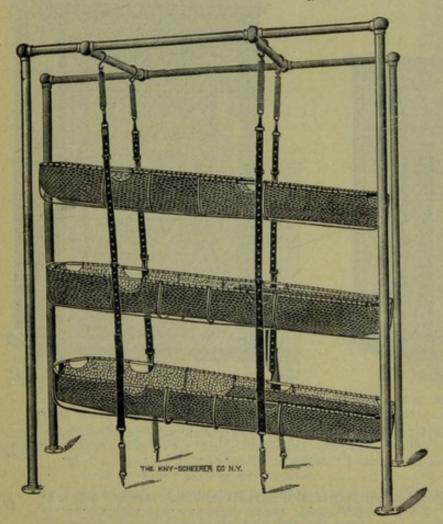


| Q/1592 Carrying Stretcher, plain top of heavy canvas with full length loops on each side through which the carrying poles pass; simple iron cross-bars with ring terminals slip over the poles, being held in place with thumbscrews \$ 7. | 00 |
|--|-----|
| Q/1594 Carrying Stretcher, with divided laced canvas top; with full length loops on | |
| Code CADELLE side, through which the poles pass; simple iron cross-bars with ring terminals | |
| slip over the poles held by thumbscrews; these can be removed without | |
| disturbing the patient, and the canvas removed each side from under the patient 12. | 00 |
| | 00 |
| Q/1596 United States Hospital and Army Litter. This litter or stretcher is constructed | |
| Code CADIZ on an entirely new principal, authorized and accepted by the United States | |
| Army and known as "Litter Model, 1895." The litter as shown in Fig. 1 | |
| represents it fully extended. Fig. 2 shows the litter when folded. The | |
| canvas is made of heavy duck, firmly fastened to the poles and able to | |
| support a weight of 450 pounds. The stretcher can be folded without remov- | |
| income of its and 450 pounds. The stretcher can be folded without remov- | |
| ing any of its parts 9. | 00 |
| Packing for above | 50 |
| | 100 |

SPLINT STRETCHER.



Q/1598



Q/1598 Stretcher, design-Code CAIRN ed by Dr. C. F.

Stokes, U.S. N., made of strong wire netting, se-cured to an iron band, with four nickel plated handles. The division for the extremities are particularly adopted for splinting a fractured limb and the pelvic straps are for use in transporting a patient through narrow quarters where it is neces-sary to handle them in the vertical position, without danger of their slipping, in cases of fractured hip or leg the patient may be handled with comfort and ease in any position. \$42.00

Q/1599

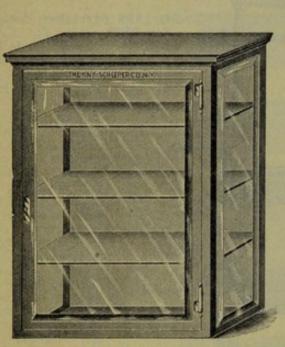
Q/1599 Stretchers, same as Q/1598 shown suspended in a series, for use in transporting a number of injured in a railroad car or aboard ship. The springs Code CAIRO prevent any jar due to the motion of the vehicle.

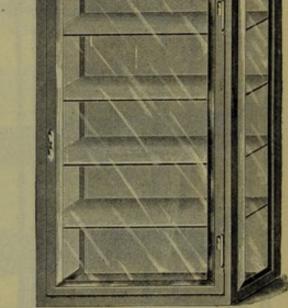
> Price per set of 3 stretchers complete, with leather suspension



Cabinets for Surgical Instruments.

All our cabinets are specially constructed of best wrought iron frame, hand made, carefully and smoothly jointed; no reinforcements necessary to be bolted on the outside, which mar the beauty and prove to be receptacles for dust; all crevices on the inside and outside are strictly avoided; the doors fit dust proof (without rubber or other objectionable packing for same), furnished with a substantial lock and key, and are guaranteed never to sag. We use only the best French Crystal Plate Glass, with 1½-in. bevel on all edges, set in a moulded soft rubber cushion, rendering breakage due to concussion impossible. We guarantee the workmanship to be unexceptionally first class. These cabinets are superior to anything we know to be on the market to-day. Do not be misled by quotations on inferior workmanship, but carefully inspect and compare the methods of construction before purchasing.





Q/1630-31

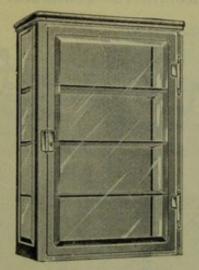
Q/1632-33

| Code CALAIS | of wrought iron, white enamel finished, with three crystal plate glass shelves and beveled edge crystal plate glass in sides and door, which is dust proof, furnished with lock and key. Dimensions: Height 32 in., front 20 in., depth 16 in | |
|---------------------------|---|-------|
| | Packing | 1.50 |
| Q/1631 In Code CALAMA | nstrument Cabinet. The same as O/1630, but with plain in place of the beveled plate glass in sides and door | 47.00 |
| Q/1632 In Code CALCINO | nstrument Cabinet, to hang from the wall or to place on a stand, constructed | 62.00 |
| Q/1633 In Code CALCUTA | nstrument Cabinet. The same as Q/1632, but with plain in place of the beveled plate glass in sides and door | 57.00 |

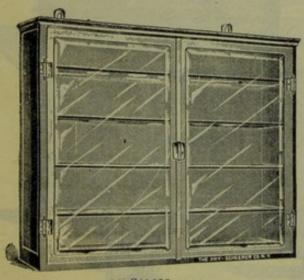
We manufacture iron stands for above cabinets, with shelf and drawer, at prices from \$10.00 to \$25.00.



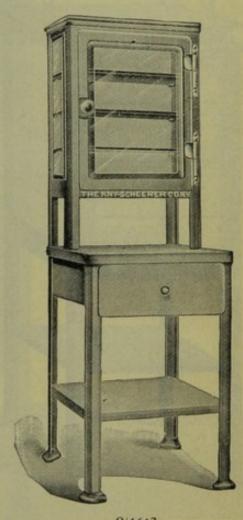
Aseptic Cabinets.



THE KNY-SCHEERER CO.N.Y. Q 1636



0/1639



0/1642

Q/1636 Aseptic Cabinet for Anaesthetist's Instruments and Remedies. Made of round angle steel frame, white enameled, with beveled glass sides and door and Code CALLAO

Q/1639 Aseptic Cabinet for Anaesthetist's Instruments and Remedies. Constructed code CALGARY of wrought iron, smoothly joined, white enameled, with beveled plate glass in doors and four shelves with polished edges. Dimensions 36 in. long, 30 in. high, 8 in. deep, with sockets to hang on the wall.....

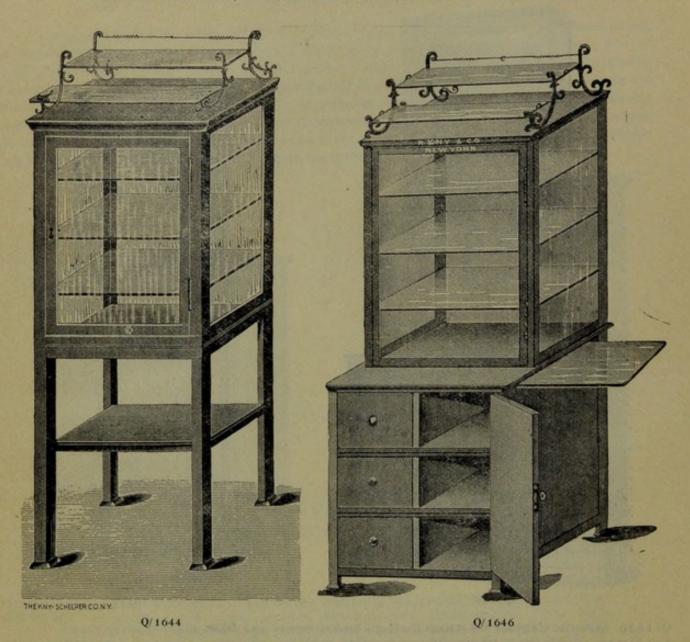
Q/1642 Aseptic Cabinet for Anaesthetist's Instruments and Remedies. Constructed of round angle steel frame, white enamel finished, beveled plate glass door and sides also 2 plate glass shelves. Dimensions of Cabinet 16 in. wide, 20 in. high, 8 in. dep, mounted over steel top table made of round angle steel, fitted with steel drawer and shelf. Dimensions of table 16 x 20 in., total hight 56 inches

48.00

Note labe! which our goods bear



CABINETS FOR SURGICAL INSTRUMENTS-Continued.



2.00

Note label which our goods bear

Packing



CABINETS FOR SURGICAL INSTRUMENTS-Continued.



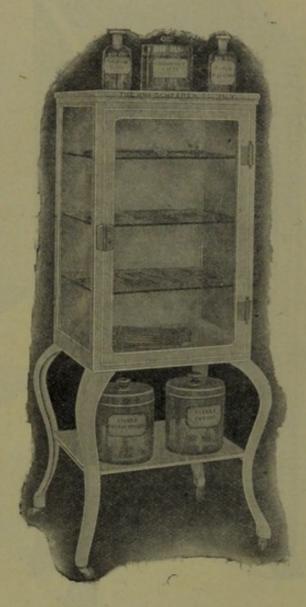
Q/1650 Instrument Cabinet, New Orleans Charity Hospital pattern, with slanting Code CALUSO glass top; the case is made of wrought iron frame with the corner frame and legs all one piece avoiding ledges and recesses which catch the dust, all joints are tightly made and smoothly finished throughout, door and sides are set with the best polished plate glass and the interior is fitted with 5 polished plate glass shelves with all edges polished and shelf in the stand. Frame is finished with the best white enamel, hard baked. Dimensions 28 in. wide, 16 in. deep, 70 in. high.

Packing...... 3.00



Physicians' Aseptic Instrument Cabinets.

White Enameled.



Q/1660 Physicians' Instrument Cabinet, made of wrought iron, smoothly joined and Code CAMARGO brazed at the corners; the sharp inside corners are avoided, making it thoroughly aseptic and easily cleaned; the door and sides are set with crystal glass, and the three polished plate glass shelves have all edges polished; the shelf in the stand is of steel; the entire cabinet is white enameled, with nickel-plated or oxidized copper plated hinges and lock; the door locks automatically, requiring a key only to open it. Dimensions of cabinet: 20 in, wide, 32 in. high, 16 in. deep; mounted on stand 24 in. high, with rubber

2.00

Price does not include jars or instruments illustrated



PHYSICIANS' ASEPTIC INSTRUMENT CABINETS-Continued.

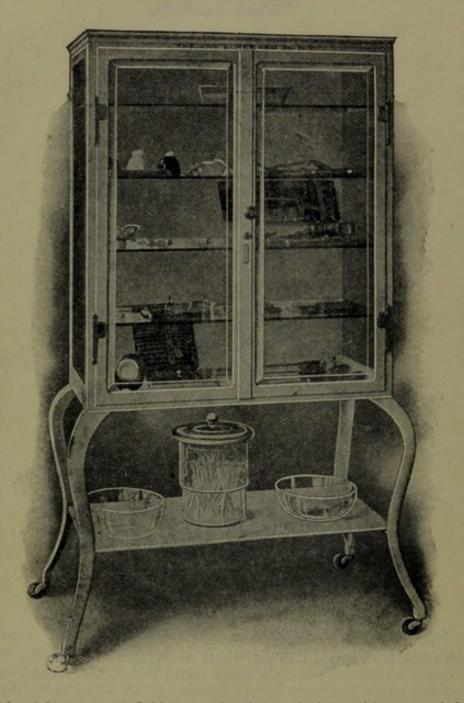
White Enameled.



Price does not include jars or instruments illustrated,



PHYSICIANS' ASEPTIC INSTRUMENT CABINETS-Continued. White Enameled.



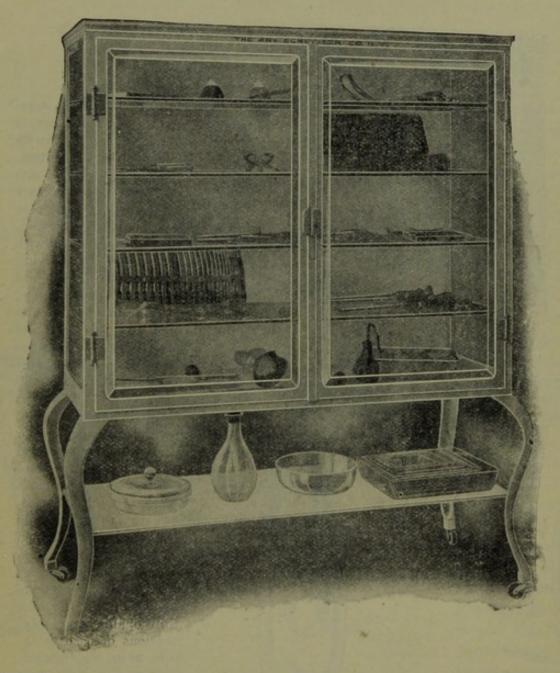
Q/1667 Physicians' Instrument Cabinet, made of wrought iron, white enameled, all Code CAMDEN joints brazed and smoothly finished, double doors and sides, set with beveled plate and four polished plate glass shelves with edges polished, the inside corners are filled, thus avoiding all sharp crevices; the stand has a steel shelf and the entire case is finished in the best white enamel, hard baked. Dimensions of case 36 in. wide, 42 in. high, 16 in. deep; on stand 24 in.

Packing..... Price does not include bowls instruments illustrated.

2.00



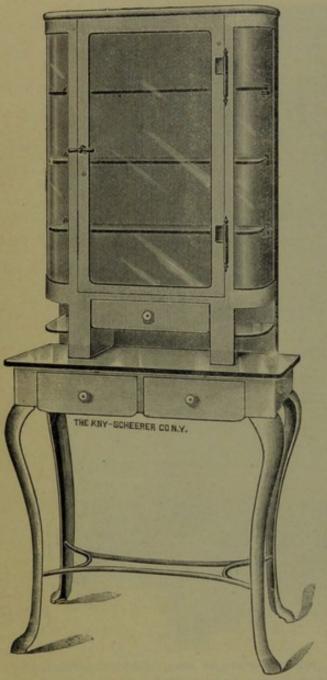
PHYSICIANS' ASEPTIC INSTRUMENT CABINETS—Continued. White Enameled.



Price does not include bowls, etc., illustrated.



CABINETS FOR INSTRUMENTS—Continued



Q/1672 Instrument Cabinet, latest

Code CAMFIELD

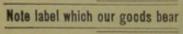
design. The frame is made of wrought iron with steel back top and bottom, white enameled, all corners inside and joints are tight and constructed to facilitate easy cleansing, the sides are fitted with bent plate glass giving to these cases a rich and handsome appearance, the door is set with plate glass and has lock and knob. All glass is set in moulded rubber cushions to guard against breakage, the three plate glass shelves have polished edges, beneath the door are two steel drawers and two plate glass corner shelves. The base has a steel top entirely enclosing two steel drawers mounted on finely formed French pattern of legs, secured by round bracings forged together, over the steel top is a in. thick white opaline glass. Dimensions of case 24 in. wide, 38 in, high (including legs), 8 in. deep; base

16 x 30 x 30 in. high...\$140.00

Q/1673 Instrument Cabinet, latest design. The same as Q/1672, but larger size. Dimensions of case 30 in. wide, 38 in. high (including legs), 8 in. deep; base 20 x 36 x 30 inches.

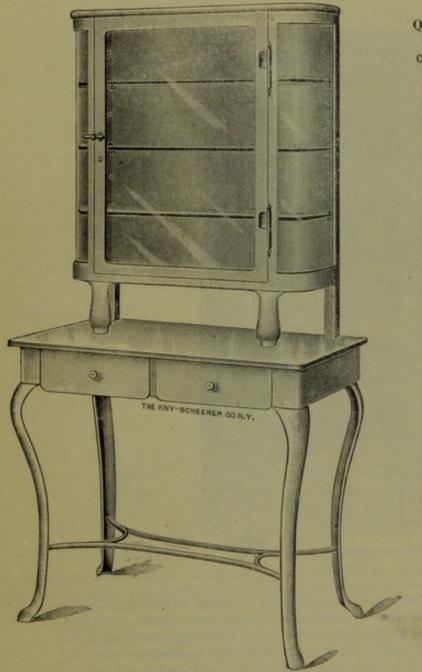
> Price 155.00 2.00

Packing.....





CABINETS FOR SURGICAL INSTRUMENTS—Continued



Q/1676 Instrument Cabinet,

Code CAMPOS

latest design. The frame is made of wrought iron with steel back, top and bottom white enaneled, all corners inside and joints are tight and constructed to facilitate easy cleansing, the sides are fitted with bent plate glass giving to these cases a rich and handsome style, the door is of plate glass, all glass is set in moulded rubber cushions to guard against breakage, the three plate glass shelves have all edges polished, door has lock and knob, the base has a steel top entirely enclosing two steel drawers mounted on finely formed French pattern of legs secured by round iron braces forged together, top of & in. thick white

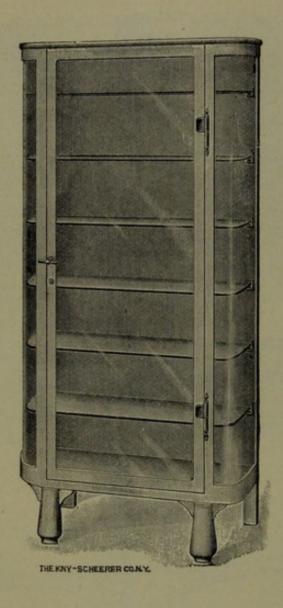
opaline glass with polished edges, dimensions of case 24 in. wide, 38 in. high, (including legs,) 8 in. deep; base 16 in. x 30 in. x 30 in. high....\$120.00

0/1677 Instrument Cabinet, latest design. The same as Q/1676 but larger size. Dimensions of case 30 in. wide, 38 in. high (including legs), 8 in. deep; Code CANAAN

> 2.00 Packing......

Note label which our goods bear

CABINETS FOR SURGICAL INSTRUMENTS-Continued.



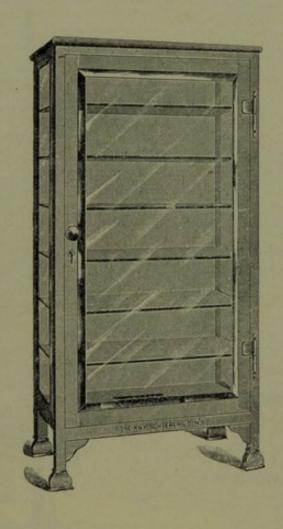
Q/1680 Instrument Cabinet, latest design, made of wrought iron with steel back,

Code CANADA top and bottom all white enameled, all joints and corners are tight
and constructed to facilitate easy cleansing, the sides are fitted with
bent plate glass giving to these cases a rich and handsome style, the
door is set with plate glass and is fitted with lock and knob, the six
plate glass shelves have all edges polished, the pedestals are of neat
design and fitted with ball bearing castors.

Dimensions 24 in. wide, 66 in. high, 12 in. deep, price..........\$150.00



CABINETS FOR SURGICAL INSTRUMENTS-Continued.



Q/1684 Instrument Cabinet on standard, with one dust proof door furnished with Yale lock and concealed Code CANCALE sliding bolts. • Beveled crystal French plate in sides and door; back, top and bottom of white enameled steel, five polished edge crystal shelves. In bottom of case is fitted a compartment for permanent dessication and disinfection, mounted on the back is a handsome hygrometer showing the internal atmospheric condition. Case is white enameled finish, with nickel-plated hinges and knob, all mounted on four concealed heavy rubber wheels. Height 50 in., front 28 in., depth 16 \$110.00 Packing. Q/1685 Instrument Cabinet, same as above in detail of construction, but with six polished plate glass shelves.

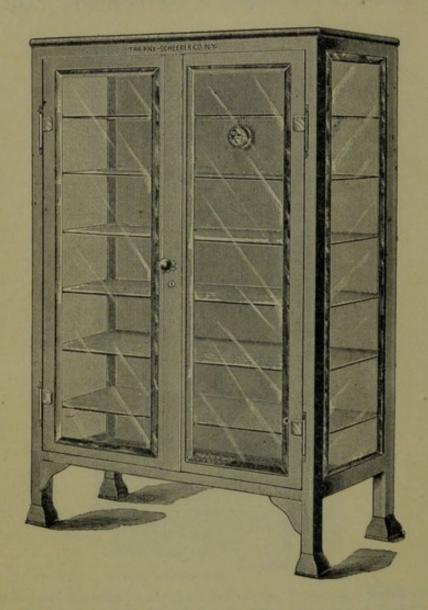
Code CANOSA Dimensions: Height 60 in., front 30 in., depth 16 in _______ 125.00 Packing 3.00

Q/1686 Instrument Cabinet, same as above in detail of construction, with six polished plate glass shelves. Packing.....

2.50

4.00

CABINETS FOR SURGICAL INSTRUMENTS-Continued.



| Q/1692 In Code CANTYRE | strument Cabinet on standard, with two dust-proof doors furnished with concealed Pasquill lock, bolting top, bottom and center with Yale lock securing all three bolts. Beveled crystal French plate glass in sides and doors, back, top and bottom of white enameled steel, six polished edge crystal shelves. In bottom of case is fitted a compartment for permanent dessication and disinfection; mounted on the back is a handsome hygrometer showing the internal atmospheric condition. Case is white enamel finished, with nickel-plated hinges and door knob. Mounted on four concealed heavy rubber wheels. Height 60 in., front 30 in., depth 16 in | |
|------------------------------|--|----------------|
| Q/1693 In Code CAPECOD | strument Cabinet, same as above, but of the following dimensions Height 72 in , front 36 in., depth 16 in Packing | 170.00 4.00 |
| Q/1694 In Code CAPEMAY | strument Cabinet, same as above, but of the following dimensions Height 72 in , front 40 in , depth 18 in | |



CABINETS FOR SURGICAL INSTRUMENTS-Continued.



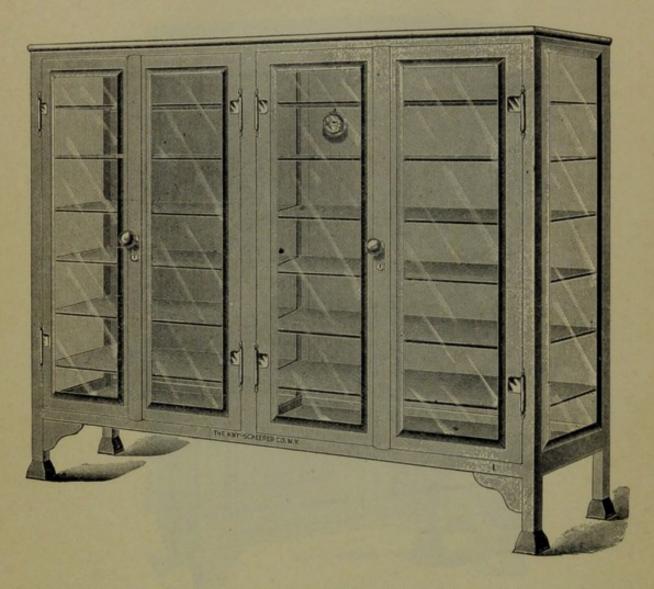
Q/1696 Instrument Cabinet on standard, with two dust proof doors with concealed Pasquill lock, bolting Code top, bottom and center with Yale lock securing the three bolts. Beveled crystal plate glass in CAPETOWN doors, sides, back, top and bottom. In the center a crystal glass partition divides this into practically two distinct cases, in each are six polished edge crystal glass shelves, also compartments for dessication and disinfection, also hygrometers. All white enamel finished, mounted on four heavy rubber wheels concealed. Dimensions: Height 72 in., front 40 in., depth 18 in..... \$250.00

3.00

Packing.....



CABINETS FOR SURGICAL INSTRUMENTS-Continued.



| Q/1700 In: | strument Cabinet on standard, with four dust proof doors, furnished with concealed Pasquill lock, |
|---|--|
| Code CAPRI | bolting top, bottom and center with Yale locks securing all three bolts. C Beveled crystal French |
| * | plate glass in sides and doors; back, top and bottom white enameled steel; six polished edge crystal |
| | shelves. In bottom of case is fitted a compartment for permanent dessication and disinfection; |
| 100000000000000000000000000000000000000 | mounted on the back is a handsome hygrometer indicating the internal atmospheric condition. Case |
| | is white enamel, finished with nickel-plated hinges and door knobs, all mounted on four concealed |
| 27/2010 | heavy rubber wheels. Height 72 in., front 72 in., depth 18 in\$ |

\$320.00 6.00

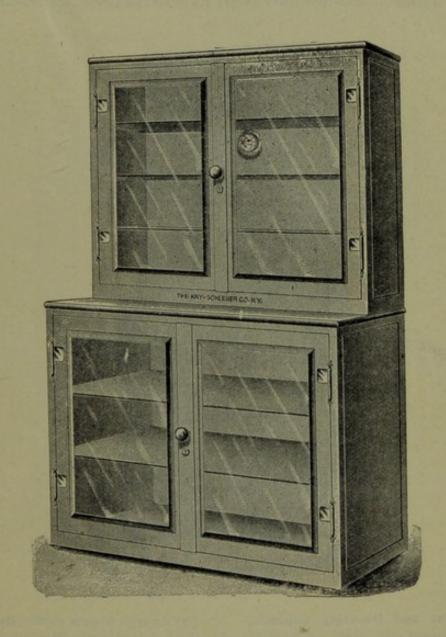
Q/1701Instrument Cabinet, the same design and size as above, but with beveled crystal glass in front, back, Code sides, top and bottom ... In the center a crystal glass partition, extending from bottom to top, divides CARACAS this into two independent cases; in each are six shelves, also compartments for permanent dessication and disinfection, also hygrometers. This is the finest case produced. Height 72 in., front 72 in., depth 18 in. Mounted on four concealed heavy rubber wheels.....

450.00 6.00

Packing.....

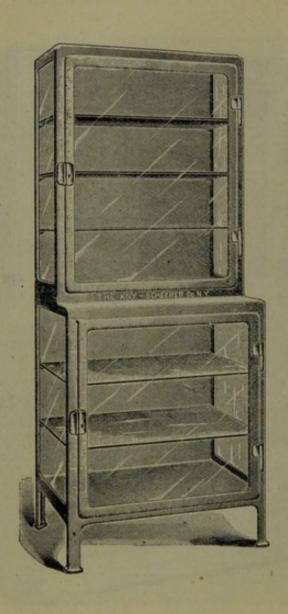


CABINETS FOR SURGICAL INSTRUMENTS AND DRESSINGS-Continued.





INSTRUMENT AND DRESSING CABINET—Continued.



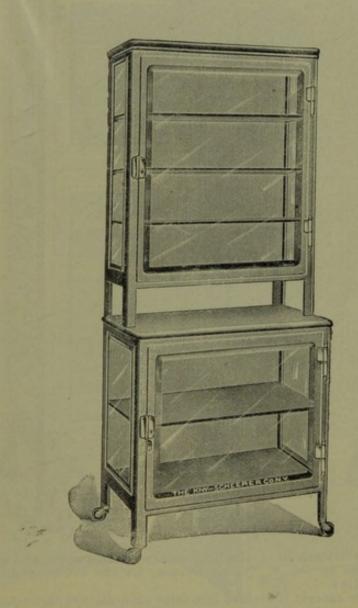
Q/1708 Instrument and Dressing Cabinet. New York Lying-in Hospital, made of steel, all Code CARDONA white enameled, hand rubbed and baked, with plate glass in door and sides. Three extra heavy plate glass shelves in top and two in bottom section, the sections being divided by a heavy polished glass plate. This cabinet represents the very highest development of construction of Aseptic Furniture, as there are no sharp angles or corners. All joints, edges and corners, inside and outside, are rounded off, avoiding dust catching ledges and giving a beautiful appearance while the entire case can be quickly and easily cleansed.

Dimensions of top: 24 inches front, 36 inches high, 12 inches deep. Dimensions of base. 24 inches front, 36 inches high, 18 inches deep. Total height, 72 inches.

| Price | \$150.00 |
|---------|----------|
| Packing | 3.50 |



CABINETS, INSTRUMENTS AND DRESSINGS-Continued.

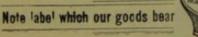


Q/1710 Instrument and Dressing Cabinet, constructed of round angle steel frame.

Code CARENA white enameled, with beveled plate glass sides and doors, the instrument case is fitted with 3 plate glass shelves with polished edges, and is mounted 6 inches above the dressing case, which is fit ed w th one plate glass shelf.

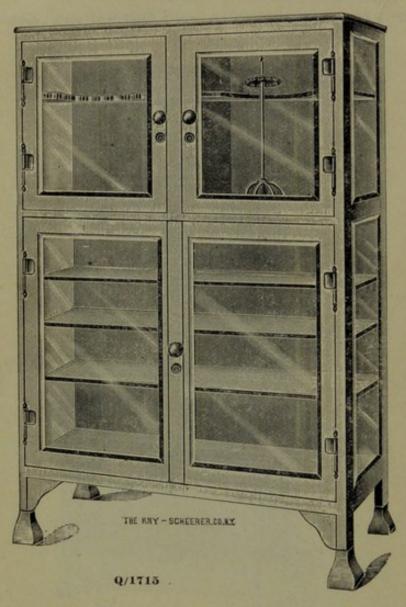
Dimensions of top 24 in. wide, 36 in. high, 12 in. deep.

| Price | | | \$135.00 |
|---------|------|------|----------|
| Packing | | | 3.50 |





Instrument Cabinet for Disinfecting and Preserving Genito-Urinary Instruments in Sterile Form.

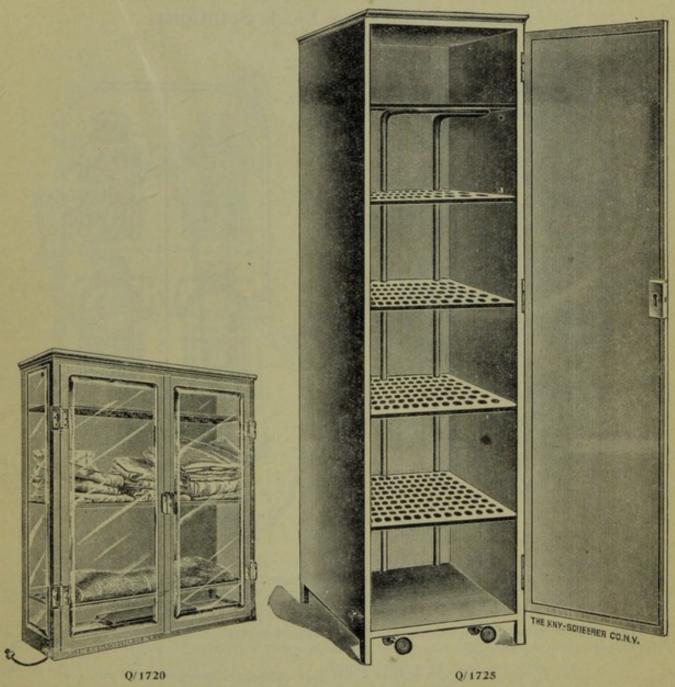


Q/1715 Cabinet for Disinfecting Genito-Urinary Instruments and Catheters, code CARIBOU designed by Dr. F. Tilden Brown, for the Presbyterian Hospital, New York.

The cabinet is divided into three separate compartments: the two upper ones are 22 inches high inside; the one is fitted with a heavy plate glass shelf, recessed and fitted with nickel-plated racks, in which to suspend Cystoscopes, also an apparatus for generating formaldehyde gas with which the cystoscopes are thoroughly dis-infected without injury. The other side has a heavy plate glass shelf recessed to accommodate a standard for suspending Catheters for disinfection by the formaldehyde gas process, which renders and preserves them sterile.



Blanket Heater.



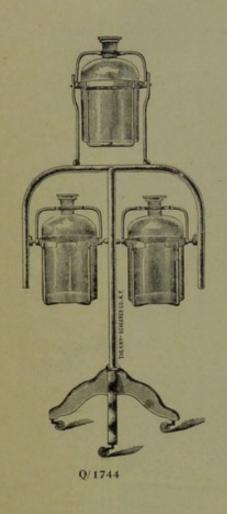
Q/1720 Aseptic Cabinet for Keeping Towels and Blankets Hot, DESIGNATED FOR THE Code CARLILE New York Hospital, constructed of wrought iron, smoothly joined, white enameled, with plate glass in doors and sides, three perforated metal shelves, enameled; arranged to be heated by electricity as shown above, with plug for wall connection. Dimensions 36 in. long, 36 in. high, 10 in. deep......

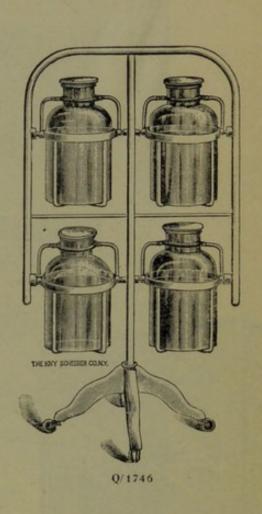
O/1725 Blanket Heating Cabinet, made of wrought iron frame with sheet steel panels in all sides and door, strongly constructed and fitted with 5 heavy steel shelves, perforated and steam heating coils with outlets on the side. The cabinet may also be used for heating saline solution in flasks, dimensions 24 in. wide, 24 in. deep, 72 in. high.



\$110.00

Bottle Stands for Stock Solutions.

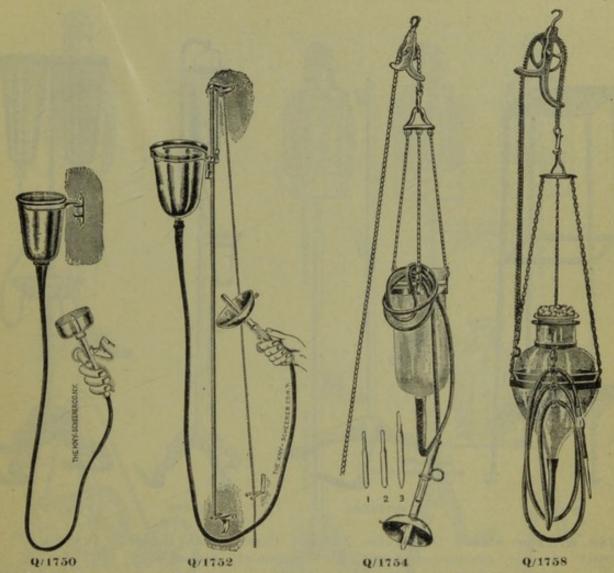




| Code CARSON two 3-gallon glass-stoppered bottles of finest crystal glass. Iron swinging baskets, lined with soft rubber tubing | |
|--|-------|
| Q/1744 Bottle Stand, white enameled, with heavy iron base on rubber wheels, with Code CARTAGE three 3-gallon glass-stoppered bottles of finest crystal glass. Iron swinging baskets, lined with soft rubber tubing | |
| Q/1746 Bottle Stand, white enameled, with heavy iron base on rubber wheels, with Code CASLAU four 3-gallon glass-stoppered bottles of finest crystal glass. Iron swinging baskets, lined with soft rubber tubing | 42.00 |
| Packing | 1.00 |

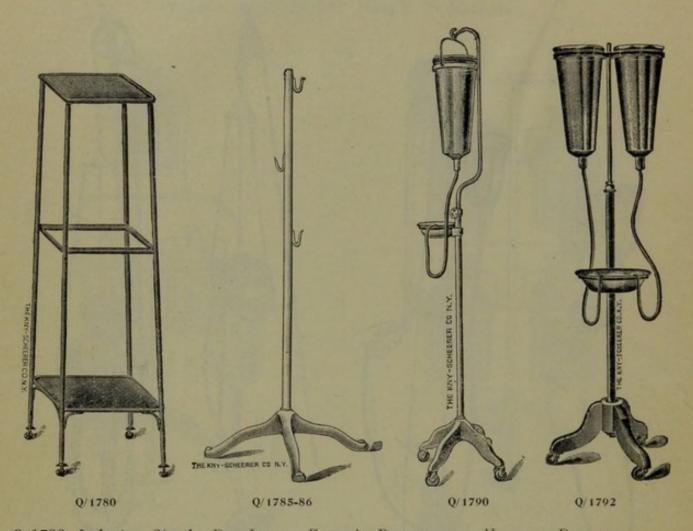
N. B.—The above bottle stands can be furnished with narrow-mouthed or wide-mouthed glass-stoppered bottles. The latter are preferred on account of their being easier cleaned, as the neck of bottle admits a full-sized hand and arm.

Irrigators.



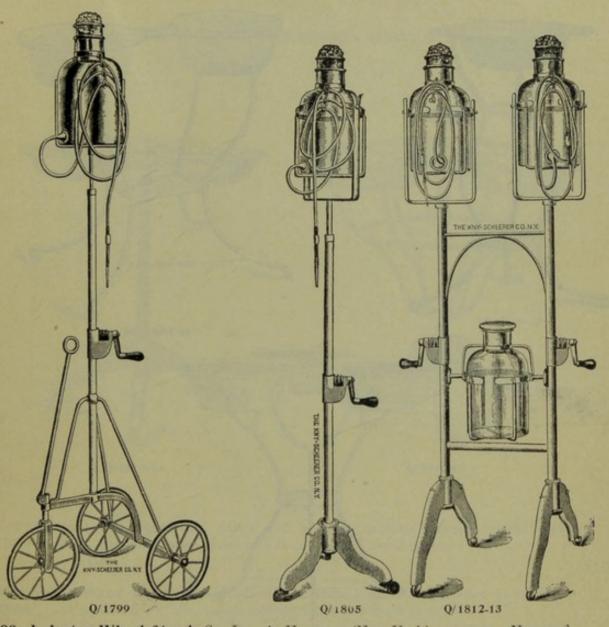
| Q/1750 Valentine's Intravesical Irrigator, for the treatment of gonorrhea by Perman- Code CASTRO ganate solution injections, with plain wall bracket, reservoir, rubber tube, metal protection shield, cut-off, three glass tips for the male and glass tip for the female, and a bottle containing 1,000 Permanganate Tablets\$ Q/1752 Valentine's Intravesical Irrigator, like Q/1330, but with adjustable metal wall Code CATAWBA bracket hinged in the center, arranged with pully and chain for adjusting | |
|---|-------|
| the height of reservoir | 5.50 |
| Q/1754 Valentine's Intravesical Irrigator, with the Kny-Scheerer Co. automatic stop | |
| Code CATCART pulley and chain for the easy adjustment of the same, otherwise the same as | |
| Q/1330 | 7.50 |
| Q/1758 Improved Irrigator Balloon Form Reservoir, with improved germ proof filter cup | |
| stopper ground in, suspended by a nickel-plated non-corrosive metal chain and automatic pulley, by means of which the apparatus can be raised or lowered to any desired height. Completely fitted with 10 feet of pure rubber tubing, automatic adjustable cut-off and tube suspension chain | |
| Code CATSKIL 5-litre capacity. Price 1 | 18.00 |
| Code CAVALLO 8 " " " | 20.00 |
| | 22.00 |
| | 24.00 |
| | 25.00 |
| Code CESUNO 15 " " " | 0.00 |

IRRIGATOR STANDS-Continued.



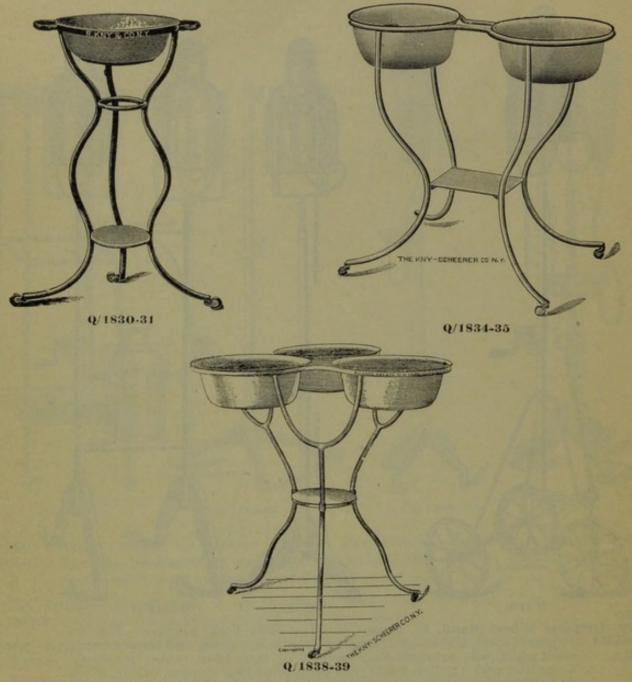
| \$15.00 | Q/1780 Irrigator Stand. Dr. Irving Fisher's Presbyterian Hospital Pattern. Code CHALE Strongly constructed of iron, white enameled. Size of shelf, 12½x10 in., bottom shelf, 18x22 in., 55 in. in height |
|---------|---|
| 4.50 | Q/1785 Irrigator Stand, made of tubular wrought iron, white enameled, 78 in. high, Code CHANCY with hooks for fountain syringes, irrigating cans, etc |
| 9.00 | Q/1786 Irrigator Stand, like Q/1345 but with telescopic pedestal to raise or lower the Code CHAPEAU same |
| 15.00 | Q/1790 Irrigator Stand, adjustable, made of tubular wrought iron pipe, on heavy metal Code CHATA base, with rubber casters, all white enameled. Fitted with a 1-gallon Glass Jar, with suspension collar and equipped with tubing, cut-off and nozzle, swinging basin for nozzles |
| 18.00 | Q/1792 Irrigator Stand, adjustable, with set screw, with two 1-gallon Glass Jars and a Code CHATAM basin to keep the nozzles immersed in antiseptic solution |
| 30.00 | Q/1795* Irrigator Stand, Michael Reese Hospital, (Chicago) pattern, similar to Q/1792 Code CHATRE but fitted with crank and worm screw for elevating jars like Q/1805 |
| .75 | Packing on the above |

IRRIGATOR STANDS-Continued.



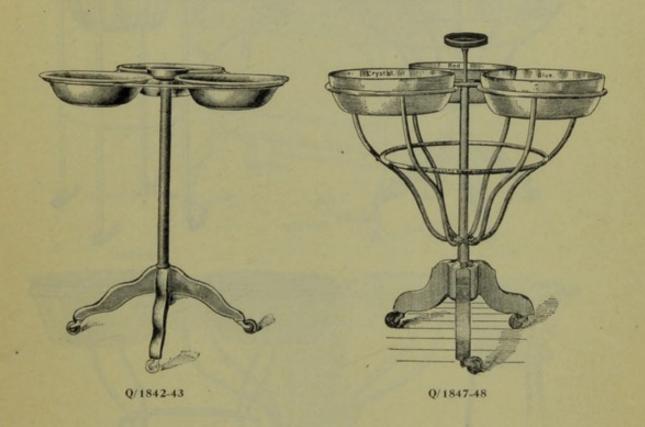
| Q/1799 Irri Code CHELSEA | gator Wheel Stand, St. Luke's Hospital (New York) pattern. New and improved form, adjustable in height by means of a crank and screw arrangement which acts automatically, mounted on three 12-in. rubber tire wheels. Complete, with 1-gallon bottle with germ-proof filter stopper, tubing, cut-off and tips | |
|-----------------------------|--|-------|
| Q/1805 Irri Code CHEMORA | gator Stand, on heavy cast iron foot, with one 3-gallon, wide necked crystal bottle, provided with ground in, germ proof filtering stopper, in swinging, soft rubber lined iron basket. Stands are adjustable, by means of a crank and screw arrangement which acts automatically, to a height of from 5 feet to 7 feet. Soft rubber lined casters | |
| Q/1812 Irri | gator Stand, with two 3-gallon irrigator bottles, with germ proof filter stoppers, each separately adjustable in height. Also a wide neck, glass stoppered bottle for sterilized stock solution | 54.00 |
| Q/1813 Irri Code CHEPO | gator Stand, double, like No. Q/1812, but without the Stock Solution Bottle | 50.00 |

Wash Stands and Immersion Bowls.



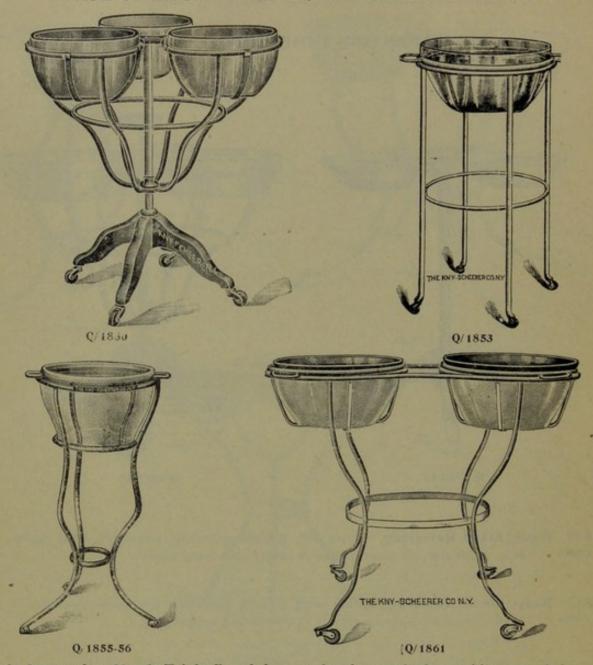
| Q/1830 Basin Stand, made of wrought iron white enameled fitted with white Code CHEROKE enameled deep basin 14 in. diameter. Q/1831 Basin Stand, made of wrought iron with frame and heavy glass basin Code CHESIRE 14 in. diameter | \$6.00 |
|---|---------------|
| Q/1834 Basin Stand, fitted with two white enameled basins, 14 in. diameter. | 8.50 |
| Q/1835 Basin Stand, fitted with frames and two heavy glass basins 1 crystal Code CHEVIOT and 1 blue glass, 14 in. diameter | 14.50 |
| Q/1838 Basin Stand, fitted with three white enameled basins, 14 in. diameter Code CHEYENE Q/1839 Basin Stand, fitted with frames and three heavy glass basins, 1 crystal, | 12.50 |
| Code CHICAGO 1 blue and 1 ruby color, 14 in. diameter | 21.50 1 00 |

WASH STANDS AND IMMERSION BOWLS-Continued.



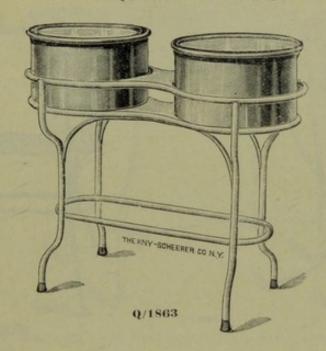
| Q/1842 Basin Stand Revolving, fitted with 3-white porcelain enameled steel basins Code CHICO 14 in. diameter, soap receptacle in centre and towel racks. | |
|---|---------|
| Price | \$10.00 |
| Q/1843* Basin Stand Revolving, fitted with 2-white porcelain enameled steel basins Code CHINA 14 in. diameter, soap receptacle in centre and towel racks. | |
| Price | 9.00 |
| Q/1847 Basin Stand Revolving, mounted on heavy 4 legged iron base to prevent tipping, code CHIPEWA each basin ring has 3 supports making this a very strong and substantial stand, in the centre is a soap receptacle, the basins are of extra heavy well tempered glass 1334 in. diameter, one crystal, one blue and one ruby colored glass. | |
| Price | 30.00 |
| Q/1848 Basin Stand like 1847, but with all three basins, crystal glass furnished with Code CHOCTAW floating labels. | |
| Price | 27.00 |
| Packing | 1.00 |

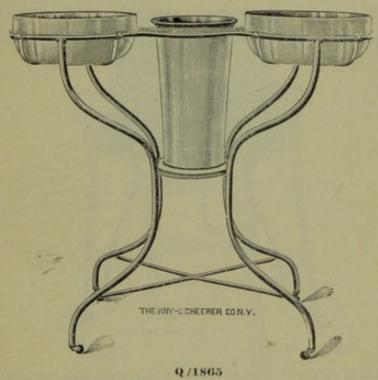
WASH STANDS AND IMMERSION BOWLS-Continued.



| Q/1850 Immersion Stand, Triple Revolving, made of wrought iron, white enameled, Code CIPRIAN with three large tempered glass bowls, each 16 each diameter, 8 in. deep, | |
|--|--------------|
| mounted on rubber rollers | \$36.00 |
| Packing | 1.00 |
| Q/1853 Immersion Stand, made of iron, white enameled, with one tempered crystal | |
| Code CLEBORN glass bowl, 16 in. diameter, 8 in. deep, mounted in a detachable frame with handles | 12.00 |
| Q/1855 Immerson Stand, made of iron, white enameled, with one tempered crystal Code CLIFFE glass bowl, 16 in. diameter, 8 in. deep, mounted in a detachable frame with | 12.00 |
| Q/1856 Immerson Stand, like Q/1855, but with deep form, white steel porcelain ba in, | 12.00 |
| Q/1861 Immersion Stand, with two tempered glass bowls, one crystal and one amber | 9.00 |
| Code CLIFTON color, 16 in. diameter, 8 in. deep | 24.00 .50 |

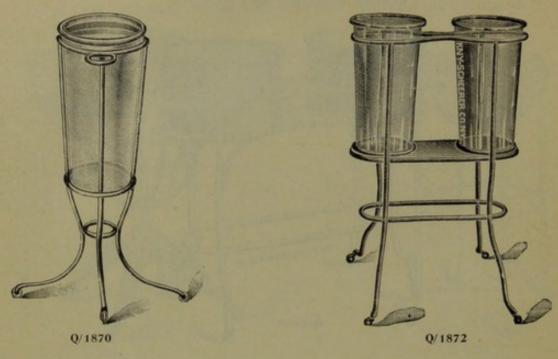
IMMERSION STANDS.





| Q/1863 Im Code CLUNEO | fitted with two especially tempered heavy wall glass tanks. Dimensions of tanks 16 in. diam. 8 in deep | \$27.00 |
|--------------------------|--|---------------|
| Q/1865 Im Code CLYDE | with two heavy glass hand basins, 14 in. diam. and one glass arm tank 16 in. deep, 9 in. diam Packing | 24.00 1.00 |

IMMERSION STANDS-Continued.





| Q/1870 Immersion Stand, made of wrought iron, white enameled, with crystal glass Code COAMO bowl deep form, 9 in. diameter, 16 in. deep | \$ 9.00 |
|--|---------|
| Q/1872 Immersion Stand, like above, but with two deep form glass bowls, 9 in. diame- Code COBAR ter. 16 in. deep | 17.00 |
| Q/1874 Immersion Stand, made of heavy wrought iron white enameled, mounted on Code COBDEN castors, fitted with three heavy glass bowls 9 in. diam. 16 in. deep | |
| Packing | |
| The above stand can be furnished with white porcelain enameled seamless | |

Note label which our goods bear



IMMERSION STANDS-Continued.



Q/1880-4

| Q/1880 Immersion Stand, with white steel porcelain trough, 10 in. wide, 23 in. long, | |
|--|---------|
| Code COBLENZ 10 in. deep | \$18.00 |
| Q/1881 Immersion Stand, the same, but with trough 10 in. wide, 20 in. long, 6 in. deep | 16.50 |
| Q/1884 Immersion Stand, the same, but with crystal glass trough, 81/2 in. wide, | |
| Code COBSTAT 22 in. long, 51/4 in. deep. | 24.00 |

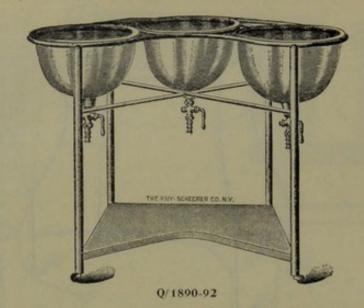


Q/1887 Immersion Stand, designed for Mt. Sinai Hospital, N. Y. The frame is of Code COBURG heavy round angle steel all white enameled, mounted on heavy rubber rollers, tank is of especially tempered glass, heavy walls and voerlapping top edge, fitted with a hard rubber outlet and stop cock in the bottom, dimensions:

A . C



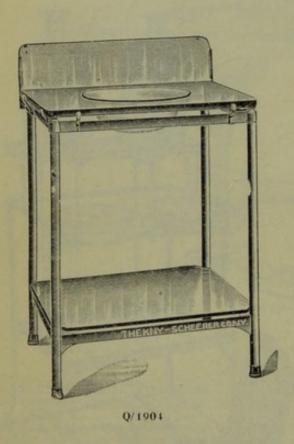
WASHSTANDS AND IMMERSION BOWLS-Continued.

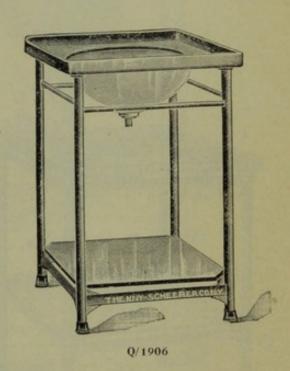






WASH STANDS AND IMMERSION BOWLS-Continued.



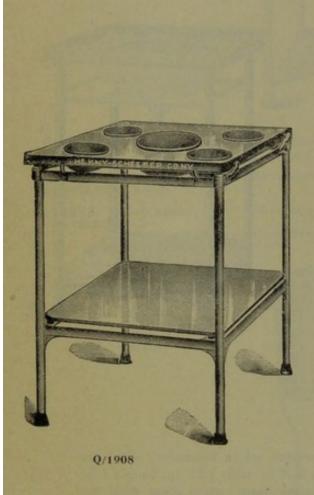


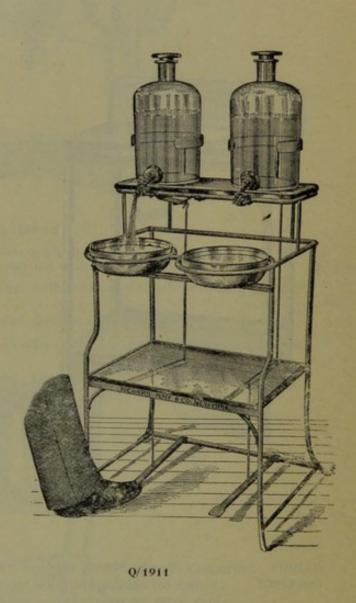
| Q/1904 Sur Code CONGO | rgeon's Wash Stand, made of tubular steel, white enameled, with claw corners for holding the glass top which is 20 in. wide x 27 in. long x 1 in. thick, with 12 inch hole and tempered glass basin, plate glass shelf and back, list price | \$48.00 |
|---------------------------|--|---------|
| Q/1906 Su Code CONSDOF | rgeon's Washstand, made of tubular steel, white enameled, with especially tempered glass table top and bowl molded in one piece with centre outlet and plug; dimensions of top 17 in. x 21 in., diameter of bowl 14 in., plate glass shelf 14 in. x 18 in. x ½ in. thick, list price | 30.(0 |
| | Packing | 1.00 |

For smaller washstands see pages 101 and 101.



WASH STANDS AND IMMERSION STANDS-Continued.





Q/1908 Surgeon's Wash Stand, made of tubular steel, white enameled, with claw corners for holding the plate glass top, 1 inch thick, 27 in. long x 20 in. wide with five holes, supporting one 12 inch tempered glass bowl, two 5 in. and two 6½ in. glass bowls. Plate glass shelf ½ inch thick, list price....

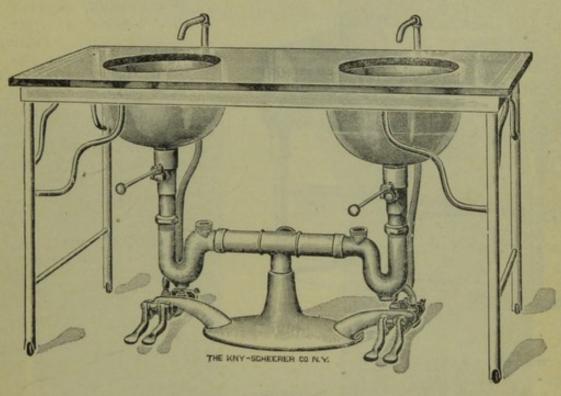
\$50.00

Q/1911 Automatic Washstand, with two 2-gallon glass stopped bottles, with draw-off code CORELLA spouts controlled by foot levers. Bottles are marked ALCOHOL and BICHLO-RIDE or any label desired. Two crystal basins for immersing the hands.

Note label which our goods bear



Hospital Washstands.



0/1924

| Q/1922* Hospital Washstand, similar to Q/1924, but with top p Code CORINTH bowl, duplex faucet and foot pedals | olate 24×24 in.; with one \$125.00 |
|--|------------------------------------|
| 0/1924 Hospital Washstand, consisting of movable table with | top of crystal polished |

Code CORK plate, 24×52 in., 1 in. thick, with two 12-inch holes, all edges polished; floor base with nickel-plated support and waste pipes, with two sanitary traps and outlet connection for sewer in the center, fitted with sockets, with waste valve worked by a knee lever; two heavy crystal glass basins, 16 in. diameter; two nickel-plated duplex faucets, with supply pipes for hot and cold water to each, also foot pedals, arranged so that hot or cold water, or both, can be drawn simultaneously from the same faucet. With this stand the surgeon is not obliged to touch anything with his hands.

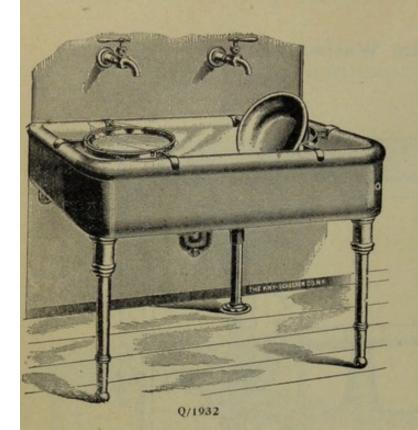
Q/1929* Hospital Washstand, similar to Q/1924, but with three-hole top plate, 24×72 in.,

Code CORNING The above stands can be furnished with foot pedals which are to be set flush in the floor, excepting two mushroom heads projecting, fitted with water pipe and combination spout. Price for each set of pedals and spout, add... 10.00 Packing for above.....\$2.50 to 5.00

Note. - Owing to variety of drainage pipes in the hospitals, we do not furnish the connecting piece between the traps and sewer pipe, nor the pipes for the back vents.

The 2 traps being a component part of the apparatus, makes the installation of this stand interpretate. Where traps are not wanted we can furnish the stand of plainer design at lower prices.





Q/1932 Combination Washstand, designed for Dr. Howard A. Kelly, of Baltimore, Md., consisting of roll rim porcelain sink, 42 inches long, mounted on two white enameled legs and two wall brackets, complete with nickel-plated waste fittings and trap, also two double frames with tilting basins, also two nickel-plated faucets.

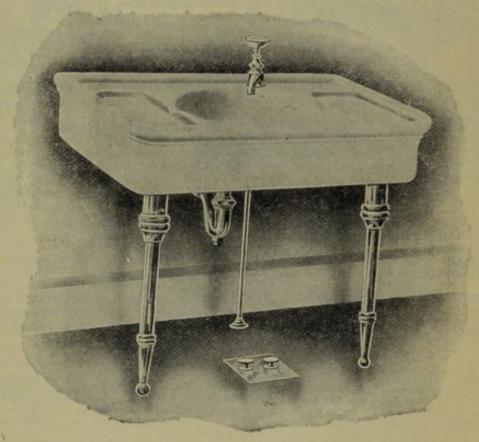
Code CORNWAL Class A—With two solid nickel basins.\$120.00 Code CORREDO Class B—With two white steel porcelain basins.....\$100.00

Q/1934 Washstand Code corres made of glazed porcelain, all in one piece, on both sides of the basin is a countersunk rectangular receptacle which drains into the basin, the stand as shown is furnished with a combination water cock for hot and cold water, which is controlled by the foot pedals set in the floor. The basin is mounted on white enameled iron legs with iron fixtures to

Price complete as above...... \$120.03

Packing for the above...... 2.00

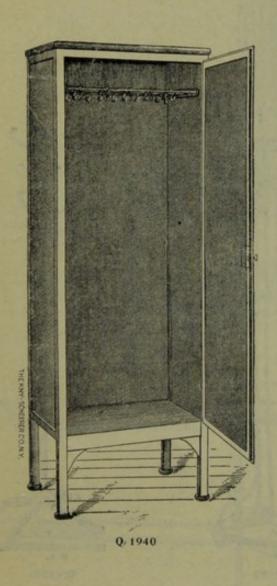
attach to the wall.

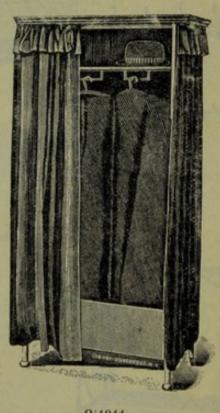


Q/1934



Aseptic Wardrobes.

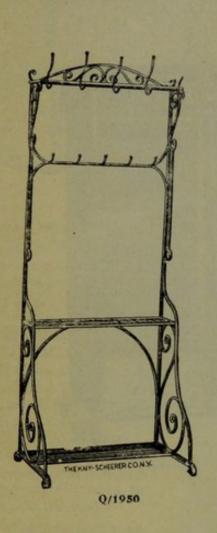


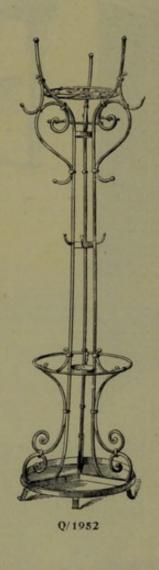


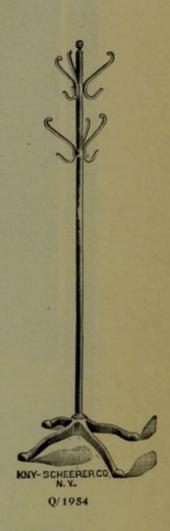
Q/1944

| Q/1940 As | eptic Cabinet for Wardrobe, made for steel, white enameled inside and | |
|--------------|--|-------|
| Code DAMDORF | outside, with shelf for hats and hooks for coats. Dimensions: 24 in. wide, | 45 00 |
| | 72 in. high, 12 in. deep\$ | 45.00 |
| | septic Wardrobe, constructed of steel frame, with top and bottom of steel, | |
| Code DANBURY | white enameled, with detachable white curtains. Dimensions: 30 in. wide, | |
| | 70 in. high, 16 in. deep | 36.00 |
| | Packing | 1.50 |

Hat Racks.

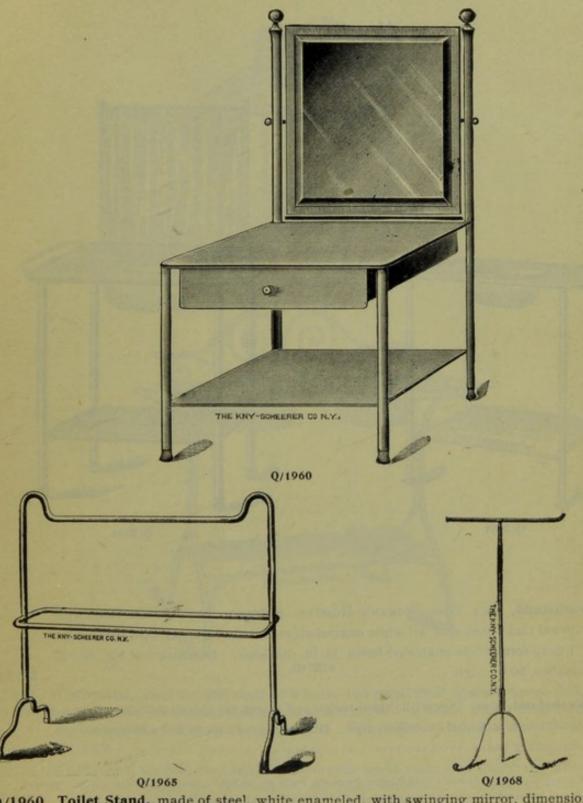






| Q/1950 Hat Rack with Umbrella Stand Combined. Dimensions, 30 x 75 in | \$20.00 |
|--|---------|
| Q/1952 Hat Rack with Umbrella Stand, circular form | 20.00 |
| Q/1954 Hat and Coat Rack, white enameled iron, plain design | 9.00 |
| Packing | 50 |

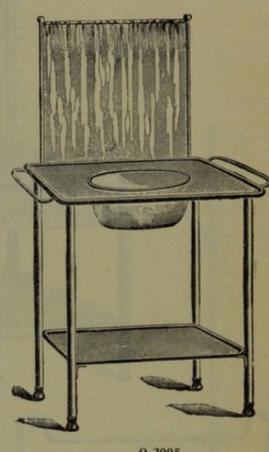
Toilet Stand.



| Q/1960 Toilet Stand, made of steel, white enameled, with swinging mirror, dimensions of top 18 in. × 24 in., with enameled steel drawer and shelf below, mounted on rubber tips. Price | \$25.00 |
|--|---------|
| Q/1965 Towel Rack, iron, white enameled, 36 in. high, 36 in. long | 7.50 |
| Q/1968 Towel Rack, iron, white enameled, 33 in. high, 24 in. long | 2.00 |
| Code DAYTON Packing | 1.00 |

Washstands.





Q. 2005

| Q/2001 | Washstand, New York Woman's Hospital Pattern, steel top and shelf, with |
|------------|---|
| Code DELHI | towel racks each end, all white enameled, mounted on rubber tips, fitted with |
| | 1 deep form white enameled basin 14 in. diameter. Dimension of top, 20 x 27 |
| | inches, 30 in. high |

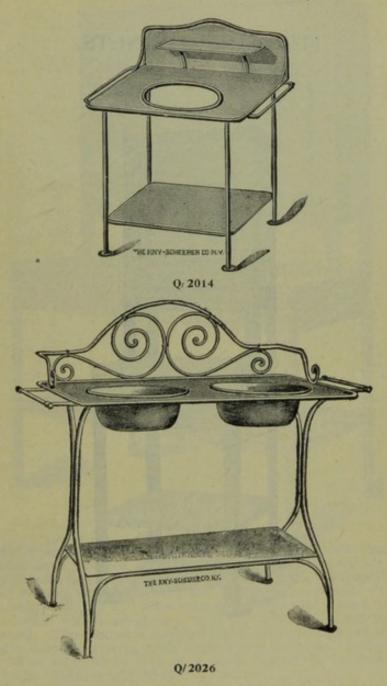
\$9.75

Q/2005 Washstand, steel top, with towel racks and frame for splash curtain, all white Code DENAU enameled, mounted on rubber tips. Dimensions of top, 20 x 27 x 30 inches high

We carry an extensive variety of Basins, Pitchers, Pails &c. in both glass and white porcelain enameled steel ware, special catalogue of which will be sent an application.



WASHSTANDS-Continued,



Q/2014 Washstand, steel top and shelf with back, and small shelf of steel, towel racks Code DENVER each end, white enameled, mounted on rubber tips, fitted with 1 deep form white enameled basin 14 in. diameter. Dimensions of top, 20 x 27 in. 30 in. Q/2026 Washstand, double, steel top and shelf, with towel racks and guard rail fitted

Code DETROIT with two basins 14. in diameter, all white enameled. Dimensions of top, 22 x 36 inches, 31 inches high 16.50 Packing for any of the above

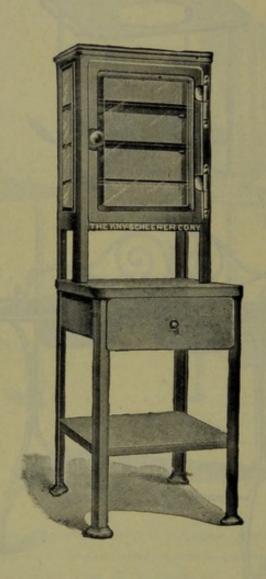
For Glass Washstands, see page 95.

Note label which our goods bear



.50

MEDICINE CABINETS.



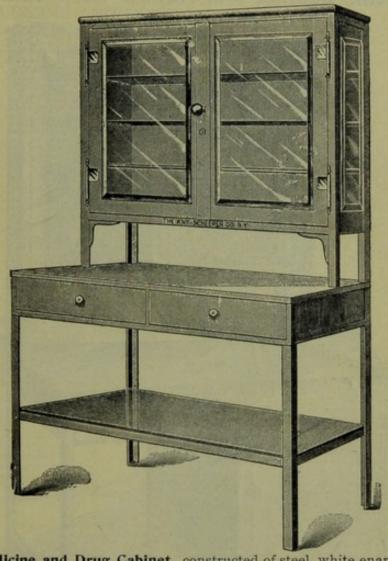
Q/2041 Medicine Cabinet, as designed by Dr. Howard Lilienthal for the Mount Sanai Code CALEDON: Hospital, N. Y. City; made of round angle steel, white enameled, with plate glass sides and doors, also 2 plate glass shelves. Dimensions of Cabinet are, 16 in. wide, 20 in. high, 8 in. deep, mounted 6 in. high over a steel top table made of round angle steel, with steel drawer and shelf all white enameled; size, 16 x 20 in.; total height 56 in......

\$48.00 1.50

Packing.....



MEDICINE AND DRUG CABINETS.—Continued.



Q/2044 Ward Medicine and Drug Cabinet, constructed of steel, white enameled, doors and sides have beveled crystal plate glass, the shelves are heavy plate glass polished edges; the doors are fitted with concealed Pasquill lock, bolting top and bottom, with lock, knob and hinges nickel-plated. The stand has an enameled steel top and sides entirely enclosing the 2 steel drawers on all Code DIEBACH sides covered with plate glass ½ to 5%-in. thick, size 17 x 38 in. and a plate glass shelf. The cabinet is elevated eight inches, so that the doors may be opened without interfering with anything on the table. Dimensions of ca-

Q/2046 Medicine and Drug Cabinet, same as No. Q/2044, but fitted with plain glass in place of beveled plate glass in doors and sides, and 1/4 to 3/6-in. thick glass on Code DINAPUR

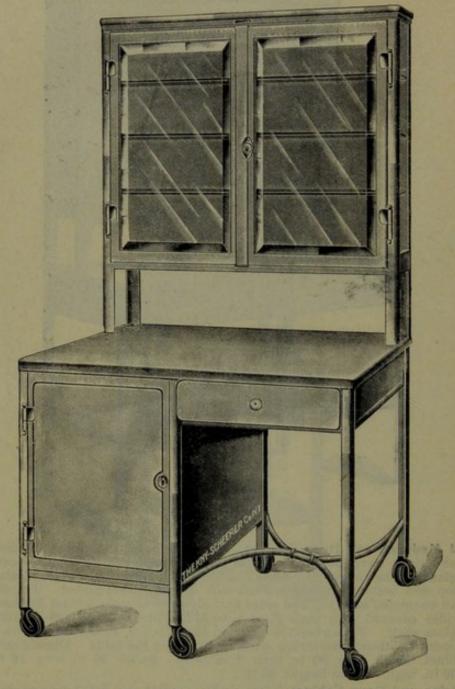
90.00

Q/2051 Medicine and Poison Cabinet, made like Q/2044, but divided in the centre by a partition and fitted with 2 separate doors, one of which has an alarm bell attached which will ring automatically when the door to the poison compartment is opened, doors and sides are fitted with beveled plate glass and 3 plate glass shelves, case is mounted 8 in. above the base, 2 steel drawers entirely enclosed in steel serve for drugs.

> Dimensions of Cabinet 30 x 36 in. x 8 in. deep, base 30 in. high, 16 in. deep, fitted with plate glass top.



Medicine Cabinet and Nurses' Desk Combined.

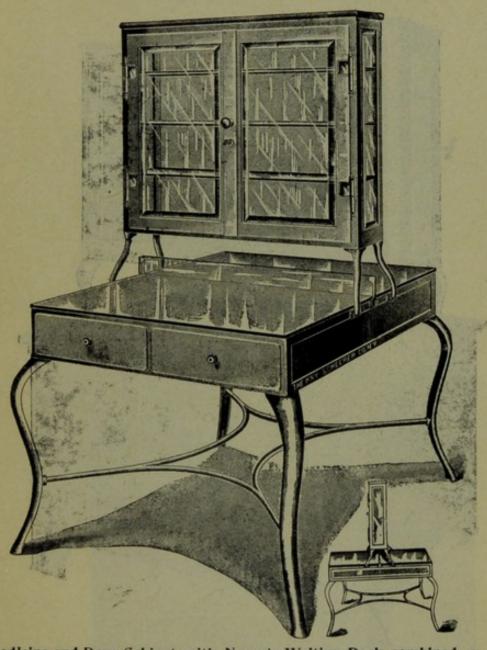


Q/2057 Medicine Cabinet and Nurses Desk Combined, made of steel white enameled code DIRULL with beveled plate glass set in doors and sides fitted with 3 plate glass shelves Knob, lock face and hinges are nickel plated, case is mounted 8 in. above the desk which is fitted with 5 steel drawers, 4 of which are enclosed in a steel cabinet with door.

Dimensions of cabinet 36 in. long, 30 in. high 8 in. deep; dimensions of base 36 in. long, 30 in. high, 20 in. deep, mounted on 6 Rubber Castors.



MEDICINE AND DRUG CABINETS—Continued.



Q/2064 Medicine and Drug Cabinet with Nurse's Writing Desk combined, as decode DISSEN

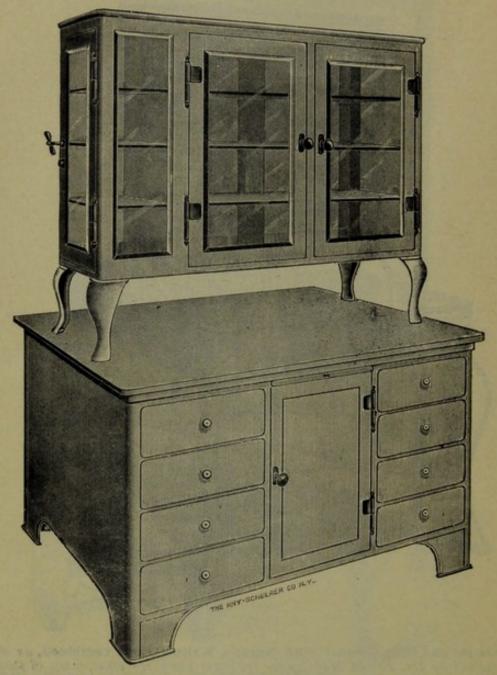
signed by Dr. Frank Hartley for the New York Hospital, made of steel, white enameled, with beveled plate glass in doors and ends, and plate glass back, three plate glass shelves, nickel-plated knobs and hinges. The stand has enameled steel top covered with heavy plate glass, with a plate glass partition 6 in. high dividing the drug table from the writing desk. The drug side has two steel drawers, while in the desk side are two sections or shelves for nurses' charts, books, etc. Cabinet is elevated 8 inches, admitting of doors being opened without interfering with anything on the table.

Dimensions of Cabinet, 36 inches front, 30 inches high, 8 inches deep, making a table 20×36 inches on each end.

making a table 20×36 inches on each end.

Packing 2.50

Medicine and Drug Cabinets.



Q/2070 Medicine Cabinet, large size, designed for The Mount Sinai Hospital,

Code DOBEN

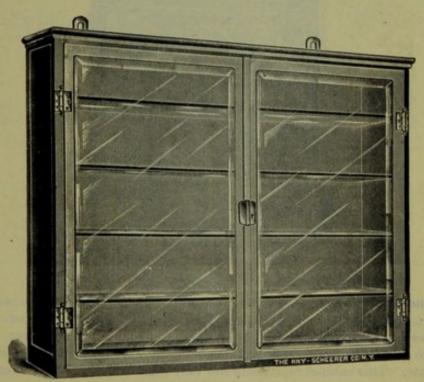
New York City. Made of round angle steel frame, with plate glass
panels on all sides. Two doors open on both sides of case. One end
has a plate glass partition, and door on the side forming an independent
poison closet, with alarm bell attachment, which rings on opening
the door. The base is fitted on both sides with eight steel drawers
and cupboard with glass shelf, entirely enclosed in steel. The top
is covered with plate glass. Dimensions of cabinet 35 in. wide, 14 in,
deep, 29 in. high. Dimensions of base, 48 in. wide 36 in. deep, 30½
high......\$450.00

Medicine Cabinets.



THE KNY-SCHEERER CO.N.Y.

Q/2073

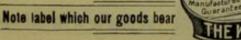


Q/2075

| Q/2073 Me | edicine Cabinet, to hang on the wall. Made of round angle steel, | |
|-------------|---|----|
| Code CALLAO | white enameled, with plate glass sides and door, 3 plate glass shelves. | |
| | Dimensions, 18 in. wide, 28 in. high, 8 in. deep \$37 | 7. |

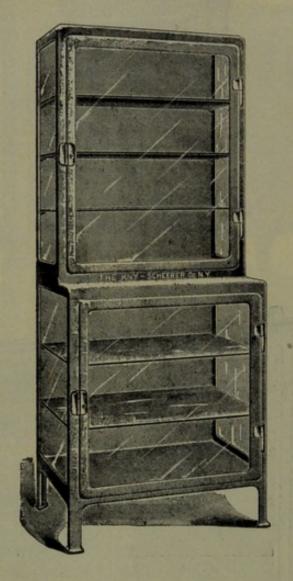
Q/2075 Medicine Cabinet, to hang on the wall. Made of round angle steel, white enameled, with beveled plate glass sides and doors, four plate glass shelves. Dimensions, 36 in. wide, 30 in. high, 8 in. deep......... 63.00

.50





Medicine and Dressing Cabinet.



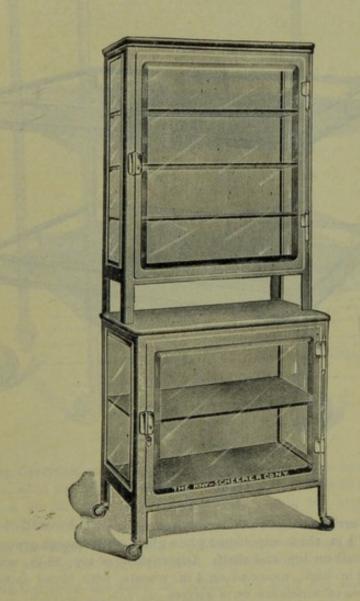
Q/2080 Medicine and Dressing Cabinet, DESIGNED FOR THE NEW YORK LYING-IN HOSPICode CARDONA

TAL, made of steel, all white enameled, hand rubbed and baked, with plate
glass in doors and sides. Three extra heavy plate glass shelves in top and
two in bottom section, the sections being divided by a heavy polished glass
plate. This cabinet represents the very highest development of construction
of Aseptic Furniture, as there are no sharp angles or corners. All joints,
edges and corners, inside and outside, are rounded off, avoiding dust catching
ledges and giving a beatiful appearance while the entire case can be quickly
and easily cleaned.

Dimensions of top: 24 inches front, 36 inches high, 12 inches deep. Dimmensions of base: 24 inches front, 36 inches high, 18 inches deep. Total height, 72 inches.



Medicine and Dressing Case.



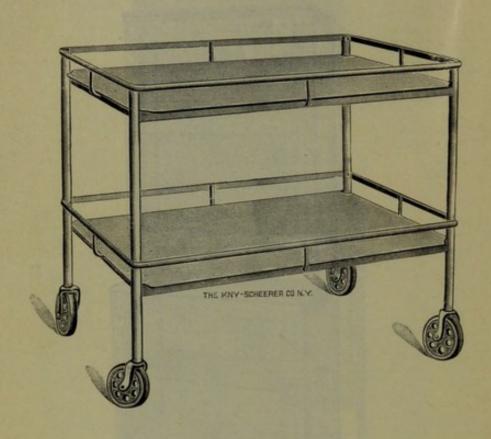
Q/2082 Medicine and Dressings Case, made of round angle steel, with beveled plate code CARENA glass sides and doors; the Medicine Case is fitted with 3 plate glass shelves and is mounted 6 in. above the dressing case, fitted with one glass shelf. Dimensions of top: 24 in. wide, 36 in. high, 12 in. deep.

" "base: 24 " 32 " 18 "

Price \$135.00 Packing 3.50

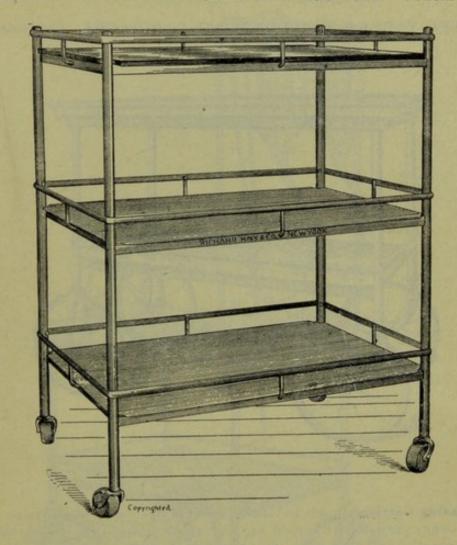


Wheel Tables and Dressing Carriages.



| Q/2101 Dressing Carriage, made of steel, white enameled, fit.ed with top, and shelf of 1 in. thick unpolished plate glass, with smooth ground edges. Guard rail on top and shelf. Dimensions of top, 18 in. wide, 33 in. long, 30 in. high, mounted on 4 in. wheels, with broad faced rubber tires, two of which are on a swivel | \$30.00 |
|---|---------|
| Q/2107 Dressing Carriage. The same as Q/2101, but with top and shelf of ½ to Code DOLORE % in. thick polished plate glass with polished edges | 36.00 |
| Q/2108 Dressing Carriage. The same as 2101, but with top and shelf of f inch code DOMINGO thick, polished plate glass with smooth ground edges | 30.00 |

WHEEL TABLES AND DRESSING CARRIAGES-Continued.



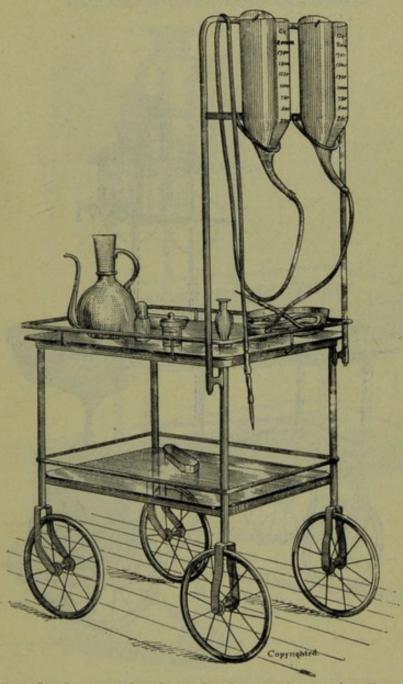
| Code DOMPO rails, solid to sions, 18 in | ge, made of tubular wrought iron, white enameled, with guard- op and two shelves of heavy steel, all white enameled. Dimen- n. wide, 33 in. long, 36 in. high, on heavy rubber wheels, ter | 24.00 |
|--|--|-------|
| | ge, the same as Q/2113, but with top of ½ in thick, sanded glass, edges polished, and two shelves of enameled steel 2 | 25.00 |
| | ge, the same as Q/2113, but with top and two shelves of ½ anded back plate glass | 0.00 |
| | age, the same as Q/2113, but with top of crystal polished to 1/2 to 1/2 in. thick, and two shelves of enameled steel | 0.00 |
| | ge, the same as $Q/2113$, but with top, and the two shelves of shed plate glass, $\frac{1}{2}$ to $\frac{5}{8}$ in thick | 2 00 |
| forks addition | carriages mounted on 5 in. rubber tire castors, with large swivel onal. | 6.50 |

WHEEL TABLES AND DRESSING CARRIAGES-Continued



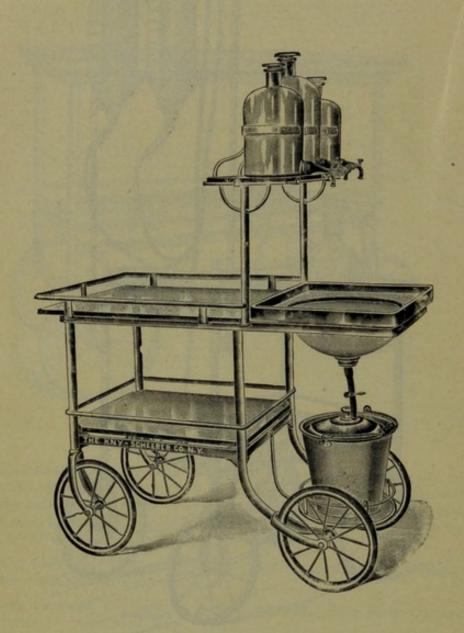
| Q/2130 Dressing Carriage, made of tubular wrought iron, with guard rails, all code DUNDEE white enameled, mounted on four 12 in. suspension wheels, with clinched-on rubber tires. Top and shelf of crystal polished plate glass, % to ¾ in. thick, edges polished. Dimensions: 18 in. wide, 33 in. long, 30 in. high | \$42.00 |
|---|---------|
| Q/2132 Dressing Carriage, the same as Q/2130, but with top and shelf of porce- Code DUNEDIN lain enameled, iron top and shelf | 45.00 |
| Q/2136 Dressing Carriage, the same as Q/2130, but with plate glass top, and Code DUNKIRK shelf 20 in. wide, 36 in. long | 48.00 |
| Q/2137 Dressing Carriage, the same as No. Q/2136 but with top and shelf of Code DUNLOE porcelain, enameled, iron top and shelf | 51.00 |
| Q/2140 Socket with Irrigator Rod, 36 in. long, for holding a rubber bag | 6.00 |
| Q/2141 Frames, with hand basin and covered waste receptacle, as shown in Code DUNNING Fig. No. Q/2166. | 10.00 |
| Packing | 1.25 |

DRESSING CARRIAGES-Continued.



| 0/2151 Dressing Carriage, made of tubular iron with guard rails, all wh | ite |
|---|------|
| Code DURANGO enameled mounted on four 12 inch wheels with clinched-on rubi | |
| tires, and with a bow frame, with double sockets on each side of c | |
| riage fitted with two glass Irrigators, 2000 C. C. capacity, each w | |
| 6 ft. tubing, aseptic cut-offs and glass nozzles. Dimensions of pl | |
| glass top and shelf 18 in. wide, 33 in. long. 1/2-1/4 in. thick | |
| 0/2153 Dressing Carriage, like Q/2151 but with top and shelf of porcelain ena | m- |
| Code DURBACH eled iron, dimensions 18 x 33 inches | |
| Q/2156 Dressing Carriage, the same as No. Q/2151, but dimensions of plate gla | |
| Code DURHAM top, and shelf 20 in. wide, 36 in. long | |
| 0/2159 Dressing Carriage, like Q/2156, but with top and shelf of porcela | |
| Code DUSSEL enameled iron, dimensions 20 x 36 inches | |
| Packing | 1.50 |

WARD CARRIAGE—Continued

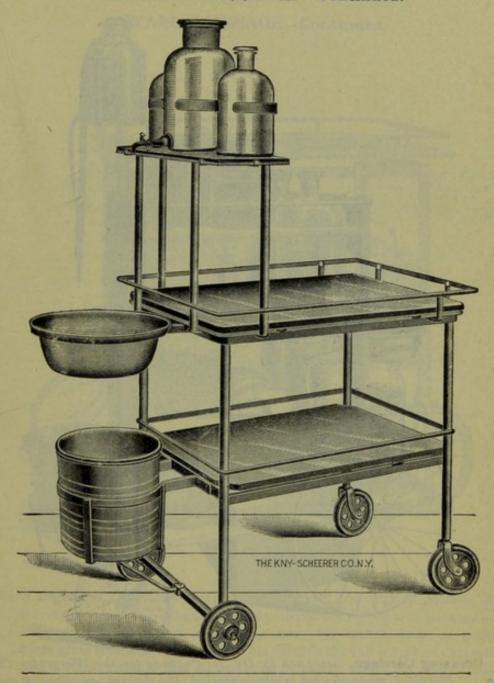


Q/2163 Ward Carriage, Boston City Hospital pattern, top and shelf are of § in. thick Code FAIRFAX plate glass with all edges polished, the glass is surported on rubber cushions, above the carriage is a shelf with three 1 gallon bottles with spout caps and pinch cocks, on one end is mounted a tempered glass washstand and basin, with outlet and tubing with shut off to drain the waste water to a pail below, carriage is mounted on 4 heavy rubber tire wheels 12 in. diameter, dimensions of top, 22 x 27½ in., total length, 46 in.

Price complete \$90.00



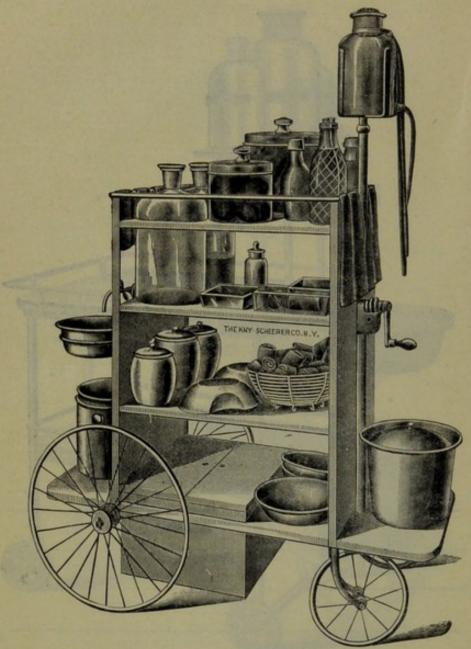
DRESSING CARRIAGES—Continued.



Q/2166 Dressing Carriage, made of iron, white-enameied, with crystal polished plate Code FARAKA glass top, ½ to ¾-in. thick, 18 x 33 in., and plate glass shelf, all edges polished, with guard rails on top and shelf; also upper glass shelf, 8 x 23 in., with three racks, with one irrigator bottle and two stock solution bottles; white steel porcelain hand basin and waste receptacle with cover, suspended at one end; mounted on four 6-in. rubber-tired wheels.



DRESSING CARRIAGE-Continued.



Fittings shown in illustrations but not described are extra.



WARD CARRIAGE-Continued.



Q/2172 Ward Carriage, designed by the Prince Alfred Hospital of Sydney, N. S. Code FARGO

W., Australia. Top of heavy crystal polished plate glass with polished edges

Beneath the carriage is a dressing box, 10½ inches deep, of polished plate glass with sliding covers. This extends the full length of the carriage and is constructed so that all parts can be easily and thoroughly cleaned. It is detachable for transportation to and from the sterilizing room with dressings.

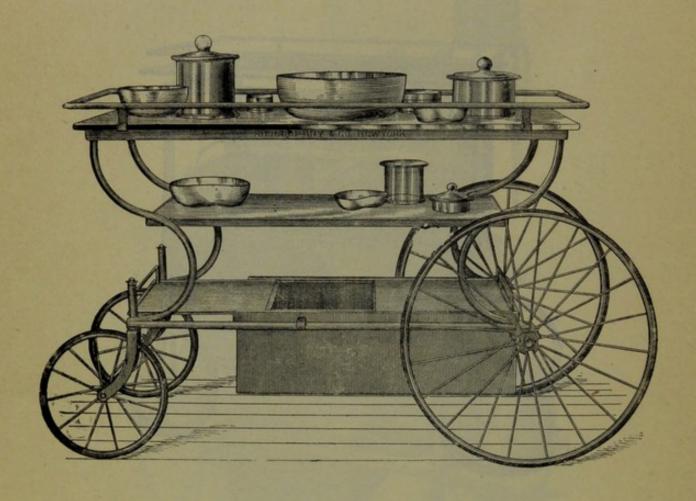
The carriage is constructed of wrought iron, white enameled, and is of graceful appearance. It stands 39½ inches from the floor and rests on four 12 inch clinched on rubber tire wheels. It runs lightly and permits of turning the sharpest corners with ease. Dimensions of top 20 inches wide, by 36 inches long.

Price complete......\$100.00

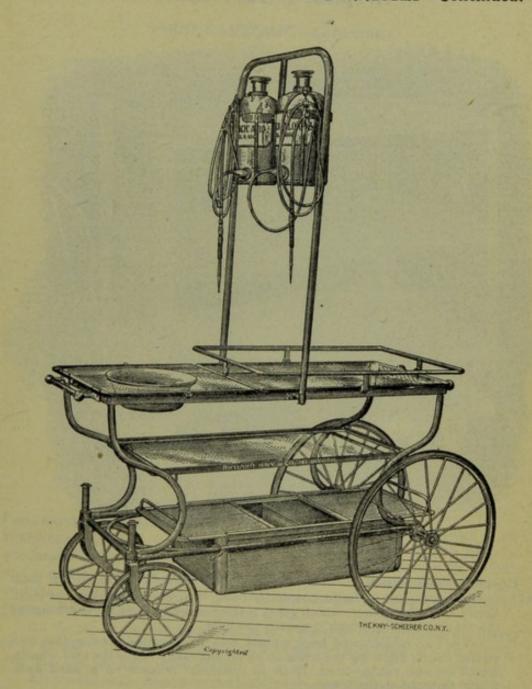
Packing..... 2.00



WARD CARRIAGE



WHEEL TABLES AND DRESSING CARRIAGES-Continued.

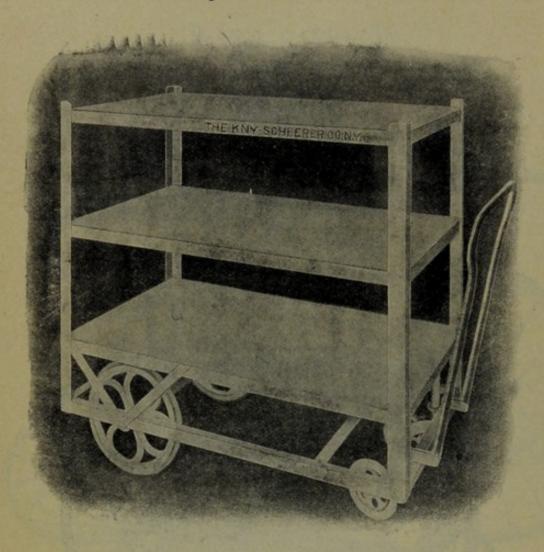


Q/2178 Ward Carriage, St. Luke's Hospital pattern. Size of top, 20x50 in., divided in two parts. One Code FASTNET Crystal French plate glass, 20x30 in., surrounded by a guard rail, and a plate, 20x20 in., with hole in which a white steel porcelain basin is suspended. Size of glass shelf, 16x36 in. A substantial frame supports two 1-gallon glass stoppered irrigating bottles with labels, completely equipped with tubing, automatic cut-offs and tubing suspension chains. Below is an enameled steel dressing box, 16x36x9 in., with sliding doors. It is constructed that all parts can be easily and thoroughly cleaned, this is also easily detached for transportation to and from the sterilizing room. Carriage is white enameled, mounted on two heavy 12-in. and two 24-in. clinched-on

2.50



Hospital Food Truck.



Q/2200 Hospital Food Truck. Bellevue Hospital Pattern. This is an ideal Code FAWLEY food truck for use in large hospitals, being entirely constructed of steel, firmly riveted together, which gives it the necessary stability to withstand the rough handling which it usually receives.

The two rubber-tired front wheels, 6 in. in diameter, are supplied with swivel joints, allowing the truck to be turned easily, while the rear wheels, which are also rubber-tired, 12 in. in diameter, revolve on a fixed axle, firmly fastened to the frame.

On the front of the truck a bow shaped handle is securely fastened to the frame, by which the truck is guided.

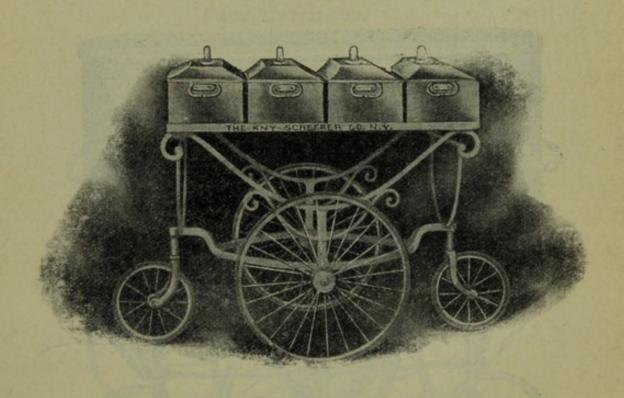
There are three metal shelves, each 26 x 42 in., secured to the frame, spaced 12 in. apart, so as to allow ample space for properly handling the utensils placed upon them.

One feature of this truck is the simplicity of its construction, special care having been taken to avoid corners, greatly facilitating the scrupulous cleaning of the same. Finish, "Aluminum bronzed."

| Price | | \$70.00 |
|---------|------|-------------|
| Packing | | 1.00 |



FOOD CARRIAGE-Continued.



Q/2209 Food Carriage. Sloane Maternity Hospital Pattern. This carriage is en Code FAYEIT tirely constructed of wrought iron, white enameled, and is of a graceful appearance. It rests on two, 24 in. heavy, clinched on tire wheels on the side, and one 12 in. wheel on each end; the latter have a swivel movement, which permits of turning corners of the narrowest hallways, thus facilitating its passage from the kitchen to the wards.

On the top angle iron frame, 42x24 in. 4 polished copper boxes, $6\frac{1}{2}x10x23\frac{3}{4}$ in. fit snugly. Each box is fitted with a cover and a handle on each end, so that they can be easily lifted about.

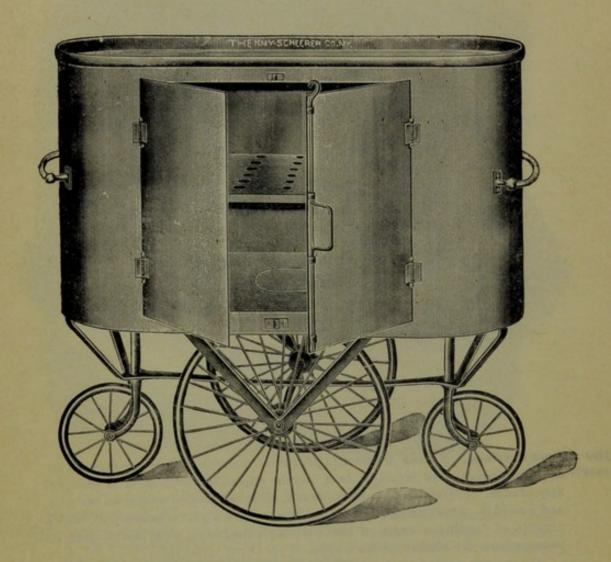
All the boxes are tinned on the inside, three of which have a partition in the centre to separate the food properly, and the fourth is left plain to be used as a bread box.

The entire carriage is stoutly constructed so as to withstand the wear and tear that these carriages are usually subjected to.

| Price with heavy frame and | clinched on rubber tire wheels | \$130.00 |
|----------------------------|--------------------------------|----------|
| Packing | | 1.00 |



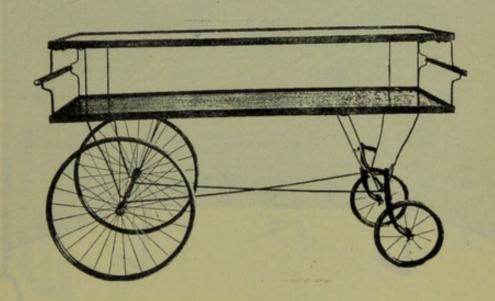
FOOD CARRIAGES - Continued.



Q/2214 Food Carriage, designed by Dr. J. W. Markoe for N.Y. Lying in Hospital, code FELBACH made entirely of steel, white enameled on the outside finished with pegamoid aluminum bronze on the interior; the interior is fitted with one perforated steel shelf. Dimensions: 54 in. long, 24½ in. wide; height of carriage, 22 in. height of food car 30 in.; total height, 52 in. Car is mounted on two 24 in. and two 12 in. swivel wheels all with clinched-on rubber tires, and has nickel-plated handle at each end.



Food Carriages.



Q/2217 Hospital Food Carriage, for the transportation of food from the kitchen to

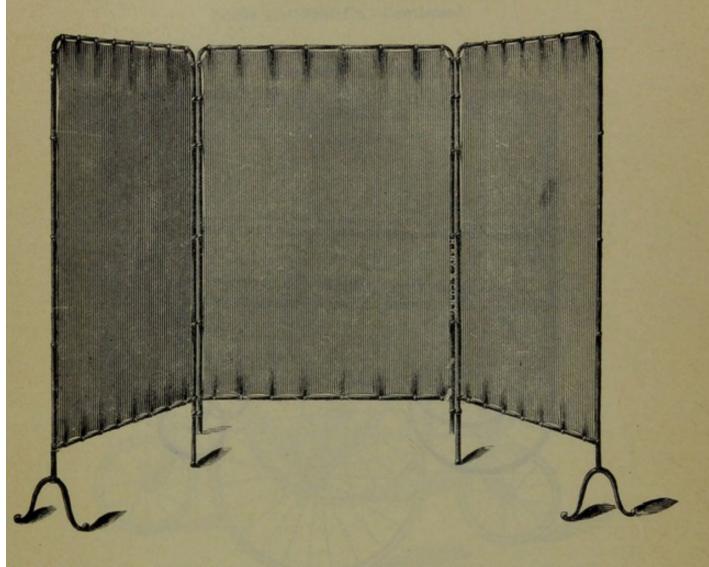
Code FELDA wards, constructed of wrought iron frame, white enameled with two plat
forms of select wood, well filled and oiled, with raised edges reinforced on
the corners with brass braces, mounted on two 12 in. swivel wheels, and
two 24 in. wheels all having clinched-on rubber tires. Dimensions 25 in.

wide, 68 in. long, height of first platform 36 in., total height, 48 in., price. \$54.00

Packing...... 1.00



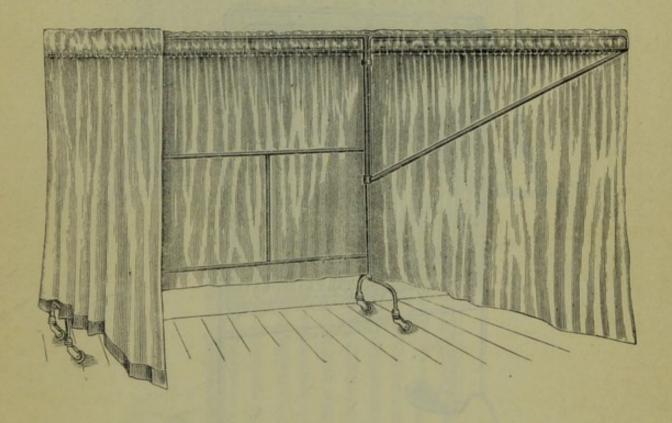
FOLDING SCREENS



| Q/2241 Sci Code FELICE | reen, three-fold frames, made of tubular iron, white enameled: 66 in. high; total length, 96 in. | \$10.50 |
|---------------------------------------|--|---------|
| Q/2243 {Code FELSO (complete) | Strong, white drilling panels, with eyelets and cord, per set | 4.50 |
| Q/2244 Sci Code FENNEK | reen, three-fold, like No. Q/2241, but furnished with detachable curtain rods, top and bottom facilitating the ready change of soiled panels | 15.00 |
| Q/2246 {Code FEOLIN {(complete) | Strong, white panels, hemmed for the rods, per set | 2.50 |
| Q/2247 Sc Code FERGUS | reen, made like No. Q/2241, but with four panels instead of three, each panel 32 in. wide | 16.50 |
| Q/2248 Code FIALIA (complete) | Cloth panels additional per set | 5.50 |

Manufactured and SCHEERER CO SCHEERER CO NEW YORK USA

FOLDING SCREENS—Continued

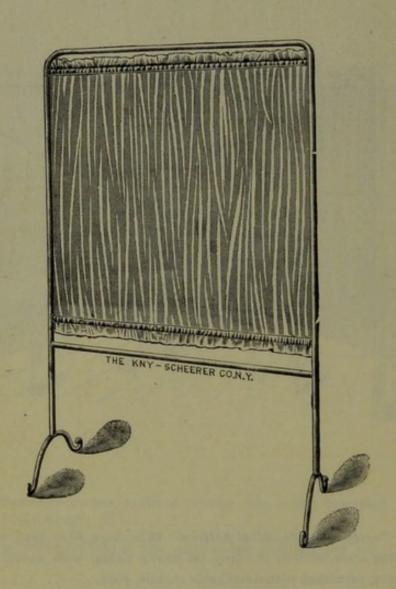


| Q/2253 Sci | reen, Presbyterian Hospital pattern. 66 in. high, 60 in. long, with two folding arms, each 60 in. long, on heavy bases, with swivel rubber | |
|------------|--|----|
| | casters, furnished with detachable curtain rods\$15.0 | 00 |
| Q/2254 Str | ong, white panels, hemmed, per set | 50 |
| (complete) | | 75 |

Several Screens can be packed together, reducing cost of packing proportionately.



SCREENS

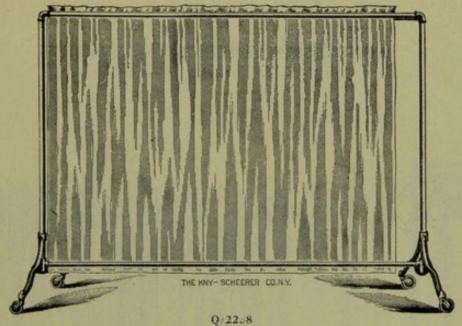


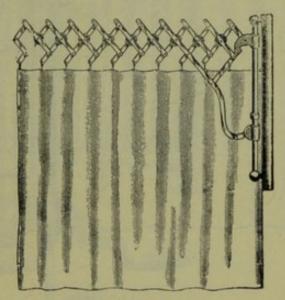
Q/2257 Screen, Single Panel, New York Hospital Pattern, made of tubular iron, with detachable curtain rods, white enameled, with white cloth panel. This screen is used to screen only the view of the patients from one another. Size of panel 40 in. long, 37 in. high, total height, 64 in. \$

\$8 00



SINGLE PANEL AND EXTENSION SCREENS.

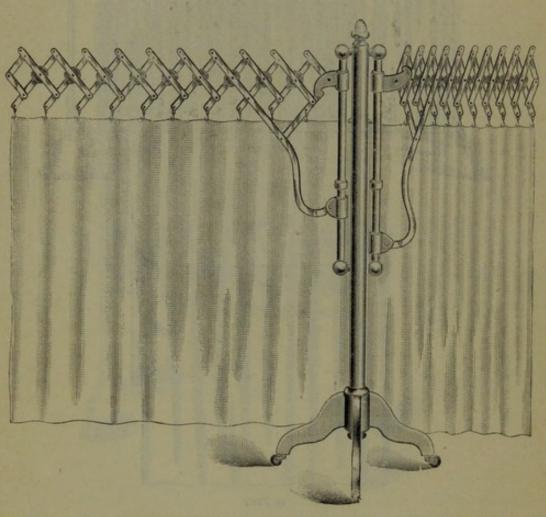




Q/2262

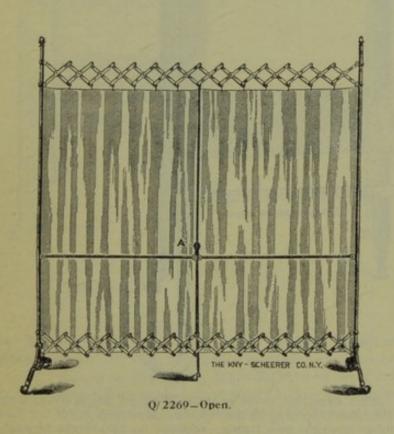
| Q/2258 Code FISKE | Screen, Single Panel, made of tubular wrought iron, white enamelled. 72 in. high, 90 in. long, white detachable curtain pole and swivel rubber casters. | \$12.00 |
|-----------------------------|--|---------|
| Q/2259 {Code {complet | White panel, hemmed for same | 2.00 |
| Q/2262 Code FLEUR | Screen, Extension (patented July 20, 1897), made of steel, aluminum bronzed and nickel-plated, with wall bracket. Can be extended six feet. When not in use it telescopes to 14 in. and is turned flat against the wall. | 13,50 |
| Q/2263 Code FLIG | | 1.75 |
| | Packing | .75 |

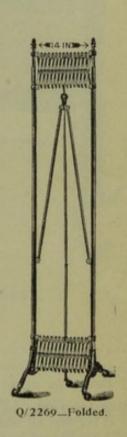
EXTENSION SCREENS-Continued.



| | Screen, Double Extension (patented July 20, 1897), same as No. Q/2262, |
|---------------------|---|
| Code FLINT | but with two extension arms at right angles by means of which a corner of a room can be inclosed; or if used in connection with No. |
| | Q/2262 Wall Screw a bed can be entirely screened |
| Q/2267 Code FLIF | Panels |

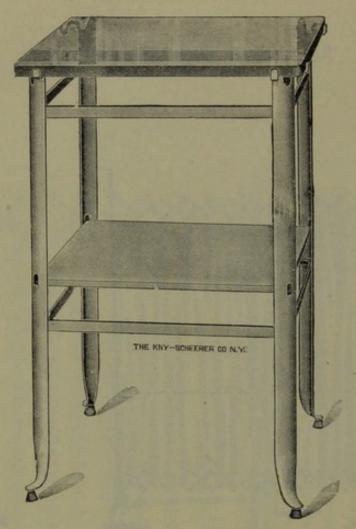
EXTENSION SCREENS-Continued.





| Q/2269 Sci | reen, Extension (patented July 20, 1897), made of nickel-plated steel | |
|----------------|--|-------|
| Code FLORENZ | lazy tongs, mounted on two standards with swivel casters, 75 in. high 72 in. long; folds into 14 in. long. Can be carried about easily. This | |
| | screen is folded by simply raising the pear-shape handle A | 30.00 |
|) Code FLORIDA | nels for the above | 1.75 |
| (complete) | Packing | .50 |

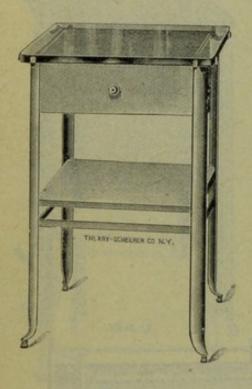
Bedside Tables.



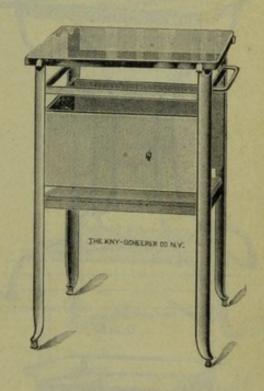
Bedside Table, new model. This excellent table is made of round angle steel, with claw corners at the top, all made of one piece and tapering at the bottom. Mounted on subber floor tips. The posts are brased by two continuous wrought iron frames, secured by two rivets to each post, in counter sinks, so as to make a perfectly smooth surface. The rail below the glass serves as a towel rack. This is the strongest and easiest cleaned of any bedside table made. Dimensions of top, 15 in. wide, 19 in. long.

| Q/2401 Code FOLDRA | Top: Snow white alabaster plate glass, ½ to 5%-in. thick, with polished edges. Shelf: Steel, white enamel coated, each | \$9.00 |
|-----------------------|---|--------|
| THE REAL PROPERTY. | Dietr. Dieer, white chames content, street, street, content, street, | 42.00 |
| Q/2403 | Top: Same as A. | 12.00 |
| Code FORST | Shelf: Snow white alabaster plate glass, each | 12.00 |
| Q/2406 | Top: Polished French crystal plate glass, % to 34-in. thick, with polished edges. | |
| Code FRANCE | Shelf: Steel, white enamel, coated, each | 7.50 |
| 0/2411 | Top: Same as C. | |
| Code FROME | Shelf: Polished French crystal plate glass | 9.00 |
| Q/2414 | Top: Sanded rough glass, 14-in, thick, smooth edges, | |
| Code FUENTE | Shelf: Steel, white enamel coated, each | 6.00 |
| Q/2417 | Top: Same as E. | |
| Code FULGEN | Shelf: Sanded rough glass, 1/2-in. thick, each | 8.00 |
| 0/2421 | Top: Steel, white enamel coated. | 10000 |
| Code FUSTON | Shelf: Steel, white enamel coated, each | 6.00 |
| Q/2425 | Top: Porcelain enameled iron, 16 in. x 20 in. | |
| Code FUTLEY | Shelf: Steel white enameled coated | 7.50 |
| Q/2428 | Top: Porcelain enameled iron, 16 in. x 20 in. | |
| Code FUWANG | Shelf: Porcelain enameled iron | 9.00 |
| | Packing | .30 |

BEDSIDE TABLES-Continued.







Q/2440-42

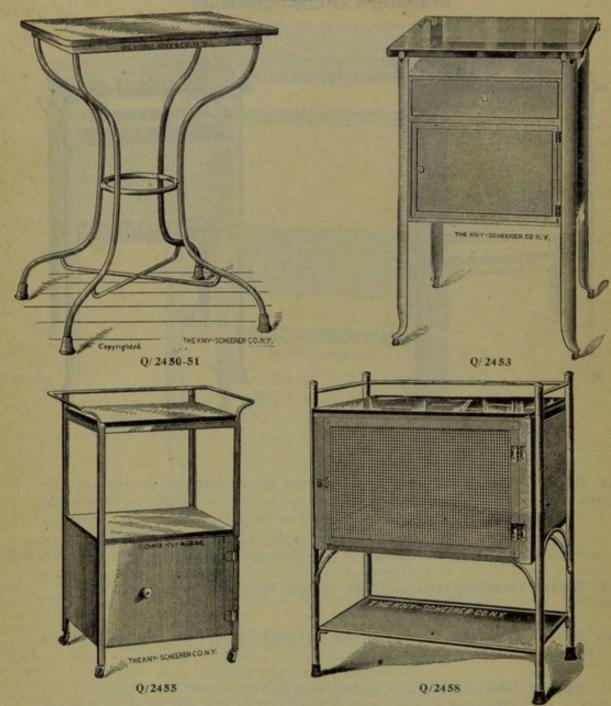
Q/2434 Bedside Table, made round angle steel like Q/2401 with claw corners, strongly

Code GABARA braced by two iron frames secured by two countersunk rivets to each post
making a very strong table, fitted with steel drawer all white enameled
mounted on rubber floor tips, dimensions 15 in. x 19 in. x 30 in. high.

Top of polished plate glass 14 to 36 in, thick and shelf of steel white enameled \$10.5

| mounted on rubber floor tips, dimensions 15 in. x 19 in. x 30 in. high. Top of polished plate glass ½ to ¾ in. thick and shelf of steel white enameled | \$10.50 |
|---|---------|
| Q/2435 Bedside Table, the same as Q/2434, but with top of unpolished plate glass | 9.00 |
| Q/2436 Bedside Table, the same as Q/2434, but with top of white porcelain enameled Code GALENA steel 16 x 20 in | 10.50 |
| Q/2440 Bedside Table, the same as Q/2401, but enclosed on three sides with a sheet code GANGES steel shield and mounted with a towel rack at one end. Top of polished plate glass ½ to ¾ in. thick, and 1 shelf of steel white enameled | 11.00 |
| Q/2442 Bedside Table, the same as Q/2440, but with top of unpolished plate glass ½ in. Code GAMBACH thick | 9.50 |
| Q/2442 Bedside Table, the same as Q/2440, but with top of white porcelain enameled Code GARCIA steel. | 11.00 |

BEDSIDE TABLES-Continued.



Q/2450. Bedside Table. Charity Hospital style New and improved pattern; strongly constructed Code GLASCOW of tubular wrought iron, white enameled, on rubber sockets. Size of top, 20 x 16 in.

Sanded glass, top ½-in, thick, polished edges.

Q/2451 Bedside Table. The same as Q/2450, but fitted with Crystal French plate glass, top ½ to ½-in.

Code GLASEN thick, polished edges.

Q/2453 Bed ide Table. Made of round angle steel, with steel drawer and closet, all enclosed in sheet steel, mounted on rubber floor tips. Top of ½ in, thick unpolished plate glass, with smooth ground edges.

Q/2455 Bedside Table. Made of round angle steel, with steel shelf and closet, enclosed in sheet code GARDA

Steel, mounted on casters. Top of unpolished plate glass, with smooth ground edges.

Dimensions 16 in. wide, 18 in. long.

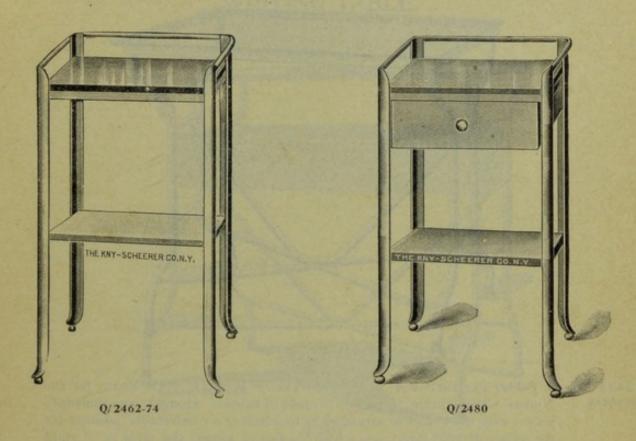
Q/2458 Bedside Table. United States Naval pattern, made of tubular iron, with grard rail and Code GLENCOE wire enclosed locker for clothing, steel shelves, all white enameled, with sanded back plate glass, ½ to ½-in. thick, 13½ x 24 in. long, rubber floor tips.

Crating and Packing

18.00

Crating and Packing

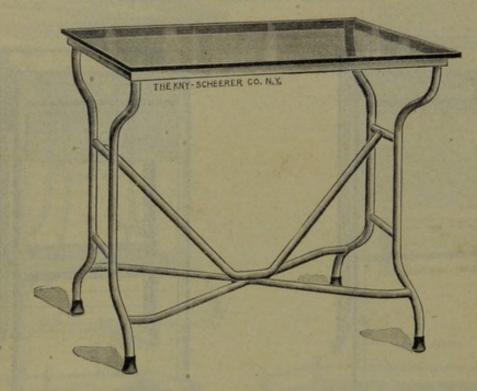
BEDSIDE TABLES—Continued.



Bedside Tables, made of round angle steel with railing around three sides of the top, the posts are braced with smooth iron frames securely riveted and smoothly finished, white enameled, mounted on rubber floor tips; dimensions of top 14 x 15½ inches.

| Q/2462 Code GASTE | Top: Snow white alabaster glass, ½ to 5%-in. thick. Shelf: Steel, white enameled coated\$10.50 |
|-----------------------|--|
| Q/2463 Code GEANT | Top: Same as A. Shelf: Snow white alabaster glass; with one shelf |
| Q/2466 Code GENESE | Top: Polished French crystal plate glass, ½ to %-in. thick. Shelf: Steel, white enamel coated |
| Q/2468 Code GENOA | Top: Same as C. Shelf: Polished French crystal plate glass |
| Q/2473 Code GETTIN | Top: Sanded rough glass, ½-in. thick. Shelf: Steel white enamel coated |
| Q/2474 Code GHENT | Top: Same as E. Shelf: Sanded rough glass, 1/2-in. thick 9.00 |
| Q/2480 Code GILEAD | Same as described under No. Q/2462-2474, but in addition provided with a steel drawer, white enamel finish. Add to price |
| | Packing30 |

WARD TABLES.

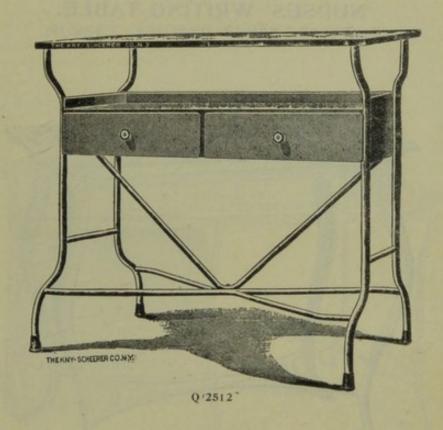


Q/2493 Ward Table, DESIGNED FOR THE PRESBYTERIAN HOSPITAL NEW YORK, for the Code GOBAN

Nurses' writing table, the frame is made of tubular wrought iron smoothly joined with the braces so arranged as to admit of a comfortable position for the writer without interference with the feet or knees; the table is of rigid construction and finished in white enamel fitted with rubber floor tips.

| construction and finished in white enamel fitted with rubber floor tips. | |
|--|---------|
| The top is of crystal polished plate glass ½ to 5%-in. thick with all edges polished and beveled, dimensions 36 inches long, 20 inches deep | \$20.00 |
| Q/2494 Ward Table. The same as Q/2493, but larger, dimensions of top, 36 in. long, Code GOMAR 24 in. deep | 24.50 |
| Q/2495 Ward Table. The same as Q/2493, but furnished with extra heavy plate glass code GRABEN top approximating 5 in. thick, dimensions 36 in. long, 20 in. deep | 15.00 |
| Q/2496 Ward Table. The same as Q/2495, but larger, dimension of top, 36 in. long, Code GRACIA 24 in. deep | 19.00 |
| Q/2497 Ward Table. The same as Q/2493, but furnished with unpolished plate glass Code GRAFTON top ½ to 5%-in. thick, dimensions 36 in. long, 20 in. deep | 15.00 |
| Q/2498 Ward Table. The same as Q/2497, but larger, dimensions 36 inches long, Code GRANADA 24 in. deep | 18.00 |
| Q/2499 Ward Table. The same as Q/2493, but furnished with heavy sheet steel top Code GRANGE white enameled, dimensions 36 in. long, 20 in. deep | 15.00 |
| Q/2501 Ward Table. The same as Q/2499, but larger, dimensions 36 inches long, Code GRECO 24 inches deep | 16.50 |
| Packing: | .75 |

WRITING TABLE.



Q/2512 Ward Table, DESIGNED FOR THE NEW YORK HOSPITAL, for the Nurses writing Code GRETNA table, the frame is made of tubular wrought iron smoothly joined, with braces so arranged as to admit of a comfortable position in writing; the two steel drawers are entirely enclosed in a steel case the top of which serves as a shelf with raised sides, all finished in white enamel. The top is of crystal polished plate glasss 1/2 to 5/8 in, thick with all edges polished and beveled, dimensions 36 in. long, 20 in. deep......\$30.00 Ward Table, the same as Q/2512 but larger dimensions of top, 36 in, long, 24 in. Q/2513 Code GRIES deep.:... 34.50 0/2514 Ware Table, the same as Q/2512 but fitted with polished plate glass, 5/16 in. Code GROTO thick, dimensions 36 in. long, 20 in. deep... 25.00 Ward Table, the same as Q/2514 but larger dimensions, 36 in. long, 24 in. deep. 0/2516 29.00 Code GRUNHOF Ward Table, the same as Q/2512 but fitted with heavy steel top, white enameled 0/2518 dimensions 36 in. long, 20 in. deep..... 25.00 Q/2520 Ward Table, the same as Q/2518 but larger dimensions, 36 in, long, 24 in. deep. 26.50 Code GUARDO

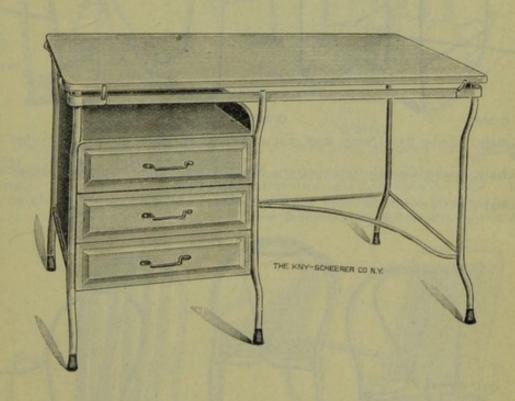
NURSES' WRITING TABLE.



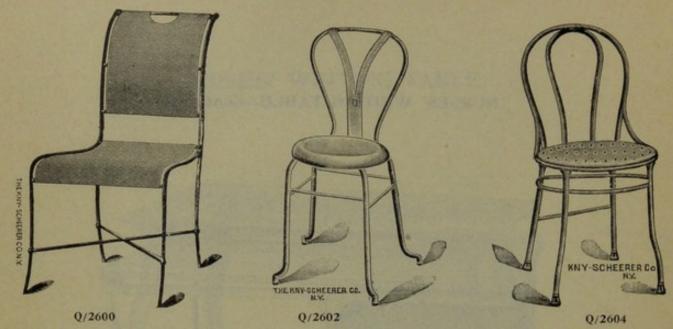
Q/2530 Nurses' Writing Table, new design, made of steel, white enamel finished, code HAAKEN mounted on rubber tips, the glass top rests on rubber cushions and is held in place by claw corners, the arrangement of the bracing and the wide spread of the legs make this especially well adapted for its purpose, top is of polished plate glass \(\frac{5}{8} \) in. thick, dimensions 24 in. wide, 36 in. long.

| Price | | | | | | | | | * | | | | 7/10 | | \$35. | 00 |
|---------|------|------|------|------|--|------|--|------|-------|--|--|--|------|------|-----------|----|
| Packing | | | | | | | | | | | | | | | | 75 |

NURSES' WRITING TABLE-Continued.



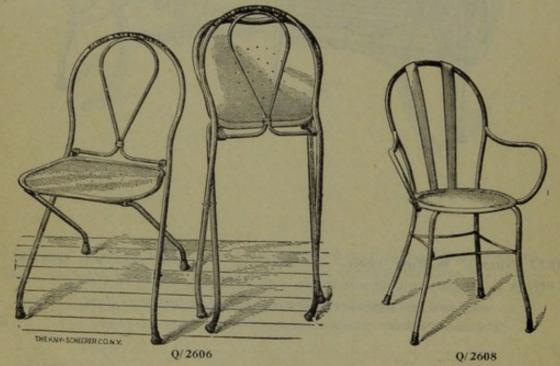
Chairs For Operating Room and Ward.



Q/2600 Chair, tubular iron frame, steel seat and backs all white enameled, rubber floor Code HADLEY tips. \$7.00

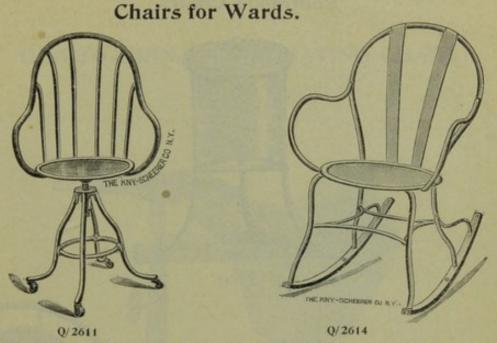
Q/2602 Chair, Boston City Hospital pattern, made of tubular iron frame, white enameled, Code HAGNAU with roll edge steel seat with spring steel back. 7.25

Q/2604 Chair, made of tubular iron, white enameled, with perforated steel seat, with Code HAGUE legs attached to sockets under seats. 7.25



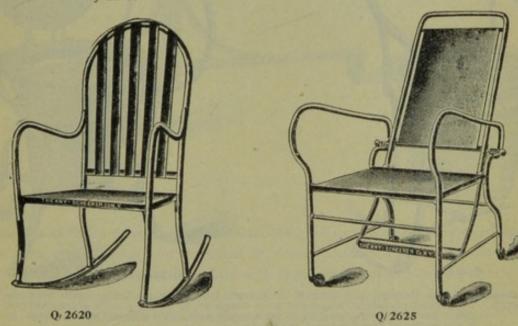
Note Is bel which our goods bear





Q/2611 Revolving Chair, tubular iron frame, steel seat, mounted on a heavy Code HAMBURG

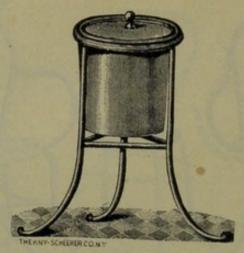
Note. - All chairs sold by us have the joints brazed in addition to the riveting and are fully guaranteed. Chairs made in this manner do not get loose at the joints.



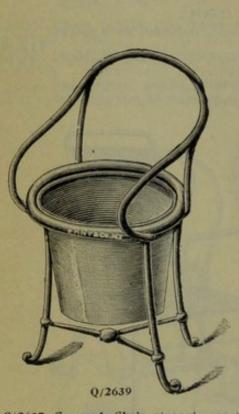
0/2620 Rocking Chair, tubular iron frame with steel seat and back, tubular arm Code HAMPDEN rests, heavy rubber cushioned rockers.

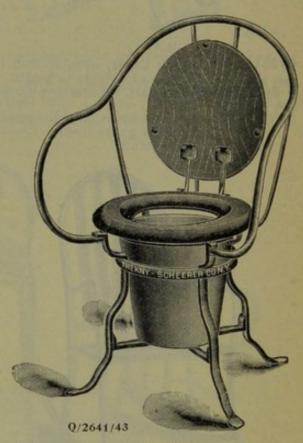
Q/2625 Reclining Morris Chair, designed for the N. Y. Lying-in Hospital, made \$21.00 25.00

Commode Chairs.



Q/2637





| Q/2637 Commode Chair, strongly constructed of wrought iron, white enameled, with seamless Code HANSTED white steel porcelain receptacle, 13 in diameter, 12 in deep, with white steel porcelain knobbed cover; receptacle has a broad rim and is suspended in brackets so it can easily be lifted out with the cover | \$ 10.00 |
|--|----------|
| Q/2639 Commode Chair, like No. Q/2637, but with tubular metal back and arm rests | 12,00 |
| Q/2641 Commode Chair, United States Naval pattern, made of steel with hardwood seat and Code HARWICH cover, both hinged; the seamless white steel porcelain receptacle has a bail handle for carrying. | 15.00 |
| Q/2643 Commode Chair for contageous wards, like No. Q/2641, but with an aseptic white enameled Code HARRAT roll rim seat and cover, both hinged, as shown in illustration | 16.50 |

Note label which our goods bear



GENITO-URINARY IRRIGATING CHAIR.



Q/2650 Genito-Urinary Stool and Receptacle, designed for the Boston City Hospital

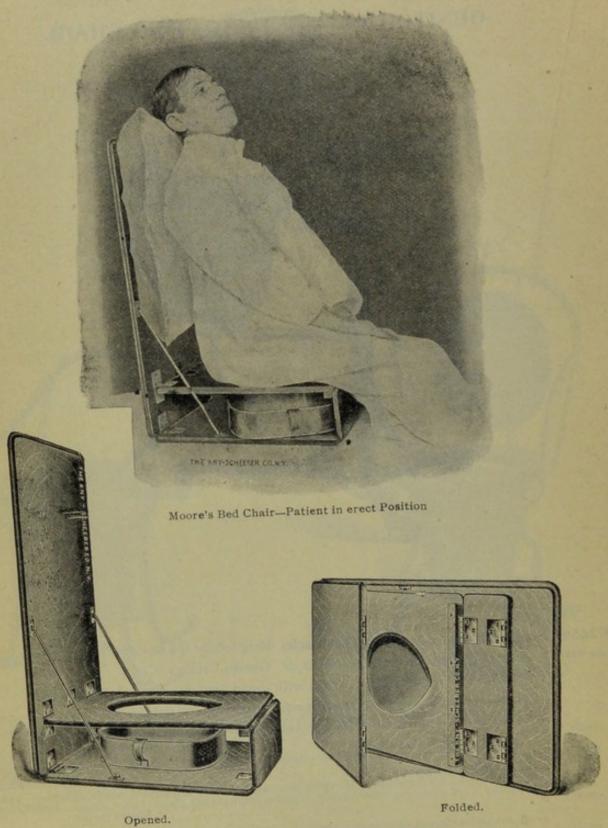
Code HAVANA for the irrigation and treatment of Genito-Urinary Cases. Consists of

stand with adjustable standard with metal seat for patient to straddle,
and large metal receptacle, with outlet, for catching irrigated fluids. The

stool is constructed of wrought iron, white enameled with removable
receptacle for cleaning.



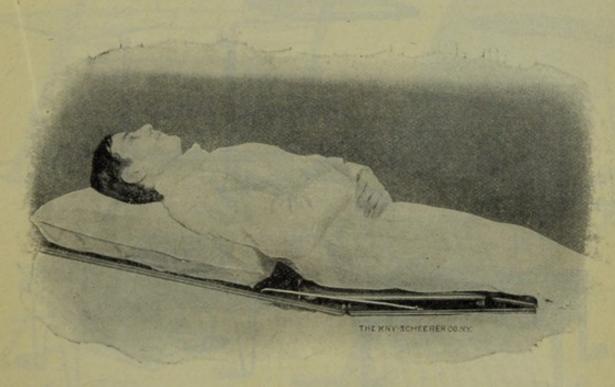
Moore's Patented Sick Bed Chair



Q/2655. Moore's Sick Bed Chair.



MOORE'S PATENT SICK BED CHAIR.—Continued.



Bed Chair slipped under Patient.

Q/2655 Moore's Patented Sick Bed Chair. Of all back rests for invalids' comCode HAWAI fort the "Moore Sick Bed Chair" is the one most highly appreciated by
the professional nurse both on account of its simplicity and efficiency.

It is made of Kiln dried wood, folding into a compact form, can easily be slipped under the patient and elevate the latter into a sitting posture without any great exertion on the part of the attendant.

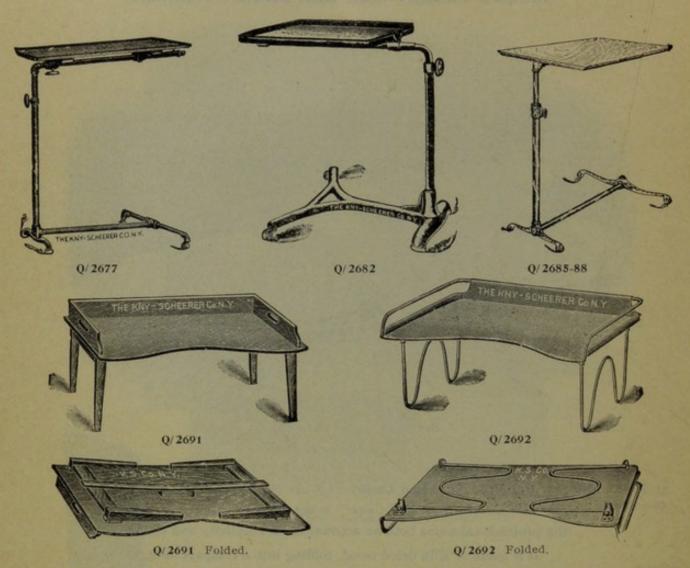
The illustrations explain the apparatus more fully than any lengthy description but it is left to a practical application in the sick room and hospital ward to convince professional men that we have satisfactorily solved the problem and have added to the list of invalids' comfort goods an appliance, inestimable in its value and equally appreciated by the patient and his nurse.

| Price | of | Bed | Chair with | Pan. | | | \$12.50 |
|-------|----|-----|------------|------|------|------|---------|
| ** | of | Bed | Pans | | | | 1.25 |

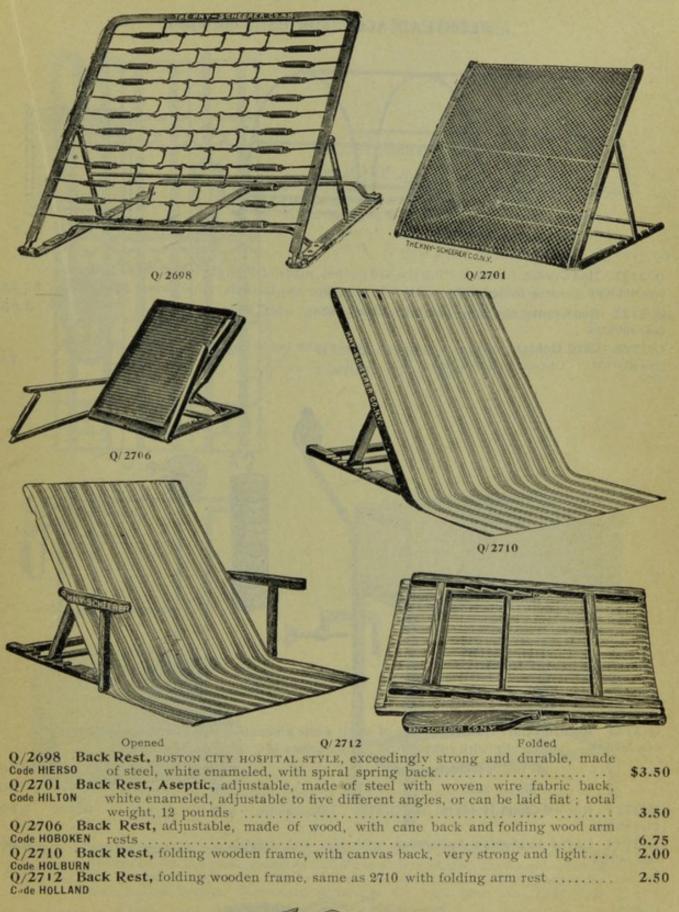
Special Prices to Institutions for Quantities.



Bedside Accessories.



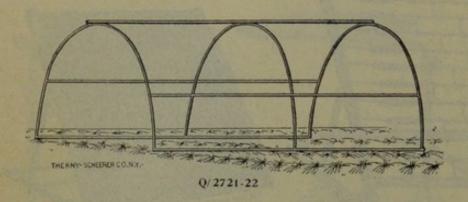
| Q/2677 Bedside Table, Aseptic, with stationary top made of steel, all white enameled. | \$7.00 |
|--|--------|
| Q/2682 Bedside Table, Aseptic, designed for the New York Lying-in Hospital, made with a solid cast base and reinforced upright support, with a detachable white steel porcelain tray, 13x20 in., which can be served in the Diet Kitchen and carried to the table and set in the frame, all white enameled | 8.00 |
| Q/2685 Bedside Table, Adjustable, with friction clutch adjustment permitting the top to be placed at any angle including vertical position to serve as a screen, Oak top 18 x 24 in., white enameled frame | 5.50 |
| Q/2686 Bedside Table, the same as Q/2685, but with frame finished in Black | 5.00 |
| Q/2687 Bedside Table, the same as Q/2685, but with frame Nickel Plated | 10.00 |
| Q/2688 Bedside Table, the same as Q/2687, but with Bird's Eye Maple or Mahogany Code HERFORD Veneer top additional | 2.25 |
| Q/2691 Bed Tray Table, folding legs, made of Oak, nicely finished; top 15 x 21 inches, Code HERNE 8 inches high | 2.00 |
| Q/2692 Bed Tray Table, Aseptic, folding legs, made entirely of steel, white enameled; Code HESSEN top 15 x 24 in., 8 inches high | 3.50 |



Note label which our goods bear

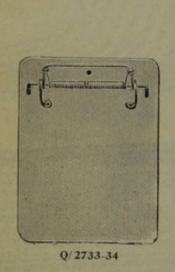


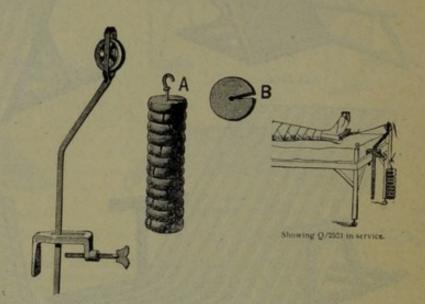
BEDSTEAD ACCESSORIES—Continued.





| Q/2721 Bed Cradle, for supporting the bed clothes, made of wrought iron, white enameled; Code HOLYOKE can be folded flat when not in use. For single limb, 12 in. wide, 24 in. long | \$2.25 |
|---|--------|
| Q/2722 Bed Cradle, the same as 2721 for body, 27 in. wide, 33 in. long | 3.00 |
| Q/2728 Card Holder, made of aluminum, bent at the top to hang over the rail of the bed. Code HOWTON Dimensions 6 in, long, 5 in. high | .75 |





Q/2744

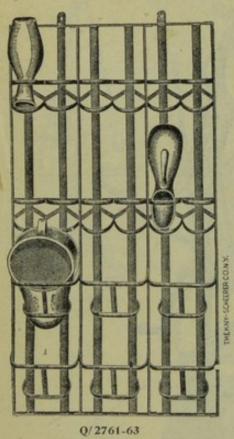
| Code HUDSON spring clip with rubber tips. Dimensions 10¼ in. wide 13¼ long | |
|--|--------|
| Price, per doz | \$9.60 |
| Frice, each | .90 |
| Code HURON Code HURON | 6.00 |
| Q/2744 Levis' Extension Apparatus, with rope and weights | 6.00 |

Note label which our goods bear



Urinal and Bed Pan Receptacles.

Code JAPAN



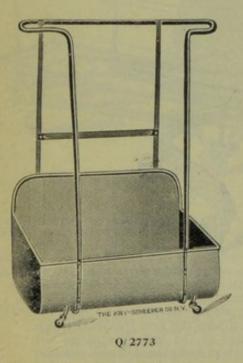
Q/2761 Sanitary Racks, for Bed Pans
Code JACKSON and Urinals. Made of iron,
finished with white lead and
pegamoid aluminum bronze,
arranged to hang on the wall to
hold 6 Bed Pans and 12 Urinals. \$10.00

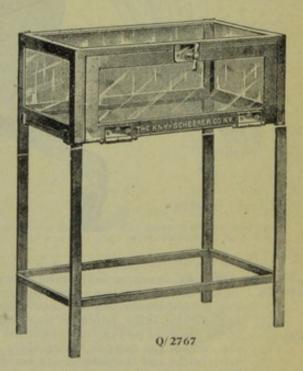
Q,2762 Sanitary Racks, to hold 3 Bed
Code JAMAICA Pans and 6 Urinals. 8.00

Pans and 4 Urinals

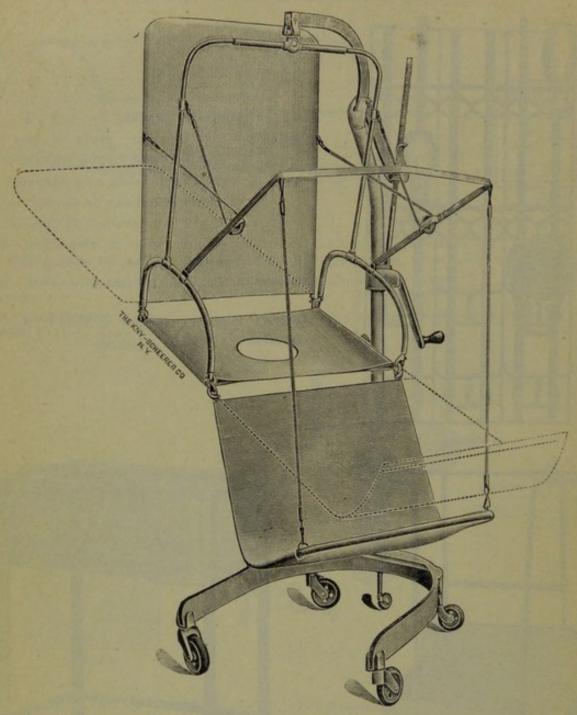
6.00

Q/2763 Sanitary Racks, to hold 2 Bed





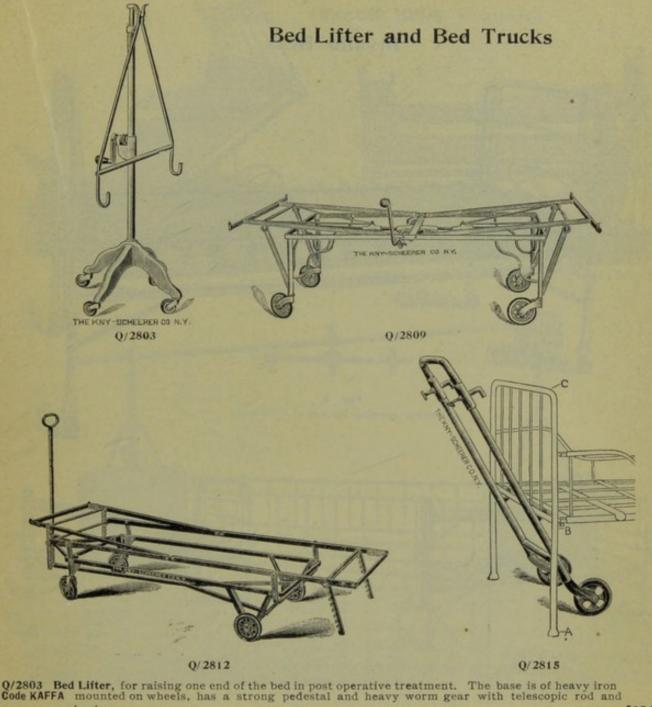
Invalid Lift and Rocking Chair.



Q/2800 Invalid Lift, constructed of tubular wrought iron, white enameled, mounted on rubber rollers. In using this apparatus the patient can be lifted from the bed and moved from room to room without difficulty. It is but necessary to disengage the litter, which is held together with strong snap hooks. Slip the three pieces of soft canvas under the patient, then pass the iron frames through the ends of the canvas, which show on both sides of the bed; re-arrange the snap hooks and the patient can be lifted from the bed and placed in any position from upright to recumbent, and placed so as to look out of the window or rolled out on to a veranda; the soft canvas holds the patient comfortably.

Price complete \$8

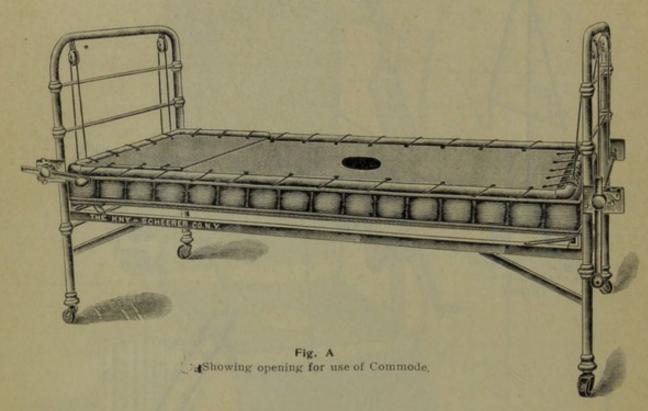


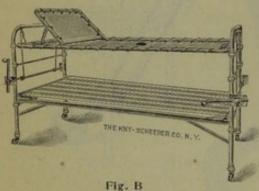


Note label which our goods bear



Invalid Beds.





Showing patient raised from the mattress with back rest elevated.

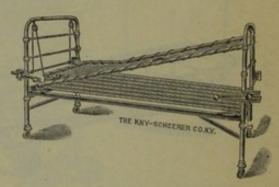
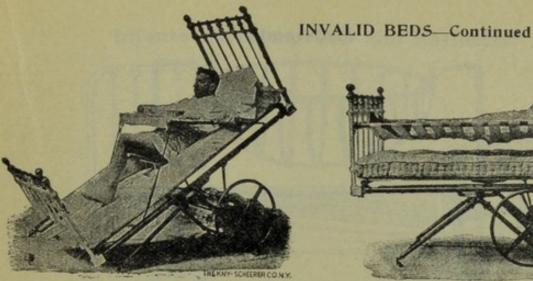


Fig. C Showing foot end elevated independent of the head end.

Q/2820 Invalid Bed, constructed of iron white enameled, 3 ft wide, 6 ft. 6 in. long, with Code KANAWA woven wire spring. By an arrangement of pulleys and windlass and canvas hammock the changes are quickly made, raising the patient from a recumbent to a sitting position or raising him entirely from the mattrass, permitting change of the clothing plate or use of the commode, rolling the patient over, raising either the head or feet independently. When not is use the head and foot ends fold under compactly......\$39.00

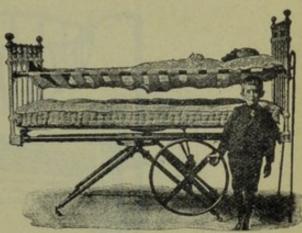
Curled hair mattresses, additional. 10.00



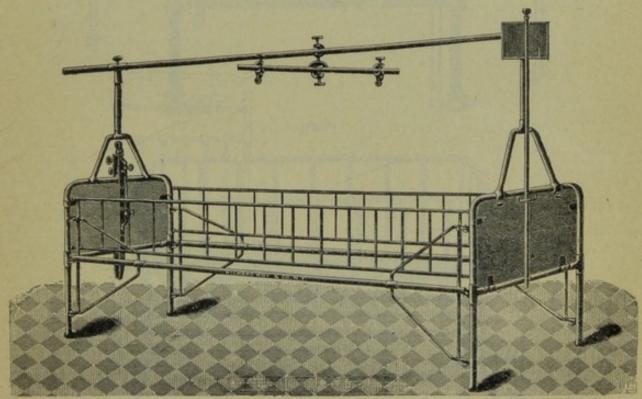
Showing fracture patient dming



Q 2833



Patient elevated for changing, airing or cooling the bed

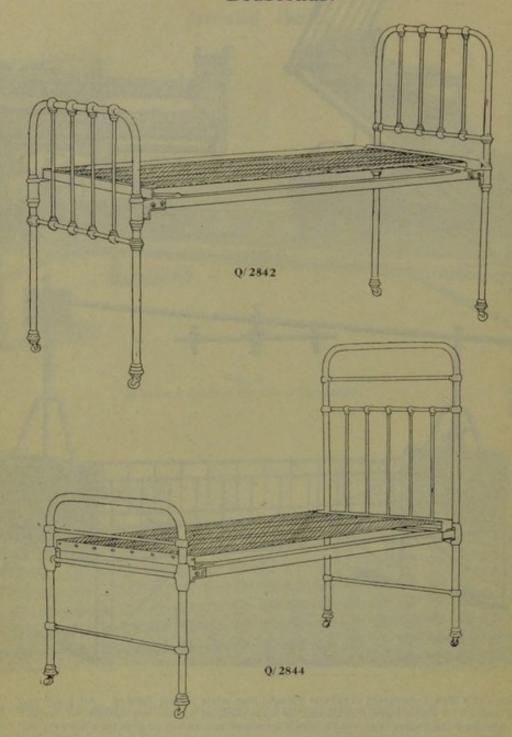


THE KNY-SCHEERER CO.N.Y

Q/2833 Invalid's Bed, constructed of tubular wrought iron, white enamel finished. All positions of this bed are ob-Code KEOKUK tained by a simple screw which a child or a convalescent patient may operate for himself. All patients (excepting when neither thigh can be flexed) are placed in a sitting position on a normal closet seat for all evacufations, or at a table for eating, reading, etc., or by simple mechanical means can be raised on the hammock for rest from the over-heated mattress, for changing bed linen and for making examinations of dressings. The principle of elevating the knees while the patient lies upon the back, and firmly securing a seat to the buttocks, and then tilting bed, patient and seat, thus giving the sitting posture without removal from the bed, is new in this bed; it gives more comfort to the patient, and is a great aid to physicians and attendants. In this bed an unbroken bed line is preserved with all positions of the bed, which enables fractures, or diseased joints, to remain immobilized and in line while the patient changes from the lying to the sitting or standing position. Price_

0/2838 Fracture Bed, made of iron, white enameled, with solid head and foot end and a set of adjustable pulleys for extension, and an overhead support with adjustable pulleys for raising and supporting the body or limb. Dimensions Code KIRBY 3 ft. wide, 6.6 long, complete with heavy wire spring, list price..... \$75.00

Bedsteads.



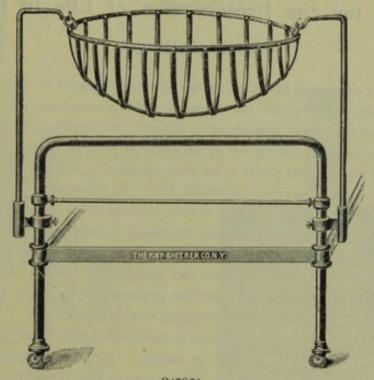
Q/2842 Bedstead, head end 52 in. high, foot end 40 in. high; with woven wire Code KLEBURG fabric, 27 in. high, with 3 pin corner lock.

Q/2844 Bedstead, head end 73 in. high, foot end 37½ in. high; with woven wire Code KLINGEN fabric, 27 in. high; all smooth joints; 3 pin corner lock.

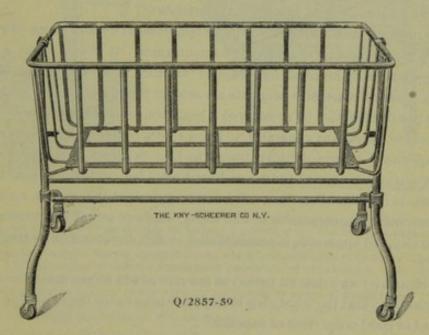
Complete catalogue of bed sent on application; when writing for prices, please specify the quantity of beds required.



Infants' Swinging Tub and Basinette.



Q/2851



| Q/2851 Infants' Swinging Crib, made of steel white enameled, complete with davitts | |
|---|---------|
| and clamps for attaching to the foot rail of any bedstead. This design saves | |
| floor space in the ward as well as having the child convenient to the nurse | |
| or the mother; dimensions. Price complete | \$12.00 |
| Q/2857 Bassinettes, made of iron, mounted on floor stand, all white enameled; dimen- Code KOKOMO sions of basinette 16 x 30 in | 16.50 |
| Q/2859 Bassinettes, made of woven wire, mounted swinging on floor stand all white | |
| Code KONSTAD enameled; dimensions of basinette 16 x 30 in. | 18.50 |

Incubators for the Preservation of Life in Premature Born Children.

The question of sustaining life in immature new born infants is often a very serious one.

Many lives have been sacrificed for the want of suitable means for accomplishing this end.

When we realize that great interests often depend upon the lives of those poorly developed little beings, and that no effort is too great or too costly to prolong them, the importance of an apparatus which will produce this result is at once apparent. In any event, the subject must appeal forcibly to the mind of every physician from the humanitarian standpoint; for what physician is there to whom the possibility of saving a human life is not one of supreme interest.

Until the modern incubator was devised, the means of sustaining life in immature infants were crude and imperfect, and as a consequence, only those survived who possessed a fair degree of vitality. Now, even very feeble children can generally be saved. The work of Tarnier, Auvard, and other French, German and American physicians in this field, has marked a distinct advance in the efforts for the saving and prolonging of human life.

An incubator is necessarily a costly and a complicated apparatus; many conditions must be considered in its construction: it must be aseptic, it must regulate temperature with accuracy, it must be adapted for administering nourishment with the minimum of disturbance to the patient, and the least amount of trouble to the attendant.

The cost of the apparatus, infrequency of its requirement by any given physician, preclude its use as a part of the physician's ordinary armamentarium. It should form a portion of the furnishing of every maternity hospital, but hospital furniture and fixtures are seldom available for private houses, besides, maternity hospitals are seldom found outside the great cities.

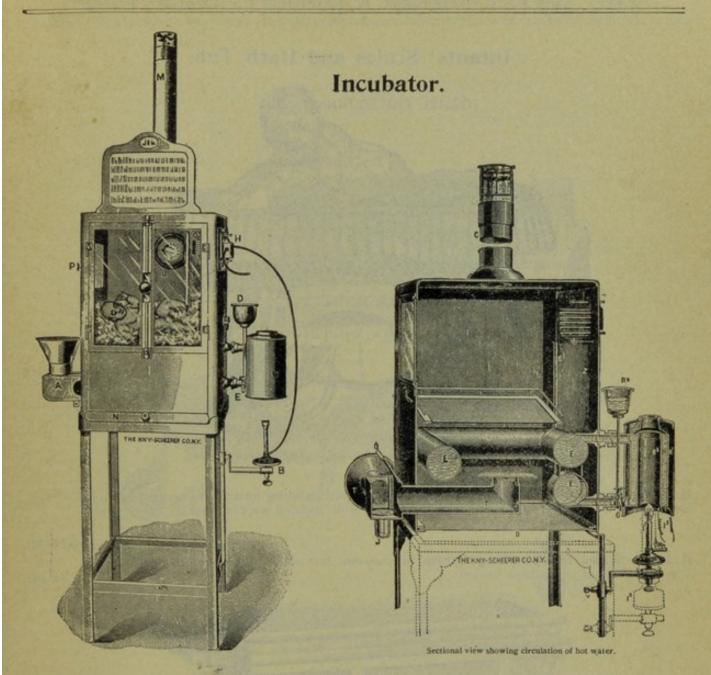
We believe it will therefore be considered a great convenience, and indeed, a most welcome piece of information to physicians generally, to know that a complete apparatus can be obtained promptly, by telephone or telegraph order, from The Kny-Scheerer Company.

If the the apparatus is wanted for use in New York City, it will be sent to any address, and placed in position for immediate use, all necessary instruction for its management being furnished by a competent representative of this house, who will attend to its installation. When shipped out of the city, the apparatus is accompanied by full directions for setting up and working the same.

It may be rented for any desired period at the rate of \$25.00 per month or fraction thereof, with the understanding—that the consignee is responsible to us for the full value of the apparatus until it is returned in good order, free of expense.

We cannot but believe that these facts will often be a source of great relief to many physicians, who will thus be freed from the care and worry which the attendance upon the cases in question, would otherwise involve.

The accompanying cuts and description show the construction of the incubator, and The Kny-Scheerer Company will be pleased to receive correspondence from those who may wish further information upon this subject.



Q/2871 Incubator, for premature born children, "Ideal." The apparatus is constructed of steel, with glass Code KOREA doors and one glass window on the side for feeding purposes, etc. The heat generated in C communicates itself to the water-filled tubes E on the inside, maintaining a uniform temperature at any desired point by means of a spiral thermo regulator inside, which is controlled by micrometer adjustment from outside. The hygrometer records the atmospheric conditions of the chamber. The air supplied to the infant is filtered through an absorbent cotton filter in box A; this air can be taken from the room in which the apparatus is placed or directly from the outside by means of simple tubes. The revolving wheel M in chimney indicates the perfect circulation of air. Full directions for use accompany each

apparatus. Complete, on iron stand, with gas burner

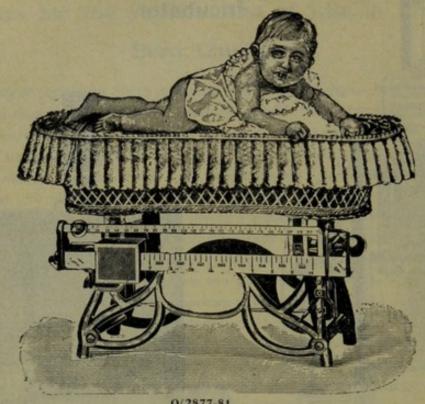
\$175.00

DIRECTIONS FOR USING INCUBATOR.

TO FILL—Pour water into funnel D, filling reservoir C until D remains filled to the top. Light the gas B, and when the thermometer K registers 90° the regulator reduces the gas flow, thus keeping the temperature uniform. Should this not act properly, it will be necessary to give the adjustment of screw H attention and raise or lower it until you find the proper position; this can also be adjusted by raising or lowering the gas burner. A is the fresh air intake, and I is a glass vessel which should be kept filled with water; if desirable, absorbent cotton can be placed in T to filter the air as it enters. Q is a hinged cover to facilitate placing both the cotton filter and the water. The wheel M indicates the circulation of air. L is hygrometer to indicate atmospheric conditions, it should be kept at about normal. P is a sliding window used in feeding the infant. Funnel D must be kept filled with water.

Manufacher ed and Guarantee g by SCHEERER (SCHEERER CONTINUE MANUS NEW YORK USA)

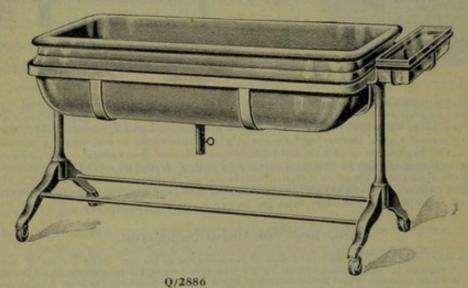
Infants' Scales and Bath Tub.

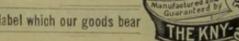


0/2877-81

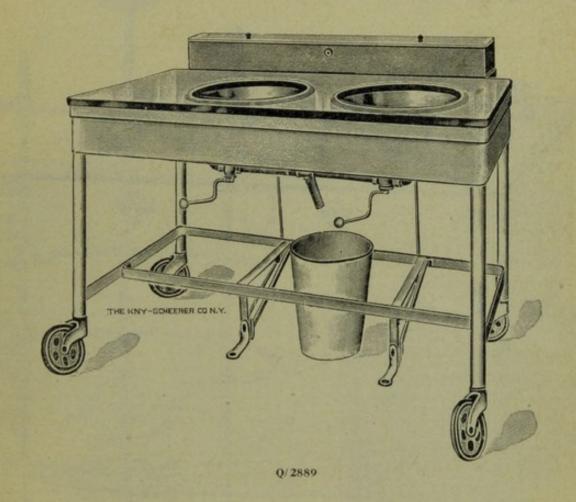
Q/2877 Scales for weighing infants, arranged with sliding balance to weight up to 35 Code LANDAU pounds, fitted with a neat, strong, well padded wicker basket 12 in. wide, 32 inche. long.

Q/2881 Scales for weighing babies, like above, but with roll rim metal pan in place Code LANDECK of the wicker basket.....





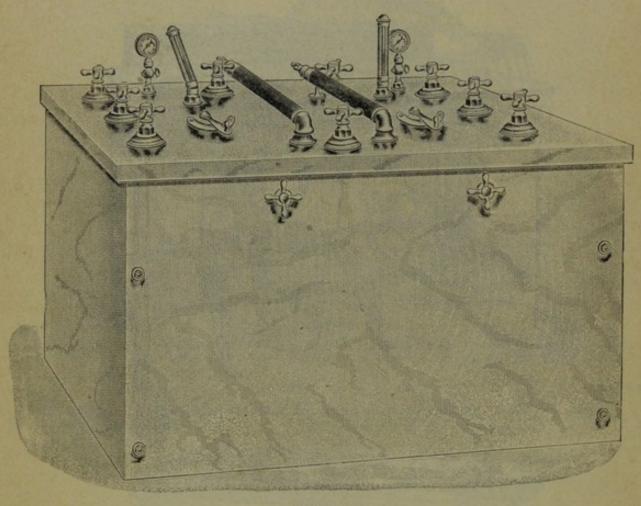
Resuscitation Bath.



Q/2889 Resuscitation Tubs, designed by Miss Jessie Mewhort, for the ManCode LARAMIE hattan Maternity and Dispensary, N. Y. This novel device affords
the advantages of having close to hand a hot and a cold bath, in which
a new born infant may be plunged, for resuscitation. One of the
prime features of the bath is, that it is always ready for use, there
being no assistance required for emptying or refilling the tubs, this
being accomplished by means of foot and knee pedal valve attachments. The table is white enameled iron, mounted on rubber tire
wheels, the tubs are of copper, and the top is of polished plate glass,
\[
\frac{3}{4}\text{ in. thick, 29 in. wide, 52 in. long, with two oval apertures, 16\frac{1}{2}\times 21}\]
in. With the bath is connected a double reservoir—the hot water
compartment having an electric heater\$225.00

Hydrotherapeutic Apparatus

The apparatus which we produce and illustrate below for the application of the Hydrotherapeutic treatment represents our own modern designs and are of a most efficient type, all parts are carefully constructed and are of the best materials for their respective purposes.

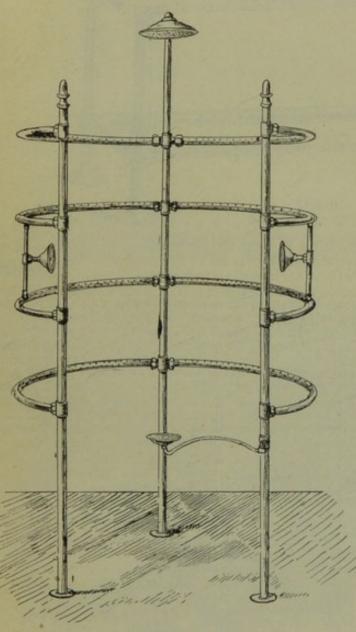


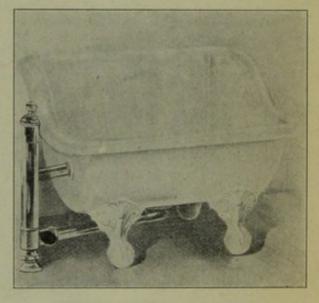
Q/2901

Q/2901 Control and Douche Table. The table is constructed of galvanized iron fitted code LOCANA on the sides and top with polished marble. It is fitted with mixing chambers and temperature and pressure control valves, for the over-head shower, side needle douche, liver spray, sitz bath and massage and shampoo table. Angle Thermometers show the temperature and Gauges show the pressure of the water, all control valves are marked with the name of the apparatus which they control. The Scotch or alternating douche is operated direct from the table by the two nozzles and flexible hose shown; a special valve controls the ice water so that the operation of the Scotch douche does not interfere with the operation of any other apparatus, all external fittings are nickel-plated. Tables can be arranged with more or less number of valves according to the extent of the installation.



Hydrotherapeutic Apparatus





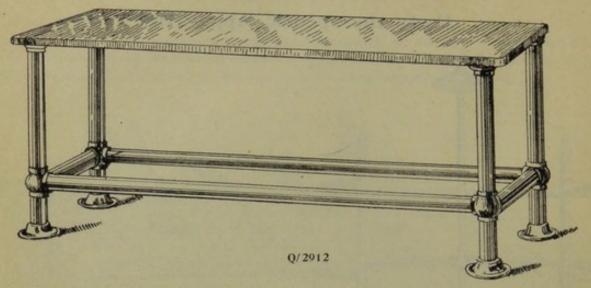
Q/2905

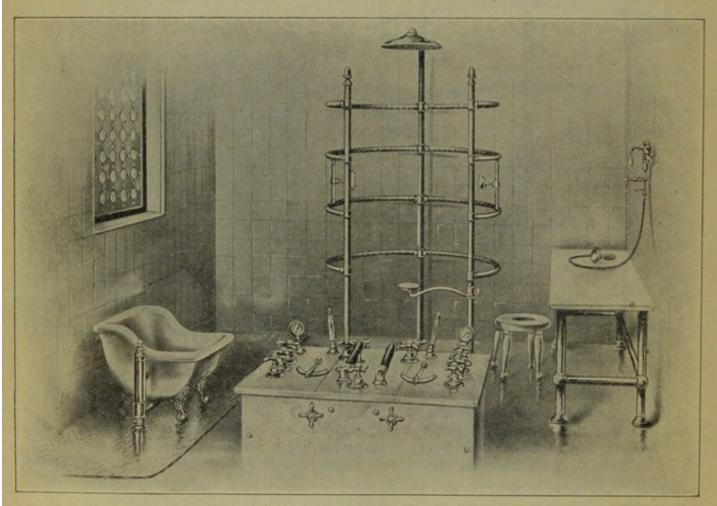
Q/2909

Price... 45.00



Hydrotherapeutic Apparatus





ROOM SHOWING HYDROTHERAPEUTIC OUTFIT.

For Hot Air, Electric Light and other Baths see the following pages.

Note label which our goods bear



for purpose of Identification.

Fever Baths.

HYDROTHERAPY IN TYPHOID FEVER.

It is now recognized and taught that the true rationale of the cold bath in typhoid is to be gathered from the shock and subsequent stimulus to the periphery which is conveyed to the central nervous system and thence reflected upon all the functions dependent on it. Dr Brand was the first who insisted that friction of the skin is necessary to dilate the peripheral vessels; he was the first to insist upon the prophylactic effect of the cold bath and upon the importance of not treating typhoid symptomatically. The Brand method for treating typhoid fever, after having been much assailed for years, have now become the recognized therapeutic agency by which this dread disease is most successfully treated. It is not only a valuable factor in the expectant method, t. e., as an agent to meet the pyrexia, but the real object is to counteract the depreciation of the nervous centers arising from typhoid toxemia. The intellect becomes clearer, the stupor lessons, a general tonic action of the heart, insomnia is lessened, mortality is reduced to a minimum. The invigora-tion of the nervous system is followed, when treatment is begun early, by the prevention of lethal complications. It is desirable that the patient is put under this method of treatment not later than the fifth day, and where this is done and the proper technique followed, i. e., constant friction over the body during the immersion, syncope or heart failure does not occur, and in ninety-five per cent. recovery follows.

In order that the reader may fully appreciate the modifications of hydrotherapy in typhoid fever, it will be necessary to review some of the literature of the Brand bath as it is now given. Hobart Hare gives an excellent verbal picture of the procedure: "The method consists in immersing the patient every three hours, if his temperature reaches 102° or 102.5°, in a bath tub of water at 70° F., and allowing him to remain there under friction for fifteen to twenty minutes, or until his temperature in the due to 101° or 100°. Before the patient enters the tub he is often given 1 to 1 ounce (16.03.20) of whiskey in a little milk or water to prevent depression. The patient will generally complain bitterly of the cold, particularly at first, and will also appear blue and chilly after the bath, but these signs are not so dangerous as they are alarming. If there be persistent and prolonged coldness, then hot water bottles may be applied to the feet and a little whiskey or brandy given. During all kinds of bathing an ice bag should be kept to the head to prevent cerebral congestion. When the tub is used the patient should always be lifted into it and not allowed to step into it, for his strength must be preserved."

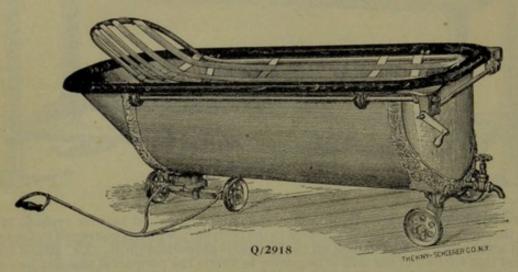
In using the plain bath tub the patient is frequently called on for such exertion as will rapidly take his strength by being lifted by four or more attendants in and out of the tub. This undoubted exer ion on the part of the patient blended with fear and anxiety should be avoided.

In giving the improved form of Brand treatment the bath tub is brought to the bedside of the patient, and the nurse standing on the outer side of the tub and gently drawing the sheet brings his patient's head, then the buttocks, and lastly the feet upon the steel mattress. A comfortable rubber pillow is placed under the head. The crank is reversed and the patient lowered into the water suddenly or by degrees. The bath given, the mattress raised to the level of the bed, and the water having escaped, the patient is transferred to the bed in the same manner that he was moved to the bath.

In comparing this method of handling the patient with that of the older methods, one cannot fail to realize the advantages of the Bellamy Bath or the Oliver Elevator Stretcher.

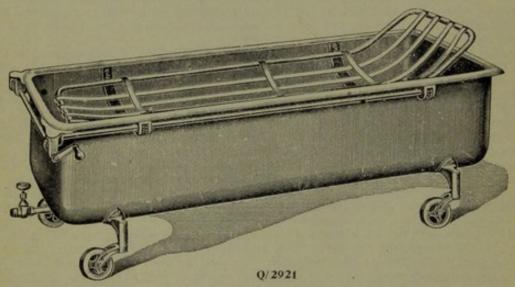


Bellamy Typhoid Bath Tubs.



Q/2918 Typhoid and Invalid's Bath Tub, Dr. Russell Bellamy's pattern improved.

Code LAREDO This tub is constructed of steel outside and planished copper lined, mounted on four strong iron wheels with rubber tires, furnished with an adjustable steel mattress by means of which a single attendent can raise and lower the patient, a drain cock is attached to rear end of tub. Length 6 ft. 6 in.....\$125.00



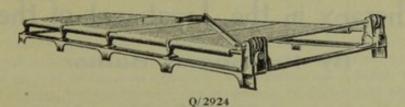
Q/2921 Typhoid Tub—Dr. Russell Bellamy's 1903 model, made of heavy rolled steel,

with broad oval top metal rim, all white enameled, with easy running
gears and shaft, arranged with a comfortable steel mattress for one
attendant to lower or raise the patient, which may be done quickly or
very slowly, as desired; tub is mounted on rubber tire wheels, 6 inches

Dimensions of tub: 24 inches wide, 19 inches deep. 72 inches long inside, 29 inches high from floor to rim.

Price...... 150.00

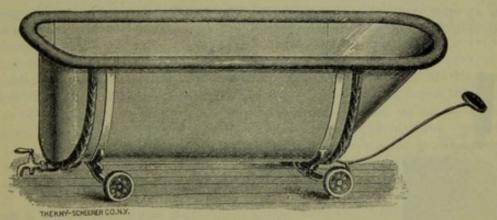
Fever Baths



Q/2924 Elevator Stretcher, portable, designed by Dr. A. H. Oliver for the Presby-Code LAVERNE

terian Hospital, New York. The mechanism is such that one nurse can readily lower or raise the patient. The frame is of wrought iron, bronzed, with canvas top, being placed upon a portable to at the bead lowered cently. is easily moved upon it, then by means of crank at the head, lowered gently into the water, and after bathing, is as readily raised to the level of the bed and removed. Price...... \$39.00

In ordering give outside width and length of your tub.



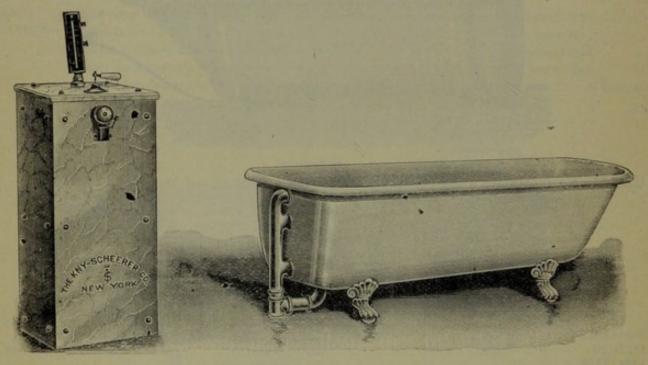
0/2928-35

0/2928 Hospital Bath Tubs. These baths are made with an outside case of sheet steel and an inside lining of tinned copper, with asbestos between the copper and steel. The steel case is firmly rivited to the cast iron supports, making the strongest and best constructed tub on the market. The iron trucks are securely attached to the shell, and the wheels 6 inches in diameter are fitted with rubber tires. It can be turned in its own length. It has a handsomely finished rim of natural oak, white enameled outside and is fitted with open

| | Dimensions: Width outside rim, 28 in.; depth inside rim, 17½ in., height from floor, 28½ in | |
|-----------------------|--|--------|
| S | ze 5½ ft | 45.00 |
| Code LEDEC | | 10 00 |
| | u 6 u | 48.00 |
| Code LEEDS | " 6½ " | 58.00 |
| Q/2930 Code LEHIGH | " 6½ " | 30.00 |
| | localed Both Take the same or O 2000 's continue the conner living; they are | |
| Q/2933 H | constructed entirely of steel, white enameled both inside and outside, with oak rim. Dimensions: Width outside rim, 28 in., dept 17½ in., height from floor, 28½ in. | |
| S | ize 5½ ft | 40.00 |
| Code LUBECK | | |
| Q/2935 | « 6 | 43.00 |
| Code LUDLOW | | |
| | Tubs can be furnished mounted on rubber tire wheels, 12 inches diameter, | 1 = 00 |
| Code LUMBAR | making the height from the floor 32 in, additional | 15.00 |

Hydrotherapy in the Treatment of the Insane By Protonged Baths.

N January 31st, 1905, at a conference of the State of New York Hospital Superintendents with the State Commission in Lunacy, held at the office of the Commission, Dr. E. C. Dent read a paper on "Hydrotherapy in the Treatment of the Insane," in which he said that in this form of treatment less harm resulted to the patient than would have followed, had a course of sedatives been used instead. He called the attention of the conference to a tub which he designed to have the warm water pass over the shoulders and body of the patient from an inlet at the head of the tub. The outlets are at the foot. The tubs can be used for any kind of a tub bath, as the temperature can be regulated by the thermostats controlling each tub.



Q/2940

The laws of physics are applicable to the living body, which means that a high temperature conveyed heat, and a low temperature absorbed heat, but the result differed for the reason that the living body generated or gave off heat, and thereby the normal temperature was kept up. If a higher temperature than the blood was brought in contact with the surface of the body, the cutaneous vessels became dilated the circulation in the skin accelerated, and the reactions of the cutaneous surface increased. This stimulation was constant and far-reaching, for the reason that an influence would be gained by means of this constant stimulant over more complex organic functions, which in hasty and rapid experiments were lost sight of.

He submitted some of the reactions observed with a number of patients suffering with psychoses. The results were excellent, as the prolonged bath allayed excitement, produced sleep, improved the appetite, and the mental and physical condition of the patient.

A circular letter was sent by Dr. Dent to a number of superintendents and medical directors of Hospitals for the Insane in the United States, Canada, England, and Germany, asking their opinion of hydrotherapeutic treatm nt in insanity. In their replies they invariably spoke highly of hydrotherapy and its various forms as a hypnotic and eliminative. When the continuous full bath was used and especially in the German clinics, without exception they placed the procedure in the foremost rank as a hypnotic.

As a result of his experience he knew of no contra-indication for its use. He had administered baths in cases of advanced pulmonary and cardiac diseases and various physical disorders, and as yet had obtained no depressing effects; although he invariably saw a diminution in the blood tension after a number of hours' submersion, the circulation appeared to accommodate itself, and in the larger number of cases treated in the Manhattan State Hospital he had yet to see one serious attack of syncope during the bath. There occurred occasionally an eruption of the skin, which was insignificant, and would disappear in a few days after discontinuance of the bath and with proper treatment. He found it the surest and safest way to modify high arterial tension found in cases of insanity, complicated with leucocytosis. It was a most satisfactory sedative, hypnotic, and efficient : liminative agent, which could be diminished or increased by a higher or lower temperature, though it was seldom necessary to use a higher temperature than 100 degrees F. As an analgesic it was most efficacious, especially in re ieving pain of a paroxysmal character, and had been proved to be of marked benefit in pelvic inflammations. Again, as an antipyretic, he had had most excellent results, especially when using the bath at a temperature of from 98 degrees to 99 degrees. In cases where there was marked cutaneous hyperesthesia, which he believed was often the basis of the so-called tactile hallucinations, the prolonged immersion apparently controlled this promptly and satisfactorily.

The Tub is of the best white porcelain enameled iron and is fitted with a nickel plated bell water inlet with a pipe running to the floor at the head end and a nickel plated combination 4 outlet waste pipe, for continuous waste, or to drain any floating foecal discharge or other matter and to completely drain the tub as may be required, dimensions of tub are 78 inches long 29 inches wide, 18 inches deep.

A heavy canvas hammock is suspended by unique method admitting of 3 adjustments in in depth.

The control table is made of galvanized iron with polished marble sides and top and is fitted with hot and cold water supply pipes, mixing chambers and control valve to adjust the temperature to any point, the large angle thermometer has an expansion bulb and is graduated to 120° F the graduations being about 1% inch apart to be easily read and has an electric alarm attachment to signal an alarm should the temperature of the water rise to 110° F.

Control Tables can be furnished with 2 or more sets of fitting to control the water for any number of tubs, prices on application.

NOTE. Special reprint of a paper read by Dr. S. W. Hamilton of the Manhattan State Hospital New York read before the American Psychological association at Washington will be sent on application.



NAUHEIM BATHS

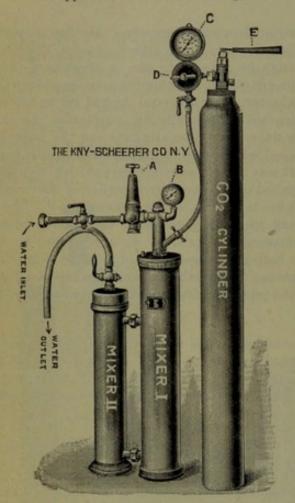
for the

Modern Treatment of Diseases of the Heart, Lungs and Kidneys.

It is possible to greatly improve upon the average results obtained by the medical, dietetic and hygienic management of these cases. In the principal chronic diseases of these organs, drugs, diet and hygiene supply the foundation rather than the superstructure of treatment, and the most decisive measures remain to be added to them.

The application of carbonic acid gas for therapeutic purposes has been too well established by the

famous European Spas, and by many in America to warrant more than a reference to the publications * †



NAUHEIM CARBONIC ACID BATH

Until the present time, hospitals, sanataria and private institutions have been compelled to resort to rather primitive and inefficient substitutes for preparing a Nauheim Bath which would equal in efficiency, the natural spring waters of this celebrated spa.

The Zeotoo Mixing Cylinders, of which we herewith present an illustration, are intended to be connected with the hydrant water wherever a pressure of at least 20 to 50 pounds may be had. The apparatus consists of two cylinders, connected intimately with each other by pipe conduits, each cylinder having interior mixing chambers by which a thoroughly saturated water is obtained. The principle upon which this apparatus is constructed lies in the possibility of mixing gas and water under the same amount of pressure. The pressure of the hydrant water is the unit according to which the gas pressure is regulated. To accomplish this purpose a pressure regulater is placed upon the water supply pipe, also a pressure registering gauge. For connection with the liquified carbonic acid cylinder, a gas pressure regulator and pressure registering guage are supplied. This forms the equipment ready to be set up at the head or foot end of a bath tub, and the apparatus is ready to be connected by any plumber to the water supply pipes.

We also furnish a single mixer, intended for use in cases where only low water pressure is available. This apparatus works automatically, the water being taken from a tank, which may be elevated above the mixer from 8 to 12 feet, or be located on the roof.

Both sets of apparatus work to perfection, and supply the carbonated water highly saturated in ample quantity. Their manipulation is very simple, and their construction durable. An advantage in their favor is economy, for with a cylinder containing about 20 pounds of liquified carbonic acid, 20 to 25 Nauheim Baths may be prepared. Such baths are in every way equal to the natural carbonic spring water, but since the amount of the carbonic saturation can be regulated at will, they are in this respect superior to waters as given in Nauheim and other European spas,

Q/2945 Price, large size double cylinders......\$120.00

⁺ Carbonic Acid in Medicine. A. ROSE, M. D.



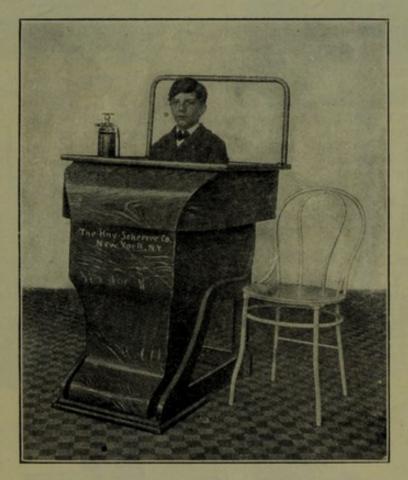
^{*} Diseases of the Heart. THOS. E. SATTERTHWAITE, M. D.

Carbonic Acid Gas Bath

For The

Modern Treatment of Diseases of the Heart, Lungs and Kidneys.

Carbonic acid is absorbed by the skin and has a reflex action on the vasometer centers, followed by dilatation of the arteries and capilaries, and this dilatation is manifested by a sensation of warmth and redness of the skin. The pneumogastric is affected, for the frequency of the pulse is lessened. The inspirations become deeper. Dilatation of the vessels permits them to be better filled, and this means acceleration of the blood current, as we shall see presently. Diminution in cardiac frequently favors diastole, so that the ventricles are better filled, and while they discharge more blood they take up more blood and relieve venous congestion. In this way there is a tendency to restore the balance of circulation between the arterial and venous systems.



Q/2952

Q/2952 Carbonic Acid Gas Bath, DESIGNED BY ACHILLES ROSE, M. D. The tub is constructed code LILUW of metal formed to accommodate the patient comfortably in a sitting position, and has a wood rim and iron rail at the rear. The patient is treated without the removal of any clothing and with entire absence of any inconvenience, as the gas readily penetrates all clothing. The gas is let into the tub by a rubber tube from an ordinary cylinder of commercial liquified carbonic acid; a lighted candle placed on a level with the ensiform process will become extinguished when the gas from the cylinder reaches the same level then the gas is shut off. Carbonic acid gas being heavier than the air cannot rise above the top edge of the tub to disturb the patient. Should the gas more than fill the cabinet it would run over the edge and fall to the floor the same as water, so there exists no possibility of harm.

Dimensions of tub 36 x 36 in. Price.....



Local Application of Hot Air.

Application of hot air in Therapy is not new; but ever since Tallerman, in London, England, constructed an apparatus by which he was able to apply hot air up to a temperature of 300° F. (140° Celsius), the method has attracted greater attention and is now largely in use. For Hospitals and Sanitaria we recommend the patented "Sprague Dry Hot Air Apparatus," which we describe elsewhere, and which in efficiency and solidity of construction surpass

by far all other apparatus placed upon the market.

For use by Medical Practitioners and Patients, Dr. F. Krause has devised a series of smallersized chambers particularly well suited for local treatment of, and adaptable to various parts of the human body.

These apparatus are made of a wire-frame, covered inside and outside with asbestos board

and lined with cloth outside.

The cloth extension pieces attached to the chamber are buckled tightly on to the limb so as to exclude air from the outside. It is advisable to use a layer of absorbent cotton under the band before tightening it. To obtain a perfectly air-tight closure on the shoulder joint and coxo-femoral articulation (hip joint), greater care must be taken; but, with suitable bandaging, it can be quickly and most satisfactorily accomplished.

When the hot air enters it does not come into direct contact with the patient's skin, but first strikes an asbestos plate and thence is conducted into the chamber proper. Care should also be taken that the mercury bulb of the thermometer does not touch the patient's slein, as it

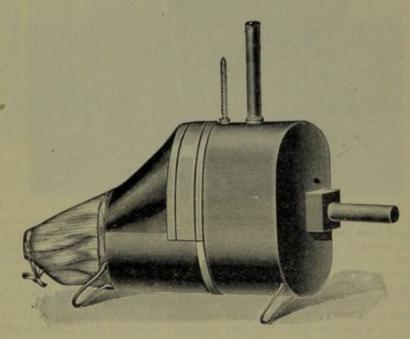
is liable to cause burns and blisters on account of its high conductive qualities.

The heat generator can be furnished with gas or alcohol burners.

Before applying any extremely high temperature, the sensitiveness of each individual patient must be tested. It is advisable not to apply more than 180 to 190° F, to begin with, and then to gradually increase the temperature up to a point of heat which the patient can endure without discomfort. Some persons cannot stand more than 180° F., some others up to 210°, and again, in many cases 250 to 300° F, can be applied.

When removing the apparatus from the patient, again be careful not to have the thermometer touch the skip to avoid burning.

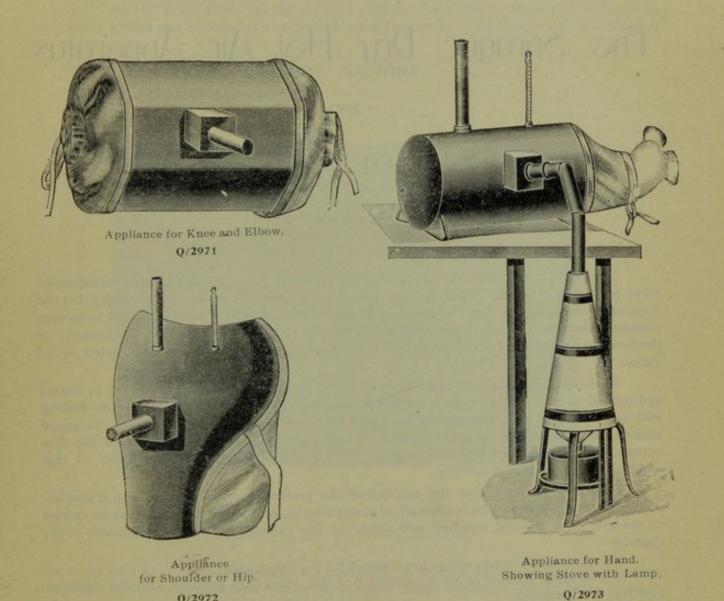
mometer touch the skin to avoid burning.



Appliance for Foot.

Q/2970 Hot Air Apparatus, designed by Dr. F. Krause. Code MACON Appliance for Foot, complete with stove and burner\$25.00

HOT AIR APPARATUS-Continued.



| Q/2971 Hot Air Apparatus, designed by Dr. F. K. | crause. | stove | e and lamp, | each | 1 | \$18.00 |
|---|---------|-------|-------------|------|---|---------|
| Q/2972 Appliance for Shoulder, right or left, | oliva". | | | ** | | 24.00 |
| Q/2973 Appliance for Hand, | ** | *** | | -11 | | 18.00 |

0/2972

The Sprague Dry Hot Air Apparatus

-AND-

The "Sprague Methods" in Thermaerotherapy.

....

Dry Hot Air as a remedial agent takes a foremost place in mechanical therapeutics when properly employed. That it may be correctly used, it becomes a necessity that the apparatus furnishing the Dry Hot Air, and within which the patient must be placed to receive treatment therewith, should be so constructed that the element thus employed be brought to the necessary condition both of temperature and dryness before the patient is subjected to its action.

To do this, the apparatus must be so arranged that the intaking, normal air, be heated and robbed of its moisture before it enters the treatment chamber. Then, as we are dealing with an element of great energy, means must be provided to control its action, to guard against the possibility of the patient coming in contact with heated metal, and for the free outlet of the air that has reabsorbed moisture thrown off by the patient in treatment, so that scalding becomes an impossibility.

It is also essential that the comfort of the patient be made absolute, and is also important that the apparatus be made easy of manipulation, so that the processes may be carried on not only with assured comfort and safety of the patient, but with convenience to the operator.

All these points of advantage are claimed for the "Sprague."

The Sprague method of administering Dry Hot Air is only possible with the Sprague Dry Hot Air Machines.

We give herewith a number of reasons which demand the construction of a strong and safe apparatus, and a few therapeutical reasons which seem to demand the employment of such an apparatus as is presented in the "Sprague," by the conscientious physician, the one looking for the widest range of usefulness and fullest benefit for his patients.

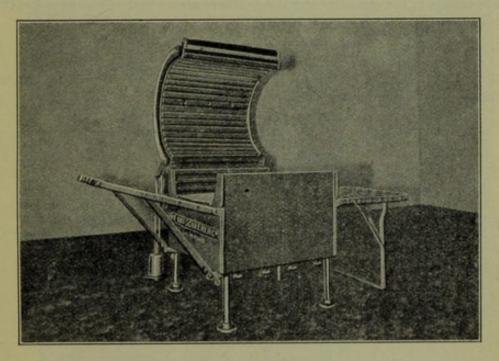
Your attention is invited to the following statements which are briefly presented:



Massiveness of Construction.

The machines are of massive construction (the "Body" apparatus weighing about 750 lbs. the "Leg and Arm" about 350 lbs.) to give gradual rise of temperature and to maintain uniformly heated conditions. It also prevents the possibility of an accidental upsetting of

BODY MACHINE.



0/2980

Showing general method of construction.

the "Leg and Arm" apparatus while in operation, a menace to the patient undergoing treatment in the cheap and flimsy forms of so-called hot air cylinders offered to the medical world.

Importance of Gradual Rise in Temperature; Uniform Conditions.

By the gradual rise of and uniformity of temperature burns and heat prostrations are prevented; the patient can be subjected to much higher temperatures and remain longer under the treatment with comfort and benefit.

Dry-Hot-Air a Necessity.

It is of the utmost importance to keep the air in the treatment chamber dry, as this allows more copious perspiration, the evaporation of which is rapid. It enables the patient

to bear much higher temperatures; is far less depressing than moist air. There is no danger of heat stroke, as the sweat glands are stimulated to activity. It stimulates the cutaneous nerves and circulation, gives better results in the absorption of abnormal deposits or infiltrations, in relieving pain and congestions of internal organs.

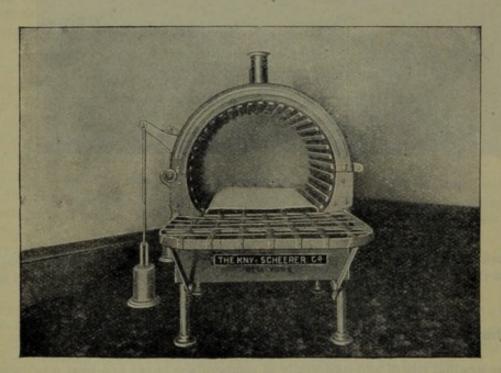
Dry-Hot-Air can only be obtained by Continuous Circulation.

The constant circulation of the heated air carries off the moisture that evaporates from the surface of the patient's body, preventing scalds which would result if the moisture was left to accumulate in the chamber at a temperature above that of boiling water (212° F.)

A Very Poor Conductor.

Air is a very poor conductor of heat. Water is heated by convection, metals by conduction, but circulation is necessary to heat air.

BODY MACHINE.



Q/2980

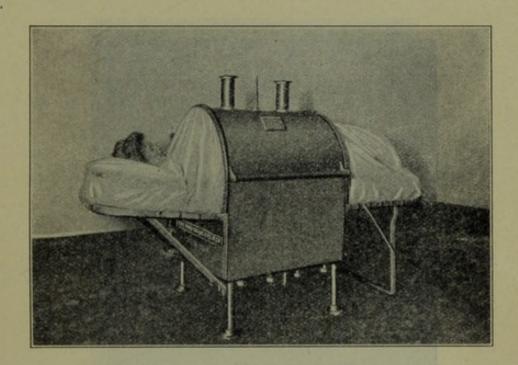
End view through apparatus.

Control of Circulation.

The air used for treatment is taken into the apparatus through openings provided and released between the inner and intermediate cylinders, where it being heated, expands,

finding its way into the treatment chamber through appertures in the inner cylinder. The circulation is directed toward the body in treatment, coming upon it in a shower of dry heat; perspiration being excited, the heated air takes it up and in form of vapor, or steam, is taken out of the chamber through the exit pipes fixed in top of the apparatus.

BODY MACHINE.



Q/29

Patient and treatment.

No possibility of burns from contact with heated metal. Fibrous Magnesia and Cork, the best known non-absorbents of heat.

All the metal parts of the apparatus liable to be touched by the patient in treatment are covered by poor heat conductors. Ribs of cork line the treatment chamber. Rims of wood cover the ends of the machines. Mattrasses of fibrous magnesia or ground cork, are provided for the patient to rest upon. These substances never become uncomfortably heated during treatment.

In treatment the head of the patient is always outside the apparatus.

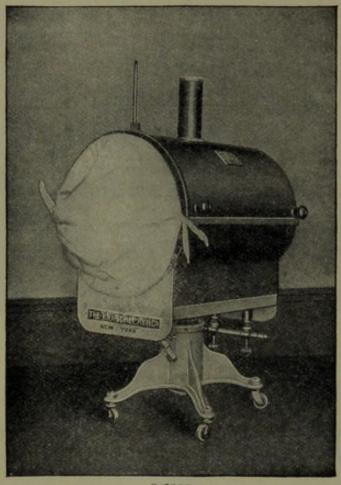
Dry air at high temperatures is irrespirable, therefore it is impossible to apply it when the head as well as the body are being treated, as is the case in the Turkish bath.

Manufactured and SCHEERER CO. SCHEERER CO. NEW YORK U.S.A.

Breathing Cool Air.

Again the inspiration of cool air while the body is in a hot atmosphere increases the beneficial effect on internal congestion. The actual temperature comfortably borne by a patient in our apparatus is at least 150° F, greater than would be possible if the head was within the chamber. The danger of cerebral congestion is reduced to the minimum.

LEG AND ARM MACHINE.



Q/2985

General view from receiving end, showing rubber wheel ball bearing casters, pedestal, angleing device, gas burners, hinged cylinder closed, also canvas end, thermometer and vent stack.

The advantages of Reclining During Treatment.

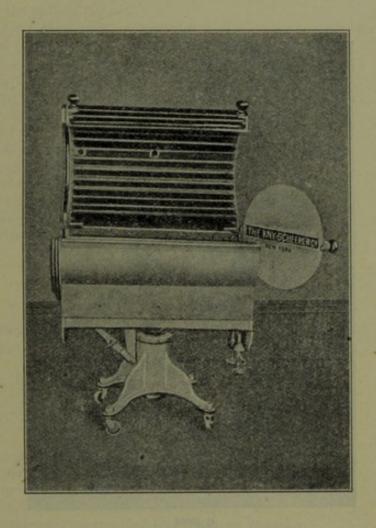
The reclining posture of occupants of the Sprague body apparatus while under treatment is restful to the patient and obviates the danger of syncope that those using cabinets so often suffer from. Syncope and heat stroke are also due to the lack of air circulation in the cabinets. The heart has much less work to do with the body in a horizontal position.

Manufactured and Guaranteed by SCHEE

Methods are controlled solely by us.

Hot air is only of value, therapeutically, when it is obtained and maintained dry throughout the treatment. This method is absolutely our own, controlled by us through Letters Patent of the United States.

LEG AND ARM MACHINE.



Q/2985

Side view showing upper section of cylinder thrown back on its hinges.

Investigate Design and Finish.

Intending purchasers of Dry-Hot-Air Apparatus are respectfully asked to thoroughly investigate the perfection of mechanical detail involved in our machines and the therapeutic importance and safety of the "Sprague Method."

Note label which our goods bear

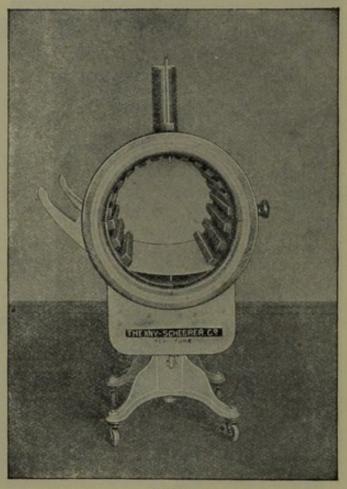


for purpose of identification.

Can be used in the finest apartments.

In every detail of construction we have had in mind. First, the production of an apparatus of unequalled value in a curative sense; next, to produce a self-contained, easily managed, and safe apparatus that can be placed anywhere, even in the finest furnished and carpeted office or treatment chamber.

LEG AND ARM MACHINE.



Q/2985

End view through apparatus.

The Sprague Dry-Hot-Air apparatus is made in two classes — "A" and "B". Class "A" has external finishing sheets of highly polished brass, nickel-plated, making them objects of rich furnishing, in the physicians outfitting; whereas Class "B" has an external finishing sheet of Russia iron. The therapeutical value of one class is equal to that of the other. Each apparatus leaves our shops complete in itself, ready for work, by merely attaching the gas supply.

Q/2980 Sprague Dry-Hot Air Apparatus Sprague Dry-Hot Air Apparatus \$300.00 Code MAINE Body Machine, Class "A" \$300.00 Q/2982 " " "B" 275.00 Code MALACA \$300.00

Equipment for Body Machine.

- 1 Asbestos lined sheet metal floor protector,
- 1 Asbestos lined sheet metal tray to support the fibrous magnesia mattrass upon which the patient lies,
- 2 Pipe frame extension ends, with slatted steel mattrass supports for head and feet,
- 1 Hard wood fender,
- 1 Fibrous magnesia "body pad", 33" x 20" x 3",
- 2 Canvas slip covers for "body pad",
- 2 Fibrous magnesia side rolls, 33' x 3",
- 2 Upholstered mattrasses for the extension ends,
- 1 Set of white cotton mattrass protectors,
- 1 Canvas 6' 6" stretcher,
- 1 Metal framed canvas covered canopy,
- 2 Canvas end curtains to enclose ends of machine,
- 1 Rubber covered hair pillow,
- 1 400° F. thermometer,
- A Set of Bunsen gas burners complete with extra \{\frac{1}{2}\)" stop cock.

| Q/2985 Spr | ague | Dry | -Hot | Air App | aratus | |
|-------------|------|-----|------|----------|----------|----------|
| Code MANTUA | Leg | and | Arm | Machine, | Class "A | \$200.00 |
| Q/2987 | | " | | | " "B | 175.00 |

Equipment for Leg and Arm Machine.

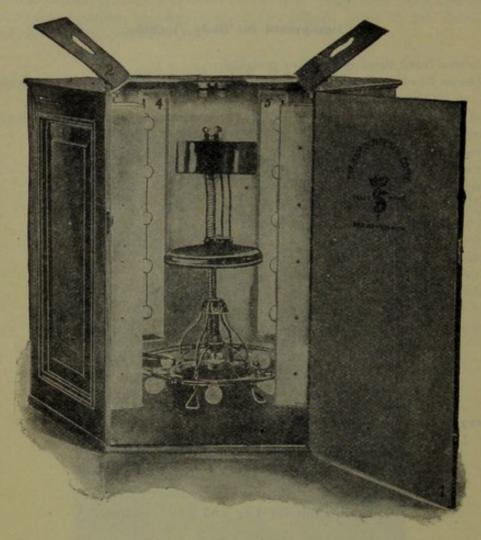
- 1 Asbestos lined sheet metal tray support for mattress,
- 1 Limb supporting pad, size 2" x 8" x 33",
- 2 Canvas slip covers for pads,
- 2 Fibrous magnesia or cork filled canvas rolls 2" x 8",
- 1 Canvas attachment for treating Leg, Arm, or shoulder,
- 1 Canvas attachment, four skirted, for treating the Hip, entire track of Spine, or for treating the Abdomen,
- 1 400° F. thermometer,
- 1 Set Bunsen gas burners, complete with flexible gas hose and extra \(\frac{1}{2} \) stop cock.

NOTE. Pamphlet on the technique of the "Sprague Method" of administering Dry-Hot-Air and general care of patient and management of the apparatus, furnished to purchasers of the machines.



Electric Light Bath Cabinet.

Owing to the increasing use of light and heat as therapeutic agents, there is considerable demand for an efficient, moderate priced, light bath cabinet, something suitable for a physician's office or for private family use. To meet this demand our Solar Light Bath Cabinet has been designed and constructed.



The cabinet is entirely constructed of metal. It consists of five drawn sheet steel panels set upon hexagonal steel base with door and top.

The exterior is handsomely enameled, finished in quartered oak, while the interior is entirely white.

The top of the cabinet is provided with two hinged doors, opening for the head to protrude so as to enable the bather to inhale the pure air of the room; two smaller openings for the hands are also provided.

A chair with adjustable seat is furnished so any height can be obtained.

A series of incandescent lamps are arranged in groups in the cabinet and reflect upon all parts of the body with equal radiance.

All wiring is enclosed in steel tubes and each set of lamps is separately provided with safety fuses forming separate circuits. This type is approved by the N. Y. Board of Fire Underwriters.

The cabinet can be operated from the direct or alternating current circuits of 104, 110 or 220 volts.

Special catalogues with prices sent on receipt of application

Special catalogues with prices sent on receipt of application.

Code MILFORD



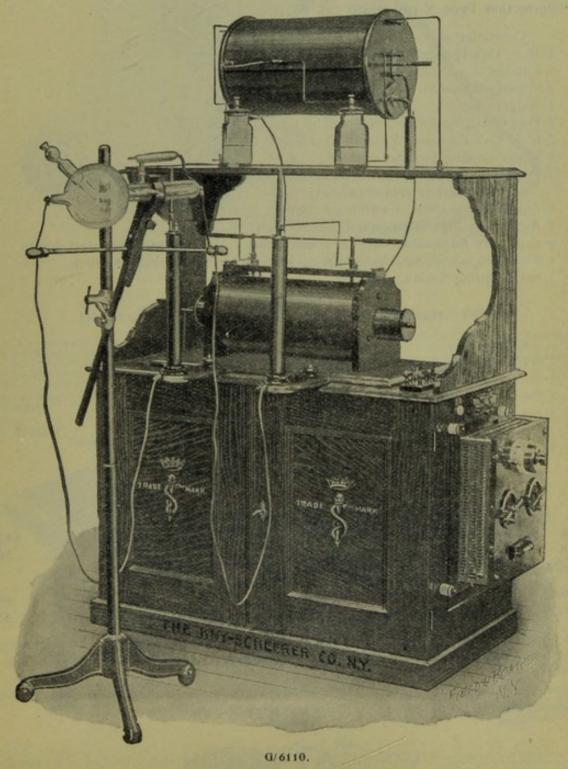
X-ray and High Frequency Apparatus.

Since its discovery the X-rays have become one of the most important factors in the Medical Armamentarium, its utilization has been rapid and extensive, and, though much has already been accomplished, its field of usefulness is probably far form the limit of its possibilities; in fact, so important has it become that no physician can conscientiously avoid using it. Its value as an aid to diagnosis alone aside from its utility in treating certain diseases, would justify its installation.

important has it become that no physician can conscientiously avoid using it. Its value as an aid to diagnosis alone aside from its utility in treating certain diseases, would justify its installation.

Of even more recent date than the X-ray is the use of High Frequency Currents for treatments. The great popularity of this current is due in part to the ease with which it can be obtained from the X-ray Coil which needs only the addition of a resonator and a pair of condensors to give a

perfect High Frequency.



THE KNY-SCHEERER COMPANY'S X-RAY EQUIPMENT "PERFECTION TYPE."

To medical practitioners desirous of combining with their radiographic and radiotherapeutic work the use of Oudin's apparatus for the treatment with high frequency currents we reccommend our Perfection Type X-ray Equipment with High Frequency Current Apparatus.

With a suitable set of Electrodes this attachment gives better results than can be obtained with the troublesome and rather unreliable static machine.

Following we are quoting an assorment of various complete outfits of apparatus and for the convenience of our friends we give prices for complete equipments inclusive and exclusive of the high frequency attachments.

G/6110 Perfection Type X-ray Outfit No. 8.

Consisting of-

- 1 K.-S. Co's 12 inch Flame Type Coil.
- 1 Cabinet of quartered oak with concealed wiring.
- 1 Primary Rheostat.
- 1 Ampere Meter
- 1 Pole Changing Switch, mounted on top of cabinet.
- 2 K.-S. Co's Patented Wehnelt Electrolytic Interrupters.
- 2 Water-Cooling Jackets for same,
- 1 Double Throw, Double Pole Switch for placing either interrupter into series (mounted on side of cabinet)
- 1 Fuse Block to connect with main circuit.
- 1 Adjustable Floor Tube stand.
- 2 K.-S. Co's Adjustable Vacuum Focus Tubes. Heavy pattern of latest design.
- 1 Fluoroscope with detachable screen, Platino-Barium-Cyanide, 8 x 10 in.
- 1 Set of Spring Tape Connectors.

The High Frequency Current Attachment.

Consists of-

- 1 Solenoid, K.-S. Co's Special Type, all enclosed in hard rubber.
- 1 Muffled Spark Gap.
- 1 Set of two Leyden Jars.
- 1 Set of six assorted Vacuum Electrodes.
- 1 Universal Handle for same,
- 1 Insulated Cord with snap hook.

PRICES.

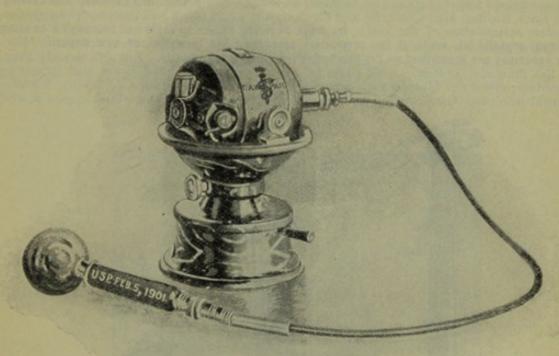
| Code MOCA Code MOGUL | Complete Equipment including High Frequency Current Apparatus. For 110 or 220 Volts direct current | |
|-------------------------|---|--------|
| | Equipment without High Frequency Apparatus. | |
| Code MONACO | For 110 or 220 Vo'ts direct current | 400.00 |
| Code MONTE | " 104 or 220 " alternating current | 450.00 |

With no intention of dwelling upon its merits in detail, we have no hesitation in stating that our apparatus in point of efficiency and reliable construction is superior to the product of any other manufacturer.

We desire to state that the apparatus mentioned is made in our own factory by skilled mechanics and under the supervision of thoroughly competent electrical engineers.



Vibratory Massage Apparatus



THE KNY-SCHEERER CO. N.Y.

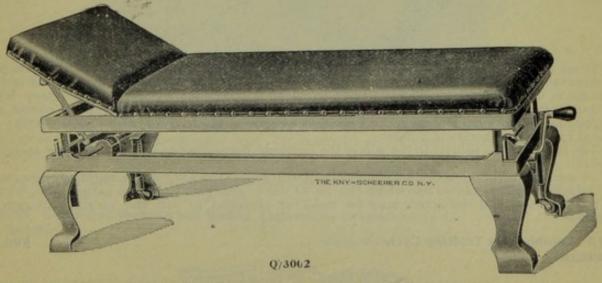
Q/2995-97 Direct Current Motors to be used on Desk, Table or Pedestal.

A convenient form of our ½ HP motor of the enclosed type mounted upon a Universal Carriage, per mitting angular elevation and circular movement upon center pivots at the same time. This is a very desirable pattern for operative surgery, as the motor may be swung into any position giving absolute freedom to the operator, and holding the motor rigid against vibration. It also may be locked in any given position if desired.

" 220 " " " "

Q/2997 (Code MOSCOW

Complete special catalogue of Electrical Apparatus for prices sent on application.

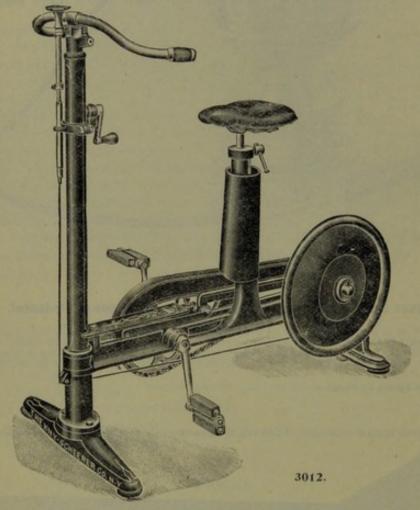


O/3002 Massage Couch, strongly constructed of iron, arranged to be adjusted to any height Code MUNICH from 21% in. to 29% in. It is mounted on heavy rubber rollers, automatically adjusted, so when the couch is extended the wheels are off the floor, making it steady and firm. Upholstered in olive green or maroon pantasote.

Mechanico-Gymnastics.

The Combination Trotting and Bicycle Apparatus is the best apparatus for Home Gymnastics combining the various forms of muscular exercise as Trotting and Riding, Hill Climbing and Cycling.

Horse Back Riding, Hill Climbing and Cycling it is well known will increase the appetite and produce a better assimilation of the food. No other exercise causes so rapid and thorough a consumption of the superfluous organtic fat, while at the same time preventing the formation of new deposit. For this reason these exercises are prescribed as the most effective remedy for obesity. Simultaneously they also strengthen the muscular system as all parts of the structure are acted upon and consequently do not reduce the person not blessed with adipose. Almost all the groups of bodily muscles are equally brought into play, thus causing an harmonious development of the whole muscular system.



These forms of hygienic exercise are carried out on the Trotting Cycle with a naturalness perfectly equal to the real thing. The patient himself sets the apparatus in motion by means of pedals such as are in use on bicycles. The trotting movement is controlled by means of a rotary lever which can be worked at will by the operator during use. The action may be regulated to suit any case, from the gentle vibratory movement peculiar to cycling, the trotting effect if desired may be increased to the sharp action of a horse.

The speed is also subject to the will of the operator, depending as it does upon the speed of

the pedalling.

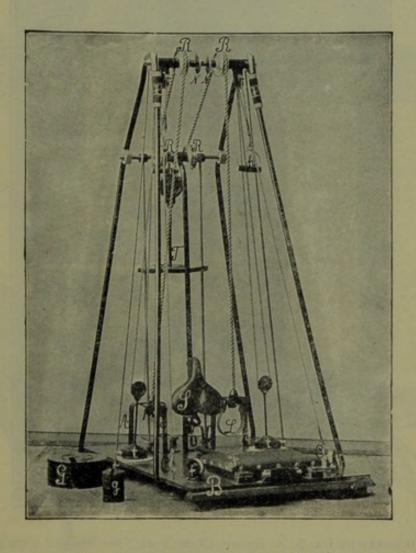
To achieve the effect of cycling exercise only with shocks there is a brake, regulated by a small wheel attached to the handle bar which can be so finely graduated that the patient governs the machine with ease and the action may be weak or powerful to suit the varying strength of individuals.



MECHANICO-GYMNASTICS Continued.

The combined Rowing and Riding apparatus shown below meets the demands of a home gymnastic apparatus for those requiring muscular exercise and is universally recommended as a cure for chronic functional disorders, as well as a preventative of the physical disturbances induced by a sedentary life, want of exercise and so on.

These exercises strengthten the muscular system and induce an increased consumption of oxygen while the exhalation of carbonic acid is from four to five times the amount thrown off in a quiesent state, the respiration becomes deeper, the heart action is strengthened and the circulation quickened.



The rowing or the saddle riding is done in a natural position, the ropes and pulleys adjust themselves perfectly and the tension may be increased or decreased by the adjustments of the various weights which accompany the machine.

The base is of wood nicely finished, the uprights are of tubular iron nicely painted.

Code MUROVA

Note label which our goods bear

Sanatorium Chairs and Tents



Q/3041 Tent, Designed by Dr. S. A. Knoff, (New York,) for the rest cure in the open air treatment. The frame is made of steel and is fitted withmeans for securing it to the ground; the detachable cover is of heavy sail canvas; when not in use the frame may be folded flat.

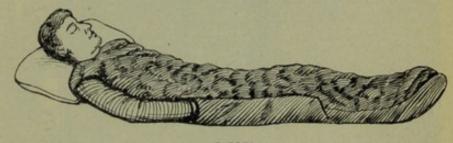
Price complete with cover.....\$25.00

For description of the Chair, see Q/..3059.



Sanatorium Chairs.

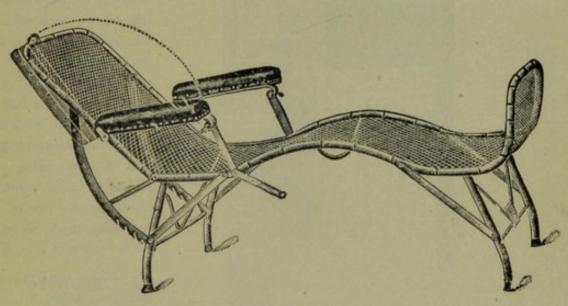




Q/3047

Q/3051

Q/3047 Sleeping Hood, made of heavy hand knitted wool, with draw string and hooks Coce NATICK for adjusting the size of the face opening, it may be turned down and used as a muffler, Price..... \$2.25 Code NASSAU



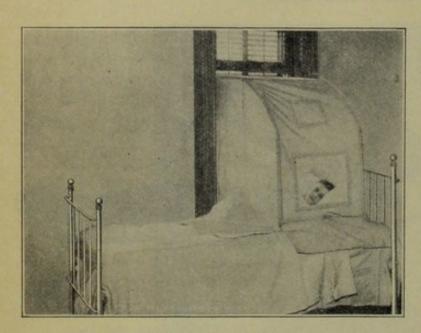
Q/3059

Q/3059 Dr. S. A. Knopf's Sanatorium Chair, 1905 Model, made entirely of metal, Core NEVADA with reclining back, strong woven wire top, and folding arm rests making it easily accessible for feeble patients.

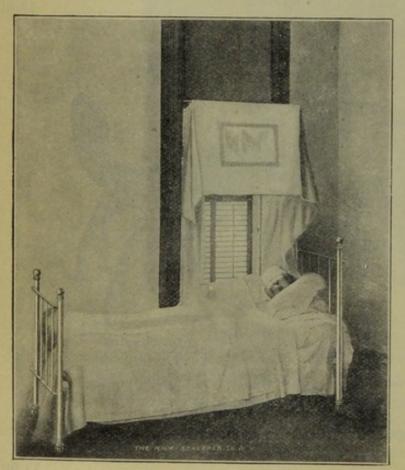
The form of this chair adapts itself readily to the anatomical lines, affording to the patient absolute relaxation and comfort during the Open Air Treatment. Price.....



IN-DOOR TENTS



Q/3069 TENT OPEN.



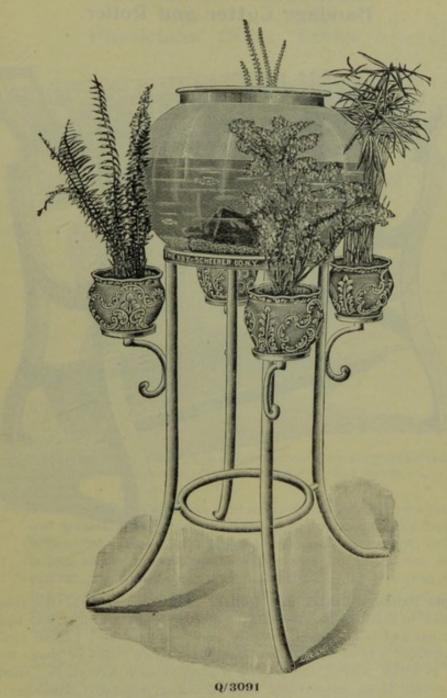
Q/3069 TENT CLOSED.

Q/3069 Indoor Window Tent, DE-SIGNED BY DR. S. A. KNOPF,

NEWARK (New York) for the rest cure and open air treatment in the home. The illustrations give a clear idea of how these tents are constructed and used. They embody the latest developments and improvements and will be found of incalcuable value for the purpose for which designed. Even persons not afflicted with pulmonary trouble are using them to gain robust health. These tents are easily attached to a window by means of two small hooks fastened to the window casing, one on each side of the window, and can be as readily detached and placed out of the way. They are regularly made to fit over a bed 36 in. wide, while the stock sizes of these tents measure 30", 35" and 40" in width, which covers a range suitable for most sizes of windows. Price has been made so as to be within reach of all. . \$10.00

> When ordering please measure width of window and ascertain which of the widths of tents specified will fit, allowing 2 in. extra for hooks. Special widths or lengths of window tents can be made to order at somewhat higher prices.

Sanatorium Accessories



Q/3091 Aquarium, designed to meet the requirements of an ornamental as well as hygienic appurtenance for the sick-room and sanitorium, consisting of a large, strong glass receptacle, mounted on white enameled stand with four shelves for jardinieres.

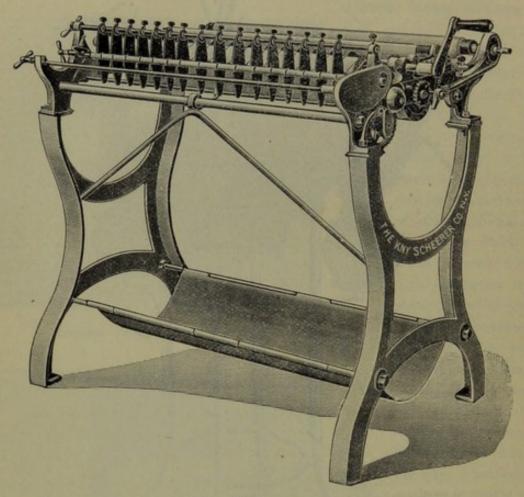
Made in three sizes:

| Code NEWBERG | Price, | with | receptacle, | 12 in. | diameter, | on | stand, | each | \$33.00 |
|--------------|--------|------|-------------|--------|-----------|----|--------|------|---------|
| Code NEWPORT | 44 | ** | ** | 16 in. | " | 44 | - " | " | 42.00 |
| Code NIAGARA | 44 | ** | ** | 20 in. | | 16 | 11 | | 48.00 |

Note label which our goods bear



Bandage Cutter and Roller.



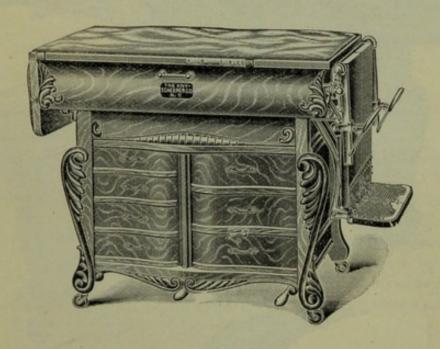
0/3097

Q/3097 Multiple Bandage Cutter and Roller. With this machine the commercial Gode NORWALK gauze in bulk can be used and bandages of any width or any length can be cut and rolled simultaneously, and with ease; any patient can use the machine; it is of very simple manipulation; an indicator shows the length of bandage wound, and a gong sounds at each five yards; effecting an economy in an extensively used dressing material. Bandages can be wound loose or tightly, as may be required. The knives are easily removed for sharpening. There is no delicate mechanism to get out of order. Each machine has two spindles, so that the apparatus may be in service constantly if desired. Sixteen knives accompany the apparatus, so that eighteen 2-in. bandages can be cut and wound at one time, or any number of wider bandages can be cut by removing some of the knives.

Price, complete, on heavy iron stand\$200.00



Physicians' Office Tables



0/300. Fig. 1

Showing table in repose, with cushion, pillow and heel stirrups attached; the knee crutches are concealed in the deep drawer.

O/300 Physicians' Office Table, the most improved design, being simple in mechanical manipulation, enabling the operator to place in it any desired position without the slightest inconvenience to himself or patient; embracing, as it does, all the conveniences of a table, chair, or instrument and dressing cabinet, the action being automatic and the leg rests can be adjusted independently; the top can be tilted forward, backward or sideways. Some of the various positions which can be acquired are shown in the succeeding illustrations.

The cabinet contains five white enameled-lined drawers, which can be drawn out from either side, four white enameled steel instrument trays, two of which can be utilized on each side.

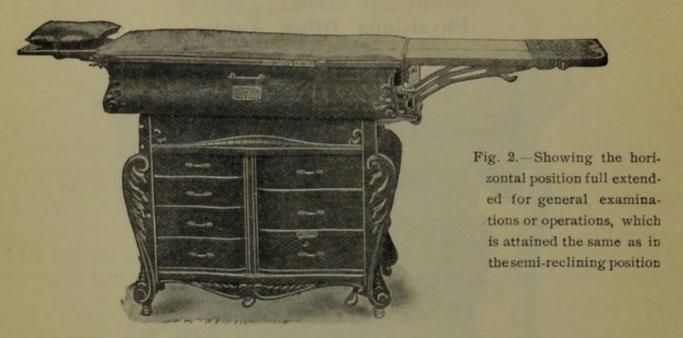
Table is furnished with a set of heel stirrups and knee crutches, leather top cushion, and pillow of maroon or dark green color.

We furnish these tables in natural quartered oak, cherry, walnut or mahogany, highly polished, with metal mountings and stirrups made of malleable iron, nickel plated or antique copper finished.

Dimensions of table when closed, as shown above, are: 32 in. high, 22 in. wide, 38 in. long, and can be extended to 72 in. long; mounted on bail-bearing swivelled castors.

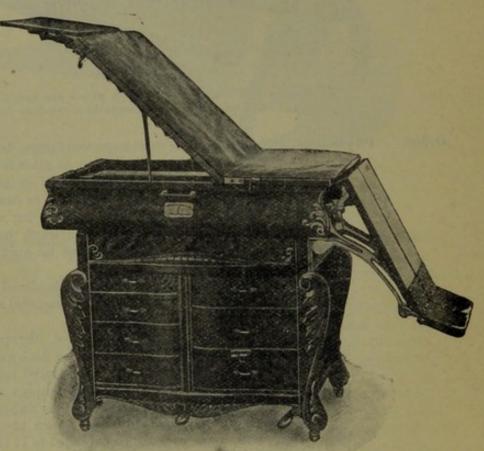


PHYSICIANS' OFFICE TABLES-Continued.



0/300. Fig. 2.

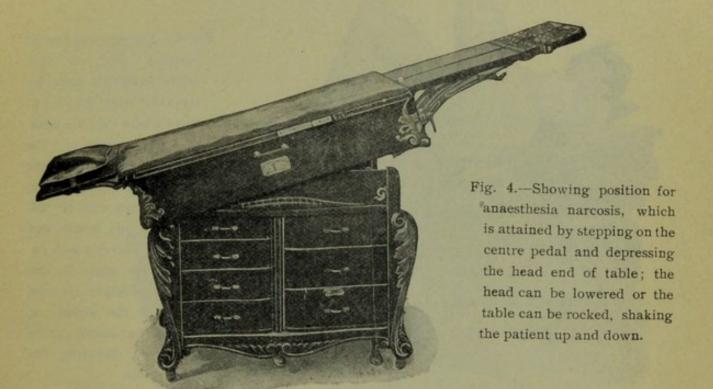
Fig. 8. — Showing the semi-reclining position, which is attained by raising the back to sitting posture with the patient on the table, when they can be easily adjusted as required. The action being automatic, the head-rest can be adjusted to be used as an auxiliary table for instruments; if desired, the top may be tilted backwards.



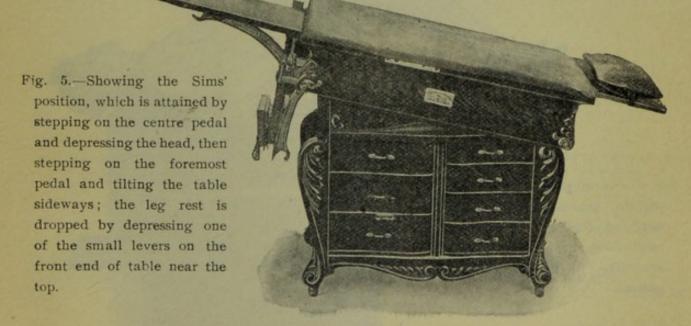
O/300. Fig. 3



PHYSICIANS' OFFICE TABLES-Continued



0/300. Fig. 4.



0/800. FIG. 5.



PHYSICIANS' OFFICE TABLES-Continued

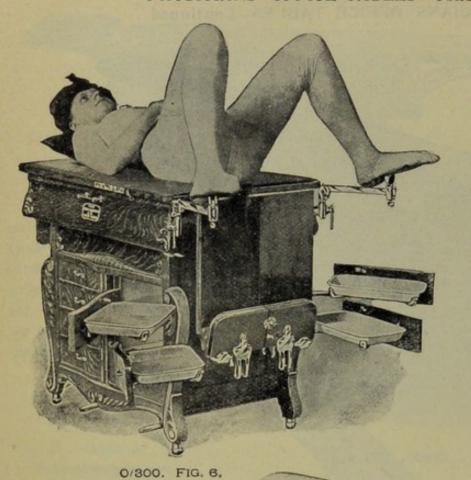


Fig. 6.—Showing the Dorsal position, with the four white enameled steel instrument trays drawn forward where they are within easy reach of the operator; the folding steps are a convenience; the foot stirrups can be adjusted to any length and raised or lowered and extended far apart by the simple pressure of the finger on the socket; if desired the patient can be raised by elevating the top of table.

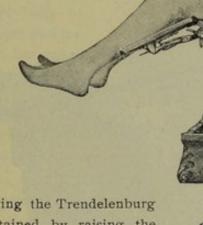
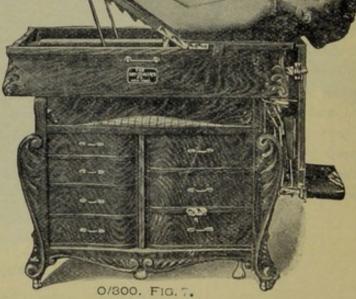


Fig. 7.—Showing the Trendelenburg posture, attained by raising the head end of table and extending the head rest to accommodate the knees according to the length of the patient.



Note label which our goods bear



for purpose of Identification.

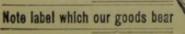
PHYSICIANS' OFFICE TABLES—Continued



0/300. Fig. 8.

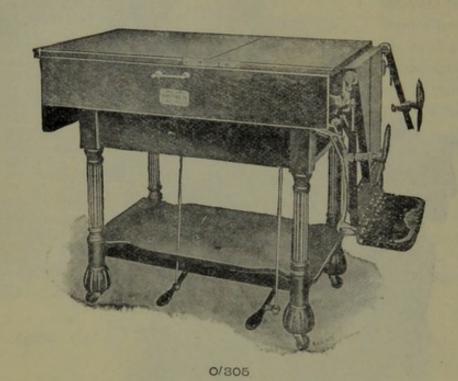
Showing the elevated hips posture for plastic work and use of the leg crutches, which can be adjusted to any height and turned to throw the feet wide apart, the hips are elevated by stepping on the centre pedal and depressing the head end and slightly elevating the top plate to raise the head; by the use of the crutches the patient rests easy and the ruscles are relaxed permitting of a more thorough examination than with the heel stirrups.

Physicians' Office Table, made of quartered oak, with all malleable iron 0/300 Code PADUCAH trimmings and stirrups oxydized copper plated including cushion and pillow \$100.00





PHYSICIANS' OFFICE TABLES-Continued



O/305 Physicians' Office Table, has the identical movements and is made of the same material and finish as O/300. It is not furnished with the drawers and instrument trays, but has the divided adjustable leg rests, stirrups and crutches.

The design shows the fluted columns above the carved olivary bases on castors, and a shelf of neat design convenient for instruments, etc.

Dimensions of table are as follows: 32 in. high, 22 in. wide, 38 in. long; when extended to its full length, 72 in. long.

Code PANAMA

Price, quartered oak, with metal trimmings and stirrups antique copper plated, cushion and pillow....

\$90.00

PHYSICIANS' OFFICE TABLES—Continued

Physicians' Office Table, designed to meet the requirements of an inexpen-0/310 sive, yet efficient, Office Examining Table; it is neatly designed, strongly



constructed and finished in the same high polish as tables O/300 and O/305. The leg rests can be raised independently, and with the aid of the heel stirrups and knee crutches, the Dorsal as well as the Plastic posture can be easily attained, also the semireclining, Trendelenburg and horizontal extended positions. It is furnished with the same cushions, pillow, heel stirrups and knee crutches as tables O/300 and O/305, and is made in natural quartered oak, highly polished, with all malleable iron mountings and stirrups nickel plated or antique copper finished.

Dimensions of table are: 32 in. high, 22 in. wide, 38 in. long, and can be extended to 72 in. long.

0/310. Fig. 1.

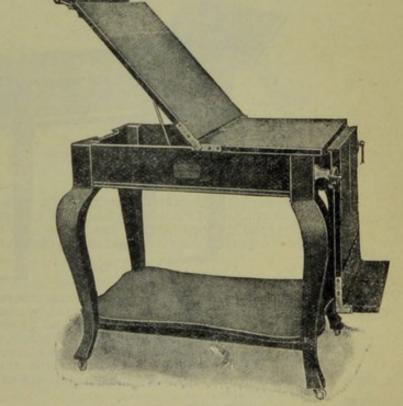
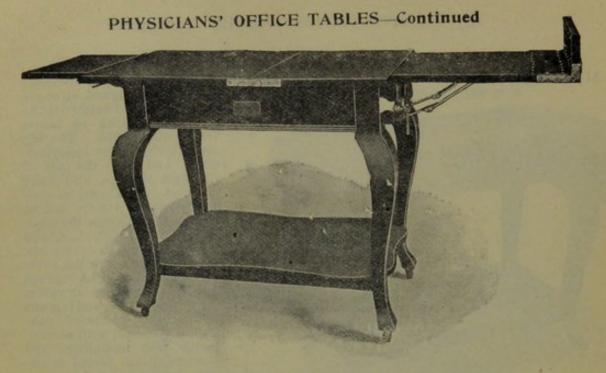


Fig. 2.—Showing the semi-reclining position or Trendelenburg posture. The head rest can be extended to fit the knees according to the length of the patient.

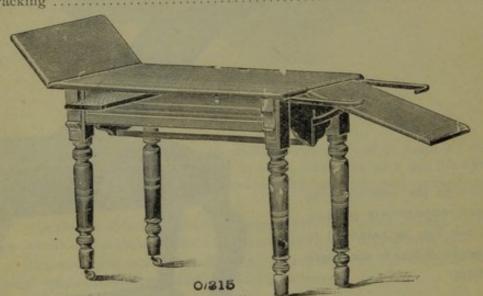
0/310. FIG. 2.





0/310. Fig. 3.

Showing the horizontal position full extended for general examinations and operations, acquired by simply raising the head rest and foot ends.



O/315 Physicians' Office Table, designed to meet the requirements of a plain examining table at a small cost; it is strongly constructed, nicely finished in oak, but does not have the high piano finish with which tables O/300, O/305 and O/310 are made. The main body is 24 in. wide, 40 in. long, and has a hinged extension at each end of the table, when raised making 72 in. the total length; with a sliding side table, that can be drawn out on either side, for operating on the hand, and a pair of sliding adjustable heel stirrups....

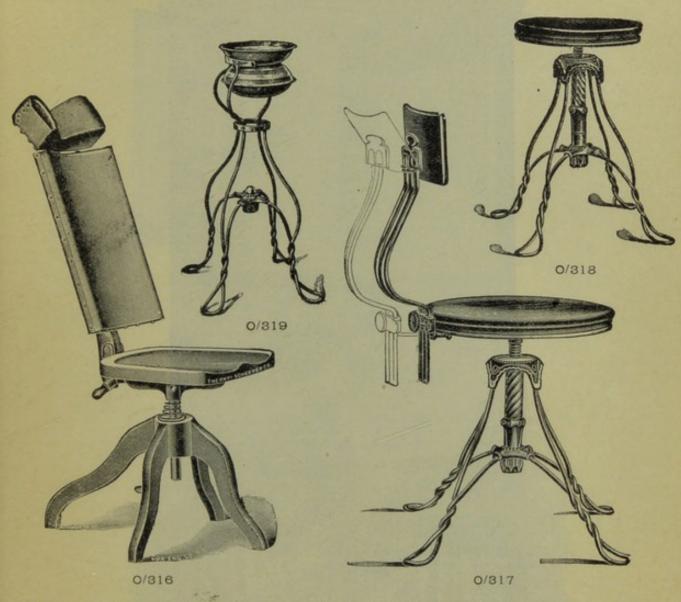
Code PERTH

\$18.00 6.00 .50



Physicians' Office Chairs

For Nose and Throat Specialists.

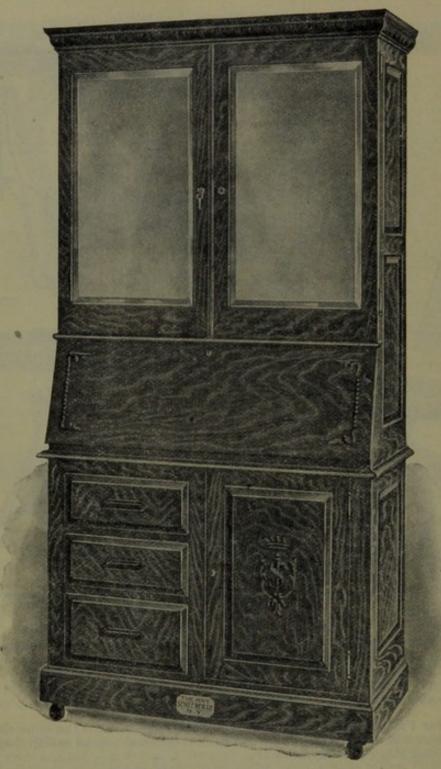


| Code PHOENIX and adj | atients, as designed by Dr. Chappelle, with adjustable head rejustable back, which can be raised or lowered to suit the size; back and head rest are covered with leather; seat is of hard woo polished, and can be raised, lowered or tilted backward by a simplism | of |
|--|--|---------|
| mechan | iism | \$18.00 |
| Code PICTON adjustm | ratients, seat of hard wood, is revolving, and has the same elevationent as the stool, the wood back is adjustable so as to hold the patie easy reaching distance | nt |
| O/318. Stool for O Code PLYMOTH can be | Operator, seat of hard wood, is revolving, 12 inches in diameter, as adjusted from 19 to 26 inches in height | nd 5.00 |
| O/319. Cuspidor St Code POMPEY | tand, with white enameled steel cuspidor | 6.00 |

N. B. - Aseptic Office Furniture, see'page 45



PHYSICIANS' OFFICE CABINETS.



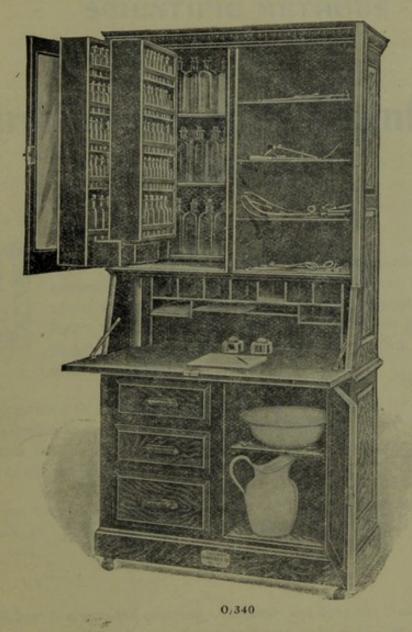
0/340. Fig. 1. Showing Cabinet Closed.

O/340 Physicians' Office Cabinet. This cabinet is designed to meet the requirements of a compact and conveniently arranged cabinet for medicines and instruments in the same case. One-half of the cabinet is fitted with unique swinging racks which accommodate about 200 bottles, assorted from 2 oz. to 8 oz., and two small drawers for powder paper, labels, etc. The instrument section of the cabinet is partitioned off completely and is fitted

Manufactor ed and SCHEERERCO for purpose of Identification.

NEW YORK USA

PHYSICIANS' OFFICE CABINETS—Continued

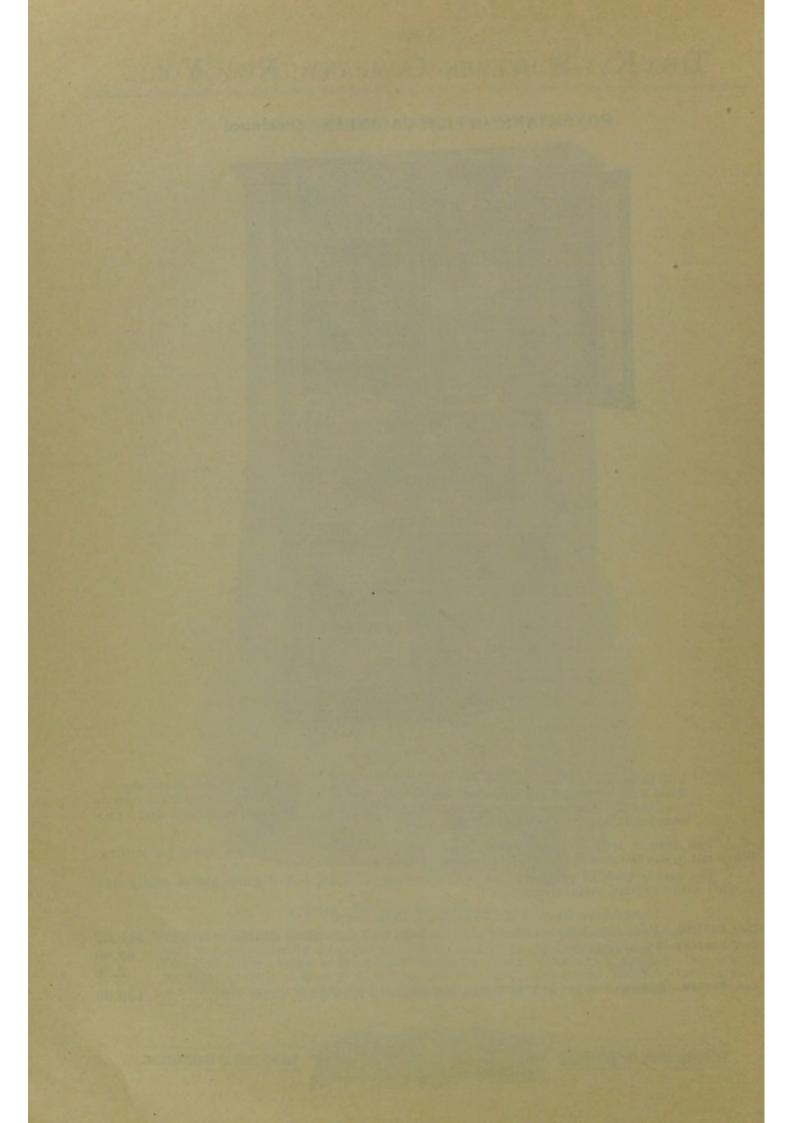


with three heavy glass shelves; the doors are so arranged to close each side independently, fitted with glass and are equipped with a unique automatic lock, requiring a key only to open them. The base comprises three large drawers for dressing materials, and a cupboard with shelf for hand basin and water jar.

The desk is well arranged with partitioned shelves and allows ample space for writing. When not in use the door folds up and contents of desk are not exposed.

The case is made of quartered oak with a handsome high polished finish and is neatly ornimented with oxydized metal trimmings.

| Code PORTAGE | Dimensions: 37 in. wide, 75 in. high, 15 in. deep. Price with beveled mirror plate in doors and plate glass shelves Plate glass throughout | \$90.00 87.50 2.50 |
|--------------|--|--------------------------|
| Code PUTNAM | Cabinet. The same as O/340, but imitation Mahogany, finish | 100.00 |



SCIENTIFIC METHODS

OF

Sterilization and Disinfection

2 2 36



DERN scientific methods of sterilization and disinfection are constantly extending our knowledge of the activities of the various disinfecting agents and of their applicability to special purposes. The result is a steady and rapid progress in the perfection of the apparatus, especially designed for the various purposes, and a great gain in the certainty of successful application.

In presenting this new edition of our catalogue, descriptive of apparatus for sterilization and disinfection, we are devoting considerable space to a treatise on the principles of disinfection, both by physical and chemical agents. These notes, we trust, will prove interesting to our readers, and in many cases of value.

To our Friends and patrons we wish to say that we shall continue the same policy as heretofore, viz: to produce but one grade of goods, and that of a quality which will commend itself.

The best is always the cheapest. Sequitur this does not mean that the best can only be bought at the highest price, but since the price is conditioned by the method of construction, the skill of the workman, and last but not least, the conscientiousness of a manufacturer who places his reputation above temporary gain, it is quite evident that in purchasing apparatus of a kind similar to those described within, more than usual precaution should be taken, particularly as their merits cannot be judged by comparing prices and illustrations only. The latter very frequently look alike, but the articles themselves very often have no semblance. A most thorough comparison and inspection of the apparatus cannot, therefore, be too strongly advised, and after that is done we are entirely willing to leave the decision to your judgment, knowing that you will recognize the superior features of our high class products, which insure you in all cases a real and lasting equivalent for your investment. This should not be overlooked.

STERILIZING APPARATUS

FOR

SURGICAL INSTRUMENTS.

THE GREAT MAJORITY OF SURGEONS have accepted the boiling of instruments as the safest and simplest method for sterilization. Adding to the boiling water from one to two per cent. of soda or borax will protect the instrument against oxydation. In order to displace wrong opinions, which may have been formed, regarding sterilization in plain water, be it said that the lime contained in the water, separates itself and combines with other foreign substances which may adhere either on the surface or in the joints and crevices of the instruments, resulting in the discoloration of the latter in the form of spots and stripes. Neither should impure soda or borax ever be used as they bring about the same unsatisfactory results as plain water, therefore, care must be taken to use only chemicals which are chemically pure.

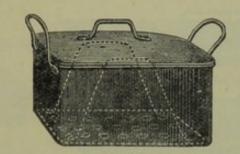
As many surgeons do not know the cause of the spots, etc., on the instruments after sterilization, there are many complaints from them about bad nickel-plating. Everybody, however, can convince himself of the fact that the nickel-plating itself on such instruments is not affected, but only discolored. Thoroughly rubbing the instruments with some polishing paste by means of a piece of felt will make them as bright and good as they were before the discoloration took place.

The patterns of sterilizers which we are illustrating in this catalogue, and which we quote by numbers, are standard patterns continually kept on hand. We are also exhibiting in our sample rooms, other designs described or recommended by medical authorities.

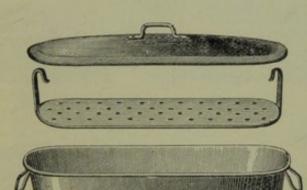
We invite personal inspection and selection whenever possible.



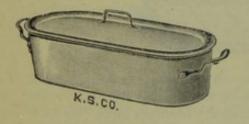
Surgical Instrument Sterilizers of White Enameled Steel.

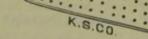


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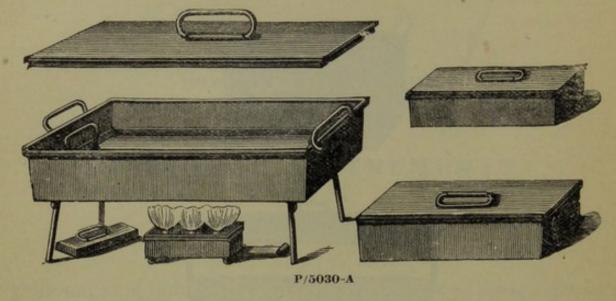


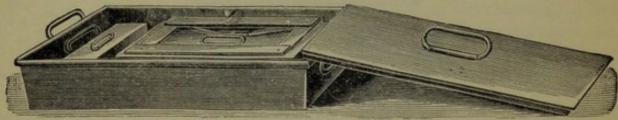


P/5015

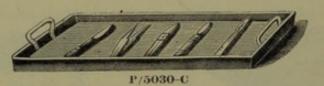
| P/5001 Ins Code YABACAO Code YABEN Code YABIANG Code YABO | ated t | nt S tray | ster. | Size " | 61 | in. | long, | 4345454 64 | in. | ain, wid | le . | | | | | | | | | | | \$1.50 2.00 2.75 |
|--|----------------------------|----------------------|-------|----------------|--------------|------------------|-----------------------|-------------------|--------------|-------------|------|------------------|------------|----------|------------|------|------|-----------|-----------|-----------|-----|------------------------|
| P/5009 Ins Code YACOUB Code YACURA Code YACURA Code YAGOUT | Size, | 16 18 | in. | ilizer | 6 6 | hite in. " | e steel wide, " | por 4 in 41 | rcela | eep. | sea | ml | ess | , 1 | ritl | n pe | erfo | ога | ted | l tr | ay. | \$2.75 3.00 4.00 |
| 8 | trume in extr nstrum | a de lent Size | s at | sieve t one | time time | e w | which | da: | mits nger | of s | the | rili ir p. | zin fal | g lin | a l g f | ron | e n | nui ne | mb tra | er iy. | of | \$3.50 3.75 |

Portable Surgical Instrument Sterilizers.





P/5030-B



P/5030 Rotter's Compact Portable Sterilizer for boiling instruments. It consists of a nest of three sterilizing pans with covers, each fitted with a perforated tray, a folding stand and an alcohol lamp of a new construction, to be used without wicks, rendering sufficient heat to bring water to the boiling point inside of four minutes. A set consists of the follow ing three sizes:

Dimensions of sterilizing pans: A 61 in. long, 41 in. wide, 11 in. deep. " " B9 " 5 " 1½ " " " C 13 " 6 " 21 "

Code YAINAC Price, per set complete, made of heavily tinned steel \$ 9.25 Code YAKIMA Price, per set complete, made of copper..... 15.75 Code YAKULAT Price for single large size sterilizer 13x6x21, with tray, stand, and alcohol lamp, made of copper, polished

Sterilizers are sold singly, without tray, stand nor alcohol lamp, at the following Prices

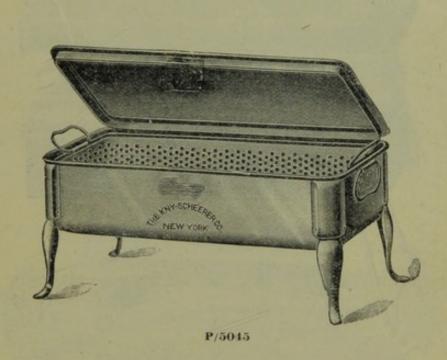
Size A Size B Size C \$4.00 \$5.00 Polished Copper \$3.00



6.75

PORTABLE SURGICAL INSTRUMENT STERILIZER-Continued.

Made of Seamless Metal.



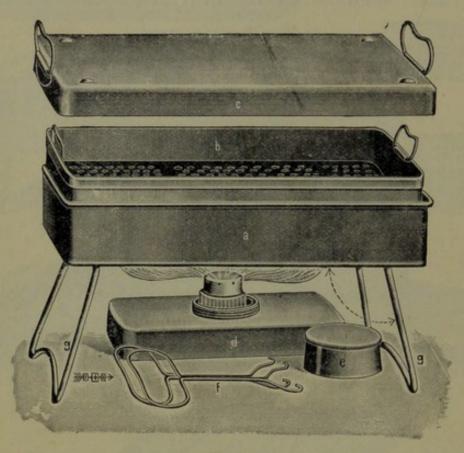
P/5045 The Kny-Scheerer Surgical Instrument Sterilizers for physicians' office use. The boiler is stamped out of non-corrosive metal; it is seamless and therefore cannot unsolder if water should run low by accident. The inner tray is also seamless. All corners are rounded. Legs are detachable, thus making the apparatus very convenient and portable. A pair of wire lifting hooks are furnished with each apparatus.

The latter are made in two sizes:

| Code YALDING | Dimensions: | 11 in. x 6 ii | 1. bottom, x 34 11 | n. height | \$13.50 |
|--------------|---------------|---------------|--------------------|----------------------------------|---------|
| Code YALE | " | 16 " x 8 " | " x 44 " | | 16.50 |
| Th | e following A | lcohol or Ga | s Burners can be | e supplied for these sterilizers | |
| Alcohol Burn | ners P/5789 | A | \$2.25 | P/5789 B | 2.75 |
| 11 11 | P/5791 | A | 3.00 | P/5791 B | 4.50 |
| Gas Burners | P/5780 |) A | 3.50 | P/5780 B | 4.00 |

PORTABLE SURGICAL INSTRUMENT STERILIZERS-Continued.

Made of Seamless Metal.



P/5055

P/5055 The "Asta" Portable Sterilizer, with folding legs. For practitioners' use. The boiler is seamless, being stamped out of non-corrosive metal, heavily nickel-plated, with strong folding legs.

It has a perforated seamless metal tray for holding instruments, with a pair of wire hooks for lifting tray out of boiler.

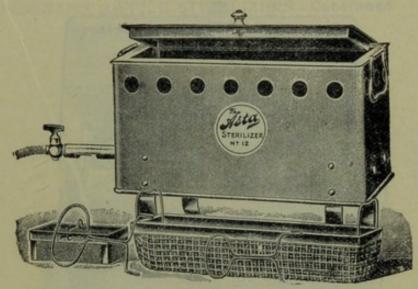
The cover is also seamless, overlaps the boiler and when inverted serves as a sterile tray.

Prices complete with alcohol burner:

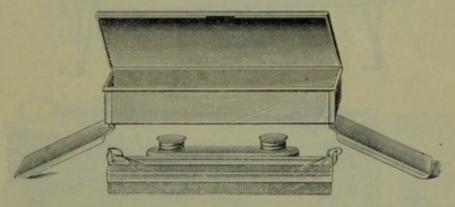
| Code YALLATA | Size | 71 | in. | X | 4 | in. | x | 14 | in | height | | - | | | | 000 | | | | | | 5 1 | 3.2 | 5 |
|---------------|------|-----|-----|---|----|------|---|----|----|--------|-----|-------|------|---------|------|-----|------|--------|------|--|--|-----|-----|---|
| Code YAMATI | | 81 | | | | | | | | | | | | | | | | | | | | | 0.0 | |
| Code YAMBA | 44 | 91 | ** | x | 5 | 66 | X | 2 | 4 | | 100 | | | + + | | | | | | | | 10 |).5 | 0 |
| Code YAMBUS | 44 | 11 | | x | 6 | - | x | 21 | 6 | | | | | | | | | | | | | 12 | 2.5 | 0 |
| Code YAMDOK | ** | 131 | | x | 41 | 11 | x | 2 | - | | | | | | | | | | | | | | 2.5 | |
| Code YAM HILL | 14 | 153 | | x | 8 | . 66 | x | 81 | | | | | | | | | | ++ | | | | 19 | 0.0 | 0 |

Physicians' and Dentists' Office Sterilizers.

Made of Seamless Metal.



P/5090



P/5098

P/5090 The "Asta" Instrument Sterilizer. For Aural, Nasal and Dental Instruments. The Boiler is seamless, stamped out of solid metal, heavily nickel-plated and has a nickel-plated jacket, a heavy wire tray for Instruments and a fine wire tray for Needles, etc.

Dimensions: 9 in. x 31 in.

| Code YAMNA | Price | for | appara | tus com | plete | 3, 1 | without bu | rner. | | | | \$16.50 |
|------------|-------|-----|---------|---------|-------|------|------------|-------|------|------|------|-------------|
| | *** | 11 | alcohol | burner, | fig. | P | /5789a | | | | | 2.00 |
| | | | | | | | /5791a | | | | | |
| | | | gas | | | | /5780a | | | | | |

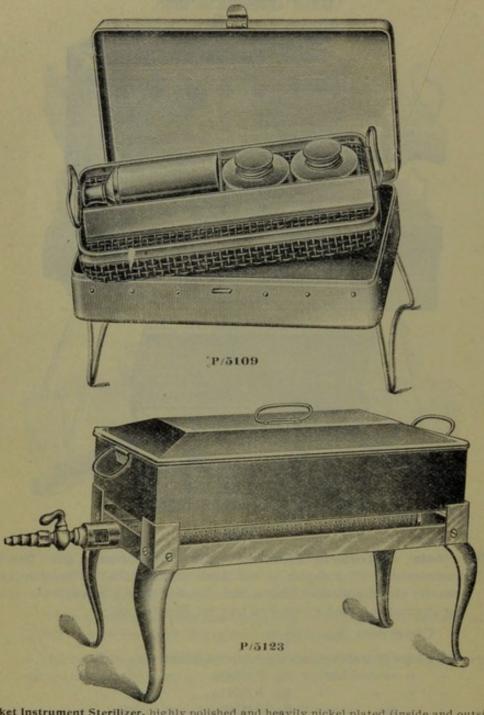
P/5098 Sterilizer for eye instruments, inside dull finish; outside highly polished code YAMKYE and nickel-plated.

The apparatus consists of a seamless boiler, stamped out of one solid piece of metal, with hinged cover and folding supports, one perforated tray for holding instruments, 2 handles for lifting the instrument tray and an alcohol lamp with 2 burners.

Dimensions: length 67 in., width 23 in;, height 11 in.



PHYSICIANS' OFFICE STERILIZERS-Continued.



P/5109 Pocket Instrument Sterilizer, highly polished and heavily nickel plated (inside and outside.)

The apparatus consists of one seamless boiler, stamped out of solid metal, with hinged cover and folding legs, one perforated tray for holding instruments, handles for lifting the instrument tray, one metal bottle for holding alcohol and 2 alcohol lamps.

Dimensions : length 7 in., width 374 in., height 11/4 in. Price \$9.00

P/5123 Instrument Sterilizer, constructed of heavy copper, nickel-plated outside and tinned inside, furnished with a detachable nickel-plated perforated bottom tray, 2½ in, deep, mounted on a heavy brass stand nickel plated fitted with gas burner and air mixer.

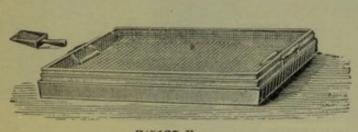
Code YAMPAH Size, 8x20x4 Code YAMUNDA " 8x15x3 Code YANA " 6x12x21/4 \$25.00 20.00 18.00 Price, complete, with Stand and Gas Burner



PHYSICIANS' OFFICE STERILIZERS-Continued



P/5137-A



P/5137-B

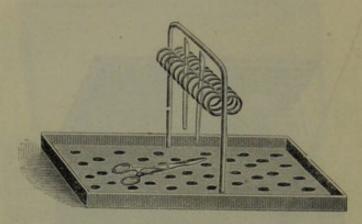


P/5137-C

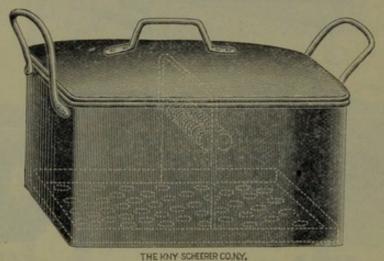
P/5137 Schimmelbusch's Apparatus, for sterilizing instruments. The apparatus Code YANAON is made entirely of copper, nickel-plated with hinged cover, and measures 18 in. long, 14 in. wide. It comprises three instrument trays, 14 x 18 inches, a graduate for making soda solution, wooden bracket for match safe, time glass and soda box. The apparatus is to be filled with water about 2 in. deep, to which a teaspoonful of soda is to be added. A large gas burner beneath sets the water boiling in a few minutes.

Price, Apparatus complete..... \$70.00

Ophthalmic and Aural Instrument Sterilizer.



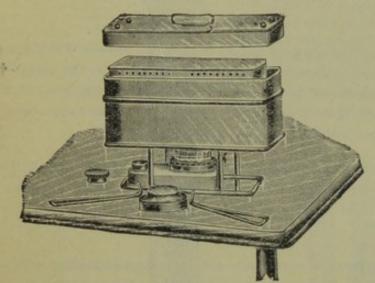
Inside Tray,



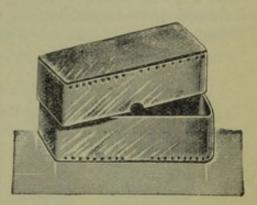
P/5145

P/5145 Sterilizer for Ophthalmic and Aural Instruments, made of brass, nickelplated or white steel porcelain; 63/4 inches wide, 101/2 inches long, 8
inches deep; with a perforated tray having two spiral racks to hold the
knives to protect the cutting edges. (Manhattan Eye and Ear
Hospital Pattern.)

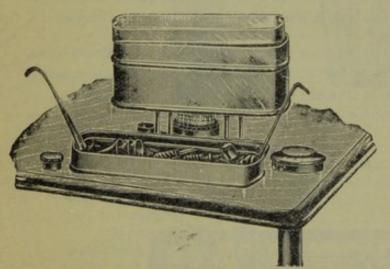
OPHTHALMIC AND AURAL INSTRUMENT STERILIZER-Continued.



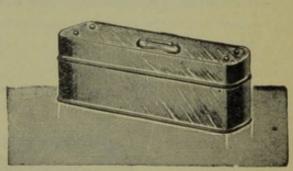
P/5151-A



P/5151-C



P/5151-B



P/5151-D

P/5151 Combination Portable Sterilizer, for ophthalmic and aural instruments

Code YANDON and dressings, made of German silver with tray and telescopic box
for dressing materials. Fig. A shows the apparatus ready for sterilization, with alcohol lamp; Fig. B shows the cover inverted, used as a
cooling pan; Fig. C shows the inner telescopic box for dressings;
Fig. D shows apparatus assembled, ready for transportation. Dimensions: 3\frac{3}{4} inches wide, 3\frac{3}{4} inches deep, 10 inches long.........................\$12.00

bear THE KNY

for purpose of identification.

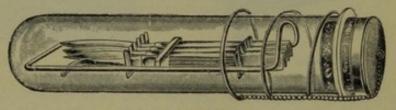
A New Method of Sterilizing Surgical Operating Knives.

It cannot be denied that by subjecting Surgical Knives to the usual process of sterilization in boiling water, the edges suffer, even though precaution may be taken by the surgeon in wrapping the blades carefully in absorbent cotton. Placing cutting instruments into a steam sterilizer for the purpose of sterilizing them causes the blades to rust within a short time, since the latter, as a rule, are not coated with electro-nickel plating.

In order to guard such delicate instruments against destruction, and more particularly in order to be sure of having the knives retain their keen edges after being disinfected, many surgeons have returned to the older but not altogether reliable antiseptic method of sterilization by Phenol or Cresol.

Quite recently a series of experiments were conducted by various authorities with a view of disinfecting knives by subjecting them, enclosed in glass tubes, to the heat influence of flowing steam, or pressure steam. Dr. O. Grosse, of Munich, has published some data on this process in the *Medizinische Blaetter*, 37, 38 and 39 of 1905. Grosse placed his knives in a metal rack, which latter was slipped into a large size test tube provided with a stopper.

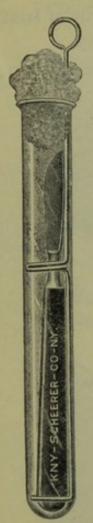
The entire tube, being entirely closed by a cork, is placed into an ordinary steam sterilizer, and subjected to the influence of 100° C. flowing steam, or to pressure steam of a temperature of about 120 to 125° C. as is obtained in a Kny-Scheerer Co.'s Autoclave, by which means the knives are sterilized without any danger of their rusting and with the keen edge unimpaired.



P/5169

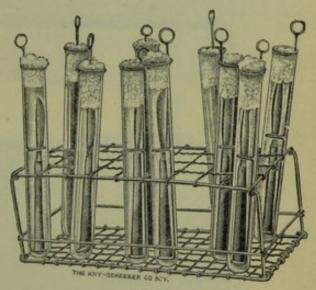
P/5169 Grosse's Knife Sterilizing Tube. Complete with metal rack for four Code YANDUA knives \$ 3.50





Knife Sterilizing Tubes and Metal Rack

THE KNY-SCHEERER COMPANY, following the valuable suggestions of some of its friends of the profession, has had constructed for them, glass test tubes for individual knives; each knife being held securely by a wire clamp suitably bent for the purpose, so as to protect the cutting edges. The tube is closed by absorbent cotton, used as a stopper. Infected knives were subjected to sterilization for ten minutes at a temperature of flowing steam, i. e., 100° C.



P/5177

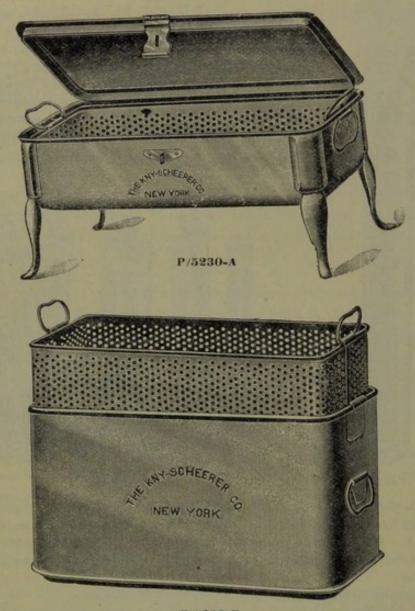
P/5185

The result invariably was absolute sterility. There were no specks visible on the blades, which, on the contrary, remained bright and dry, retaining the keenness of their edge most remarkably. Only traces of condensed steam were observable inside upon the glass wall of the test tube, which, however, rapidly disappeared after withdrawing the test tubes from the sterilizer.

Grosse gives an explanation of this phenomenon by stating that the moisture of the atmospheric air contained in the tube, produces sufficient steam to effect a thorough sterilization in so short a time as ten minutes and at a temperature of only 100°. Dry atmospheric air would naturally require more time, and also would have to be of a higher degree of temperature to be equally efficient. It is of extraordinary importance to observe that steam generated from the small quantity of hygroscopic water, contained in the atmospheric air enclosed in the test tube, always precipitates upon the glass, which is specifically colder, and not on the steel, which has a larger capacity of heat.

| P/5177 Individual Knife Sterilizing Tubes, with wire clamp for holding knife | |
|--|--------|
| Code YANGAGA per dozen | \$4.50 |
| P/5185 Metal Rack for holding individual sterilizer tubes, for surgical operat- code YANGI ing knives, made of wireeach | 1.25 |
| P/5195 Metal Rack for holding individual sterilizer tubes, for surgical operat- code YANKO ing knives, made of nickle-plated solid sheetingeach | 2.00 |

Combination Apparatus for the Sterilization of Instruments and Dressings.



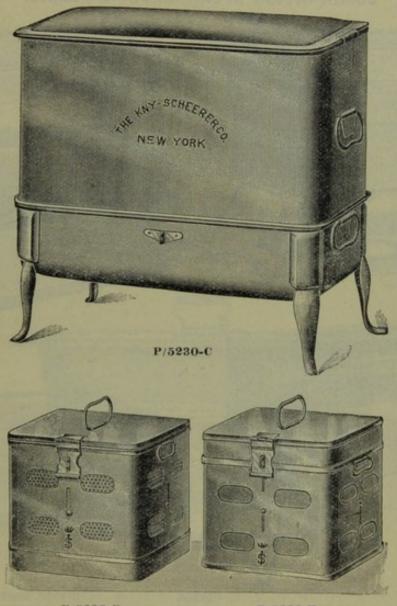
P/5230 The U. S. Army Medical Department Combination Dressing and Instrument Sterilizer, for post hospitals and field service.

The outfit consists of two distinct and separate parts, viz: Instrument Sterilizer P/5230-A and Dressing Sterilizer Box P/5230-B having in conjunction with it two sterilizer conveyance boxes illustrated under P/5230-D and E. Instrument sterilizer P/5230-A, measures 15 in. in length, 7 in. in width, and 3½ in. in height, inside dimensions. The boiler is stamped out of one solid piece of metal. The fact that the body is neither seamed nor soldered guards against it being seriously damaged, if for instance by accident the water runs slow while the heater continues to burn. Sharp corners on bottom and sides are carefully avoided. The legs can be easily detached. The cover is held by strong hinges and has a hasp to secure it. A perforated metal tray conforming to the inside dimensions of the Sterilizer, fits snugly into

When using the apparatus for the simultaneous sterilization of instruments and dressings, as shown in Fig. P/5230-C the hinged cover of P/5230-A is raised and the dressing box P/5230-B is placed on top fitting into a water lock recess.



COMBINATION STERILIZERS-Continued.



P/5230-D

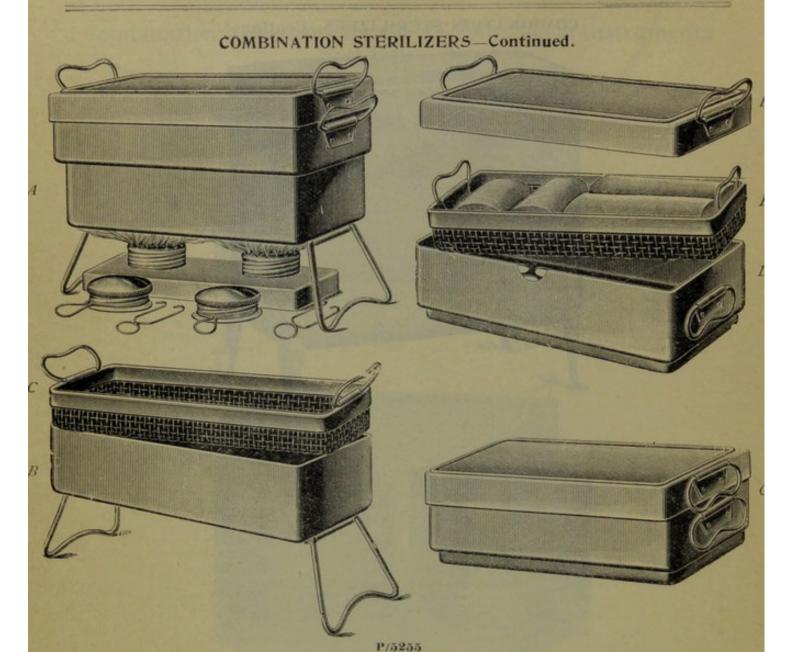
P/5230-E

The dressing sterilizer box measures 15% inches in length, 8 inches in width, and 8% inches in height, inside dimensions. A perforated metal tray serving as a receptacle for gowns and towels and a removable top with fastenings and a bottom tray are also provided.

As an addition to it there are two sterilizer conveyance boxes P/5230-D and E of rectangular form, but with rounded corners. The conveyance boxes open on top by a hinged cover with hasp. An encasement with 16 fenestrations sliding over the outside opens or closes the perforated fields, provided for the admission of steam during the sterilization. Dressing material may be preserved in these containers in sterile condition for an indefinite time. Fig. P/5230-D shows the box as it is placed into the sterilizer with slide open for the admission of steam, while Fig. P/5230-E demonstrates the box with slide closed after sterilization.

The method is to sterilize the dressings first in boxes D and E, and then fill the inside tray of P/5230 B with gowns, towels, etc.

| Code YANKTON | Price of complete apparatus, nickel-plated as illustrated | \$60.00 |
|--------------|---|---------|
| Code YANMON | Same as P/5230, but with powerful alcohol burner | 65.50 |
| Code YANROLO | Same as P/5230, but with gas burner | 64.00 |
| Code YANSOKI | Heavy canvas pouch with leather straps, extra | 6.00 |



P/5255 Combination Portable Sterilizer for Instruments and dressings, inside dull finish; outside, highly polished and heavily nickel-plated,

outside, highly polished and heavily nickel-plated,

FIGURE A shows the apparatus with lamp ready for sterilization.

FIGURE B shows the instrument boiler on folding legs.

FIGURE C shows the perforated wire tray for holding instruments.

FIGURE D is the seamless dressing box, which has a perforated bottom, so as to permit the steam to penetrate into the material. The box is so arranged, that it fits into the instrument boiler, fig. B.

FIGURE E represents the perforated wire tray, for holding the dressings.

The cover (FIGURE F) fits the instrument boiler (fig. B) as well, as the dressing box (fig. D). After sterilization, it may be used for a sterile instrument tray.

Two hooks for lifting the perforasted wire trays are furnished with each apparatus.

FIGURE G shows apparatus put together, ready for transportation.

Boiler, dressing box and cover are seamless, being stamped out of solid metal.

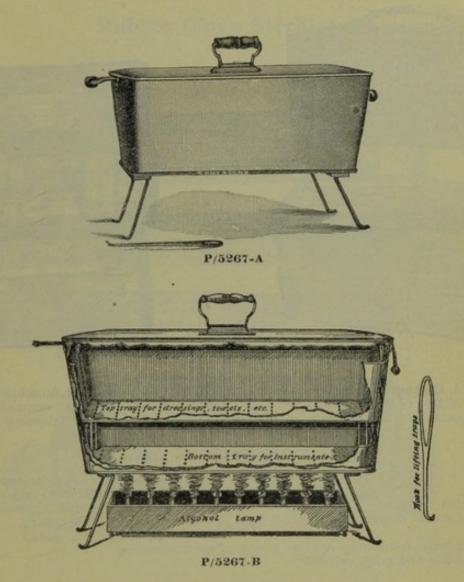
This sterilizer is made in the following sizes:

| | 1 | DIMENSIONS | | ENT BOILER. | | NS OF DRESS | ING BOX. | |
|-----------------------------|----|-------------------------|-------------|-----------------|---------------------|-------------------|----------------|------------------|
| Code YANSOM Code YANSOTE | AB | Length 87/8 117/8 | Width 4½ 5½ | Height 134 21/2 | Length 94 124 | Width 434 6 | Height 23% 31% | \$17.25 25.00 |
| Code YANTAU | C | 161/8 | 51/8 | 31/2 | 17 | 6 | 41/8 | 31.00 |
| | | 2 1 2 1 2 1 | | INSIDE MEASU | REMENTS. | | | |

For Alcohol or Gas burners see pages 223-225.



COMBINATION STERILIZERS—Continued.



P 5267 Combination Sterilizer, portable , designed by Dr. Willy Meyer for simultan-code YANTLET eous sterilization of dressings and instruments. Made of brass, nickel-plated; consisting of sterilizing kettle with cover, one instrument tray and one dressing tray, folding stand, two hooks for lifting out the tray, asbestos plate and alcohol lamp; the latter requires no wicks, but is filled with alcohol, which is ignited, and the air passing through the tubes draws the flame, converting this into a ten Bunsen burner lamp; a cover with handle facilitates extinguishing the lamp at any time. Two quarts of water are required to fill the instrument tray, which will be brought to a boiling point in six minutes; the lamp being calculated to burn thirty minutes will therefore give an active steam sterilization for twenty-four minutes for the dressings in the upper tray. The apparatus is designed to be packed in the office and carried to the patient's home for sterilization, while the surgeon prepares otherwise for the operation. Complete in capyas peach operation. Complete in canvas pouch...... \$22.50

Dimensions: Top, 17 x 83 in. Bottom, 15 x 7 in. Depth, 61 in. Dimensions of tray for dressings, 143 x 63 in., 33 in. deep. Dimensions of tray for instruments, 15 x 7 in., $1\frac{1}{2}$ in. deep.



Special Sterilizers.







P/5279

P/5279 Dr. J. Clifton Edgar's Aseptic Obstetric Case and Sterilizer, combined, con-Code YANUINA sisting of two trays, (17x8x6 in. and 17x8x3½ in.) of white enameled steel porcelain, and one canvas pouch for sundries, with outside telescope case... \$22.50

THE LARGE TRAY WILL CARRY.

Apron.
Kelly pad.
Canvas lithotomy sling.
Four-quart sterile douche bag (pinned in towel).

Metal receptacle, containing vaginal and uterine tubes and glass catheter. Vulsella, dressing, needle, and tongue forceps and scissors (pinned in towel). Obstetric forceps (pinned in towel). Sterile cotton and plain gauze. Five per cent. iodoform gauze. Two nailbrushes.

THE SMALL TRAY WILL CARRY.

Canvas pouch with receptacles for-

Green soap (sterile).
Vaseline (sterile).
Gauze eye sponges (sterile).
Gauze cord dressing (sterile).
Chloroform
Ergot.
Acetic acid (99.5 per cent).
Sublimate tablets.
Fine boric acid.
Normal saline powders.
Silver-nitrate solution (one per cent).

Tape for cord (sterile).

Silk and gut ligatures and needles (sterile).

Soft rubber catheter

Umbilical scissors.

Medicine dropper

Nail cleaner

Safety razor

English catheter (No. 16) with stylet,

Safety pins.

Sterile gauze bandage for sling.

No. 8 soft-braided catheter, opening at end.

Spring scales.

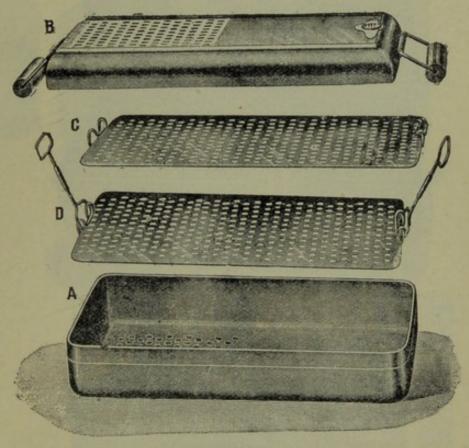
The small tray can also be used to immerse the hands and forearm in sublimate solution, or as sterilizer to boil forceps before using same.

The large tray is to be used also as a bath for asphyxiated infant. Prices above mentioned do *not* include instruments nor drugs.

Note label which our goods bear THE KNY SCHERER

for purpose of identification.

Rubber Glove Sterilizer.

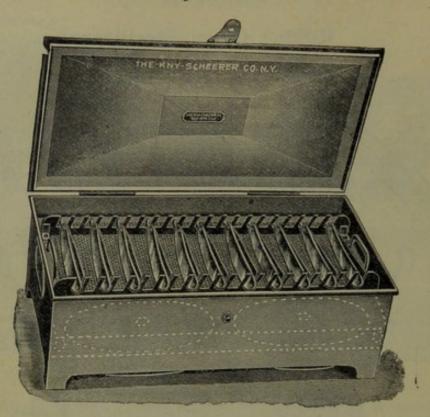


P/5290

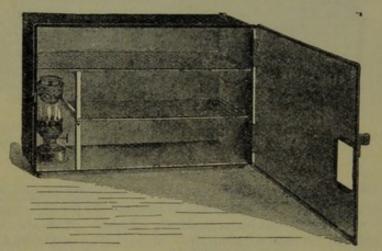
P, 5290 Rubber Glove Sterilizer. The sterilization of rubber gloves by boiling Code YAQUIMO water offers many objections and in its place the process of sterilization by flowing steam has been generally adopted. The above sterilizer

is intended to receive a number of rubber gloves. They are to be placed between the perforated metal plates but care must be taken that they do not come in direct contact with the latter. To prevent this, small layers of gauze are to be placed between the metal and the gloves. After the apparatus is filled, place the same into a steam sterilizer with outside slides opened, so as to allow steam to penetrate contents of the box. After process close slides again; the gloves may in this way be preserved in sterile form for a long time and are always

Formaldehyde Sterilizers.



P/5326



P/5338

P/5326 Formaldehyde Sterilizer for Barbers' use. Apparatus is made of heavily nickel-plated metal.

Code YARDLEY Inside of the metal case is a razor tray with sections cut out to hold knives securely, and may be lifted out. Underneath the apparatus are two circular reservoirs, also detachable, filled with formaldehyde tablets furnishing the required disinfectant for preserving razors in sterile form. No lamp is required but disinfection is absolute. Price

P/5338 Formaldehyde Sterilizer, made of tin, japanned outside, fitted with a lamp for evaporating Code YARIGUA pastilles of Formaldehyde for sterilizing; the door has a glass port-hole. Dimensions, 18 in.long, 11½ in. high, 8 in. deep. The lamp will burn for about twenty minutes, evaporating a 5 grain pastille, which is sufficient to sterilize the chamber and contents.

Price, complete, with pastilles.

Pastilles, extra, per box.

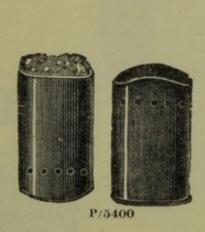
Code YARKAND Lamp only.

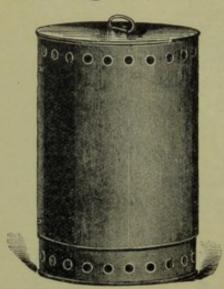
Note label which our goods bear



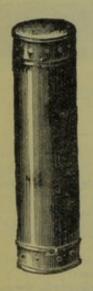
for purpose of identification.

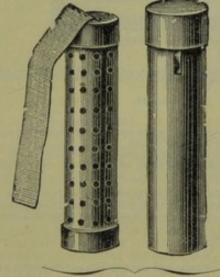
Sterilizing Cylinders for Dressing Material.

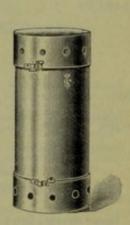




P/5430







P/5451

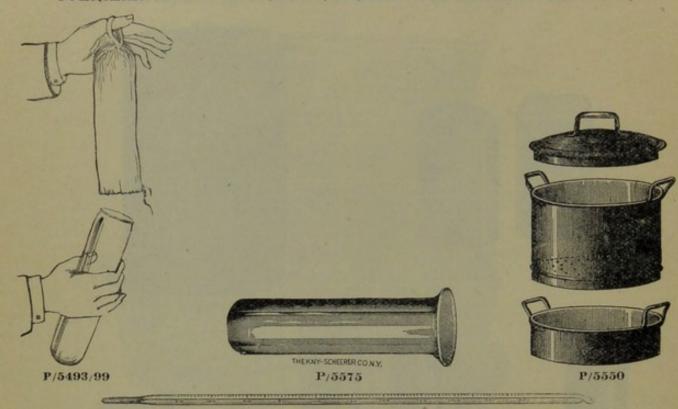
P/5467

P/5489

| P,5400 Sterilizing Box, Flat Telescopic, 5½ in. high, 3½ in wide, 2½ in. thick, made of nickel-Code YARMOTH plated brass, for sterilizing and preserving small quantities of dressing materials \$ P 5430 Sterilizing Box, Cylindrical Telescopic, made of brass, nickel-plated inside and outside, Code YARNOTON Size, 3 in. diameter by 6 in. long, each Code YARROW " 6 " " " | \$2.50 2.50 4.50 |
|---|------------------------|
| | 2.25 |
| P/5467 Sterilizing Box, Cylindrical, with extra perforated cylinder inside, and with buckle to catch Code YASAWA gauzes and dressings, Duhrsen's pattern; made of fine nickel plated metal, 3 in. diameter, 8 in. long. | 4.00 |
| P/5489 Sterilizing Box, Cylindrical, N. Y. Women's Hospital pattern, made of heavy seamless brass code YATES tubing, nickel-plated, perforated near the ends, with tight fitting spun cover for each end. The covers are perforated to meet the perforations in the cylinder and are arranged with a locking device so that after sterilization the cover is turned, closing the same tightly, to be secured by a lead seal. Dimensions 8% in, diam. 8 in, long. | |
| | 3.00 |



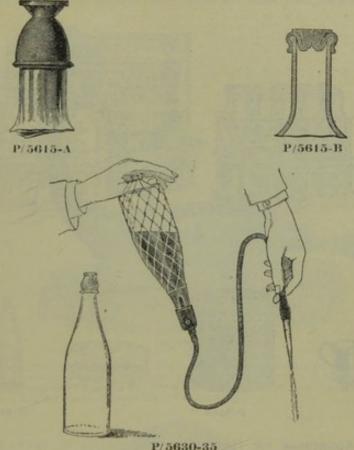
STERILIZING CYLINDERS FOR DRESSING MATERIAL-Continued,



P/5590

| Code YATHAY with contracted neck, open on one end, per dozen | \$4.00 |
|---|----------------------------|
| P/5497 Sterilizing Cylinders, Dr. J. W. Markoe's pattern, of the same dimensions as above, but with Code YATSAUK both ends open and contracted, per dozen | 4.00 |
| P/5499 Sterilizing Pouches, of heavy homespun linen, to slip over the above tubes, per dozen | 3.00 |
| P/5515 Racks, of strong wire, holding six tubes | 2.00 |
| P/5550 Towel Heater, Steel porcelain, round. The lower part is to be filled with Water about 1 in. deep. Code YAVISA Towels are placed into the upper tray, the bottom of which is perforated. The steam generated by boiling the water in the bottom dish penetrates the material in the upper tray, and keeps the towels hot and moist. | |
| Diameter of upper tray, 834 in | 3.50 4.00 4.50 |
| Code YAW Length, 6 in. x 1 in. diameter, each 6 " x 13%" " 8 " x 13%" " 10 " x 1%" " 110 " x 1 %" " 12 " x 1 %" " 12 " x 2 " " | 10 12 15 18 20 |
| P/5590 Sterilizing Thermometers. Code YAWRY A. Graduated on paper scale, 70° to 150° C. Code YAXHAM B. " " maximum self-registering, 180° to 280° F. Code YAYA C. " " " 70° to 180° C. CodeYORKTON D. " milk glass scale, to 400° F. | 75 1.00 1.00 3.00 |

Accessory Apparatus for Sterilization of Milk and Water.



P/5630-35

P/5615 Stutzer's Patented Germ-proof Sterilizing Caps, for the sterilization of water, milk, flushing solutions, ligatures, etc.

These caps are made of the best quality of soft rubber, indestructible by boiling water or steam. They are intended to be slipped over the neck of bottles or tubes (see Fig. A) and are automatic in their action. The lower part is funnel-shaped and thin walled, while top is moulded of solid, soft rubber, reinforced by two projections opposite each other. Through the center of the top disk runs a clean, sharp cut, ending inside the funnel part. It forms an absolutely air-

tight valve, permitting only the escape of air and steam from inside.

When boiling bottles or tubes fitted with these germ-proof caps, the air and steam will readily escape through the valve. After sterilization the contents cool and the liquid contracts, creating a vacuum in the neck of the bottle or tube. As the valve is hermetically closed against atmospheric pressure, the top part of the cap will collapse and sink into the neck of the vessel (see Fig. B), the two projections on the sides of top and opposite the lengthwise cut serving as a reliable lock. The cap will remain in this sealed position until removed, preserving the contents of the vessel sterile for an indefinite time.

We shall be pleased to furnish samples on application.

Code YAZAGY Code YAZOO

P/5630 Sterilizing Bottles. Capacity, 1000 cubic centimeters; of best annealed glass.

We furnish these bottles, with cord netting serving as a protection to prevent breakage and Code YEADON

also for their use as irrigator vessels; as shown in illustration.

Stutzer's large size germ proof caps are used during the process of sterilization. The bottles can be placed in a kettle with boiling water, or in steam, and by means of the germ-proof caps the contents can be preserved in sterile form for an indefinite length of time, thus enabling the physician to always have sterile solutions in case of emergency.

An irrigator attachment of soft rubber which, after removing the caps, can be slipped over

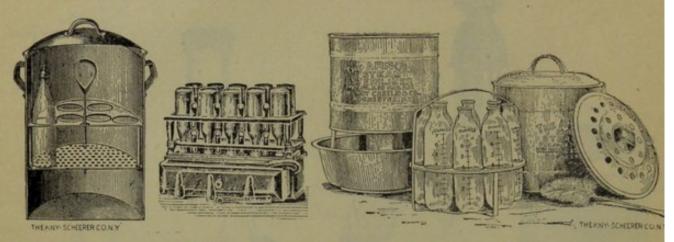
the neck of bottle, is furnished to order.

Price of bottles, with net and rubber caps, each...... \$.60 Irrigator Attachment, with adjustable cut-off and glass tip, each P/5635

Code YEDATOR

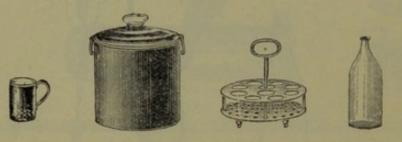


Milk Sterilizing Apparatus.



P/5050

P/5063



P/5669

P, 5687

P/5650 Sterilizing Apparatus for Milk, after the method of Prof. Stutzer (U. S. Code YELDHAM Patent). The apparatus consists of a kettle with cover and removable tray with ten bottles, a stand with rack and drawers for drying bottles 12 patented germ-proofed rubber caps (Fig. P '5615), a metal mug for warming milk, a glass mug for mixing milk, brush for cleaning.

P/5663 Sterilizing Apparatus for Milk, Arnold's for sterilizing at 212° F. or PastuerizCode YELLOW ing at 160°.170° F., comprising water reservoir, sterilizing chamber, bottle
rack, cover and hood, bottles and brush, made of tin with copper bottom.

P/5669 Sterilizing Apparatus for Milk. Apparatus is made of white steel porcelain,

YELIES size, 10 in. diameter, 10 in. high, with handles for carrying it about, furnished with a white steel porcelain standard tray for ten bottles, and white steel porcelain warming cup with handle.

Price, complete 6.0

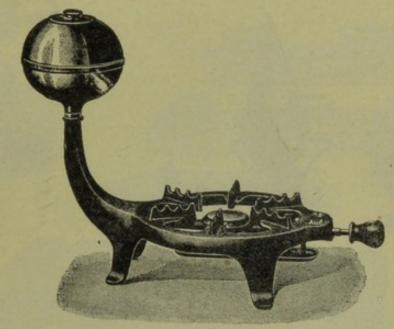
For germ-proof sterilizing stoppers see Fig. P/5615.



6.5

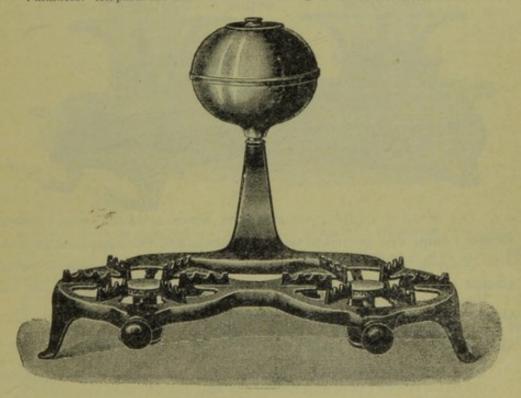
Lamps and Burners for Alcohol.

The low cost of denatured Alcohol offers in many instances a much more economical fuel than Gas.



P/5730

P/5730 Alcohol Stove, with reservoir, wickless. The burner is fitted with a valve for regulating the Code YENAMA flame; the capacity of the reservoir is 1 pint and it will burn a moderate flame for five hours or a strong full flame for 1% hours; a quart of water can be set boiling in 6 to 7 minutes. All parts are detachable for cleansing. \$4.00



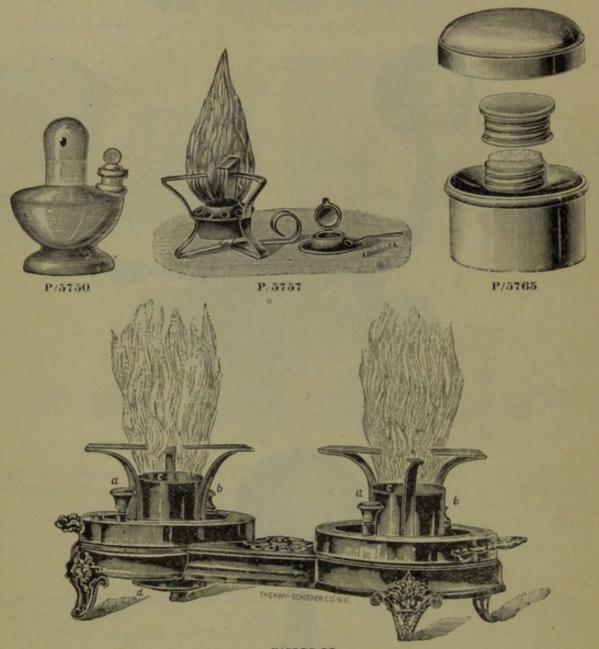
P/5735

Note label which our goods bear



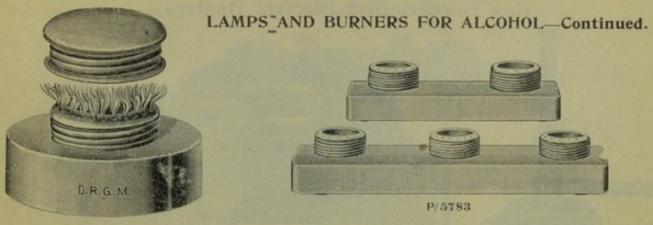
for purpose of identification.

LAMPS AND BURNERS FOR ALCOHOL-Continued.

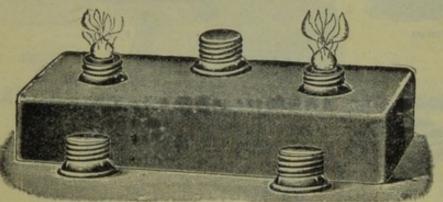


P/5775-77

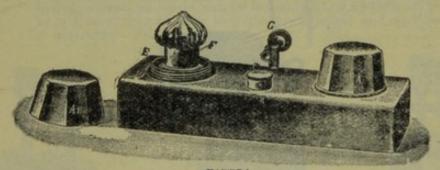
| P/5750 Alcohol Lamp, with ground-in stopper in tubulature, with glass hood ground on. | 00 1 |
|--|-------|
| Code YEOFORD Size 30 c. c. capacity | \$0.4 |
| « 60 « | .6 |
| P/5757 Alcohol Stove, made of brass, with perforated top for adjusting the flame. Code YEOMA Mounted on a folding standard for supporting small vessels | .3 |
| P/5765 Alcohol Lamp, highly polished and nickel-plated, with screw cap over the burner, Code YEOTRUP and tightly fitting cover. Price | .4 |
| P/5775 Alcohol Stove, "Ideal," double. This apparatus has no wicks, as only the gas of the alcohol is consumed, thus avoiding all danger of explosion, as well as economizing in the use of alcohol. Apparatus is 6 in. wide, 15 in, long, the flame can be easily adjusted to any size, and will burn from forty to sixty minutes; finely nickel-plated | 7.5 |
| P/5777* Alcohol Stove, "Ideal," single. Same as P/5775, except of one flame only, 6 in. | |
| Code YETBAR diameter | 3.7 |
| | |



P/5780



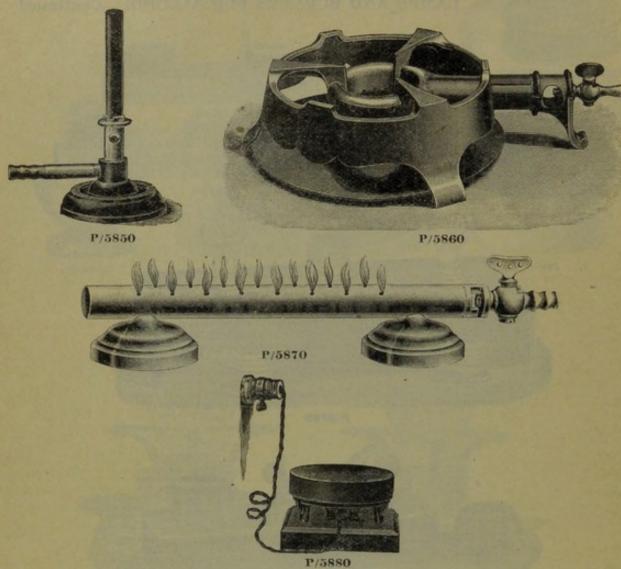
P/5789



P/5791

| -74 | \$ 1.20 |
|---|--------------------|
| P/5783 Alcohol Lamp, Wickless long, with round corners, highly polished and nickel- plated. Body is stamped out of one piece of metal. | |
| Code YINDAW A—Length 6¾ in., with 3 in., height 1¾ in., with 2 burners | 2.50 3.60 |
| Fill lamp with 90° alcohol up to mark in filling tube, Light the alcohol through the tube; within moments the evaporative alcohol escaping through the small holes on top will ignite, extinguishing the face the centre tube. | n a few lame in |
| P/5789 Alcohol Lamp, plain, with 2 and 3 burners. Body stamped out of one piece of metal. | |
| | \$ 2.00 2.75 |
| P/5791 Alcohol Lamp, with arrangement for regulating volume of flame. Body is stamped out of one solid piece of metal. The alcohol is filled in through Cap C. Caps A1 and A are then removed and by means of regulating screw G the work is screwed up and lit. The evaporation of the alcohol is readily regulated and thereby the size of the crown top flame. | |
| | \$ 3.60 4.00 |

Gas Burners and Electric Heaters.

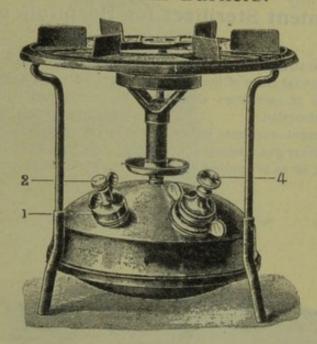


| P/5850 Bunsen's Gas Burner, plain | \$0.45 |
|---|--------------------------------|
| P/5855 Tripod Stand, for supporting light vessels | 50 |
| P/5860 Gas Stove, iron, with three supports for vessels from 5 to 8 in. in diameter; Code YUGER will bring one quart of water to the boiling point in ten minutes. Each | 1.60 |
| P/5870 Gas Burner, plain, with air regulator made of brass, highly polished and nickel-plated. The feet are insulated, to guard against scorching of the table. | |
| Code YUKON -Total length 8 in., 10 blue flames. Price. Code YULE " 12 " 16 " " Code YULGAN " " 1534 " 25 " " Code YUMAR " " 1934 " 35 " " | 3.00 3.40 4.00 4.40 |
| P/5880 Electric Heater, disk form. Mounted on a slate base; can be attached to any lamp socket. | |
| Code YUNQUE Size, 4½ in. diameter. Code YUNTA | 4.50 6.75 11.00 15.00 |

Note label which our goods bear



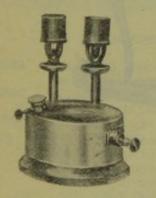
Petroleum Burners.



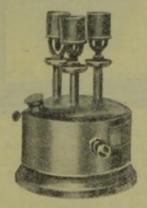
P.5890

P.5890 Petroleum Burning Heater, wickless, odorless, arranged to burn only the gas forced up by air, which is compressed by means of the small hand pump Fig. 4. The reservoir is of polished brass, having a capacity of one quart; it is filled at Fig. 1; the flame is extinguished by turning nut Fig. 2. It will burn a full strong flame for 3 hours; a quart of water can be boiled in 4 to 5 minutes. The standard is of iron, strong enough to hold a large vessel and may be detached if desirable. Price

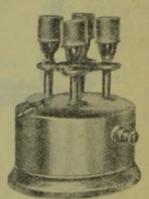
\$4.50



P/5893



P/5894



P/5895

P/5893 Petroleum Burning Heater. This powerful heater is operated by air compressed with the pump which is fitted into the resorvoir and may be entirely removed for cleansing or repairing, the resorvoir is of heavy spun brass and will burn for 8 hours giving a very hot blast flame.

It is odorless and wickless and can be operated without danger of explosion as only the evaporated oil is burned.

With 2 Burners. Capacity 3½ Pints. Price......

P/5894 Code YUSTE P/5895 Code YUTLY 3 "

" 4½

" "

12.00

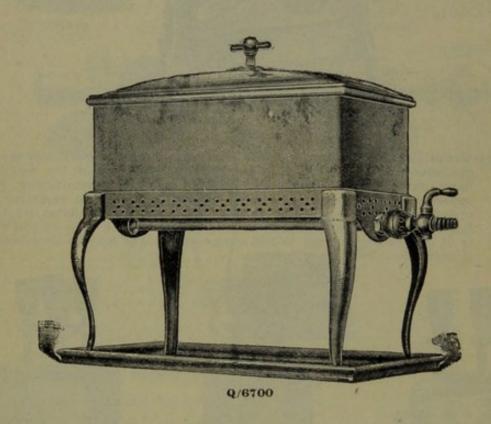
Note label which our goods bear



Surgical Instrument Sterilizer for Hospitals and Sanitaria.

For hospitals and institutions where sterilizing apparatus are constantly in use, we are manufacturing a special class of instrument boilers, of extra heavy metal and strong construction. This class of sterilizers should not be confounded with the less expensive apparatus of lighter construction.

We furnish instrument sterilizers either in highly polished or nickel-plated metal; we can provide them with either gas, kerosene or alcohol burners; they can also be equipped with steam heating coils, so as to connect them with the steam supply of the building.



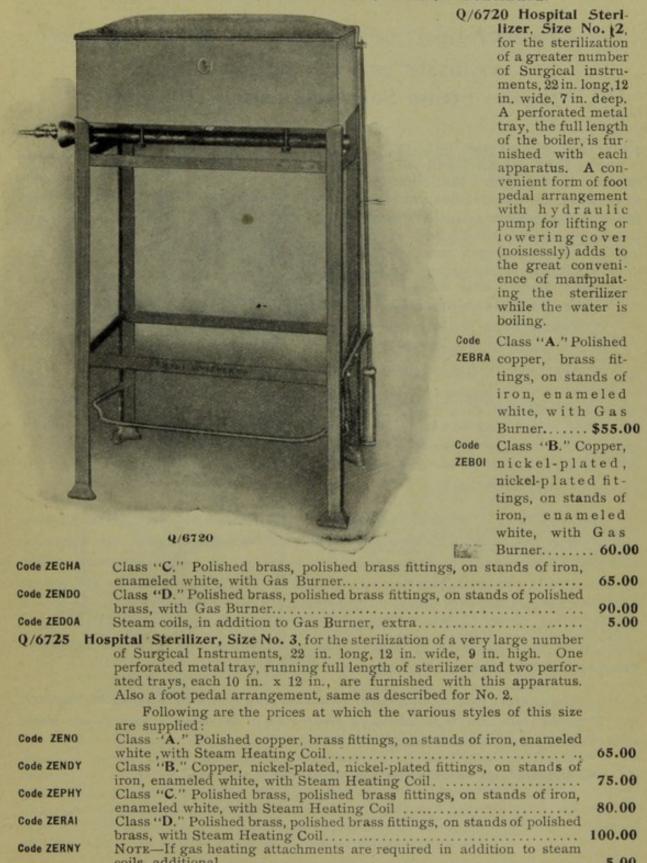
Q/6700 Hospital Sterilizer, Size No 1, for smaller surgical instruments. Dimen-Code ZAPPU sions: 12 inches long, 6 inches wide, 4 inches deep. The apparatus is made of heavy brass or copper and is intended for the sterilization of eye, ear and nose instruments, also for dental instruments. Complete, with perforated metal tray, highly polished and nickel-plated. \$27.50

Q/6705 Hospital Sterilizer, Size No. 12, for the general line of surgical instru-Code ZEALY ments. Dimensions: 15 inches long, 8 inches wide, 6 inches deep. Construction the same as above, but fitted with two trays. Complete, highly polished and nickel-plated

40.00



HOSPITAL INSTRUMENT STERILIZERS-Continued.



5.00

coils, additional.....

Pressure Steam Surgical Dressing Sterilizers.

A Sterilizing Apparatus for Surgical Dressing Material is to all intents and purposes the same in construction and manipulation as a Steam Disinfecting Chamber, the only difference being the size. Besides, sterilizers designed for surgical dressings admit of steam under a considerable pressure, much more than is possible where clothing, bedding and other similar fabrics are treated.

The requisite for such a sterilizer must be:

- 1. Strongest possible construction and ease in manipulating the apparatus.
- 2. Rapidity of the process.
- 3. Prevention of condensation of water.
- 4. Absolute reliability and positive results.

In our treatise on Sterilization and Disinfection, forming a part of this publication, we deal minutely with this subject. In particular we refer to pages 570 to 571 and following—

Steam and Air—Aqueous Tension of Steam—Manner in which steam acts upon Bacteria—

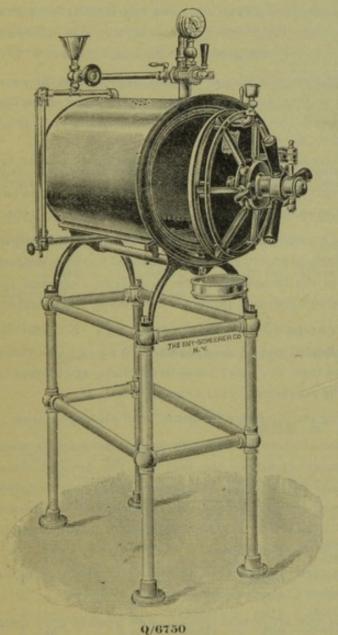
Note on the behavior of air and steam towards Bacteria—which we recommend for your perusal and careful study.

The objects to be obtained in a first-class Pressure Steam Sterilizer, are the displacement of the air (contained in the sterilizing chamber), by saturated steam at such a temperature as will disinfect and prevent the objects from becoming wet. Saturated steam of from fifteen to twenty pounds of pressure per square inch, should be employed. The process should not last less than from twenty to thirty minutes after the displacement of the air. A thorough drying of the sterilized dressings should follow each process for ten minutes or more, which is accomplished by confining the pressure steam to the jacket and simultaneously exhausting the chamber by means of the vacuum valve.

It follows that a vacuum attachment should invariably be used in aiding the displacement of the air, thus insuring a thorough penetration of the material by pressure steam as well as the drying of the dressings.

No sterilizer can be called perfect without it.

The Kny-Scheerer Co.'s Improved Model 1908 Pressure Steam Surgical Dressing Sterilizer.



Q/6750 New Type Surgical Dressing Sterilizer "Improved 1906 Model."

We claim that it represents the most perfect apparatus which has so far been placed before the medical profession, and it is but natural that it should incorporate all the latest improvements and possess all the desirable features which form the requisites of an ideal surgical disinfector.

The steam jacket is formed by two annular cylinders made of heavy copper metal, riveted on to the metal front collar which is copper-faced inside of jacket.

The steam in the jacket circulates freely around the sides thus having the greatest possible heating surface available in a sterilizer of this kind.

The insulating shell surrounding jacket consists of a mantle made of heavy brass or copper which is left open underneath when apparatus is heated by gas, kerosene oil or alcohol; it prevents loss of heat, increases radiation, insures perfect combustion of fuel and shortens the time required for getting up steam pressure in jacket.

The door has a concave locking surface and swings on a substantially constructed double hinge, accurately hung and adjusted. The radial arm automatic door lock works smoothly and easily on ball bearing, fingers, requiring no effort whatsoever to open or to close it air and steam tight.

The Combination Vacuum and Steam Pressure Regulating Valve (U. S. Patent 1906) mounted in front of the sterilizer in connection with a combination steam pressure and vacuum manometer, places the apparatus under perfect control of the operator. The gauge indicates instantaneously and accurately the conditions prevailing in the sterilizer chamber. Steam pressure and equivalent temperature as well as vacuum can be read off at once, and the operator is thereby given the opportunity to closely observe every stage of the sterilization process through which the respective material passes.

There is but one lever to be operated on our sterilizer and the confusing multitude of steam valves is entirely done away with. We guarantee the efficiency of this machine and its superiority above any other apparatus,

Our Improved 1906 Model Dressing Sterilizers, with the exception of sizes No. 0 and No. 1, are equipped with steam coils, placed in the jacket, for being operated by high Pressure Steam, but are also arranged for burning Illuminating gas, acetylene gas, petroleum or alcohol, which will in no way conflict with the arrangement for heating by steam.

We recommend for this class of apparati, as the most efficient method, that the generation of steam for the sterilizing chamber be from water contained in steam jacket of sterilizer itself, and those of our manufacture are always furnished arranged that way unless otherwise specified.

Purchasers desirous of having instead a separate Pressure Steam Generator placed underneath the apparatus proper, and connected with the steam jacket of the latter, can have the apparatus with this arrangement at the same prices as we charge for the regular type.

We were the originators of the first scientifically constructed Pressure Steam Surgical Sterilizers in this country. Each of our yearly productions has been marked by improvements. Our latest and best as already stated in the foregoing, is the New Type Improved 1906 Model; it embraces every good quality of our previous patterns—with many others added—and undesirable qualities eliminated.

Each of our apparatus bears our full label and Factory Number. We guarantee that no better sterilizer can be bought at any price from any other house in the trade, and caution the profession to beware of substitutions or the proverbial "just as good."

Details for setting up and connecting sterilizers are furnished with each apparatus.

Many years' experience in the manufacture of Pressure Steam Surgical Dressing Sterilizers have established with us, beyond question, the fact that the demand almost invariably calls for Class B finish, which indeed requires least attention and is best suited for Hospital work. Heretofore, we have been listing each of the various sizes of Dressing Sterilizers in five different grades of finish, leaving it to the judgment of the purchaser to select what he might consider most suitable for his purpose.

Our records show that fully ninety-three per cent. of all sterilizers produced in our factory during the past years were ordered in Class B which we specify as follows:

Class B. Front and back rings also door are of best quality close grained grey metal castings, turned down carefully; inside of door is sheet copper lined. The facings of front and head pieces over which the two copper cylinders, forming the jacket, are drawn, are lined with metallic copper. Water and steam in jacket, therefore, never come in contact with oxidizable metal. Front and back collar as well as door are finished in a high gloss black enamel. Steel fingers with ball ends as well as lock plate are polished and heavily nickel-plated. Door-locking handles are insulated with cocoa-bola hardwood. Brass mantle enclosing jacket as well as all brass and copper fittings are highly polished and nickel-plated. Tubular iron stand upon which rests the sterilizer is white enamel finished.

To facilitate selection and to avoid confusion we are listing our new sterilizer, Improved 1908 Model only in Class B finish as specified on preceding page, but we are prepared to supply all sizes in a finish different from Class B, and as heretofore listed in previous editions of our catalogue, viz.:

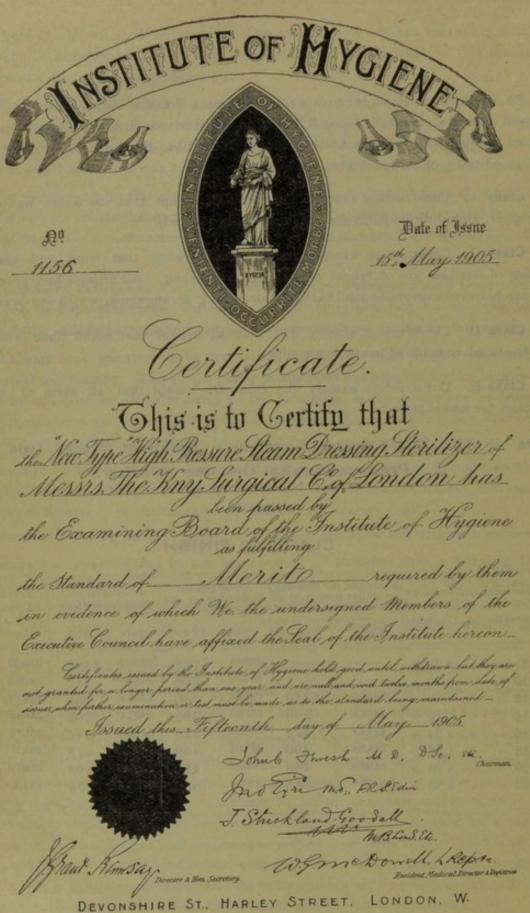
- Class A. Construction exactly like Class B, except that the outer mantle, which is of copper, and all brass parts are polished, but not plated.
- Class C. Construction exactly like B, Class except that front and back rings, also door of sterilizer are of bronze metal, highly polished. All fittings and accessories of brass are polished except the steel bars of door-locking arrangement which are brass-plated.
- Class D. Construction exactly like Class C, except that stand upon which apparatus is placed is made of heavy brass pipe.
- Class E. Construction exactly like Class D, except that all parts of apparatus and stand are nickel-plated.

Prices of The Kny-Scheerer Company's Improved Model 1906 Steam
Pressure Surgical Dressing Sterilizer.

0/6750

CLASS B FINISH

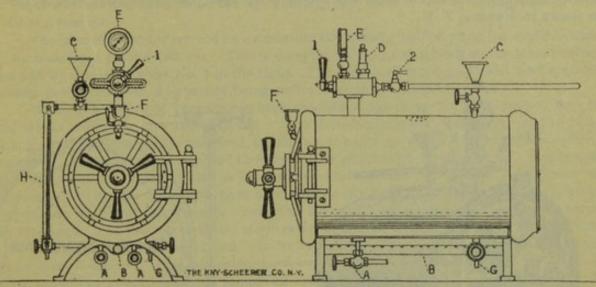
| Size No. | OL | lbs, pressur | team of 35 | Boiler S | ged for team and leating | | ged for um Heat | Arranged for Alcohol Heat | | | |
|-------------|---------------------|--------------|------------|----------|--------------------------------|-------|--------------------|------------------------------|-------|--|--|
| | Sterilizing Chambe | Code | Price | Code | Price | Code | Price | Code | Price | | |
| 0 | 81 in. Dia. x 19 in | | - | ZABEY | \$175 | ZABFA | \$180 | ZABGY | \$185 | | |
| 1 | 10 " " x 20 " | | _ | ZACGO | 200 | ZACKY | 210 | ZACNE | 215 | | |
| 2 | 12 " " x 20 " | ZADEO | \$250 | ZADFA | 250 | ZADLE | 260 | ZADUY | 265 | | |
| 3 | 14 " " x 22 " | ZAFEA | 290 | ZAFGO | 290 | ZAFLI | 300 | ZAFNY | 305 | | |
| 4 | 16 " " x 24 " | | 325 | ZAGEO | 325 | ZAGMO | 340 | ZAGTE | 345 | | |
| 5 | 18 " " x 26 " | - | 400 | ZAKGE | 400 | ZAKMO | 415 | ZAKTI | 420 | | |
| 6 | 20 " " x 28 " | ZAMEA | 480 | ZAMGO | 480 | ZAMHY | 495 | ZAMTU | 500 | | |
| 7 | 24 " " x 32 " | | 650 | ZATIO | 650 | ZATLE | 675 | ZATOU | 680 | | |





Directions for Operating

The Kny-Scheerer Company's Improved 1906 Model Pressure Steam Dressing Sterilziers



It. Fill the steam jacket with clear water by opening valve on metal funnel C, turning lever No. 1 to the right. The quantity of water required for sterilization depends on the length of time for which the apparatus shall be operated. It is not desirable to have the jacket filled more than half full of water (see sectional view Fig. 2). The glass water gauge on side indicates exactly the height of water in jacket.

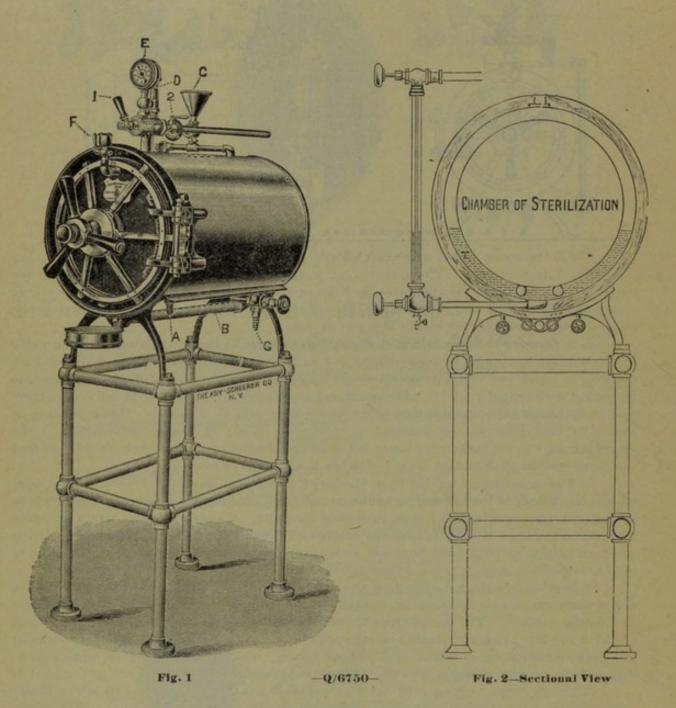
2. A permanent connection with the hydrant water supply can be made through valve "G" (the clean-out valve) by connecting a Tee back of valve "G" and using a gate valve on the Tee, to which you connect your hydrant water. This method of filling the water into the jacket works rapidly, and in addition offers the advantage to be able to inject water at any time even though the apparatus may be under pressure and in operation. The pressure of the water supply at point of entrance at valve "G" must, of course, exceed that of the steam pressure in the jacket; the latter being fifteen pounds per square inch, it follows that the water pressure should at least be twenty-five pounds or more.

3. The steam jacket having been filled with a sufficient quantity of water, throw lever handle No. 1 back to the left and light the burner (gas. petroleum or alcohol) leaving valve on funnel C open until steam issues, then close it tightly. The combination steam pressure and vacuum gauge E will register the conditions prevailing in the jacket and the steam pressure safety valve D will blow off steam as soon as the latter exceeds the normal pressure of fifteen pounds, (= 1 Atmosphere).

Whenever live steam, exceeding thirty-five pounds per square inch derived from a boiler plant, installed in the building, is available, we strongly recommend the use of the latter as heating medium. For this purpose we place in all of our sterilizers (with the exceptions of No. 0 and No. 1) a set of steam heating coils between the two copper cylinders forming the jacket, consisting of heavy wall copper tubing, which is connected to nipples A A, one of these serving as steam inlet the other as steam outlet.

Through these heating coils the high pressure steam circulates, and its temperature, in proportion to the respective amount of pressure, rapidly raises the temperature of the water in jacket to boiling point and over, until it reaches the temperature of 250° Fahrenheit (121° Centigrade) which is the equivalent degree of steam or of water boiling under a pressure of fifteen pounds per square inch. The safety valve D keeps pressure in jacket under perfect control at fifteen pounds.

4. The dressing material should be placed into the sterilizer chamber before the heaters are lit or, as in the case of steam heated jackets, before the boiler steam is turned into the heating coils. Door of sterilizer is locked securely and air filtering cup valve F, which is filled with a wad of absorbent cotton, is left open, handle being in vertical position as shown in drawing, F. 1.



Gradually as the temperature of the water in jacket increases, the air in the sterilizer chamber becomes rarified and finds an escape through cup valve F. The sterilizer chamber therefore, in the first stage of the process serves the purpose of a hot air oven, gradually warming the dressings preparatory to letting pressure steam into the chamber.



5. As soon as the combination steam and vacuum gauge E indicates a steam pressure of fifteen pounds, the safety valve will begin to operate by blowing off steam in excess of the required pressure, then close the air filtering cup valve F by thrusting handle into a horizontal position.

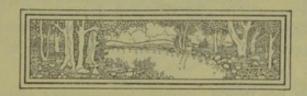
The moment has now arrived for exhausting the already rarified air in the sterilizer chamber by creating a partial vacuum. This is done by opening valve No 2 on the steam exhaust pipe and by throwing lever No. 1 to the right. The combination gauge E will soon register a vacuum in the chamber, five inches being sufficient to insure absolute results.

When this degree of vacuum has been reached, close valve No. 2 whereupon the pressure steam will rush into the chamber. The dressing material contained in the latter, having thus been carefully prepared by the air exhaust process for an eager absorption of live steam, will instantaneously and thoroughly be penetrated by the same. Furthermore since the inrushing steam which is of a temperature of 250° F. (121° C.) will meet with material which has for some tim been subjected to dry hot air of nearly the same degree of temperature as that of the pressure steam, the latter will not condense and therefore not wet the dressings. The process of steam sterilization shall last of from twenty to thirty minutes.

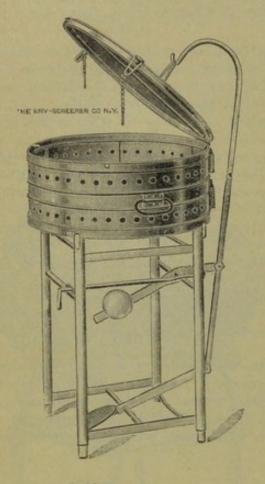
6. The dressing material can now be considered absolutely sterile and may be taken out at once, if desired. It is advisable, however, to let it remain in the sterilizer chamber for from ten to twenty minutes longer in order to remove every trace of dampness. For this purpose open valve No. 2, and again start the exhausting process described under No. 5, for the time above specified. After this, extinguish flame or shut off steam supply, close valve No. 2 and throw lever No. 1 to the left.

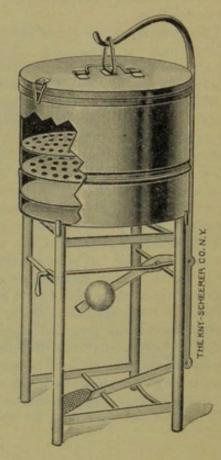
7. To remove sterilized dressings from the chambers, it is necessary to destroy the vacuum in the latter in order to be able to open the door. This is done by letting air enter the chamber through the air filtering cup valve F, which is filled with absorbent cotton.

Dressings thus prepared can be absolutely depended upon as to their sterility. They may be left in the apparatus for an indefinite time before being used without becoming infected.



RECEPTACLES FOR STERILIZED DRESSINGS—Continued.





Q/6801

Q/6807

Q/6801 Dressing Sterilizing Box made of heavy cover, with hinged cover and two Code ZAUCO

a sterilizer; after sterilization the ports are closed, the cover locked and the dressings may be kept in a sterile condition. In use, the box is placed on the stand, and the cover attached to the davitt ready for the materials to be removed as wanted, the contents being exposed momentarily while the cover is raised by the foot pedal.

Q/6804 Dressing Sterilizing Box as described under Q/6801. Price for extra Code ZAUDY boxes only

0/6807 Towel Sterilizer and Heater made of heavy copper. The upper compart-

ment is for towels, the lower compartment is a water reservoir with an electric heater combined in the double bottom.

The upper section is filled with the towels and sterilized with the cover loose; when wanted, it is placed on the lower section, which is filled with water, the electric current turned on, the hot vapors entering the upper compartment through the perforated bottom, keep-

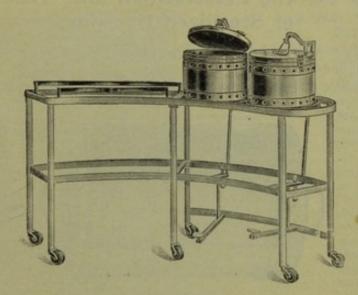
ing the towels hot and moist.

Dimensions of upper compartment, 14 in, diameter 10 in, deep, mounted on 2 stand with foot pedal attachment. Price complete....

\$45.00

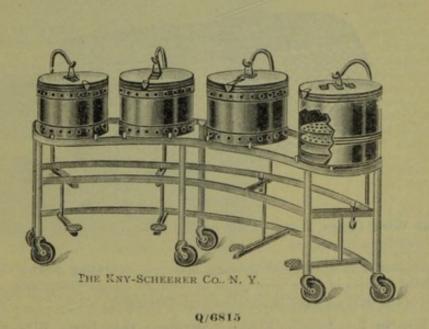
24.00

RECEPTACLES FOR STERILIZED DRESSINGS-Continued.



Q/6810

Q/6810 Instrument and Dressing Stand, St. Lukes Hospital pattern, circular form Code ZAUFLO with detachable sterilizable racks to hold the instrument trays to avoid handling the instrument after sterilization and two dressing boxes with foot pedals for raising the cover as described under Q/6801.

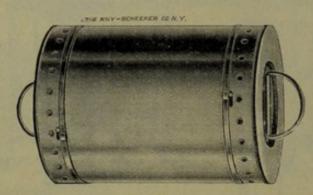


Q/6815 Dressing and Towel Stand, circular form, fitted with three dressing boxes, as described under Q/6801, and one towel heater, as described under Code ZAUGAY Q/6807, all mounted on one circular stand with independent foot pedals to each receptacle. Price complete\$175.00

Receptacles for the Preservation and Transportation of Sterilized Dressings.

A great variety of sterilized dressing cans, conveyance boxes and special containers is constantly kept on hand.

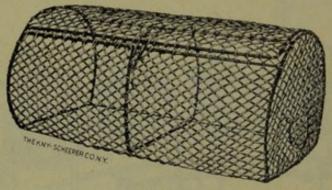
We are illustrating and describing a number of these under Nos. P/5400 to P/5575.



Q/6820

Q/6820 Cylindrical Dressing Boxes, Schimmelbusch pattern, made of copper, nickelplated, with sliding perforated cover and collar with handle at each end.

| Code ZAUGO | 111 | in. | diameter | r, 8 | in. | deep, | eac | h | | | | | | | | | | | \$13.50 |
|------------|-----|-----|----------|------|-----|-------|-----|---|------|------|---------|-------|------|------|------|--|---|------|---------|
| Code ZAULA | | | | | | | | | | | | | | | | | | | 16.50 |
| Code ZAUNI | 151 | ** | ** | 10 | 16 | - | 11 | | | | | | | | | | | | 22.50 |
| Code ZAUPE | 19 | 44 | ** | 10 | ** | - 16 | 44 | | | | * * | - | | | | | - | | 30.00 |



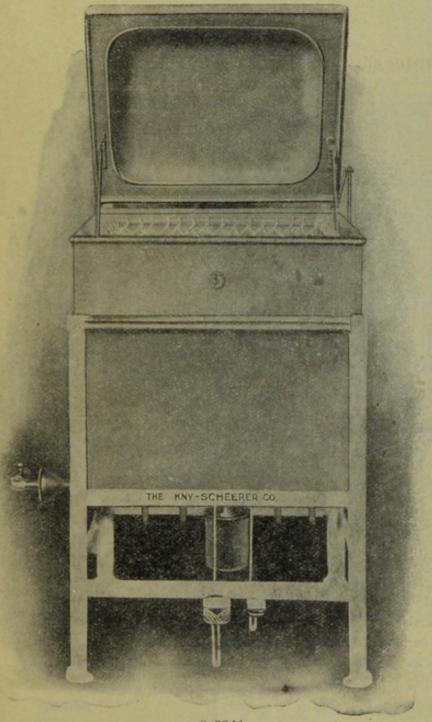
Q/6825

Q/6825 Brass Wire Cages, with lid on top for the sterilization of dressing material, wearing apparel, etc.

For larger quantities of surgical dressing material, operating gowns, towels, etc. we have designed a series of open wire cages as well as closed receptacles exactly fitting the dimensions of the various sizes of our dressing sterilizers.

| Code ZUAVE | Size | No. | 2 | suitable | for | K.S Co.'s | Sterilizers, | 12 | in. | Diam., | 20 | in | length | \$12.00 |
|------------|------|-----|---|----------|------|-----------|--------------|----|------|--------|----|----|--------|---------|
| Code ZUCCA | | 11 | | | 44 | " | ** | | - 66 | | 22 | | " | 15.00 |
| Code ZUCHY | 11. | 16 | 4 | 44 | - 66 | " | ** | 16 | ** | ** | 24 | 44 | 46 | 16.00 |
| Code ZUCKE | " | ** | 5 | 11 | 16 | ** | | 18 | 46 | 44 | 26 | " | " | 18.00 |
| Code ZUGLA | ** | 16 | 6 | - 44 | 66 | -11 | - 11 | 20 | -66 | ** | 28 | 44 | 66 | 20.00 |
| Code ZUHAI | | 16 | 7 | " | 44 | | ** | 24 | 46 | 46 | 32 | 44 | 44 | 30.00 |

Surgical Utensil Sterilizer.



Q/6841 Surgical Utensil Sterilizer, for the disinfection of utensils of all kinds used during operations. Sterilizer may be arranged with steam heating coils to be connected with boiler steam, or be provided with gas, petrol-eum or alcohol burners. Sterilization may be accomplished by entirely sub-merging vessels in water and heating the latter up to boiling point. We advise this method when using boiler steam as heating medium. Provision for cooling the temperature of boiling water after sterilization by a cooling coil is to be made by a cross connec-

When using gas, petroleum or alcohol burners, for generating heat we advise the sterilization by flowing steam, of 212° F. Fill the water up to 4 or 6 inches in height above bottom and generate steam from it. Both methods are equally efficient. Draw-off faucet and water supply spuds are

tion to the steam coil.

provided.

By means of a foot pedal arrangement (U. S. Patent, 1906), cover of sterilizer and brass wire tray holding utensils are lifted simultaneously by means of a Hydraulic pump mounted under the stand and fitted with two pedals one of which lifts the cover and tray with ease, the other pedal needs only be touched with the foot when the cover and tray come down automatically and noiselessly. The entire apparatus is substantially constructed. The sterilizing wessel proper which

q/6841 ing vessel proper, which measures 24 inches in length, 20 inches; in width, and 20 inches in height, is made of heavy sheet copper with hand hammered dome-shaped cover and is placed upon a steel frame.

| Code ZEDTI | Apparatus | complete | with | steam heating coils | \$125.00 |
|------------|-----------|----------|------|----------------------|----------|
| | | | | powerful gas burners | |
| Code ZEFKO | " | 46 | - | Alcohol burners | 140.00 |
| Code ZEFME | 16 | " | .1 | Petroleum burners | 140.00 |

Immersion Trough.



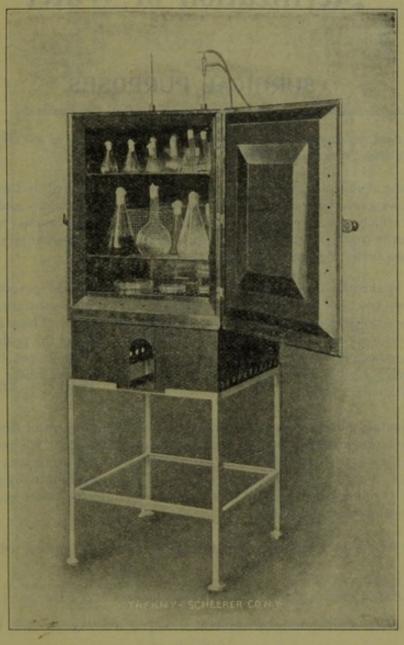
Q/6850

Q/6850 Immersion Trough for the disinfection of surgical utensils, as dishes, pitchers, etc., by submersion in strong antiseptic solutions.

The troughs are mounted on a substantially constructed iron frame provided with 6 inch heavy rubber tired wheels. They can be emptied by a draw-off cock of hard rubber. The tanks can be furnished in a special quality of tempered glass, or in white porcelain. Dimensions as specified below.

| Code ZEUGA | Glass Tank, | 191 | in. | X | 191 | in. | X | 20 | in. | deep, | roll | rim\$60.00 |
|------------|-----------------|-----|-----|---|-----|-----|---|----|-----|-------|------|------------|
| Code ZETRO | Glass Tank, | 20 | - | x | 36 | 16 | x | 16 | | " | " | |
| Code ZEUTE | Porcelain Tank. | 24 | | x | 36 | ** | X | 15 | " | ** | 4 | |

Thermostats.



Q/6855

Q/6855 Thermostat, for storing flasks, containing sterilized Saline Solution and for preserving them at a constantly uniform temperature.

This warming cabinet, consists of a double wall hot air chamber and is provided with a thermometer and thermoregulater, for controlling the temperature by regulating the gas pressure. A special pattern of Bunsen Burner, including rubber gas tubing is furnished with each apparatus.

Outside dimensions, including heating space for Bunsen Burner, 39 inches high, x 24 inches front, x 23 inches deep. Internal dimensions of chamber, proper, 23½ inches high, x 20 inches front, x 20 inches deep. Stand is made of solid construction angle iron and is 27

inches high.

| Class A—Cabinet made of Russian sheet iron, with 2 shelves. Code ZEGOE Price for completely equipped Apparatus | We manufacture two classes of these Apparatus, viz.: | |
|--|--|----------|
| Code ZEGOE Price for completely equipped Apparatus \$100.00 | Class A-Cabinet made of Russian sheet iron, with 2 shelves. | |
| agan armon Trico rot combined admibben rebbingarion in the contract of the con | Code ZEGOE Price for completely equipped Apparatus | \$100.00 |
| Class B. Cabinet made of burnished sheet copper, with two shelves, | Class B. Cabinet made of burnished sheet copper, with two shelves, | |
| Code ZEGRA Price for completely equipped Apparatus | Code ZEGRA Price for completely equipped Apparatus. | 175.00 |



Sterilization of Water

FOR

SURGICAL PURPOSES.

There cannot be any doubt that strictly sterile water, is of as great importance in surgery as is sterilized dressing material.

It is not the chemically pure H₂O or distilled water as termed by the chemist, which is required by the surgeon, but rather a water free from micro-organisms and sterilized within the very vessel which is to serve for its storage. The latter, of course, must be equipped with all safeguards that modern science can suggest in order to prevent refertilization through outside influences including atmospheric air.

Distilled or chemically pure water to be suitable for chemical purposes is expected to be free even from traces of mineral oxides as lime, iron, etc., etc., substances to the presence of which the bacteriologist does not object for surgical application. The method of producing distilled water does not exclude the possibility but rather suggests the probability of immediate reinfection, since neither the condensing vessel nor the receiver can be depended upon to be and to remain sterile. The use of plain distilled water therefore for surgical purposes cannot be advocated.

Many hospitals and institutions of larger size are installing water distilling plants and constantly have large quantities of pure distilled water available. We recommend the use of such distilled water for sterilization in our pressure steam apparatus in preference to hydrant water, as it will save time for filtering and will not precipitate organic and inorganic matters held in solution in hydrant water even though the latter may be as clear as crystal after passing through the filter.

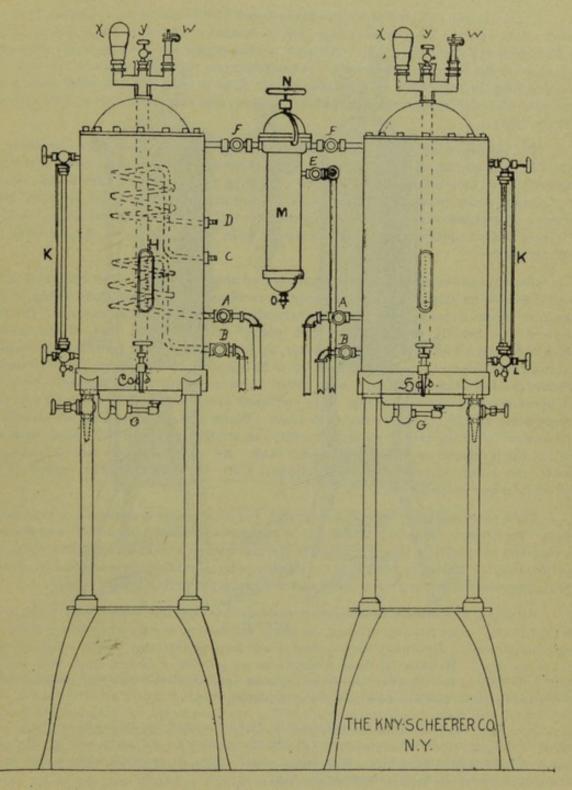
THE KNY-SCHEERER COMPANY'S Water Sterilizers are manufactured in two different classes, viz:

- a) Apparatus which sterilize water at boiling point 212° Fahrenheit, or 100°C.
- b) Apparatus which sterilize water at temperatures higher than the boiling point,

For ordinary purposes, in minor surgery, etc., water boiled for 20 minutes in clean vessels at a temperature of 212° Fahrenheit (100° C) may be considered safe, provided it is used immediately without being transferred from the vessel in which it was boiled and not after having been stored in its container for any length of time. We are listing such apparatus in small sizes only, (See Q/6885) but can furnish them to order up to a capacity of 100 gallons each tank. They are, as a rule, made of copper or brass metal, heavily tinned inside. Prices upon application.

Sterilizers mentioned in Class B are of extra strong construction, for the reason that water has to be boiled under a steam pressure of 15 pounds per square inch equal to one atmosphere, which is equivalent to a temperature of 250° Fahrenheit or 121° C. Water boiled at such a high degree of temperature can be absolutely depended upon as being sterile.





The Kny-Scheerer Company's Perfection Water Sterilizer, Gas and Steam Heated.

The process of sterilization is the following:

The hydrant water supply is directly connected to Filter M at point E. The Filter itself consists of a natural porous stone bougie which can be taken out of the metal mantle for purpose of cleaning and be placed back into position by releasing top which is held tight to Cylinder by a heavy metal clamp N.



There are two outlets F F for the filtered water leading into the two tanks, both are provided with a valve. These valves may both be opened at the same time, or one tank may be filled first and then the other. As soon as the gauge glasses K K on the sides of tanks indicate that the latter are filled as far as gauge glasses register, the water has to be turned off by closing the respective valves leading from filter to tank. When both tanks are filled, first shut off water supply valve E leading to filter, and then close valves F F leading from filter to tanks.

The heating of the water in the tanks is now begun. The steam pressure safety valve W, on dome top of tanks is always set at 15 pounds pressure and as soon as this point is reached, it will blow off steam and maintain a boiling temperature of 250° F, the equivalent of 15 pounds steam pressure. Water has to be kept at this boiling point for from 20 to 30 minutes, whereupon the Gas or Petroleum heaters G G have to be turned out or, in the case of steam heated apparatus the high pressure boiler steam be shut off by closing valves A A and B B.

Contents of the tanks can now be considered absolutely sterile, but the water is too hot to be available for immediate use. In order to facilitate an instantaneous cooling of the hot sterilized water, a cooling coil has been arranged in one of tanks marked "Cold." It consists of a heavily tinned copper coil, placed in the upper part of the tanks, into which is turned a flow of cold hydrant water, by admitting water at point D and providing for water off-flow at point C. Within from 10 to 20 minutes the boiling hot sterile water in the cylinder marked "Cold" will have been cooled down to within a few degrees above that of the hydrant water used for cooling. The sterilized water contained in this tank can be used immediately and be tapped by faucet in front. Water and container both are strictly sterile and to maintain this state of absolute sterility, an air filtering valve XX, filled with absorbent cotton is placed on dome top of each tank. As water is drawn out of tanks, the air enters the latter through the bacteriological filter X, the absorbent cotton in which should be renewed frequently.

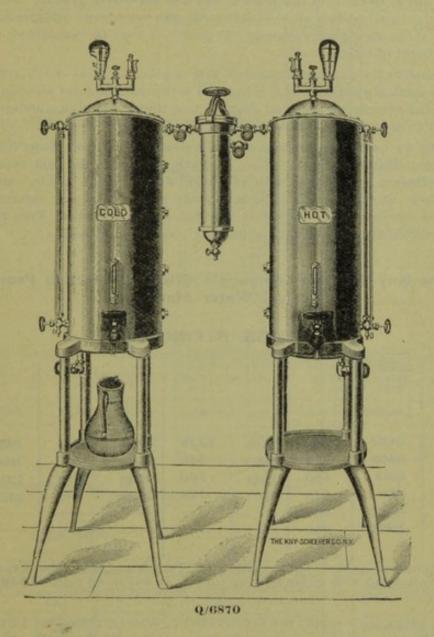
Tank marked "Hor" has no cooling coil, but its contents are allowed to gradually cool down. By drawing from both tanks, sterile water of any desired degree of temperature can be obtained by mixing. If temperature of sterilized water should become too low, the heating medium may be started to raise it to the desired point, which can be controlled by consulting a thermometer H in front of each tank, and accordingly regulating heat supply.

Attention has already been called to the fact that hydrant water even though it may be crystal clear after passing through the filter, will become cloudy when being boiled under high temperature. Gradually the cloudiness will form precipitates which settle on the bottom of the tank. To draw off these precipitates we provide a faucet, flush with the lowest point in bottom of the cylinder, while the draw-off cock for sterile water for surgical purposes in front of the tank is about two inches above bottom.

To clean the sterilizer tanks thoroughly, (which should be done every three months,) remove filtering stone from metal jacket M, fill the latter with sal soda and proceed exactly as if you were sterilizing water. The tanks should then be emptied while under pressure, by opening the flushing valves under the tanks.

NOTE.—Special attention is drawn to the fact that safety valves W W are always set at 15 pounds pressure per square inch when the sterilizers, after a thorough test, leave our factory. They should never be tampered with by inexperienced hands, as by tightening the set screws the amount of steam pressure in tank may be increased beyond the point of safety.





Ever since The Kny-Scheerer Company has entered the field as pioneers in the manufacture of Pressure Steam Surgical Sterilizers, it has been limiting itself to the construction of but one grade of Apparatus, viz.: The Perfection Types, which are guaranteed in every detail of construction and are the safest and most efficient of any that are placed upon the market. The material which enters into the construction of these sterilizers is the very best; we have no use for low grades. In the manufacture of our Pressure Steam Water Sterilizers, we do not use brazed or riveted copper tanks, but confine ourselves to the best that the market affords, viz.: seamless cold drawn brass shells. A cast bronze dome, bolted to a heavy bronze ring, secured inside of the tanks, forms the top of each sterilizer; this construction insures absolute safety combined with durability.

That the structural strength of our sterilizers is much greater than ordinary service



requires, and that on this account also its cost of production is greater, should not prejudice a prospective buyer in favor of the weaker and less expensive grades. The difference in cost between the light product of a copper-smith, and the heavier one turned out by a first class machine shop, should unhesitatingly be paid. It may be considered a premium for the greatest amount of safety.

Commercialism in surgical apparatus and appliances is as much contrary to the interests of the medical profession as it is harmful to the manufacturer who has a reputation to lose. It is for this reason that we shall continue to maintain the high standard of excellence and give to our customers full equivalent value.

Following we quote the different standard sizes of Perfection Water Sterilizers which we manufacture: Prices stand for Class B finish, which is the one recommended for Hospitals. Cylinders are heavy seamless cold drawn brass shells, mirror polished and nickel-plated. Stand of strong construction with heavy metal seat, carefully turned out, fitting bottom of sterilizer tank. Uprights of tubular iron, with bent French legs of steel casting. The stands are finished with white hard baked enamel paint.

Prices of The Kny-Scheerer Company's (Q/6870) Perfection Pressure Steam Surgical Water Sterilizers.

CLASS B FINISH

| Size No. | Capacity | Heated b Steam Ex 35 lbs. Pr | ceeding | Heated | i by Gas | | ed by oleum | Heated by Alcohol | | |
|-------------|-----------|------------------------------------|---------|--------|----------|-------|----------------|----------------------|-------|--|
| | each Tank | Code | Price | Code | Price | Code | Price | Code | Price | |
| 0 | 10 Gal. | ZIKMO | \$300 | ZILGE | \$325 | ZIMOI | \$335 | ZINBY | \$350 | |
| 1 | 15 " | ZIRCO | 325 | ZESTY | 350 | ZESBA | 360 | ZESGY | 375 | |
| 2 | 25 ' | ZIOLA | 450 | ZIGZA | 500 | ZIRBY | 510 | ZIRLE | 525 | |
| 3 | 50 " | ZOISI | 675 | ZOITY | 725 | ZOGEA | 745 | ZOKNO | 760 | |
| 4 | 75 " | ZOOGE | 800 | | - | | - | | - | |
| 5 | 100 " | ZOPPE | 950 | | | | | | - | |

All sterilizers quoted above with Gas, Petroleum or Alcohol heaters can, in addition, be arranged with steam heating coils at an advanced price of \$40.00 per set.

We are prepared to supply the various sizes of Water Sterilizers in different grades of finish if desired, which will make a somewhat lower price in Classes A and C, but condition higher prices in Classes D and E.

The style of finish which the different classes represent is the following:

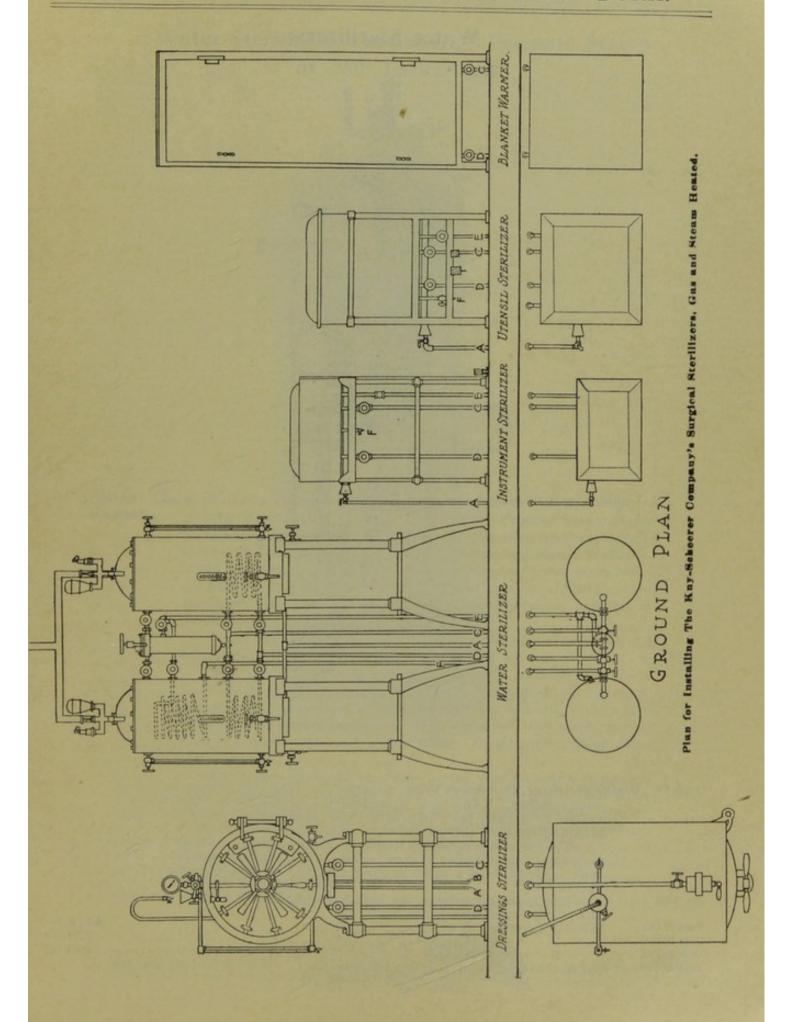
Class A—Tanks are of copper, mirror polished, not nickel-plated. Fittings, valves, etc., of brass, polished. Stands, white enameled.

Class C—Tanks are of brass, mirror polished, not nickel-plated, Fittings, valves, etc., of brass, polished. Stands, white enameled.

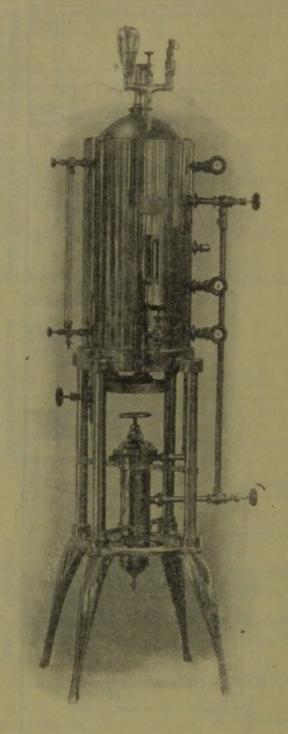
Class D—Tanks are of brass, mirror polished, not nickel-plated. Fittings, valves, etc., of brass, polished. Stands, of brass pipes, highly polished.

Class E—Tanks are of brass, mirror polished and nickel-plated. Fittings, are, of brass, polished and nickel-plated. Stands, are of brass, polished and nickel-plated.





Water Sterilizers.



Q/6875 Water Sterilizer, Perfection Type, designed for Hospitals requiring a compact apparatus. The tank is constructed of the same materials and design as Q/6870, but comprising one tank only, with the filter mounted beneath the stand.

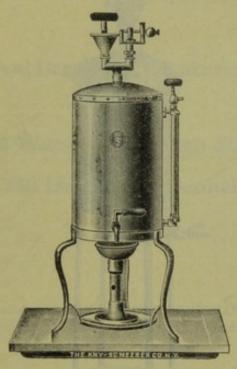
The illustration shows both the gas burner, also the two valves necessary when boiler steam is used as a heating medium. The tank is fitted with a rapid cooling coil, and is complete in every respect.

spect.

The tank and fittings are nickel-plated, the floor stand is white

| Code ZOTAY | Size 0, Capac | ity 10 | gallons, | gas | heated. | \$175.00 |
|--------------------------|---------------|--------|----------|--------|---------|----------|
| Code ZOTLE Code ZOTRA | " 1, " | 15 | " | " | " | 220.00 |
| Code ZOTUL | Steam heatin | g coil | | additi | ional. | 290,00 |

Water Sterilization under High Pressure Steam at 250° Fahrenheit.



Q/6880

Q/6880 The K.-S. Co.'s Physicians' Office Pressure Steam Water Sterilizer.

Code ZIBCO A large demand has recently sprung up for Pressure Steam Water

A large demand has recently sprung up for Pressure Steam Water Sterilizers of smaller sizes than have heretofore been constructed, suitable for the Office Surgery, Private Hospital and for Hospital Ward use. It has been found by repeated experience that water boiled under ordinary conditions, in a simple receptable, at a temperature of 212° F, is not absolutely reliable for even ordinary surgical purposes, and this in particular applies to Genito-Urinary Surgery.

Water to be relied upon as absolutely sterile, should be boiled at a temperature of not less than 250° F. for twenty minutes.

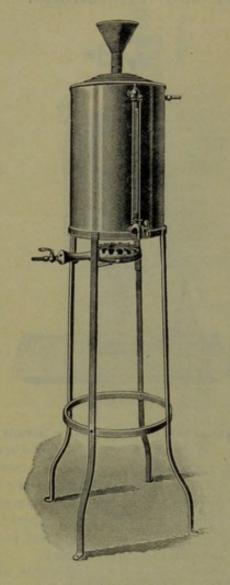
The small apparatus illustrated herewith represents a Water Sterilizer by which this necessity can be accomplished to a certainty. It is strongly constructed of hard rolled brass and will withstand a pressure of 50 pounds per square inch; furnished with water gauge, funnel, draw-off cock and safety valve. Directions for using same are as follows:

To fill, open valve shown within funnel, then fill until water gauge registers the amount of sterile water desired. The gas is then to be lit and water heated until steam is seen issuing forth from funnel, when valve within funnel is to be closed. Sufficient steam pressure will then be generated to blow off safety valve, which is set at 15 pounds pressure or 250° Fahrenheit. This temperature should be maintained for fifteen to twenty minutes for absolute sterilization.

Price, complete with gas burner and attachments, 2 gallons capacity \$50.00



WATER STERILIZERS-Continued.



Q/6885

Q/6885 This apparatus is made of polished copper, nickel-plated, coated with pure tin inside; with water lock cover. The internal coil of copper, coated with pure tin, is arranged to connect with a current of cold water from the street supply for rapidly cooling the sterilized water to a proper temperature. Apparatus is fitted with thermometer, water gauge and faucet; funnel on top for filling; and rapid heating gas burner mounted on strong stand of iton, white enameled, 36 in. high.

It is designed to meet the requirements of a simple convenient water sterilizer for small hospitals or the private surgery.

Made in two sizes, all nickel-plated.

Bar THE KNY- STATE MENT YORKUS TO

COMBINATION OFFICE STERILIZING OUTFITS

FOR THE

Sterilization of Surgical Dressings, Ligatures, Instruments, etc.

AND THE

Sterilization of Water under High Steam Pressure at 250 Degrees Fahrenheit.

The arrangement and construction of our Combination Office Sterilizing Outfits is the most complete and satisfactory of the various apparati we have ever had the pleasure of perfecting in this line.

Our aim in designing these outfits was to produce a neat, compact, complete sterilizing apparatus that could be utilized in the private surgery, private hospital or for the smaller-sized public hospital.

For this purpose they will prove most efficient and are destined to fill a long-felt want.

To-day rapid and absolute sterilization is demanded in private practice as well as in small public hospitals, and these desiderata are obtained to perfection in these apparati. In their construction we have combined compactness, simplicity in manipulation, durability and absolute safety with rapid and thorough sterilization, as we have also to a large degree minimized complicated steam-fitting connections, etc., thereby saving considerable expense of installation and possible annoyance in repairs.

As to their manipulation, one trial will prove sufficient for the instruction of any assistant.

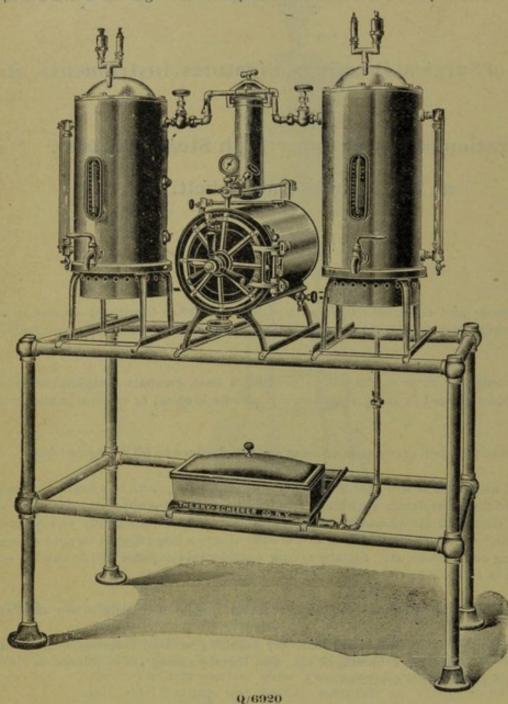
A point well worth considering is the economy resulting to small hospitals by sterilizing and preparing their own dressings, bandages, etc., and thereby saving the considerable difference in the cost of prepared sterile dressings.

In this respect alone the use of such an apparatus in a very short period will pay for itself, not to take into consideration the satisfaction of being assured of absolutely sterile material prepared under the immediate supervision and directions of the conscientious surgeon.



Combination Sterilizing Outfits.

Q/6920 Combination Office Outfit, Heated by Gas. THE KNY-SCHEERER Co.'s compact Office Sterilizing Outfit comprises a KNY-SCHEERER Improved New 1908 Model, size



No. 0 Dressing Sterilizer, two perfection watersterilizers No. 00, and one Surgical Instrument Sterilizer. The Water Sterilizers are arranged to sterilize in each tank independently; one tank is equipped with a cooling device so that the temperature of the water can be reduced as required immediately after sterilization.

Dimensions of Dressing Sterilizer are 81x19 in.; the two Water Sterilizers each have a capacity of about 6'gallons, and the instrument sterilizer is 8 in. wide, 15 in. long, 4 in. deep. Each apparatus can be heated independently.

Code ZECEA

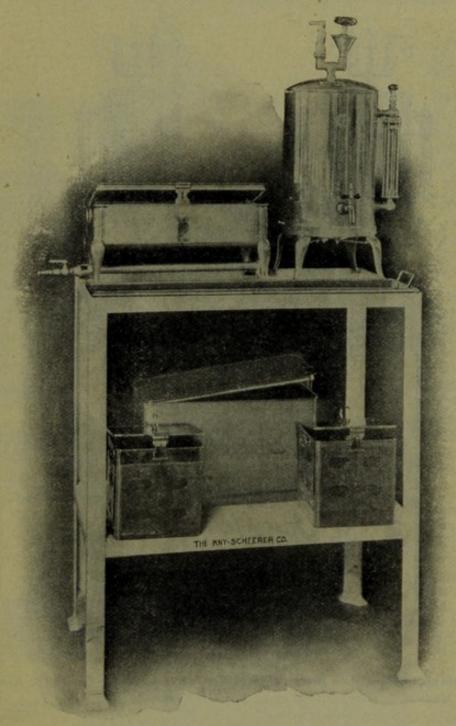
The outfit, as described above, is complete in every way and cylinders and fittings of the entire equipment are nickel-plated, mounted on tubular iron stand, white enameled. Price, complete....\$450.00

Code ZECYO

The same outfit as above, but with a Dressing Sterilizer No. 1, and a pair of Water Sterilizers holding 8 gallons each tank. Price complete 475.00

Manufactured and SCHEERERCO SCHEERERCO NEW YORK USA

COMBINATION STERILIZING OUTFITS-Continued.



Q/6925

Q/6925 Combination Outfit of Surgical Sterilizers. This compact outfit is designed Code ZECLO for the surgeon requiring an inexpensive apparatus for office use,

comprising,

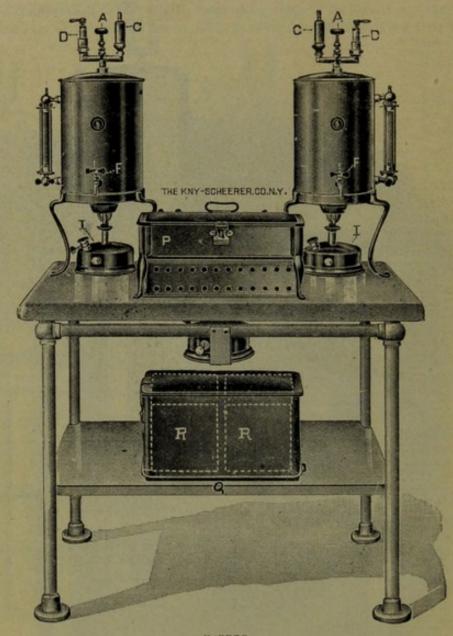
(1) A Seamless Instrument Sterilizer in combination with a Dressing Sterilizing Compartment with wire basket, and two boxes with sliding steam ports, as described under No. P/5230 of this cata-DISERBORY TOTTO BLE

(2) A Water Sterilizer, three gallons capacity, for sterilizing under 15 lbs. pressure equal to 250° F. which is guaranteed sterilization. See Q/6880.

The apparatus are provided with gas burners, all nickel-plated and mounted on a substantial stand of iron, white enameled, fitted with

a nickel-plated tray the full length of the stand. Price complete \$160.00

COMBINATION STERILIZING OUTFITS-Continued.



Q/6930 .

Q/6930 Combination Outfit of Surgical Sterilizers, adopted by the U. S. Army Code ZECMI Medical Department for small Post Hospitals.

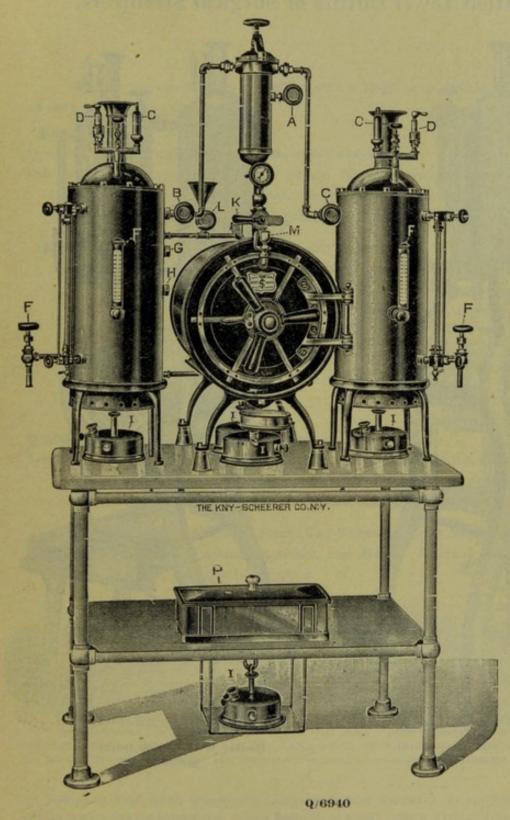
The apparatus consists of-

- 1) A Combination Dressing and Surgical Instrument Sterilizer, as described in detail under P/5230 of this catalogue.
- 2) A pair of 3 Gallon Water Tanks, for the sterilization of water under pressure, as described under Q/6880.

NOTE—Cable words stand for Gas Heat Burners. In case Petroleum or Alcohol Burners are wanted add the respective word to message "Petroleum" or "Alcohol."



COMBINATION STERILIZING OUTFITS-Continued.



Q/6940 Combina-Code tion Outfit ZECTY of Surgical Sterilizers, adopted by the U.S. Army Medical Department for large Post Hospitals.

The apparatus consists of—

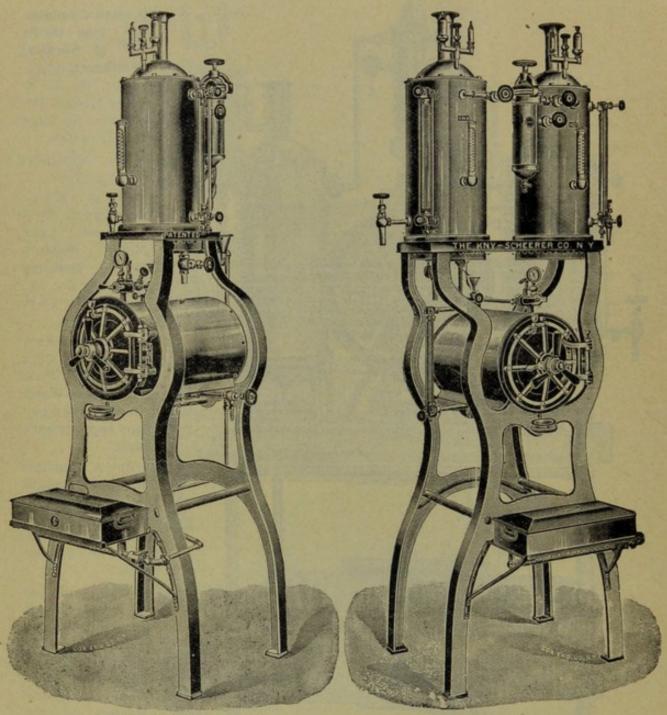
- 1) A KNY-SCHEERER Co.'s Improved 1906 Model Pressure Steam Dressing Sterilizer, size No. 2, Class B. 12 x 20 inches inside.
- 2) A pair of KNY-SCHEERER Co.'s Perfection Pressure Steam Water Sterilizers of 6 gallons capacity each tank,
- 3) A seamless stamped Instrument Sterilizer, withtrayandcover. Dimensions: 8 in. x 16 in. x 3 in. high.

The outfit, as described above is very substantially constructed and is furnished with either Gas, Petroleum or Alcohol Heaters, at the price of .. \$525.00

NOTE—Cable words stand for Gas Heat Burners. In case Petroleum or Alcohol Burners are wanted, add the respective word to message "Petroleum" or "Alcohol."



Combination Tower Outfits of Surgical Sterilizers.



Single Water Tank Outfit 0/6950

Double Water Tank Outfit Q/6960

These combinations of Pressure Steam Surgical Sterilizers have been designed for Physicians offices, particularly where space is limited and a horizontal arrangement of the various apparati on a table stand is for that reason impossible.

Note label which our goods bear



We are constructing these outfits with a single and double water tank equipment, as shown in opposite illustrations.

Q/6950 Single Tank Tower Outfit, consists of-

Code ZEDLE

- 1) One Pressure Steam Water Sterilizer Tank of 6 Gallons capacity, completely equipped with all accessories as described under Pressure Steam Water Sterilizers including Filter. Page 246.
- 2) A Pressure Steam Kny-Scheerer Co.'s Improved 1908 Model Surgical Dressing Sterilizer, size No. 1. Internal dimensions: 10 x 20 in., completely equipped.
- 3) An Instrument Sterilizer of seamless stamped metal. Dimensions: 8 in. x 16 in. x 3 in. high

Price complete......\$400.00

0/6960 Double Tank Tower Outfit, consists of-

Code ZEDRA

- 1) Two Pressure Steam Water Sterilizer Tanks, each of 6 Gallons capacity, completely equipped with all accessories, as described under Pressure Steam Water Sterilizers, including Filter.
- 2) A Pressure Steam Kny-Scheerer Co.'s Improved 1908 Model Surgical Dressing Sterilizer, size No. 1. Internal dimensions: 10 x 20 in., completely equipped.
- 3) An Instrument Sterilizer of seamless stamped metal. Dimensions: 8 in. x 16 in, x 3 in. high.

NOTE-Stands are of white enamel coated cast metal. Both apparati can be furnished with Burners arranged for Gas, Petroleum or Alcohol. Cable words stand for Gas heat Burners. In case Petroleum or Alcohol Burners are wanted, add the respective word to message "Petroleum" or "Alcohol,"



The Sterilization of Catgut by Cumol.

Drs. Clark and Miller, after a thorough bacteriological investigation and a practical experience of a year with the cumol method of sterilization of catgut, conclude that it is the most reliable. They state that many of the methods hitherto practised are unreliable, as has been shown by the outbreaks of infection which have been traced, either by direct bacteriological investigation or by the strongest circumstantial evidence, to the catgut used in the cases. Catgut received from the manufacturer is only occasionally infected with pyogenic organisms, which accounts in a great measure for the absence of infections following its use when prepared by the most questionable of methods. At least three outbreaks of infection in surgical cases have been attributed to catgut. The first, in 1879, in the service of Zweifel, was certainly reaced by Koch to the suture material by a careful bacteriological study. Kocher, in 1881, after a very superficial study of the germicidal power of juniper oil, introduced it as a sterilizing medium. Later, a large number of cases in his hospital service became infected, and Kocher, feeling that he had such strong evidence against the catgut employed in the cases, published an article against its use in any form, entitled, "Away with Catgut," In January, 1893, a very serious reign of infection occurred in the gynaecological wards of the John Hopkins Hospital, which was believed to be due to catgut prepared by boiling in alcohol under pressure. The most perfect means of sterilization of catgut for surgical purposes is, unquestionably, by heat. Until the introduction of the methods of Benckisser and Reverdin (1881), it was considered impossible to raise any form of animal ligature material to a temperature sufficient to render it sterile without making it brittle. Reverdin demonstrated that it was not the oil, as previously supposed, but the hygroscopic property in catgut which caused it to become brittle when heated. If this is driven off by dry heat at a temperature of 70° C., the catgut

The only objection that may be offered to the cumol method is that, occasionally through an error in technique, due to carelessness, a lot of catgut will be destroyed by overheating. This, however, need seldom, if ever occur, if the

details of the method are carefully followed.

The catgut prepared in this manner is strong and flexible. The technique is as stated, and is easy to learn and

easy to apply.

It may be described as, follows: The gut is cut into lengths of 33 c.m., and bundles of twelve strands are twisted into rings of a size to fit heavy glass ignition tubes, used as storage receptacles. The rings of catgut are placed in the apparatus and dried at a temperature gradually raised to 80° C. and held at that point for two hours. This exposure drives all the moisture from the material and prevents the gut from becoming brittle during the subsequent steps of its preparation, from the conversion of the animal tissue into a glue-like substance. The gut is then immersed in cumol, the temperature of which is raised to 155° C., and maintained there for an hour. The process is completed by drawing off the liquid through a tube at least 24' long, attached to the lower spout and drying the rings of catgut at a temperature of 100° C. for about two hours until the excess of cumol is entirely driven off. Finally the rings are transferred to sterile tubes plugged with cotton and stored within heavy glass aseptic jars.

The No. 3 catgut prepared in this way is completely absorbed in ten days. As this is the largest size suitable for general use, Dr. Miller has devised a means of preparing the gut, before cumolization, with formalin, through which it requires from fourteen to eighteen days in the tissues for its absorption. It roughens the catgut somewhat, but does not

weaken it, and has no other objectionable features. Dr. Miller describes his method thus :-

"My method is to take the large rolls of catgut as they come from the dealer, cut the silk threads which bind them, place them on a cylinder which they fit loosely, and soak them in the formalin (10 per cent). After ten hours they are removed from the formalin and placed in running water overnight. They are then wound on a loose, wide gauze roller bandage and dried in the sun before a hot air draught. The process after this is the same as described in the cumol method."

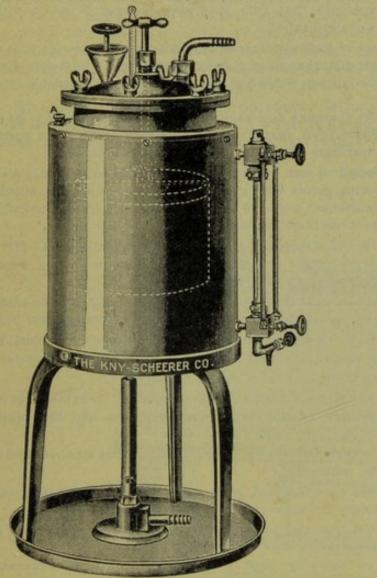
Since the addition of formalin for its hardening action, both Drs. Clark and Miller have given a most thorough test to this more durable catgut and find it of the greatest service in plastic operations, rendering the removal of stitches unnecessary. This, of course, is of the greatest possible value, conserving the surgeon's time and patience, and relieving the patient of a great deal of dread from the removal of stitches.

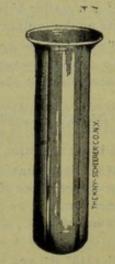
CAUTION.—A rubber tube, at least 36 inches long, should be attached to the spout on the top of the apparatus to convey the vapor of the cumol to a condensor, avoiding waste and the precipitation of the cumol gas to the level of the Bunson flame, as it will ignite.



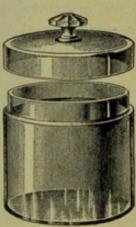
Apparatus for the Sterilization of Catgut by Cumol,

UNDER THE METHOD OF J. G. CLARK, M.D., FORMERLY OF THE JOHNS HOPKINS HOSPITAL, BALTIMORE, MD.





GLASS IGNITION TUBES for Ligatures.



Glass Jars for Storage of Ignition Tubes.

These sterilizers are made throughout of brass and bronze, nickel-plated. The interior, or cumol retaining cylinder is 6 in in diameter and 8 in. deep. The outer cylinder is 8 in. in diameter and 8½ in. deep, providing for an intervening space of 1 in. all around between the two, and 1½ in from the bottom of the inner to the bottom of the outer cylinder. This space is compactly filled with white sand. The top of the sterilizer articulates closely with the cast bronze "faced" ring secured to the upper end of the retaining cylinder, forming a steam-tight joint. The apparatus is supported on four legs of bronze, which rest in a metal tray, as shown in illustration. The heating is accomplished with a Bunsen burner. The gas jet is impinged against the bottom of the outer cylinder, heating the quartz bath uniformly, and in turn transmitting uniform heat to the cumol. The cumol sterilizer is provided with draw-off valve, thermometer, Bunsen gas burner, supporting tray and hose nozzle. If gas is not obtainable, we can fit them with a safe and convenient form of petroleum burner at a slightly increased cost.

NOTE-For technique, see preceding page.



Apparatus for the Sterilization of Milk and for its Subsequent Cooling.

It is a matter of common experience that milk undergoes changes in its constituent elements by the ordinary methods of sterilization.

These changes are sometimes of such significance that infants, to whom the milk may be given, frequently sustain serious disturbances of nutrition, as a result. Barlow's disease is an illustration of the bad consequences following the use of such an unsuitable form of food.

The most reliable pediatrists therefore now advise that when cows' milk is to be used as a diet for infants, it either be Pasteurized that is, heated to 85° C. (185° F) or partially sterilized by submitting it to a temperature of 100° C. (212° F.) for five minutes.

Milk which has been subjected to such treatment, however, can be kept only a short time, for the varieties of spore-forming germs with great resisting power are not killed by Pasteurization, nor by partial sterilization, unless it is immediately and quickly cooled to a temperature of 12° C. (54° F.) after it has been thus heated.

If this is not done, the milk will slowly cool down to a temperature of 25° C. (77° F). to 45° C. (113° F.) and will sustain important detriment during this slow cooling process, manifested by a development of the spores above alluded to.

Rapid cooling of the milk has another advantage, when the milk is to be used for infants' food, in that the fat globules, under these conditions, are not converted into butter.

In sterilized milk which cools slowly, a portion of the microscopically small milk globules cohere into large drops of butter, the digestibility of the milk being thus impaired.

In milk which is cooled rapidly, the milk fat is held in emulsion.

The Kny-Scheerer Co.'s apparati for the Sterilization of milk and its subsequent cooling process, quickly raise the temperature of milk to the desired degree and then quickly lower it.

The milk is thus treated in bottles and is either Pasteurized or partly sterilized and also subsequently cooled by the aid of a water bath.

The differences in temperature are attained gradually, not suddenly, so that violent expansion and contraction with consequent breakage of the jars does not occur.

Experience has demonstrated that this method of sterilization is not attended with breakage of containers.

The apparatus illustrated on following page is well suited for use in dispensaries in which milk is prepared for children, on account of its small dimensions, and the ease with which it can be manipulated. The smallest size requires a surface area of only about six square feet.

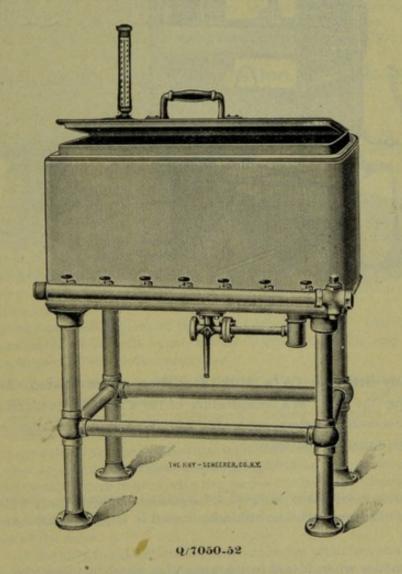
The apparatus, consists of a metal chest, covered with a lid, and resting upon four solid feet. It is heated by gas, or steam coil; the heating appliance being adjusted underneath.

Its sides are surrounded by an insulating envelope, also of sheet metal. Inside a perforated tray is raised about an inch above the bottom and upon this, is space for about six dozen eight ounce flasks, the flasks being separated from one another in the compartments of a removable wire frame.

The apparatus, with the milk flasks filled, is first supplied with water, by means of its water supply cock, to the level of the neck of the flasks. An overflow tube prevents the water from rising above this level. The apparatus is then closed, a thermometer is introduced into one of the flasks of milk through a perforated rubber stopper in its lid and the gas jet is lighted. The heat from the gas jet radiates not only over the bottom of apparatus,

but over the side walls as well. This heat supply should be kept up for about thirty minutes and may then be discontinued. Immediately afterward the process of cooling the milk is begun. By a turn of the three-way cock on the bottom of the chest, the proper valve is opened; a supply of cold water under moderate pressure flows into the space in which the tray and the flasks of milk are placed, mingles with the hot water there, and takes the place of the latter which is carried off through the overflow tube. The cold from the inflowing water withdraws the heat from the milk flasks. In a very short time the milk flasks will be seated in a current of cold water and in about five minutes the milk will have reached the same temperature as the cold water bath.

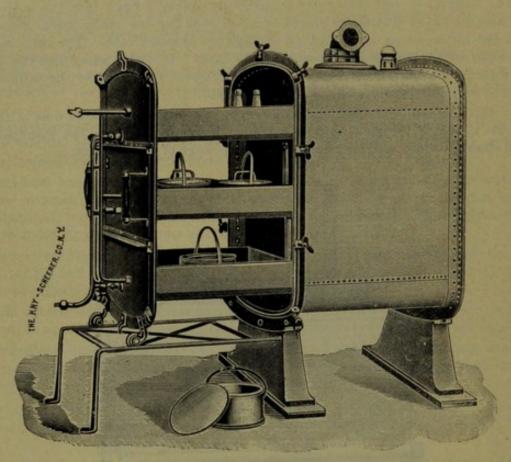
By this method of cooling, the milk remains for only a very short time at the temperature of 20° C. (68° F.) to 40° C. (122° F.) which is dangerous from the standpoint of the chemical changes which quickly take place at that range of temperature.



Other dimensions to order



MILK STERILIZERS—Continued.



Q/7055

Other dimensions to order.

This apparatus is especially adapted for hospitals, creameries, dealers, etc., in short for establishments of many kinds in which milk is used in large quantities and where a steam plant is available.

The milk bottles when placed in the apparatus stand in trays which are filled with water, the shelves, holding trays, being permanently secured to the front door of the sterilizer. When the apparatus is opened, these trays are drawn out simultaneously, the whole running on tracks.

In a recess upon the floor of the trays runs a series of finely perforated tubes which are connected by a suitable valve with the steam inlet as well as that of the water. By a turn of the valve, steam and water can be introduced in succession into the trays at will. The series of trays are placed one over the other by supports of suitable construction.

The process of sterilization is accomplished in the following manner:

The steam is first introduced into the trays of the closed apparatus, the latter having been filled with water and the milk jars properly seated. A thermometer introduced through an opening in the roof of the apparatus and into one of the milk jars, keeps one informed as to the temperature of the milk.

After the temperature has reached the desired elevation and has been sustained a sufficiently long period, the steam is turned off and a current of cold water allowed to flow

through the tubes into the trays which were mentioned above.

The cold water displaces the hot, is partly commingled with the latter, and withdraws the heat from the milk bottles, and their contents. As large a quantity of water as is introduced, is carried out by the off-flow pipe so that in a short time the trays are filled with cold water alone, and the bottles will be in a flowing current of cold water, which will reduce the temperature of the sterilized milk in a very few minutes to that of its own. It is thus apparent that the milk is kept at the dangerous incubation temperature for only a very short time.

Apparatus for the Sterilization of Milk by High Pressure Steam.

In order to sterilize the milk reliably and bring it to a state in which it will keep a sufficient length of time, whatever the conditions may have been under which it was produced, it must be heated to from 100°C. to 102°C. (212 to 216°F.) for more than an hour, or to 115°C (239°F.) for a period of five minutes.

This statement holds equally true of the products of creameries, one of the chief of which is skimmed milk. The great utility of a sterilizer which performs its work at a temperature at 115°C. (239°F.) or under the pressure of three quarters of an atmosphere (about 11 pounds per square inch) will at once be apparent on the score of economy as to time but it will possess the additional advantage that it will cause by so brief an exposure to high temperature, no chemical changes in the milk and the milk products, which would be perceptible to sight, smell or taste.

On the other hand the prolonged process of sterilization at 100 to 102°C, will cause apparent caramelization of the milk sugar, a boiled taste to the milk, and chemical changes of an extensive degree. So we recommend:-

0/7060 The Kny-Scheerer Co.'s Milk Sterilizer, for the sterilization of milk by steam, under pressure at a temperature higher than 100° C (212° F.) Code OPSYE with arrangement for subsequent cooling apparatus holding 240

8-ounce bottles, complete with 3 shelves and pans..... \$425.00

The management of this high pressure milk sterilizer does not differ in any respect from that of the apparatus described under Q/7055. The only difference consists in the fact that a higher temperature is used with the former. The high pressure and consequent high temperature which obtains in this apparatus during the process of sterilization is quickly suspended by the introduction of cold water, and the milk bottles, in a short time, are standing in a current of the same.

In this way the milk is quickly cooled and extensive chemical changes in it are prevented. The very effective sterilization which is accomplished by this apparatus has given increased value to skimmed milk.

In order to obtain in perfection the results which have been described, the particular directions which apply to the High Pressure Sterilizers and Steam Disinfectors noted in this publication must be carefully carried out. By observing them it will always be possible to discontinue the sterilization at the appropriate moment,



DISINFECTION

History

The process of disinfection has been practised in one form or another from times immemorial; the preservation of meats and vegetables by smoke and fumes has been in vogue for ages. The use of antiseptics such as pitch or tar, resins and aromatics, were largely employed by the Egyptians in embalming bodies even before they had a written language.

The fumes of burning chemicals were employed by the ancients for deodorizing and disinfecting. Sulphur was the first of these to be mentioned. In the Odyssey¹ the following passage is found:

> "Anon spake the chief to the dear nurse Eurycleid, Fetch me brimstone, sweetener of taints, That I may fumigate the hall."

It was not until the seventeenth century, however, that these agents which had been employed in domestic use began to be applied to the control of contagious disease. It might be said that the custom originated with the discoveries of Scheele, Cavendish, Lavoisier and others.

BOYLE was first to record observation upon the influence of air and heat (dry air) and the production and retardation of putrefaction.

Disinfection of hospitals and lazarettos was first mentioned during the great plague of Malta, where these places were attempted to be purified by cleansing solutions, aeration, the smoke of burning straw and fumes of vinegar, and not the least, by the fumes of sulphur, antimony and arsenic. It was here that the celebrated for nula of the fumigant used in all the Levantine lazarettos had its origin. Its composition² was:

| Sulphur Orpiment, crude antimony, litharge, cumin seed, Euphorbium, black pepper and | 6 pounds |
|--|----------|
| ginger, each | 4 " |
| Asafætida, cinnabar, sal ammoniac, each | 3 " |
| Arsenic | " |
| Raspings of sawdust of pine wood | 6 " |
| Bran 50 | 0 " |

¹Raymond: Sulphur as a disinfectant. N. Y. Medical Journal, 1893. ²Montgomery Martin, History of British Colonies.



It was styled as "the most offensive and most effectual compound" for freeing objects from contagion. This fumigant unfortunately was almost exclusively employed in the purification of merchandise and the mails, and little application of it was made to the treatment of the effects of those sick or exposed to contagion.

Soon after the discovery of oxygen, chlorine, etc., the fumes of chlorine and oxygen compounds were employed for the purification of apartments, and to infected vessels in particular. Following these methods the fumes of hydrochloric acid, nitric acid, and sulphurous acid (sulphur dioxide), were largely employed for this purpose, and, it must be said, not without good results.

The world is indebted to the English physicians to be the first to break away from the old Venetian method of lazaretto and detention for contagious diseases, and establish a system for the treatment of infected persons and things which has formed the basis and underlying principle for methods of the present day. Credit must be given to Thomas Walter, a British naval surgeon, for the clear insight which he had concerning the disinfection of infected apartments and materials. His rules for the treatment of typhus fever were embodied in the following:

"The recovered men relieved from the hospital were treated upon their coming back (to the vessel) with great precaution.

Having received at the hospital lazaretto notice of their recovery and intention of their return, a careful officer was sent thither to see all their clothes and bedding well aired, being spread aboard for two days, and well beaten and cleansed previous to their coming to the ship.

Upon their arrival on board every man was washed in warm water and with soap, and an entire changing of clothes was then put upon him; all the rest of his apparel and his bedding was immediately fumigated with brimstone.

The apartments of the ship in which cases of fever (typhus) occurred were aerated and fumigated."

Heretofore, no comprehensive plan had been adopted for the treatment of persons exposed to or liable to disseminate contagion, but rather had the efforts been directed to either personal effects and merchandise, or to the person.

One can readily see how these imperfect methods, only half thoroughly performed, would bring about a condition which was equal to, if not worse than, the old Venetian system of isolation and detention, with its consequent immunity or death.

Purification of premises and the destruction of noxious and infectious material by fire evidently had its origin among the Egyptians. The cremation of bodies of animals, and of persons, as in the case of war, was often resorted to as a means of their disposal, as well as to destroy putrefactive odors.

Moses is the first to be recorded as prescribing a system of purification by fire, and may be said to be the originator of the first system for the purification of infected premises. From the precepts as laid down in the Mosaic law, is based the various systems of purification of the succeeding ages.

¹Medicina Nautica. Thos. Walter, M. D., Vol. pp. 431-439.

Steam

The first application of moist heat as a cleansing agent was conceived by Bell, who advanced the idea that if steam would kill animal life, it would be an excellent plan to free rooms, etc., from vermin. This he successfully applied on board ship, in freeing the living apartments from cockroaches, and soon thereafter suggested its use in the disinfection of a vessel infected with cholera. He recommended the thorough steaming of the infected apartment and contents with the vessel's steam, with the result of arresting the further progress of the disease.

Heat

DAVAINE and DRYER, in 1873, recognized an infectious agent in the blood of animals dead of a septicæmia anthrax, which was attenuated and destroyed by heat. In 1875 it was demonstrated that vaccine virus² would also lose its potency when subjected to a temperature of 220 degrees Fahrenheit.

Hot Air

The first practical attempt to employ an apparatus for disinfection was made by Darrow & Symington³ in England, in 1850, in disinfecting by heated air, where it was employed in drying and baking clothing of cholera patients. The temperature employed was from 200 to 250 degrees F. This was in a great measure successful.

Beginning of Scientific Disinfection The principles underlying disinfection rested wholly on empiricism, or by experience gained, until the discoveries of Pasteur, who, in 1879, explained the causes of fermentation and the relation of bacteria to disease, as well as the influence of physical and chemical agents in preventing the growth and

development of the micro-organisms.

The researches by Koch and Wolffhuegel, made in 1883, are based entirely on the principles laid down by Pasteur. Their experiments on the disinfecting properties of steam and superheated air mark the era when it may be said that the science of disinfection and sterilization began.

The researches of these savants were the natural outcome of PASTEUR and DAVAINE'S investigations into the cause of anthrax and the septicæmic infections of the smaller animals. It must not be forgotten, however, that the foundation for all this work rested upon some almost forgotten experiments of Spallanzani, who, in 1777, was the first to announce the efficacy of heat in the destruction of the bacteria and the sterilization of liquids.

Since 1883 attempts have constantly been made to reduce the abstract truths to a practical form by which these agents and forces can be utilized for the purification of objects from contagion and to prevent the spread of infectious diseases. Various apparatus and appliances have from time to time been devised for the more efficient means of applying these physical and chemical agents.

Disinfectants Disinfectants may be considered under two heads:

1. PHYSICAL AGENTS.—2. CHEMICAL AGENTS.

Bell. Trans. Int. Med. Cong. 1887—IV. 567.
 Baxter. Report of the Medical Office of the Privy Council, and Local Government Board, 1875.
 Philosophical Magazine for 1851, Eng.



Physical Agents.

Physical agents, such as heat, cold, light and dryness, possess destructive powers to a more or less degree, toward the bacteria and the "contagium vivum" of certain diseases; foremost among these is heat.

Sunlight, or concentrated artificial light, particularly that rich in the violet and ultra violet rays, exerts a marked destructive influence against bacteria, more especially those of the non spore bearing varieties. The bacillus of tuberculosis, the spirillum of Asiatic cholera, and the bacillus of bubonic plague are rapidly destroyed when subjected to the direct rays of sunlight. The same may be said of artificial light, as above referred to, but to a much lesser degree.

The common custom of aeration and exposure to sunlight of articles supposed to contain contagion is founded on a correct principle.

Cold, or the absence of heat, exerts but little or no influence upon disease bacteria. It seems, however, on the contrary, to keep alive certain disease germs. Malaria is said to be averted by cold, but the light of recent researches as to how the disease exists outside the body appears to establish the fact that the cold kills the mosquito, the host of the malarial parasite. Cold does exert a marked restraining influence on yellow fever; in fact, this seems to be the only hope of eradicating the disease. A sharp, killing frost will almost invariably drive an epidemic of yellow fever to an end. Reed and Carroll's latest researches appear to establish the fact that the mosquito is the means of propagating yellow fever, and if this is so, it can readily be seen how cold would act upon the mosquito.

Dryness affects quite a number of the disease germs, that of cholera in particular. This is an exception to the rule; dryness as a usual thing, may be said to preserve the life and virulency of micro-organisms.

The thermal death point of the pathogenic bacteria has been carefully determined by Sternberg, who demonstrates that all nonspore bearing varieties were killed by a ten minutes exposure at a temperature between 62° and 70° C. (143.6° and 158° F.) and all the spore bearing varieties were killed at 100° C. (212° F.), for five minutes exposure. That is to say, when the bacteria were in a fluid menstruum. We have then to deal with two temperatures of moist heat (70° and 100° C.) in the destruction of bacterial life.

Although the laboratory experiments have accurately determined the deathpoint of the bacteria, it has been extremely difficult to apply these exact temperatures to objects on account of the dissimilar conditions which are met with in common practice. In this respect our laboratory, or the exact knowledge, has often fallen short of the actual requirements.

American Journal, Med. Science, 1887.



Dry Hot Air

Koch and Wolffhuegel demonstrated that there was a great difference in the effect of dry heat on bacteria as contrasted with that of moist heat. It required a temperature of 150° to 165° C., continued for one hour, to destroy spore life, whereas moist heat of 100° C. would produce the same effect within a few minutes.

Steam and Air

Numerous attempts have been made to combine the bactericidal properties of steam and air; these have been only partially successful; the difficulties encountered are to be attributed to the molecular difference and to the thermal death point of bacteria of such a mixture.

When steam and air are mixed together, there is a loss of heat units from the steam to the air, which tends to expand the molecules of the air and contract those of the steam; condensation of the water is the direct result, while secondary to that phenomenon is the inequality of the rate of expansion between these bodies. Until the rate of expansion becomes equal in both steam and air, no ultimate mixture will take place. This condition will explain, in part, at least, the reasons for the cause of the unequal temperatures obtained in different parts of a receptacle intended for disinfection of objects; even the presence of a small quantity of air in the steam will tend to hamper the equal diffusion of the heat units.

The bactericidal effect of the steam is therefore diminished in proportion to the amount of air present. Thus Rubner² states that:

| 91.6% | steam | and | 8.4% | air | at | 100° | C. | kills | anthrax | m | spores | in | 3 m |
|-------|-------|------|------|-----|------|------|----|-------|---------|----|--------|----|-----|
| 80% | " | " | 20% | " | ** | ** | | ** | " | " | " | " | 10 |
| 100% | - 66 | . 65 | 0% | 46 | ** | | | " | " | 66 | " | " | I |
| 63% | " | ** | 37% | 46 | - 66 | ** | | " | " | " | " | 46 | 30 |

Aqueous Vapor or Aqueous Tension of Steam The atmosphere of steam to be most potent should be in a high state of molecular division and be fully saturated with the aqueous vapor. The quantity of aqueous vapor largely determines the disinfecting quality. The greater the quantity of aqueous vapor at 100 degrees C., the greater the number of effective heat units.

Steam

The potency of the aqueous vapor is dependent on the temperature.

If, for example, we heat water until the supernatant layer of the air is fully charged with aqueous vapor and the temperature 95° C. is obtained, it requires five minutes to kill anthrax spores, and when only 90 degrees C., it requires over twenty minutes to kill.

The aqueous vapor or saturation of steam increases with the pressure until two atmospheres (30 lbs.) is reached, after which it diminishes.

Thus, at a pressure of one atmosphere there is $\frac{7}{10}\%$ increase, and at two atmospheres, $\frac{8}{10}\%$, after which the aqueous vapor diminishes inversely to the pressure.

¹ Hygienische Rundschau, 1899. Zur Theorie der Dampf Disinfection.
² Mittheilungen des Gesundheitsamt, 1883.

The dryness of steam hinders disinfection, because in the elevation of the temperature the steam approaches the gaseous state and loses its hygroscopic qualities. Esmarch's experiments with superheated steam on anthrax spores demonstrate this fact.

| Anthrax | spores | at | 100°C. | moist | heat | , I | minute, | growth |
|---------|--------|----|--------|-------|------|-----|---------|--------|
| " | " | ** | 100 | " | ** | 5 | " | 3 " |
| " | " | ** | 100 | " | ** | 10 | " | dead |
| " | | ** | 110 | " | ** | 2 | " | growth |
| " | " | | 110 | " | | 5 | 16 | " |
| " | " | ** | 110 | ** | ** | 10 | " | " |
| " | " | | 120 | ** | ** | 2 | " | ** |
| " | . " - | | 120 | " | ** | 5 | " | " |
| . " | 1 25 | | 120 | ** | ** | 10 | " | " |
| | ** | | 150 | 16 | ** | 2 | " | " |
| " | " | ** | 150 | ** | " | 5 | " | 16 - |
| " | | ** | 150 | ** | " | 10 | .66 | dead |
| " | | | 150 | " | " | 15 | " | " |
| " | " | ** | 150 | ** | " | 20 | " | " |
| " | | | 200 | | ** | 10 | " | " |
| " | " | | 200 | 16 | " | 15 | " | " |
| - | 16- | " | 200 | " | " | 20 | ** | " |
| | | | | | | | | |

RUBNER² confirms this in the following experiment:

| Steam, | full | saturation | at | 100° | C., kills | anthrax | spores | in | I | min |
|--------|------|------------|----|------|-----------|---------|--------|----|----|-----|
| " | dry | " | | IIO | 41 | " | ** | 15 | 2 | |
| " | - 44 | " | 62 | 120 | " | " | " | 16 | 6 | " |
| " | 44 | " | 66 | 127 | " | " | " | 66 | IO | *** |

The Manner in which Steam acts upon Bacteria The thermal deathpoint of bacteria depends upon the facility with which the albuminous constituents of the cell is broken up or changed by the heat. The behavior of these bodies is similar to that of albumen when heated; when the albumen is in solution or a moist state, it requires comparatively but little heat to alter its physical condition, coagulation taking place at about

70° C. On the other hand, if albumen is dried, it will withstand a high degree of heat for a long time before its physical character or chemical properties are modified or changed.

The thermal deathpoint of the non-spore bearing bacteria more nearly coincides with the coagulating point of albumen, and that of the spore bearers to that which changes the character of dried albumen. Buchner states that the reason why the spore is not killed by dry heat is that it contains no moisture and that its action is a chemical rather than a vital one.

¹Zeitschrift für Hygiene, 1890. ⁹ Hygienische Rundschau, 1899.

When moist heat at 100° C. is applied to a spore it is killed just as soon as it absorbs sufficient moisture to allow the coagulation to occur. This coagulation may be slight and not alter the physical properties.

Apparatus for Application of Moist Heat

There are several forms of apparatus designed for steam disinfection. In Europe two systems are in use: one consisting of a large receptacle through which a current of saturated steam is made to pass, and another for the application of steam under pressure. The first is a direct outgrowth of the experiment

of Koch and Wolffhuegel and of Von Esmarch, and the other from the experiments of the French School. In the United States similar apparatus have been constructed which are intended for steam under pressure, or a combination of pressure and streaming steam (Steam Currents). As a matter of history it may be stated that the first apparatus was modeled on that of Parsens and Bell, and was for hot air; these have long since been discarded.

In 1888, on the recommendation of Kinyoun, the Louisiana Quarantine Board constructed the first steam chamber in the United States which was for the application of steam under pressure (1 to 2 atmospheres).

Since then this form, or modifications thereof, has been adopted by National, State and Municipal Boards of Health.

Forms of Apparatus

The evolution and perfection of the steam disinfector has been, like all other apparatus of kindred nature, slow in development. The first disinfectors were modeled after French models, and then gradually improved, until it has reached a stage of perfection which leaves but little to be desired.

The French system is designed for steam under pressure. French consists of an oblong cylinder placed horizontally, closed at either end by steam tight doors, hinged and provided with screw lug clamps. It is provided with a heating coil distributed on the sides of the interior, and a car or crates for containing the material for disinfection. Steam (high pressure) is introduced into the chamber at the bottom and the escape provided for at the top.

The form of disinfector which finds the most favor in Germany German is similar in construction to the French, save that a jacket, made by the outer and inner shell, is substituted for the heating coils. Steam is introduced in the bottom and allowed to escape through the top either as streaming steam, or under pressure, whichever may be desired.

The single wall pressure chambers with heating coils have been American adopted in a few instances, and are those erected a number of years ago, but the majority have been those provided with a steam jacket. At first they were constructed of huge proportions, but now on account of the improvements, a disinfector of medium size is far more efficient than the largest sizes of the old type.

Abstract of Sanitary Reports, 1888. Report on the Louisiana Quarantine.

Kinyoun¹ has during the past fifteen years devoted a considerable time in remedying the defects of the steam disinfector, and has from time to time made several improvements which have been found to be quite advantageous. The pat-

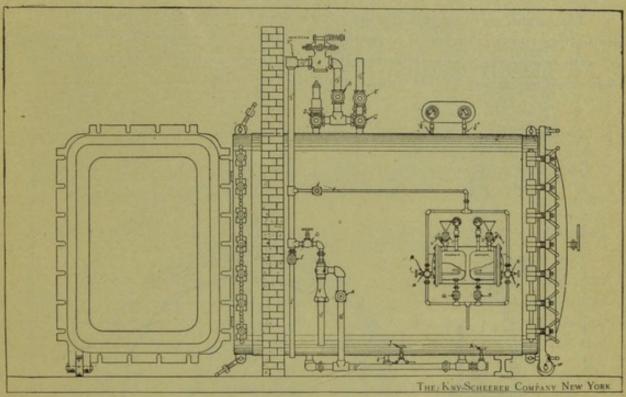


Fig. A-Rectangular Form American Steam Disinfecting Chamber, Jacketed Type with Toggle Bolt Door, as Manufactured by THE KNY-SCHEERER CO., New York

tern which he recommends, and which is now adopted at the several National Quarantine Stations, is an oblong chamber or cylinder, jacketed, the entrance of the steam being at the top and exits at the bottom. By this system the currents of steam are controlled, as well as the rapid removal of the air, by the aid of a partial vacuum.

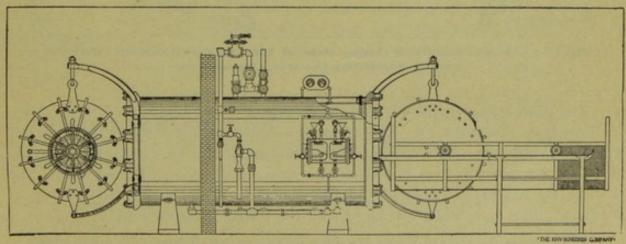


Fig. B-Circular Form American Steam Disinfecting Chamber, Jacketed Type with Radial Arma Rapid Closing Door, as Manufactured by THE KNY-SCHEERER COMPANY, New York

Annual Report of the Supervising Surgeon-General, 1895.

The advantage of the square oblong form over the cylinder lies in the fact of the economy in space. Where this point is not a desideratum the circular form is equal in all respects.

The rapid opening and closing of the doors of the steam chamber is one of prime importance, especially at quarantine stations. A square chamber, constructed with toggle bolt door, requires about ten times as long to open and close as does one provided with the rapid closing doors.

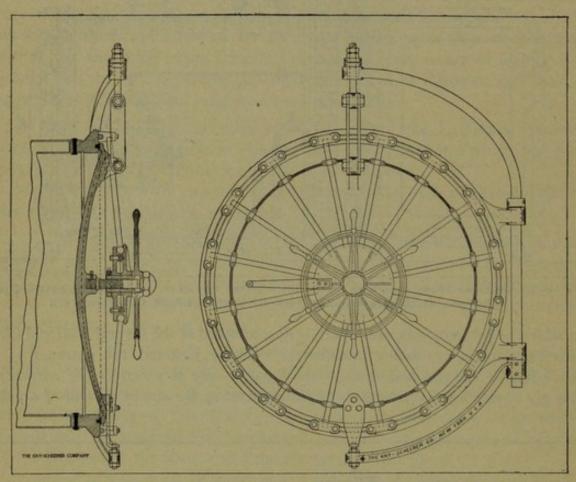


Fig. C-The Radial Arm Rapid Closing Door of THE KNY-SCHEERER COMPANY'S Steam Disinfecting Chamber, Circular Form

The disinfecting chambers, both of rectangular and circular form, constructed by The Kny Scheerer Co., New York, overcome this difficulty in an admirable manner with the improved door, provided with radial arm levers which engage the rim of the chamber and by the means of a screw in the door. By this system the door of the largest size chambers can be opened or closed within one minute, an incredibly short time when compared with the system of screw lugs.

These disinfectors are provided with means of producing and maintaining a vacuum. By these means the air is more quickly displaced, and a more rapid and equal diffusion of the heat brought about; it shortens the process by at least one-half the time it required in former methods.

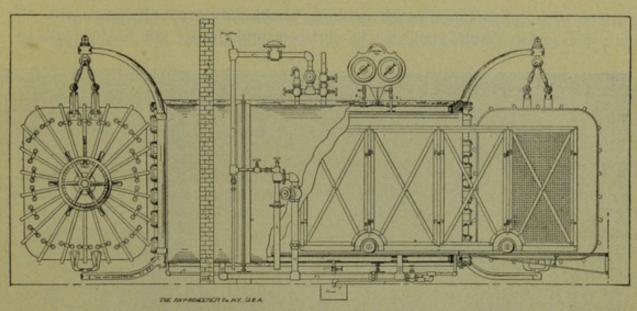


Fig. D-THE KNY-SCHEERER COMPANY'S Rectangular Form Steam Disinfecting Chamber, Jacketed Type with Radial Arm Rapid Closing Door

Portable Steam Disinfectors

In addition to the circular and square disinfectors, which are stationary, portable apparatus have been constructed for municipal and military purposes. They consist of a steam chamber boiler and appurtenances mounted on trucks. The advantages of this form over the others lies in the fact of their being portable. They are admirably suited for military purposes, and for the control of epidemics in cities and towns.

The chief obstacle in the way of the portable steam disinfectors is their weight. This has in a great measure been overcome by the substitution of a water tube boiler in lieu of the ordinary form, and the employment of petroleum for fuel. This latter is a great desideratum, as it is cleanly as compared to coal. portable disinfector constructed after this style can be easily drawn by two horses.

Method of Operating Steam Chambers The method of operating these disinfectors is founded upon our knowledge of the physics of heat, and especially its behavior toward bacteria, and the amount and character of the heat required. The efficacy of the process depends upon the following:

1st. THE RAPID AND COMPLETE ELIMINATION OF THE AIR FROM THE CHAMBER.

THE PENETRATION OF THE OBJECTS WITH STEAM and. FULLY SATURATED.

3rd. THE PREVENTION OF CONDENSATION OF WATER ON THE OBJECTS.

Mention has already been made of the behavior of air and steam toward bacteria. ESMARCH and RUBNER have called particular attention to the unreliability of the disinfecting properties of steam and air. The former demonstrated that

currents of steam passing through an object would very gradually remove the air, and that perfect results could not be obtained until the air was finally removed.

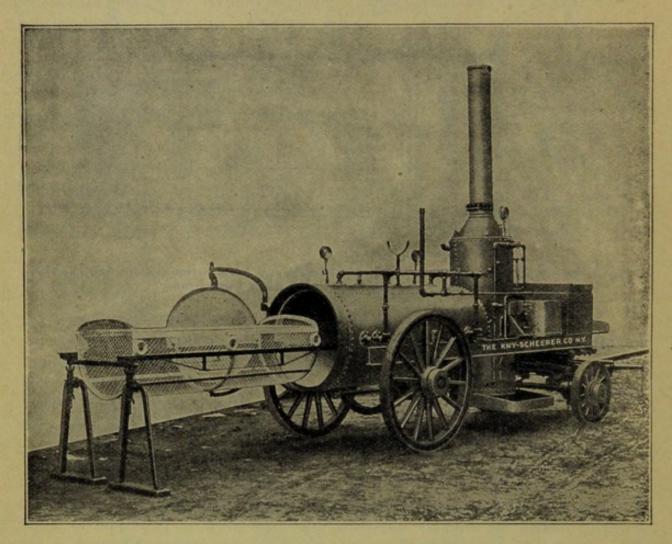


Fig. E-American Type Portable Steam Disinfecting Chamber, Cylindrical Form, Jacketed, Complete with Boiler Mounted on Truck

The vacuum process more readily accomplishes this than a current of steam, by systems of alternate vacuum and pressure combined with steam currents under a slight pressure, which was first recommended by Kinyoun.

The penetration of the objects by the steam depends largely upon the rapidity with which the vacuum and pressure can be produced. This will quickly remove the air within the objects, displace the "dead air" in the chamber, and allow the articles to more readily absorb the heat.

The condensation of water on the objects is always to be avoided, as it retards the displacement of the air and the subsequent penetration of the steam.

The following directions should be observed in operating a large disinfector:

The steam supply should always be ample and should be carried in the boiler at not less than 80 pounds pressure. The steam supply to the jacket and chamber should be controlled by a reducing valve set at not more than 15 pounds to the square inch.

The steam should be allowed to enter the jacket slowly and fill it to the requisite pressure. The car containing the objects to be disinfected should be run into

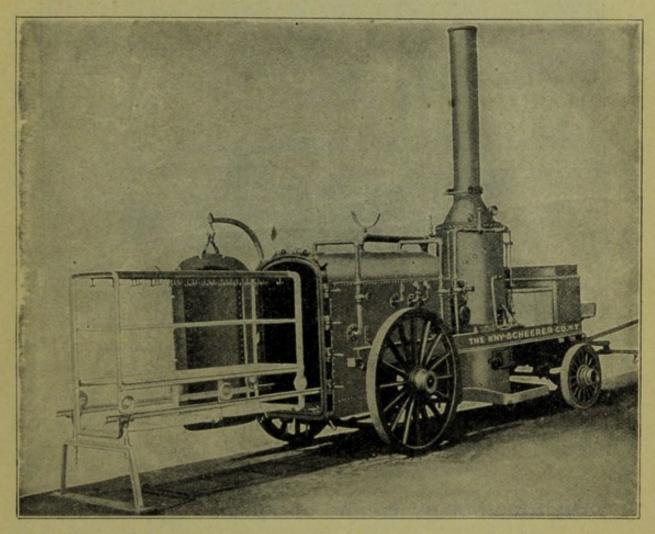


Fig. F-American Type Portable Steam Disinfecting Chamber, Rectangular Form, Jacketed.

Complete with Boiler Mounted on Truck

the chamber and doors then be closed and made tight, and the vacuum vent pipe be left open for the escape of the expanding air.

As soon as the temperature of the chamber registers between 80° and 90° Centigrade, the vacuum jet should be put in operation and until at least half an atmosphere is indicated. Steam should then be allowed to pass into the top of the chamber from the jacket until a positive pressure of 7½ to 15 pounds is attained. Then a vacuum is again produced and the process repeated. After the second process the bleeding or vent cocks in the bottom should be opened slightly so that a current of steam will pass through the chamber. The steam currents can be controlled at will and modified as desired.

It is claimed that the advantages of this system lie in the fact that the steam is always in a degree of saturation; that there is a more rapid elimination of the air from the interior of the object; the prevention of condensation; and, above all, economy.

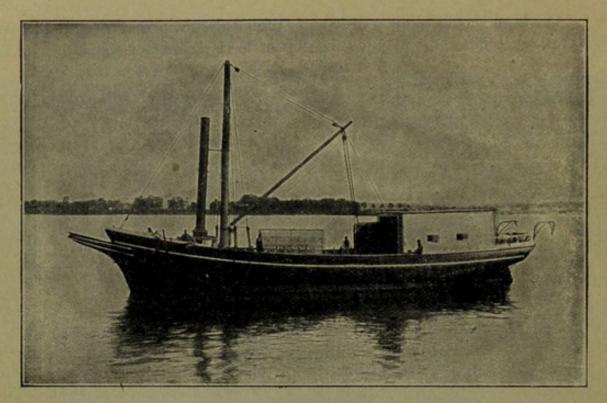


Fig. G.—Steam Disinfecting Barge as in use by U. S. Public Health and Marine Hospital Service

Another advantage of the vacuum lies in the fact that if perchance there is condensation water present, it can be quickly evaporated by it in conjuction with steam in the jacket.

Disinfection by means of Special Apparatus.

Kinyoun¹ found in his experiments that a greater penetration of formaldehyde could be obtained if the process was conducted in a steam disinfector, provided with a special apparatus.

The main feature is that the air is partially displaced and the gas in the desired strength replaces the exhausted air.

This method is particularly applicable in the Kny-Scheerer Company's types of apparatus for the disinfection of the bulkier objects, such as mattresses, etc., in which the formaldehyde gas could be used to penetrate the interior of such articles.

Wilson² suggested that the efficiency of the process can be increased by warming the disinfector to 65° C.

The apparatus designed for the above mentioned purpose is described in the Public Health Reports Jan. 28th, 1897, as follows:

It consists of two small boilers, one of copper and the other iron, which are provided with coils of steam pipe for heating the liquids. On the top of the upper side are placed

¹ Kinyoun, Public Health Reports, 1897. ² Wilson, Brooklyn Med. Jour., 1897.

the filling attachment, pressure gauge, and discharge pipes. On the sides are the water gauges and drips. The discharge pipes of both boilers are connected with the interior of the disinfecting chambers by a common opening. The copper boiler is intended to be used in the same manner as the portable formaldehyde boiler hereinbefore described, and the one con structed of iron is intended for solutions of ammonia for neutralizing the formaldehyde gas at the completion of the process.

Compressed ammonia gas can be substituted for the second boiler. The ammonia gas can be let into the chamber by means of a pressure-regulating valve. This method is preferable where a large amount of disinfection is to be carried on.

Method of Operation

The chamber is charged in the same manner as for steam, the doors closed and made fast, and the air exhausted to within a half of an atmosphere or over by means of the vacuum apparatus. If the chamber is provided with a steam jacket the steam can be thrown into this and the articles heated during the whole of the process.

Synchronously with the above mentioned operation, the mixture of calcium chloride and formaldehyde is prepared and poured into the copper boiler and steam allowed to course through the spiral heating coil, and continued until a pressure of from 75 to 90 pounds is obtained. The gas is then turned into the chamber. If the gauge still shows a vacuum, the process can be repeated until the pressure is zero.

When the time of exposure has been completed a vacuum may be again produced, and instead of using the gas, this time the air is let in. If there is any precipitated moisture, the inrushing of the air will carry this along with it and distribute it to the interior of the articles ...

After the articles have been subjected to the gas for a sufficient time, the vacuum process is again started, and half the atmosphere removed. Ammonia water is poured into the iron boiler and heated by means of a steam coil.

It can then be thrown into the chamber, after the same manner as the formaldehyd The ammonia should be in excess of the quantity of formaldehyde gas.

The time is shorter than required for steam disinfection, and this process is adopted for disinfecting mattresses, pillows, blankets, upholstered furniture, heavy rugs, furs, and books, and the mails; also for the very fine textile fabrics, especially costumes and the like.

The advantages of such an apparatus are:

- (1) Certainty of penetration of the articles by the gas.
- (2) Reduction of the time of exposure to a minimum, and increasing the working capacity of the chamber.
 - (3) Accurately gauging the quantity of gas.
 - (4) Little or no injury to fabrics.
 - (5) Economy.

Such an attachment can be made to any of the steam disinfecting chambers now in use, without interfering in any way with their usefulness for steam disinfection,

This method of steam disinfection is applicable to nearly all the commoner It is not, however, best suited for wearing apparel of silk or wool, as the moist heat injures the warp and woof of such fabrics. It often causes woolen garments to shrink, and renders silk harsh and lustreless. From a sanitary standpoint, steam is always efficient. For pillows, mattresses, bedding, etc., there is no method so efficient.

Preparation of Articles for Steam Disinfection Clothing, woolens and silk should be hung up in the disinfector, so that no part will touch the sides, and in such a manner as to allow a free circulation of air. In order to prevent any damage from condensation, the articles may be covered over with a white cotton cloth. Soiled clothing should never be placed in the dis-

infector with clean, nor should pillows and mattresses. The odors emanating from these are often disagreeable, and it is imparted to the clothing. The bulkier articles such as pillows, mattresses, carpets, etc., should be so arranged that a free circulation of steam can take place. These can be stowed more closely than is suggested for clothing, if the disinfector is provided with a vacuum apparatus. (Leather and rubber goods should not be disinfected by steam.)

The time required for disinfection in a modern disinfector is from 30 to 45 minutes. It depends upon the character of the articles.



THE KNY-SCHEERER CO.'S Steam Disinfector Manufacturing Plant.

Chemical Agents.

The chemical agents which possess disinfecting properties may be divided into two classes.

1st. The gaseous disinfectants.

2nd. The chemical salts and their solutions.

The only gaseous disinfectants which are of any practical value are Sulphur Dioxide, Chlorides, Bromine and Formaldehyde.

These agents differ both in degree and quality of their disinfect-Gaseous ing powers. Chlorine and Bromine are only surface disinfectants at best, and are so destructive to metals and fabrics that their usefulness is extremely limited.

In the case of Sulphur Dioxide it has quite a range of usefulness in the domain of house or room disinfection, especially in destroying the contagion of smallpox, scarlatina, measles, roetheln and varicella.

It is a bactericide of no small power, and will under favorable conditions of moisture and environment prove fatal to nearly all the non-spore bearing pathogenic bacteria. It has but little or no effect upon the spore bearing microorganisms, nor upon the non-spore bearing, when in a dried state.

These results have been in the main confined to Koch, Wolffhuegel, Sternberg, Biggs, Kinyoun, and others.

While Sulphur Dioxide has quite a range of usefulness in the disinfection of closed spaces, it must not be taken for granted that its action is alike in all cases. It is exceedingly unreliable for the disinfection of fabrics, particularly oiled clothing; just why there should be this variance has not been satisfactorily explained.

The efficacy of the gas for a surface disinfection and even when penetration is desirable rests almost entirely on the presence and degree of humidity. Whenever the humidity is the greatest sulphur dioxide appears to perform its work the best. It has been suggested that this always be taken into consideration when this process is to be employed. A distinction must be made between humidity and moisture. Sulphur Dioxide is in no way inhibited by the humidity, but its action is materially diminished by moisture. The custom of evolving steam in the apartment during the process to a saturation of the atmosphere is therefore wrong.

Quantity of Sulphur Dioxide Required

The quantity of sulphur dioxide required for the disinfection of a given space depends largely on the character. If the space can be made perfectly air tight not less than 4 pounds per 1,000 feet should be employed, or 6.72 kilos per 100 cubic meters.

If on the other hand the room has many openings a larger quantity will be required to anticipate the loss. Also there is a considerable loss by diffusion and the conversion of the gas into the acid by the moisture present.

The loss of the gas in a room is stated by Koch to be as follows:

| Amou | nt c | of S | O ₂ p | er | V | olu | me | e st | re | eng | gth | ı a | t | th | e | b | e- | |
|-------|------|------|------------------|----|----|-----|----|------|----|-----|-----|-----|---|----|---|---|----|-------|
| ginr | ning | of | the | e | xp | eri | me | ent | | | | | | | | | | 6.13% |
| After | 24 | hou | ırs | | | | | | | | | | | | | | | 4.88% |
| After | 72 | hot | irs | | | | | | | | | | | | | | | 4.47% |
| | | | | | | | | | | | | | | | | | | 3.3 % |

The percentage of gas in an atmosphere required to be effective is one of variable quantity. It depends altogether upon what is required to do. A two per cent per volume per cent of the gas will prove destructive to nearly all the disease germs in the moist state; this strength will have but little effect upon fabrics or where penetration is desired. The full amount of sulphur which can be burned in the air should always be burned. This will be from three to four pounds, about one-third the quantity required to consume its oxygen. For ordinary disinfection the United States Marine Hospital Service has recommended four pounds of sulphur to each 1,000 cubic feet.

In quarantine practice, where penetration into wood work is required, a much larger quantity than can be obtained by burning will be required, fully a 10 per cent volume strength. This amount being far in excess of what can be evolved by burning, recourse must be had to a special furnace, or by the use of the gas in its liquefied form.

A special furnace has been designed for use at quarantine stations which will meet these requirements. The furnace consists of a large pan, properly enclosed, wherein the sulphur is placed for burning. The products of combustion (SO₂) are drawn over by means of a Sturtevant blower, and forced into the ship's hold through pipes. One of these furnaces is capable of burning 1,000 pounds in a day, and evolving a much higher percentage than can be obtained by the pot method.

The quantity of sulphur required is four pounds for each 1,000 cubic feet, or 6.72 kilos for each 100 cubic meters.

The time of exposure should not be less than 12 hours for ordinary room disinfection and for holds of vessels not less than 24 hours.

It must always be understood that the amount of sulphur gas required to be effective in destroying contagia will also affect the colors and the fibre of fabrics.

¹⁾ I Litre of air at O° Centigrade weighs 14.43 criths, or 1 crith = 0.0896 grammes.

¹ Litre air weighs 2929 grammes.

r Cubic foot of air = 28.318 litres, or 1,000 cubic feet = 28,318 litres.

Each 1,000 cubic feet of air weighs 30475.89 grammes, or 67.186 pounds. The amount of sulphur required to consume all the centamal oxygen in 1,000 cubic feet is 15.577 pounds.

This one fact alone limits its use in house disinfection or for disinfection of fabrics, aside from its unreliability for the latter.

Room
Disinfection
by
Sulphur
Dioxide

The prevention of the spread of infectious diseases rests almost entirely upon the efficiency of our measures for the purification of dwellings. These methods of purification have never been popular, due in great part to the destruction and injury which they cause to the room and contents, not to mention the inconvenience to the inmates.

The present methods of house disinfection, consisting of washing with disinfecting solutions, the application of steam, etc., are not complete, notwithstanding the care and minute attention to details which are observed. For example, the system of house disinfection which has found favor in Germany, France and to some extent in this country, has been found to be not altogether reliable in more instances than one. The chief fault lies in the fact that there are too many details to be observed. To popularize room disinfection it should fulfill the following requirements:

- I. Shortness of time.
- 2. Non-injury to the room and contents.
- 3. Cheapness.

Before the adoption of the methods of steam disinfection and germicidal solutions recourse was had to the gaseous disinfectants, because of the cheapness and the facility with which they could be applied. This was on the assumption that it was efficient in even a high dilution. Now that we know its true worth, and the destructive effects when applied in proper strength, there is about as much objection to efficient disinfection by sulphur as with the present method of steam and antiseptics.

The methods of room disinfection may be mentioned first. For sulphur fumigation, the room should be rendered as air tight as possible by calking the cracks or by pasting paper over them. Curtains and other hangings should be so disposed as to allow all surfaces to be freely exposed. The carpets and rugs should be taken from the floor and either hung upon a line or supported from the floor by means of a chair or clothes horse; closets and drawers should be opened, their contents taken out, unpacked and suspended; the bed clothes and pillows should also be suspended. The mattress should be left in situ.

Sulphur fumigation should then be made in the manner previously mentioned. This method has rather a wide range of usefulness, particularly with reference to the purification of apartments and articles infected with smallpox, measles, scarlet fever, whooping cough and roetheln. It is also the best method of destroying rats and vermin, and therefore is prominent among the disinfecting agents recommended against the infection of plague. It is perhaps the only practical agent for the disinfection of the holds of wooden vessels.

¹ Flfigge Zeitschrift für Hygiene-1898,

The common mode of fumigation by sulphur is by burning a given quantity in a closed space. Usually the sulphur is placed in an iron pot.

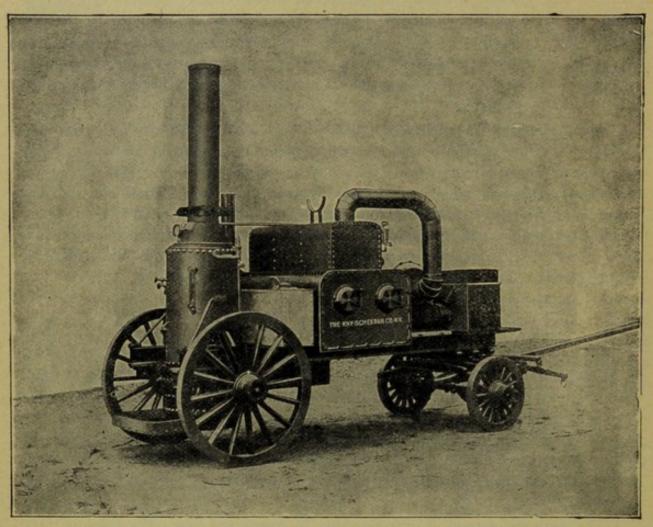


Fig. H-Portable Sulphur Fumigator for Fumigating with Sulphur Dioxide Gas.

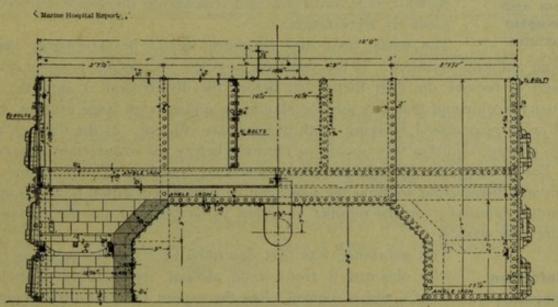
Another method is by specially prepared sulphur candles.

This, however, has been found insufficient for thorough disinfection of ship holds, where a much larger percentage, even as much as 10 per cent per volume strength of gas is required. This, of course, cannot be obtained by the ordinary method of burning. A special furnace has been designed for this purpose, as has already been stated elsewhere, which will give from 10 to 16 per cent per volume strength of SO₂. This form of furnace is recommended for quarantine purposes.

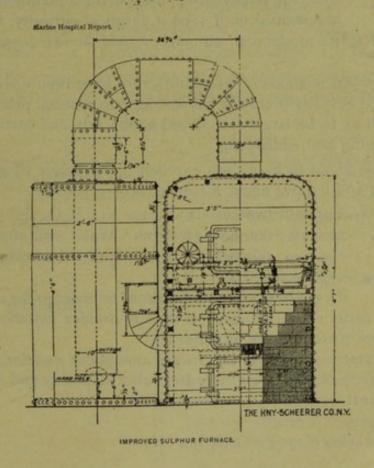
The idea of disinfecting vessels by means of a special apparatus for driving the sulphur fumes into the hold of a vessel was suggested by Perry in 1872, and since that time several investigators have from time to time made improvements

thereon, so that now a most excellent furnace is the result.

The main features of this are that the sulphur is burned in shallow pans, the air being drawn over the surface of the burning sulphur by means of a STURTE-VANT fan, and gas forced into the desired space by a large pipe.



IMPROVED SULPHUR FURNACE FOR MARITIME SANITATION



Room Disinated fection by Steam and Antiseptic Solutions

All bedding, clothing, hangings and other textile fabrics should be placed in specially prepared canvas bags which are impregnated with some antiseptic, and removed to the steam disinfecting plant for sterilization.

with an antiseptic solution. If the walls are covered with paper it would always be well to remove the dust therefrom, before the disinfectant is applied. The Germans recommend that this solution should be applied with large brushes, while the French recommend spraying: both methods are efficient. If the floor or walls are in a dirty condition they should be cleansed before the disinfectant is applied.

The time required for sulphur fumigation is not less than 12 hours, while with steam and disinfecting solution the work can be performed within 6 or 8 hours—cepending somewhat on the number of rooms to be cleansed and the number to perform the service.

Disinfection by Formaldehyde This substance was first described by Von Hoffman in 1867 who obtained it from wood alcohol, its chemical formula is CH₂O, and is formed when the vapors of wood alcohol and air are made to pass over finely divided platinum.

It remained until 1894 a chemical curiosity, because of the expense attached to its production, although it was known to possess disinfecting properties.

Since improved methods of its manufacture have been discovered, whereby it can be produced at a slight cost, it has sprung into unusual prominence as a disinfectant, as well as to be largely employed in the arts, and particularly in methods of dyeing, tanning and embalming.

It has been found to be a most excellent preservative of animal tissues, and as a hardening and fixative agent for miscroscopical work.

Physical Properties of Formaldehyde Formaldehyde exists as a gas as CH₂O, and is soluble in water, alcohol, ether and glycerine. Water will absorb 40 per cent of the gas. Alcohol and ether slightly in excess of this, while glycerine somewhat less.

In the state of a gas it is prone to undergo the change of polymerization, and is easily converted into this state by sudden variations of temperature, and the aqueous tension of the atmosphere.

In its polymerized state it is a white amorphous powder, which is slightly soluble in water, more so in boiling water; also in alcohol and ether.

The chemical formula of this substance is:

 CH_2 CH_2 or three atoms of the gas united into one. CH_2

and is known as "Trioxymethylene." It is easily broken up by heat into its gaseous state.

Commercially the solutions of the gas are known as "Formol," "Formal," "Formalin" and "Formalose," and contain from 35 to 40 per cent formaldehyde.

These solutions contain more or less of methyl alcohol, which is either added or comes over in the process of manufacture, a certain quantity of alcohol being necessary to render its solution stable by preventing the formation of trioxymethylene.

The disinfecting properties of formaldehyde were first discovered by Loew in 1889, who stated that the gas had a decided inhibitive and also a bactericidal effect upon the bacteria.

Later BUCHNER discovered "that a solution containing 10 per cent of the gas would destroy anthrax spores." This may be said to be the beginning of formaldehyde disinfection, but it remained for Aronson, Walter, Miquel and others to point out its superior bactericidal properties, and to partially determine its range of usefulness as a disinfecting agent.

The antiseptic value of formaldehyde ranks it among the highest. Antiseptic Value of PARKE and GUERARD1 place it above all others, as will be seen Formaldehyde in the following table:

| Hydrogen Peroxide1-20,000 | Carbolic Acid1-333 |
|--------------------------------|---------------------------|
| Mercuric Chloride1-14,300 | Potass. Permanganate1-285 |
| Silver Nitrate1-12,500 | Boracic Acid1-145 |
| Formaldehyde solutions1-10,000 | Pure Formaldehyde1-25,000 |

MIQUEL'S2 and WALTER'S3 experiments place its antiseptic strength lower than do PARKE and GUERARD, as will be shown in the following comparison:

TABLE I.

| 3 | Sta | | | ns of Formaldehyde llon. (Miquel) | | S | | | tions Form | | |
|---|-----|----------|--------|---|-----|----|------------|------|------------|-----|----------|
| 1 | | 10,000 B | ouillo | on putrified | 1 | ** | 100,000 | rich | growth | of | bacteria |
| 1 | | 5,000 | 66 | - 16 | 1 | : | 50,000 | 66 | ** | " | " |
| 1 | | 3,333 | 46 | 7 | 1 | : | 20,000 | 66 | " | " | |
| 1 | | 2,500 | " | ** | 1 | : | 10,000 | no | growth | of | bacteria |
| 1 | | 2,000 | " | unaltered | 1 1 | : | 2,000 | 44 | " | " | " |
| 1 | | | | unantered | 1 | : | 1,000 | 44 | " | " | " |
| 1 | : | 1,666 | | | 1 | | 500 | 46 | 44 | " | " |
| 1 | : | 1,430 | | | 1 | | 100 | 16 | ** | 66 | " |
| 1 | : | 1,250 | | *************************************** | 1 | | 50 | - 66 | " | " | ** |
| 1 | : | 1,111 | ** | " | 1 | | 90 | | | | |
| 1 | : | 1.000 | " | | | | | | | | |
| 1 | : | 910 | 44 | ** | | OI | ntrol cult | ures | rich grov | wth | |
| 1 | | 833 | " | " | | | | | | | |

Kinyoun's4 observations are to the effect that I:5,000 is more nearly the antiseptic power than I: 10,000.

Parke and Guerard, N. Y. Board of Health, 1898.
 Miquel, Journal de Micrographie, 1896.
 Walter, Zur Behandlung des Formalins, Zeitschrift für Hygiene.
 Abstract Sanitary Reports, 1897.

Disinfecting Properties of Formaldehyde The following tables are presented to show the disinfecting properties of this agent as compared with others:

TABLE II.

| Disinfectant. | Strength | Bacteria | Destruction of Vitality |
|-------------------|----------|-----------------|-------------------------|
| Mercuric Chloride | 1- 1000 | Anthrax Spores | In 5 minutes |
| " | 1- 5000 | All other germs | . " 15 " |
| Silver Nitrate | 1-10000 | Anthrax Spores | " 48 hours |
| " | 1- 4000 | All other germs | 2 |
| Carbolic acid | 3— 100 | Anthrax Spores | " 48 " |
| " " | 1— 300 | All other germs | " 2 " |
| Trikresol | 1— 100 | Anthrax Spores | 48 |
| " | 1— 500 | All other germs | " 2 " |
| Lysol | 1— 100 | Anthrax Spores | "1" |
| " | 1— 100 | All other germs | " 5 minutes |
| , | 3— 100 | Anthrax Spores | " 15 " |
| Formaldehyde | 1- 100 | All other germs | " 1 hour |
| 40% sol | 1- 2500 | BURE | |

Kinyoun's¹ experiments with formaldehyde were made by exposing certain micro-organisms to solutions of different strength for a given time and then determining its effect.

They are as follows:

EXPERIMENT I.

Formaldehyde solution 1-5000 for the time below indicated

| Organism | Control | 1 min. | 2 min. | 3 min. | 5 min. | 10 min. | 15 min. | 30 min. | 60 min |
|-----------------|---------|--------|--------|--------|--------|---------|---------|---------|--------|
| Staph. | Growth | Growth | Growth | Growth | Growth | Growth | Growth | Growth | Growth |
| Pyogenes Aureus | normal | normal | normal | normal | normal | normal | normal | retard | retard |
| Bacillus } | Growth | | | Growth | | | | | |

¹ Public Health Reports, 1897.

Pormaldehyde solution 1-4000 for the time named.

| | Control | 1 min. | 2 min. | 8 min. | 5 min. | 10 min. | 15 min. | 30 min. | 60 min. |
|-----------------|----------|--------|--------|--------|--------|---------|---------|---------|---------|
| Staph. | Growth | Growth | Growth | Growth | Growth | Growth | Growth | Growth | Growth |
| Pyogenes Aureus | The same | normal | normal | normal | normal | normal | retard | retard | retard |
| Bacillus) | Growth | Growth | Growth | Growth | Growth | Growth | Growth | Growth | Growth |
| Diphtheriae } | 1 | normal | normal | normal | normal | normal | retard | retard | retard |

Formaldehyde solution 1-3000 for the time named.

| | Control | 1 min. | 2 min. | 3 min. | 5 min. | 10 min. | 15 min. | 30 min. | 60 min. |
|------------|---------|--------|---------------|--------|--------|---------------|---------|---------|---------|
| Bacillus) | Growth | Growth | Growth retard | Growth | Growth | Growth retard | Growth | Growth | Growth |

Formaldehyde solution 1-2000 for the time named.

| | Control | 1 min. | 2 min. | 8 min. | 5 min. | 10 min. | 15 min. | 30 min. | 60 min. |
|----------------------|---------|--------|--------|--------|--------|---------|---------|---------|---------|
| Bacillus Diphtheriae | Growth | none | none | none | none | none | none | none | none |

Formaldehyde solution 1-1000 for the time named.

| | Control | 1 min. | 2 min. | 3 min. | 5 min. | 10 min. | 15 min. | 30 min. | 60 min. |
|--------------------|---------|--------|--------|--------|--------|---------|---------|---------|---------|
| Bacillus Anthracis | Growth | none | none | none | none | none | none | none | none |

Pormaldehyde solution 1-500 for the time named.

| | Control | 1 min. | 2 min. | 8 min. | 5 min. | 10 min. | 15 min. | 30 min. | 60 min. |
|-----------------------|---------|--------|--------|--------|--------|---------|---------|---------|---------|
| Bacillus Anthracis | Growth | none | none | none | none | none | none | none | none |

EXPERIMENT II.

Results of experiments on the disinfecting and germicidal value of formal-dehyde:

Bouillon cultures of the following organisms were spread on cover slips and allowed to dry, then exposed to the action of a saturated atmosphere of formaldehyde for the time indicated, and the slips then planted into bouillon and kept at a temperature of 37° C. for 24 and 48 hours.

| Organism | Control | 1 min. | 2 min. | 3 min. | 5 min. | 10 min. | 15 min. | 30 min. | 60 min |
|---|---------------------|--------|--------|--------|--------|---------|---------|---------|--------|
| staph, pyog, aureus | Growth | none | none | none | none | none | none | none | none |
| Spirillum Finkler Prior | Growth | none | none | none | none | none | none | none | none |
| Spirillum Cholera Asiatica | Growth | Growth | none | none | none | none | none | none | none |
| Bacillus Coli Com. | Growth | Growth | Growth | Growth | Growth | none | none | none | none |
| Bacillus typhi Abdom, | Growth | Growth | Growth | Growth | Growth | none | none | none | none |
| Bacillus Diphtheriae | Growth | Growth | Growth | none | none | none | none | none | none |
| Bacillus Mallei | Growth | Growth | none | none | none | none | none | none | none |
| Diplococcus Pneu- monia partly dried | Growth | Growth | none | none | none | none | none | none | Lone |
| Diplococcus Pneumonia | Growth | none | none | none | none | none | none | none | none |
| Bacillus Pyocyaneus | Growth | Growth | none | none | none | none | none | none | none |
| Bacillus Anthracis with spores | Growth | Growth | none | none | none | none | none | none | nonè |
| Bacillus Tetani (fatal to mice) | Death to Animals | none | none | none | none | none | none | none | none |

Percentage of Gas required for Germicidal Effect By reference to the above tables, it will be observed that a saturated atmosphere of formaldehyde will prove an effective germicide in a very short time. It has been found, however, in practical experience, that a much longer time is required for complete destruction of the disease germs, even when the percentage of the gas is high.

A one per cent per volume strength will prove an effective germicide in most cases, provided the time of exposure be extended, and the experiment be conducted under favorable conditions. If the percentage be increased to $2\frac{1}{2}\%$ per volume strength, the process is usually effective.

There are certain features in formaldehyde disinfection which must needs be well understood, and must be taken into consideration in its practical application.

Formaldehyde has but slight penetrating power, much less than sulphur dioxide, and about on par with chlorine. While the power of penetration is slight, as compared with sulphur, it must not be understood that it cannot be employed advantageously for ordinary room disinfection.

The penetrating effects of the gas depend largely upon the physical conditions present and the character of the materials. Temperature plays an important role in accelerating or retarding the diffusion of the gas, as also the size of the space. An even temperature and moderate sized space is disinfected with more certainty and in shorter time than the converse.

Formaldehyde gas in a dry state has no penetrating effect on fabrics, and, according to Rubner, its disinfecting properties are practically nil.

The disinfecting power of formaldehyde appears to be closely associated with the aqueous vapor of the atmosphere, and its efficiency is largely influenced by its variation.

In fact, the same principle applies to formaldehyde as to steam, and the nearer the atmosphere approaches a surcharge of aqueous tension or vapor, the more effective is the process of disinfection. The aqueous tension appears to be necessary to ensure penetration and diffusion, although the latter is largely influenced by temperature.

A distinction must be drawn between the state of the atmsophere known as "humidity" and that brought about by the evolution of steam.

Whenever the amount of water is sufficient to produce a precipitation, it will be noted that the formaldehyde gas will unite with the moisture, and become a surface disinfectant only.

Bearing the above facts in mind, one can readily account for the variable results, with disinfecting processes, and will serve as a guide how these obstacles can be overcome.

Formaldehyde gas when evolved from one of its solutions, carries over with it more or less water. If this be considerable and is not diffused in the atmosphere as aqueous vapor, it is very apt to localize the formaldehyde, reconverting it to its former state.

The main difficulty in obtaining perfect results with formaldehyde is the surcharging of the atmosphere with aqueous vapor, to the extent of precipitation. This condition is always present where gas is evolved from a solution, either by boiling or evaporation, or when it is evolved from wood alcohol. It is therefore necessary to devise some means of preventing this, and have the gas generated with as little moisture as possible, and to establish a degree of aqueous tension that will ensure the best results.

Aqueous Vapor= Tension It has been observed by Pfluegge that the aqueous tension should never be below 59° C. The optimum state wherein formaldehyde exerts its bacteriocidal property and penetrates is when the aqueous tension is 80° to 90° C.

¹ Rubner. Hygienische Rundschau, 1899.

There is therefore a distinct difference between aqueous vapor and moisture in the atmosphere, the former accelerates, the latter retards disinfection. Rubner claims that the aqueous tension represents the nascent state of the water in the atmosphere, and that the combination of formaldehyde with objects under these conditions comes more perfectly and rapidly than in any other. Humidity or moisture being a mechanical mixture of air and water.

As stated before, formaldehyde gas is very susceptible to the influence of temperature. Any sudden variation from a high to a lower degree of temperature almost invariably converts the gas into its solid state. The temperature for room disinfection appears to be between 60° and 80° F. A still higher temperature, if available, will accelerate the process inasmuch as it prevents precipitation or polymerization.

Methods of Evolving Formaldehyde Gas for Disinfecting Purposes.

The first attempt to use gas for disinfection was by the conversion of wood alcohol by special lamps. Trillat's and Roux's experiments were first made in this way. There have been quite a number of lamps designed for this purpose, all of which are constructed on the plan of passing a mixture of air and vapors of wood alcohol over finely divided platinum. Some of these lamps are not without merit, and are efficient for surface disinfection. The best forms of this lamp worthy of mention are those designed by Trillat, Robinson, Kinyoun, De Schweinitz and Kuhn (the latter a modification of Kinyoun's).

The great drawback to these apparati lies in the fact of the production of a large quantity of watery vapor with the evolution of the gas. This watery vapor condenses on the surfaces of objects, where it readily absorbs the gas and in consequence thereof converts it into a simple surface disinfectant.

The drawbacks to these lamps are that no one can be positive just how much formaldehyde is being evolved from a given quantity of wood alcohol, as this varies with the character of the alcohol and the behavior of the lamp. Then, one lamp is required for each room or space, and it must be placed in the room and left there until the time of disinfection is finished.

If these lamps cease to function, as is often the case, it must be done anew.

In view of the fact that the present cost of solutions of formaldehyde is so low, and cheaper than is now approximately the cost of wood alcohol, it is believed that nothing is to be gained by their use, when other methods are equal to or superior to evolving the gas by lamps.

Evolution of the Gas from its Solutions

Solutions of formaldehyde when exposed to the air give off a considerable proportion of the gas. In a short time the atmosphere can be so surcharged with it that it is extremely irritating to the mucous membrane. It was held at one time that the gas could be applied in this manner. Experience has shown that this method

has been quite unsatisfactory, same as simple surface disinfectant. It is expensive, for it requires larger quantities of the solutions than any other method.

The chief objection is that when a 35% to 40% solution of formaldehyde is evaporated at a temperature, it polymerizes, and not more than one-half of the gas is available.

Boiling It has been also demonstrated that the gas can be evolved by boil-Formaldehyde ing its solutions. Nearly all of the gas is thrown off, and there is but little paraformaldehyde formed. The gas is not, however, disassociated in any great proportion from the water, because the water is also given off. Kin-voun shows this in the following experiments:

| Distillate - | Quantity | Water | Formaldehyde |
|--------------|----------|-------|--------------|
| 1 | 57 c. c. | 15.45 | 8.81 grams |
| 2 | 64 c. c. | 16.43 | 10.52 " |
| 3 | 51 c. c. | 17.25 | 8.80 " |
| 4 | 57 c. c. | 18.45 | 10.52 " |
| 5 | 52 c. c. | 19.28 | 10.03 " |
| 6 | 60 c. c. | 22.28 | 13.37 " |

400 C. C. of a 40% solution of Formaldehyde is placed in a retort and distilled over:

It will be noticed that while the gas is evolved in a constant quantity, the water given off increases pari-passu.

As the amount of moisture present determines the diffusibility and penetration of the gas, it will be seen at once that the process of boiling is open to the objection already referred to.

Watery solutions containing over 35% of the gas have a proneness to undergo polymerization; particularly is this noticed in solutions which have stood for over a year. Rosenberg¹ recommends solutions of the gas methyl alcohol, whereby the gas will be permanent; he further claims that the solution which he designates as "Holzin" is more efficient than watery solutions of the gas of equal strength. The objections to this latter preparation are its inflammable nature, and hygroscopic character. This latter would tend to rob the air of its aqueous vapor and thereby prevent an equal diffusion to all parts of an apartment.

The gas is easily polymerized, when the solutions are evaporated either by boiling or by ordinary temperature, and the specific gravity becomes more than 1,095.

Nearly all the commercial preparations now contain a quantity of wood alcohol, which is added evidently for the purpose of preventing polymerization, which is prone to occur if the solutions are kept for a time.

¹ Deutsche Med. Wochen-schrift, 1896.

TRILLAT¹ states that when an aqueous solution of formaldehyde is heated, a greater part of the gas will be converted into paraform. He found that the addition of a neutral salt, such as calcium chloride, would prevent this.

Novy² states that a small quantity of borax added to a solution also prevents this taking place.

It has been held by most observers that the gas not only polymerizes in the solutions on boiling, but also the gas in the atmosphere will be changed. This has been disputed by Novy, who claims that the polymerization of formaldehyde under these conditions is largely a myth.

It, however, does occur, particularly when the aqueous tension is slight, and the temperature low. It invariably occurs when the gas has evolved from its solid form.

Methods of Application of Formals dehyde as

- 1. By evaporation and spraying.
- 2. By boiling in open vessels.
- 3. By boiling in special apparatus.

Disinfectant The first experiments in formaldehyde disinfection were made by placing its solution in wide shallow dishes and allowing it to evaporate at the ordinary temperature. The results obtained by this method were highly satisfactory for the disinfection of small spaces, but were the converse when applied to room disinfection. The difficulty arose from the fact that a greater part of the gas was polymerized, and further, even that portion which had been evolved was uneven in its distribution.

Another method that has been proposed, which is a modification of the above, is to apply a solution of formaldehyde in the form of sprinkling cloths, such as a sheet, hung up in a room and allowed to evaporate. This method is more successful than that of simple evaporation, but is open to the same objection as the above.

Spraying surfaces with formaldehyde is quite effective, and is well adapted for disinfecting an empty room, but its range of usefulness will be limited.

Simple apparatus have been devised for boiling the solutions of formaldehyde. All these consist of a simple boiler or retort, provided with a medium sized tube at the top for conducting the gas.

The solution is either a 40% solution of the gas, or a mixture of formaldehyde with a neutral salt, or glycerine, or both. The addition of the neutral salt or glycerine being added to prevent polymerization. The liquid is heated to the boiling point, and the gas is driven off.

The "Breslau" method, as recommended by Pfluegge, consists of diluting a 40% solution of formaldehyde three or four times with water. This he claims will prevent polymerization. What is claimed for this method is substantially true, but while polymerization is prevented, a larger quantity of water has to be boiled over than by other methods. This amount of water interferes with the diffusion and penetration of the gas.

¹ Trillat La Formaldehyde, 1896.

³ Novy Medical News, 1898.

To sum up: All of the above described methods are faulty on account of the amount of water which is driven over by boiling. This causes the gas immediately to be absorbed and converted into a surface disinfectant.

The addition of glycerine to a solution of formaldehyde does not prevent polymerization when boiled, as the following experiment will show:

"Glyco formal" containing 10% glycerine.

| - | | | | | | | | | | | | | | Distillat | e. | Temperature. |
|-------|----|------|-----|-------|---|--|---|---|-----|---|--|--|---|-----------|----|--------------|
| After | 1 | minu | te. | | | | | | | | | | | IO c.c. | | 100° C. |
| 46 | 2 | -44 | | | 2 | | | * | | | | | * | 25 c.c. | | 100° C. |
| " | 4 | 44 | | + | | | * | * | | | | | | 50 c.c. | | 100° C. |
| 46 | 7 | ** | | | | | | | | | | | | 100 c.c. | | 100° C. |
| 46 | IO | 44 | | | | | | | *** | • | | | | 550 c.c. | | 105° C. |
| " | 20 | " | | | | | | | | | | | | 830 c.c. | | 120° C. |
| ** | 26 | . " | | | | | | | | | | | | 900 c.c. | | 130° C. |

Residue 100 c.c. of glycerine containing 72 grams of trioxymethylene.

Novy¹ states that polymerization can be avoided if a small quantity of borax be added, and the mixture boiled vigorously.

Formal=
dehyde
Disinfection
by
Autoclaves

The most satisfactory method by far of applying the gas for room disinfection and the lighter fabrics appears to be by the means of an autoclave.

While it appears to be more complex than the open boiler and lamp, the result which it gives in practical disinfection is far superior in every respect over the simple forms. The apparatus consists of a closed boiler made of steel, approximately three times the length of its diameter, provided with pressure gauge, filling funnel, a discharge pipe, and a water gauge. The boiler is supported by a jacket, and heat is furnished by a special

lamp of the KNY-SCHEERER type of kerosene burner.

In order to prevent the corrosive action of the solution, the boiler is made of a special copper alloy, which will stand at least 100 lbs. to the square inch. The discharging apparatus is so arranged that the gas can be quickly liberated or permitted to escape under a certain pressure, if so desired.

Mode of Operating The boiler is filled not more than one-third full of the mixture of chloroformol and all valves closed. Heat then is applied rapidly and the temperature maintained throughout the process. When the pressure shows forty-five pounds, or three atmospheres, the

gas is allowed to escape into the space to be disinfected. This operation is to be repeated twice, when nearly all the formaldehyde gas will be found to be liberated. A fresh charge of the solution should be made for each disinfection, because otherwise almost all the formaldehyde will be thrown off with the first charge.

¹ Med. News, 1898.

Advantages of heating Formals dehyde Gas under Pressure When a 40% solution of formaldehyde is heated at ordinary pressure, it begins to polymerize. When this takes place, the temperature required to disassociate the molecules of the gas is above the temperature of 100° C. It therefore becomes necessary to add some substance to the solution which will overcome this, by raising the boiling point. TRILLAT recommends

some neutral salt, such as chloride of calcium or nitrate, or chloride of sodium. Novy recommends borax. Recently glycerine has been suggested for this purpose.

The temperature at which formaldehyde is given off from its solutions is from 95° to 105° C., the greater part being given off at 102° C.

When polymerization takes place it requires a temperature of at least 107° to 120° C. to disassociate the atoms, and convert them into a gas.

The reason why a neutral salt is added to the solution is for the purpose of raising the boiling point, so that the gas is evolved without a large quantity of water being given off, as well as to break up the polymerized gas.

The temperatures of the boiling point of the following mixtures at atmospheric pressure are:

Formaldehyde solution 40% plus calcium chloride 30%, is 107° C.

Formaldehyde solution 40% plus calcium chloride 30% and glycerin 10%, is 112° C.

The addition of glycerine to the calcium chloride has been found to be an advantage, as the boiling point of such a mixture more nearly approaches the temperature at which polymerized formaldehyde is broken up.

The mixture which is now recommended to be the best suited for the autoclaves is:

> Formaldehyde 40% 1000 c.c. Calcium chloride com. 200 grams. Glycerine (commercial), 100 grams.

The evolution of the gas has a distinct advantage over the methods of evaporation, or by boiling, inasmuch as the gas is liberated in a shorter time, and the total amount of the gas in a given quantity can always be obtained.

Another advantage in its favor is that when the gas is liberated from the autoclave, under a pressure of 30 to 45 lbs., the temperature of the liquid is proportionally increased, and all the polymerized formaldehyde converted to its former state.

Evolution of the Gas from Trioxy= methylene Schering's method has met with favor with many, on account of the apparent simplicity of the apparatus for generating the gas. It consists of a lamp containing a small crucible, into which is placed the trioxymethylene, or "paraform." It is volatilized, and is supposed to completely disassociate the atoms of the gas. That it does generate formaldehyde gas there can be

no question, but the amount generated is actually much less than at once supposed, because a considerable proportion of the paraform is precipitated into its solid state immediately after its volatilization, being practically inert.

It appears to have been demonstrated by practical experience that this method is suitable where a surface disinfection is required, as the gas cannot be depended upon where equal diffusion or penetration is to be desired.¹

The above objection has been met to a degree by evolving a given amount of steam, coincident to the volatilization of the paraform. This does not, however, give such good results as are obtained from the solutions in an autoclave.

Spraying Formaldes hyde Recently an apparatus designed for spraying solutions of formaldehyde has come largely in use. It is claimed that this method is superior to all others, accomplishing the sterilization of an apartment with more certainty and in shorter time. The process

consists of an automatic hydraulic or steam nebulizer, which diffuses a large quantity of the solution within the space of a few minutes.

There can be no question that this is a good method for surface disinfection, and is applicable for empty apartments, such as school rooms, public halls, the empty holds of iron vessels, and of railway coaches with plain interiors.

ELSNER's² experiment demonstrated that all pathogenic bacteria are quickly destroyed.

Length of Time required for Disinfection The time of exposure will depend upon the strength of the gas and the conditions and surroundings under which it is applied.

It is now agreed by nearly all observers that the percentage per volume strength should not be less than 2% for room disinfection, the time of exposure not less than six hours or more

than 24 hours, the time being governed by the percentage of the gas.

FLUEGGE⁸ states the quantity of the formaldehyde solutions required for room (surface) disinfection, to be:

Novy4 recommends about 1 litre for each 100 C. M., and Kinyoun5 gives

2% per volume strength.

Formaldehyde gas unites with organic matter, forming new compounds which are more or less stable. It renders insoluble, gelatin, albumen, pus, or fecal matter on fabrics.

It seems to have a peculiar affinity for hair, woolens and feathers, forming with these articles a loose chemical union. It also enters into combination with a number of metals, and with ammonia, which possess antiseptic properties to a more or lesser degree.

¹ Rubner. Hygienische Rundschau, 1899.

² Elsner Zeitschrift für Hygiene, 1899.

³ Zeitschrift fur Hygiene, 1898.

⁴ Medical News, 1898.

⁵ Public Health Reports, 1897,

Its effect on various materials, particularly those which are apt to be subjected to the disinfecting process, has been studied by Kinyoun, who states:

"That experiments were made by subjecting samples of wool, cotton, fur, and leather goods of every description, to crucial tests, using solutions of various strengths, or a saturated atmosphere of the gas. The results obtained were in every way satisfactory. Over 225 different samples of wool, silk, cotton, linen, leather and hair were experimented upon, and there was no change observed in textile character, even when they were soaked in a strong solution of the gas. Little or no change occured in the colors of the fabrics; only three of the number showed any change, although over a hundred colored fabrics were under observation. The colors which were changed were red and two shades of violet (all coal tar colors), and these were readily changed by sunlight,

No effect was noticed on woods, either plain or finished.

Effect on metals: Iron and steel are attacked by the gas, provided there is considerable moisture present. Little, if any, effect on these if the gas is dry.

There is no effect on other metals."

Preparation for Formaldehyde Disinfection

Formaldehyde, like other gaseous agents, has its limitations. Its effectiveness will depend much upon the manner in which it is applied. It must therefore be borne in mind that the simple exposure of a room or an article to a gaseous disinfectant without due consideration to its power and limitations does not mean disinfection.

Gaseous disinfectants do not penetrate articles with the readiness that they diffuse in the air.

The penetration of an object by a gaseous disinfectant largely depends upon its compactness; the more compact the object the less diffusion or penetration will occur. Some have claimed that the diffusion of gases, formaldehyde in particular, is not wholly dependent on Marriot's law, but the diffusion is aided and accelerated by the presence of aqueous vapor in the air.

Formaldehyde does not diffuse as rapidly as sulphur dioxide, nor does it penetrate to the same extent. Its proneness to polymerize, or to precipitate in the presence of moisture, are the chief obstacles in the way of its application. These facts, as above mentioned, must always be taken into consideration.

The following rules are to be recommended to be followed:

Disinfection of Empty Rooms

- I. The room should be made as nearly tight as possible, all cracks of any size, including spaces around the windows and doors, to be sealed, either with cotton, wool, or paper and paste. Ventilators, fireplaces, etc., to be closed in same manner.
- 2. If there is an accumulation of organic matter on floor or walls, it should be moistened with a strong solution of perchloride of mercury, or 50% solution of formaldehyde, or when in large quantities, mechanical cleansing, before the application of either a disinfecting solution or gas.
- 3. The gas should be introduced into the room through a small opening, preferably the keyhole.

- 4. The gas should be evolved rapidly by means of an autoclave, and injected into the room.
 - 5. Not less than 2% per volume strength should be used for an empty room.
 - 6. The length of exposure not less than six hours.
- 7. In case the walls of the room are papered and there has been an absorption of the gas, it is best neutralized by ammonia gas from ammonia water sprinkled upon the floor.

Preliminary Disinfection of Rooms with Contents In case of a grave infectious disease, a preliminary disinfection of the room and its contents is to be recommended. A strong percentage of gas should be thrown into the room, the contents remaining in situ. After three hours' exposure, the room con-

tents can be arranged for its final disinfection. This is for the purpose of minimizing the danger of handling the contents of the room by causing a surface disiinfection of the articles.

Final Disinfection of Rooms with Contents

- 1. All the bulkier objects, such as mattresses, pillows, heavy rugs, carpets and upholstered furniture, should be removed from the room for final disinfection, either by steam or by formaldehyde gas, in a special apparatus.
- 2. Accumulations of organic matter on floors and walls to be either saturated with a strong disinfecting solution or removed by soap and water.
- 3. Window curtains and light hangings can remain in situ, care being taken that all parts of these are so arranged as to permit all surfaces to be exposed.
- 4. The lighter articles of bedding, wearing apparel (not soiled), such as blanket sheets, etc., are to be hung on lines, so that all parts are freely exposed.
 - 5. Drawers, emptied of their contents, should remain open.
- 6. Books, papers, bric-a-brac, to be so arranged as to have their surfaces freely exposed to the gas.
- 7. Finally, the room should be made as tight as possible, in the same manner as previously recommended.
- 8. The amount of the gas should not be less than 2% per volume strength, and the time of the process not less than 12 hours. If the room is to contain a large quantity of articles, the amount of gas should be proportionately greater.

Disinfection of the Railway Coach KINYOUN recommends the following methods:

For the day coach, dining car, tourist sleeper, parlor car, formaldehyde gas, applied by means of an autoclave in a 4 per cent volume strength, the time of exposure not less than twelve hours.

For Pullman, Wagner and other sleeping cars.—Formaldehyde gas, applied by means of an autoclave at a 4 per cent per volume strength, the time of exposure not less than twelve hours.

Arrangements of the day coach for disinfection.—All openings of the car should be closed as tightly as possible, especially the ventilators; these are best closed by means of waste. All carpets along the aisles should be laid across the top of the seats. If the car is provided with sash curtains, they should be pulled down and hooked over the windows. The curtains of the seats should be shoved slightly away from the backs so that all the surface can be reached by the gas.

Water-closets, lockers and storeroom should be opened. All apertures to be closed with waste or some other similar material. The gas should be introduced into the car by one of two ways: By the keyhole in the car door, or through the hopper of the water-closet. If the car is badly infected it is always best to give a preliminary disinfection before doing all that has been outlined above. these conditions the car is left just as it is, apertures closed, and a strong percentage of gas thrown in and allowed to remain for at least six to eight hours befor it is arranged for the final disinfection. This procedure will be sufficient to sterilize the contents and surfaces of the car, and renders this arrangement less dangerous to the operator.

The Immigration Coach.—If the coach is constructed with a view to easy cleaning, the interior can be given a preliminary disinfection with formaldehyde gas in not less than 2 per cent per volume strength, or by sulphur dioxide for 24 hours, by burning 4 pounds of sulphur to each 1,000 cubic feet, and after this a mechanical cleaning of the doors and water-closets, to be followed by a thorough douching with a strong disinfecting solution, preferably a solution of bichloride of mercury.

Sleeping Cars.—The same general rules apply to these as for the day and immigration coach. The berths must be let down, all pillows taken out from under the seats; the mattresses and pillows so arranged that all surfaces may be thoroughly exposed, curtains suspended from the curtain poles; the carpets removed from their fastenings and placed over the backs of the seats or suspended by some means in the aisle. The lockers, closets, etc., to be opened. All the articles therein to be arranged so as to be exposed to the gas. Articles of food, not hermetically sealed, should, after the completion of the disinfection, that is, after the exposure of the goods, be destroyed.

In most cases it may be necessary to neutralize the formaldehyde gas by ammonia. This can be readily done by sprinkling a sufficient quantity on the floor of the car and allowing it to remain about one hour; about twice the quantity of ammonia should be used for the formaldehyde solution.

Sulphur is not to be recommended on account of the destructive effect upon fabrics.

Disinfection Merchandise

As a rule, new merchandise is seldom, if ever, infected and if so only the exterior. A surface disinfection is all that is required. The best method is to place the merchandise in a closed space and arranged in such a manner as to allow the free exposure of all the surfaces to the action of the disinfectant and then apply formaldehyde in not less than a 4 per cent. per volume strength

for not less than six hours, or by sulphur dioxide for twenty-four hours by

burning 4 pounds of sulphur to each 1,000 cubic feet.

Disinfection of Mails

(1) By formaldehyde gas in a 40 per cent. solution, letters to be placed in a closed receptacle, provided with a tight fitting lid, and sprinkling each layer of letters with the solution. The receptacle should then be closed four hours. (2) By the application of formalin mixed with some inert substance such as sawdust or in

fusorial earth. This mixture to be sprinkled over the letters in a manner similar to that prescribed in the foregoing. The time of exposure to be not less than four hours. (3) By application of formaldehyde gas evolved from its solutions, by means of an autoclave, the exposure not to be less than four hours; or the application of formaldehyde by means of a special apparatus provided with means of producing a vacuum. These latter are better adopted where there is a large quantity of mail to be disinfected. Individual letters can be quickly disinfected by means of a small piece of absorbent paper, moistened with formalin and inserted into the letter. It is understood that in any of the foregoing methods, letters, etc., should not be put up in packages; newspapers and packages should be opened and spread apart before disinfection.

Where it is impracticable to obtain solutions of formaldehyde, mail should be disinfected by exposure to sulphur dioxide in a closed space, made by burning 4 pounds of sulphur to each 1,000 feet of space, the exposure to be not less than twelve hours.



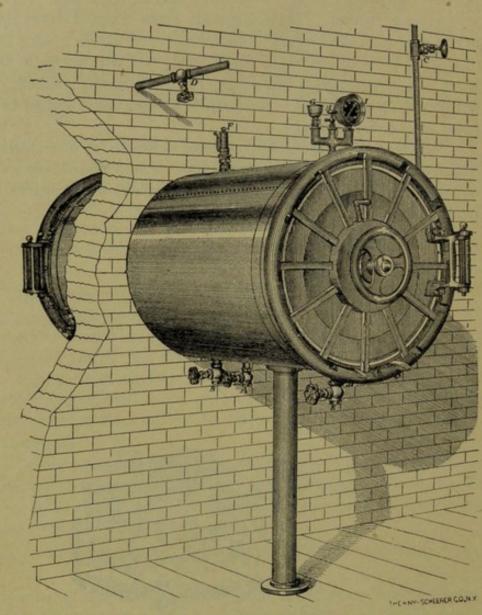
The Kny-Scheerer Company's Small and Medium Sizes of Circular Form Pressure Steam Disinfecting Chambers.

These types and sizes of apparatus are intended for small hospitals, sanitaria, hotels, etc. They represent a thoroughly efficient, very strongly construct ed and absolutely reliable pressure steam disinfector, Sizes Nos. 10 and 11 are the standard types adopted by the Medical Departments of the United States Army and the United States Navy.

Cylinders forming jackets are of open hearth homogeneous steel plate. The inner surface of the steel plate forming the disinfecting chamber is lined with copper. Steam jackets and cylinders are riveted together through front collar and back head.

Test of steam jacket eighty pounds per square inch.

Working pressure for jacket twenty-five pounds Working pressure for chamber ten to offteen pounds. Exterior finish: heavy galvanized sheet iron secured by metal bands over insulating material.



The Kny-Scheerer Type Pressure Steam Disinfector, No. 9, 10, and 11.

This type of Steam Disinfecting Chambers is manufactured in three sizes as specified below. All apparatus are provided with two rapid closing doors, lined with sheet copper on the inside.

| Code ZUWADE | No. 9, inside | e diameter | 20 in., insid | le length | 48 | in\$500.00 |
|-------------|---------------|------------|---------------|-----------|----|------------|
| Code ZUWELO | No. 10 | 11 | 24 " | ** | 60 | " 700.00 |
| Code ZUWOMY | No. 11 | | 30 " | 44 | 78 | " 850.00 |

Note label which our goods bear



The Kny-Scheerer Company's Large Sizes of Circular Form Pressure Steam Disinfecting Chambers.

The Standard sizes manufactured are:

No. 12-100 inches long and 40 inches diameter internal dimensions

No. 14-114 " 60

Other sizes only to special order

Size No. 12 is intended for Hospitals of larger capacity, and size No. 14 for Municipal Institutions, isolation stations of Boards of Health and Quarantine Stations.

Inside and outside cylinders re of open hearth homogeneous steel plates of 50 000 pounds tensile strength per square inch of section. The inner and outer shells are stay bolted and tested at eighty pounds hydraulic pressure.

Doors have return flanges and are faced so as to form an air-tight lock with a gasket in head frame of chamber.

Square steel spring levers appropriately arranged upon the door so as to be projected and retracted, engage with the head frame of the chamber. The locking levers are carried by a stud bolt on a one piece sleeve with threaded hand wheel.

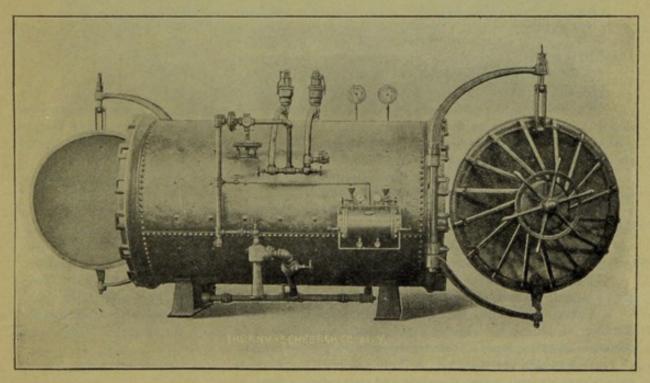
The entire arrangement forms a rapid closing automatic locking device.

The doors are not hinged, but are carried on wrought steel davits with guides at bottom. The app tratus rests upon two cast iron cradles. Car for receiving material to be disinfected is of angle iron construction, and screened with galvanized iron mesh. A set of tracks extending the full length of chamber is also provided.

In addition are furnished: A protected bulb thermometer, steam pressure gauge, combination vacuum and pressure gauge and two safety valves.

This type of circular form disinfecting chamber is not made with 'oggle bolt doors. A Formaldehyde Generator may be furnished in connection with and directly attached to the steam chamber (see description page 278-279.

The interior of the steam disinfecting chamber is finished with three coats of white enamel paint.



The Kny-Scheerer Co.'s Pressure Steam Disinfector, No. 12 and 14, with Formol Generator.



| | PRICES + ** | |
|----------------------------------|--|----------|
| No. 12-A Code ZYALE | Kny-Scheerer Co.'s Circular Form Steam Disinfecting Chamber. Inside dimensions: length 100 inches, diameter 40 inches; provided with one door only. Without Formaldehyde Generating | ¢0=0.00 |
| No. 12-B Code ZYANO | At achment Kny-Scheerer Co.'s Circular Form Steam Disinfecting Chamber. Inside dimensions: length 100 inches, diameter 40 inches; provided with two doors, but without Formaldehyde Generating Attachment. | \$850.00 |
| No. 12-C Formol Code ZYAST | Kny-Scheerer Co.'s Circular Form Steam Disinfecting Chamber. Inside dime sions: length 100 inches, diameter 40 inches; provided with two doors and in addition with Formalde- | |
| No. 14-A Code ZYATY | hyde Generating Attachment | 1100.00 |
| No. 14-B Formol Code ZYAVO | May-Scheerer Co.'s Circular Form Steam Disinfecting Chamber. Inside dimensions: length 114 inches, ciameter 60 inches; provided with two doors and in ad lition with Formaldehyde | 1750.00 |
| Prices | Generating Attachment | |

The Kny-Scheerer Co.'s Rectangular Form of Pressure Steam Disinfecting Chambers.

The standard sizes manufactured are:

No. 1-84 in. long, 54 inches high, 36 inches wide, internal dimensions

No. 2-108 in. long, 64 inches high, 52 inches wide, internal dimensions.

Other sizes to special order.

They may be furnished in-

Class A-with toggle bolt door locking device, or

Class B-with radial arm automatic door-locking device.

The inside and outside shells of steam chest are of open hearth homogeneous steel plates, with an ultimate tensile strength of not less than 50,000 pounds per square inch of section, with 50 per cent ductibility as indicated by contraction of area at point of fracture under test and elongation of 25% in 8 inches

The inner and outer shells are securely riveted to end frames by ¾ inch rivets spaced 2½ in. center to center and caulked.

Doors have return flanges and are faced so as to form an air-tight lock with gasket in head frame. Those provided with our automatic radial arm locking device have a hand wheel and nut which carry the locking levers. The latter can easily be projected or retracted and by engaging with flange on end frames, facilitate instantaneous opening or closing of chamber.

The doors are hung from davit cranes and are arranged for proper adjustment. They are guided at bottom by lever arms attached to cranes.

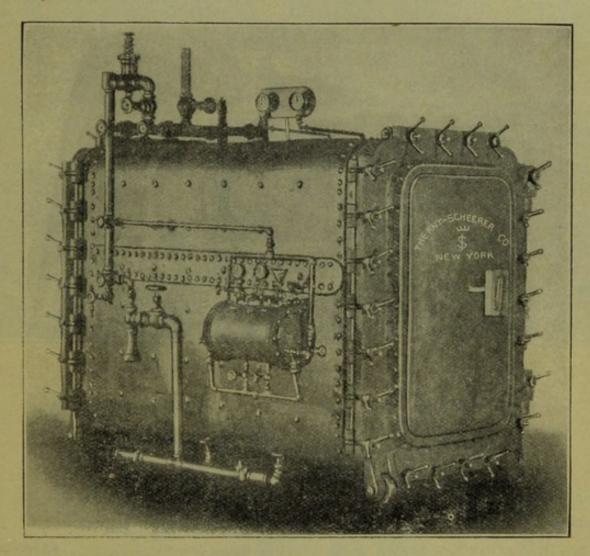
Car is of wrought iron construction. A set of tracks both for inside and outside of the chamber is provided. Two suitable cast iron saddles upon which the chamber will be supported to working level are furnished with each apparatus.

In addition are supplied: A protected bulb thermometer, steam pressure gauge, combination vacuum and pressure gauge and two safety valves.



A Formaldehyde Generator directly attached to steam chamber may be used to advantage. (see description pages 278 and 279.

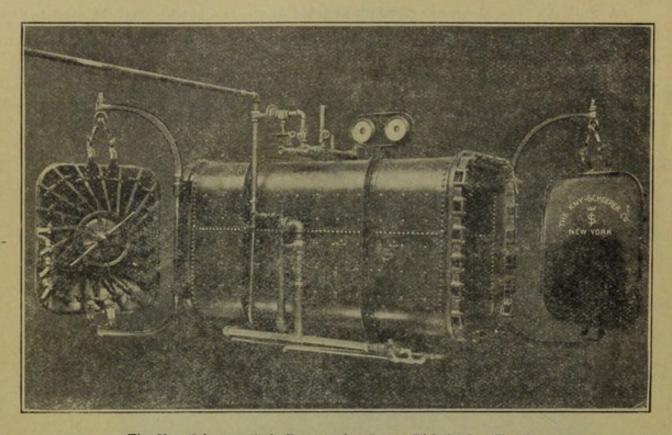
The interior of the steam disinfecting chamber is finished with three coats of white enamel paint,



The Kny-Scheerer Co.'s Rectangular Steam Disinfecting Chamber. No. 1 A Formol,

Internal Dimensions: Length, 7 feet; Height, 4 feet 6 inches; Width, 3 feet,

| No. 1-A Kn Code ZYGO | y-Scheerer Co.'s Rectangular Steam Disinfecting Chamber, Length, 7 feet; height, 4 feet 6 inches; width, 3 feet, internal dimensions; with toggle bolt door-locking device | \$1550.00 |
|-------------------------------------|--|-----------|
| No. 1-A Sa Formol Code ZYGYE | me as above, but with the addition of a Formaldehyde Generator | 1650.00 |
| No. 1-B Kn Code ZYGLE | y-Scheerer Co.'s Rectangular Steam Disinfecting Chamber. Length, 7 feet; height 4 feet 6 inches; width 3 feet, internal dimensions; with radial arm automatic door-locking device | 1750.00 |
| No. 1-B For Formol Code ZHGOY | mol Same as foregoing, but with the addition of a Formaldehyde Generator | 1850.00 |



The Kny-Scheerer Co.'s Rectangular Steam Disinfecting Chamber.
No. 2 B.

Internal Dimensions: Length, 9 feet; Height, 5 feet 4 inches; Width, 4 feet 4 inches.

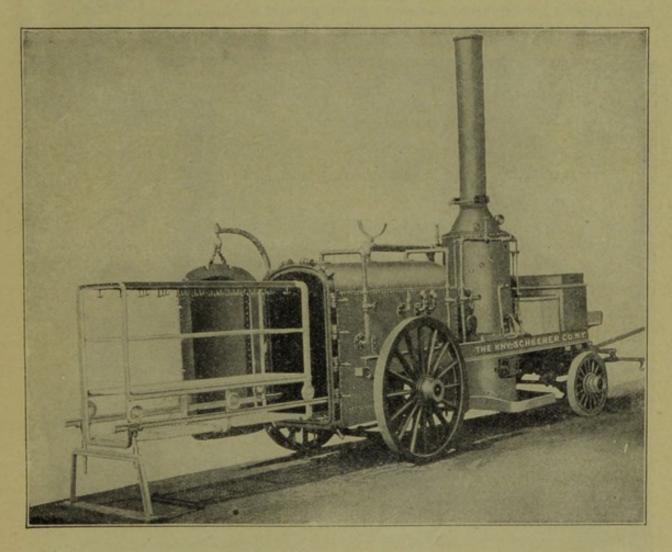
| No. 2-A Kny-Scheerer Co.'s Rectangular Steam Disinfecting Chamber. | |
|--|--------|
| Code ZYME Length, 9 feet; height 5 feet 4 inches; width 4 feet 4 inches, inter- | |
| nal dimensions; with toggle bolt door-locking device\$21 | 00.00 |
| No. 2-A Same as above, but with the addition of a Formaldehyde Gen- | |
| A 1 THEFT | 200.00 |
| No. 2-B Kny-Scheerer Co.'s Rectangular Steam Disinfecting Chamber, | |
| Code ZYMYO Leng h, 9 feet; height 5 feet 4 inches; width 4 feet 4 inches, inter- | |
| nal dimensions; with radial arm automatic door-locking device 27 | 00.00 |
| No. 2-B Same as foregoing, but with the addition of a Formaldehyde Gen- | |
| A. J. THUNDS | 00.00 |

Portable Steam Disinfecting Chamber, Rectangular Form, Jacketed Type.

The steam chest mounte on a strongly constructed steel truck is size No. 1, being 84 inches long, 36 inches wide and 54 inches high, internal dimensions.

An upright boiler of suitable capacity is mounted in front of truck, also a receptacle for fuel and a water tank for feeding boiler. The latter is connected with the disinfecting chamber by a series of steam pipes and valves.

The complete equipment includes all parts furnished with the Rectangular Form Disinfecting Chamber No. 1, except that apparatus only has one door.



| Complete | Portable Disinfecting | Apparatus, | Rectangular | Form, | with | toggle |
|------------|-----------------------|----------------|-------------|---------|------|-----------|
| Code ZYRAE | bolt door | | | | | \$2000.00 |
| Complete | Portable Disinfecting | Apparatus, | Rectangula | r Form, | with | radial |
| Code ZYROY | arm automatic door- | locking device | e | | | 2150.00 |

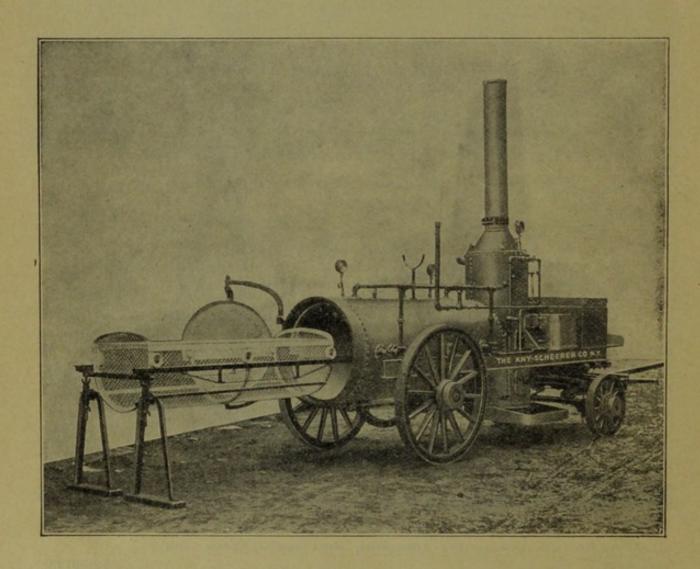


Portable Steam Disinfecting Chamber, Circular Form, Jacketed Type.

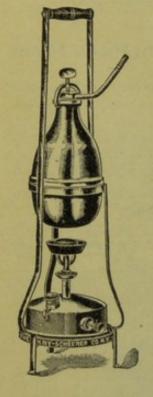
The disinfecting chamber is mounted on a strongly constructed steel truck and measures 90 inches in length and 40 inches in diameter. It has but one door which is provided with the radial arm automatic locking device,

An upright boiler of suitable capacity is mounted in front of truck, also a receptacle for fuel and a water tank for feeding boiler. The latter is connected with the disinfecting chamber by a series of steam pipes and valves.

The disinfecting chamber is self-contained and includes all parts furnished with the regular type of circular form disinfectors including pressure reducing valve.







Formaldehyde Disinfector, Fumigator and Inhaler.

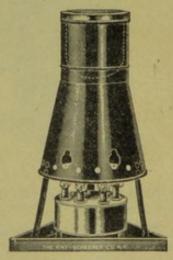
N. B.—We do not recommend the Q/7070 apparatus for any but superficial disinfection where absolute and thorough results are to be guaranteed we recommend our high pressure apparatus No. 1 and No. 2, as described under Q/7080 and Q/7085.



P/7072

P/7072 Formaldehyde Gas VapCode orizer, simple form, for use
YUZET in fumigating or superficial
disinfection of closets, bath
rooms, etc., by boiling formaldehyde solution 40%.
This is also beneficial as an
inhalant; medicated cotton
can be placed in the dome.
Price......\$1 50

P/7073 Formaldehyde Gas
Code Generator, for evaporating
YUZOY Para-Formaldehyde Tablets. Price......\$3.50



P/7073



Generating Formaldehyde Gas by the

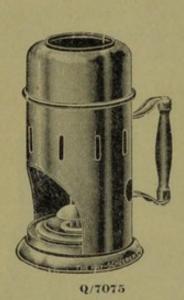
Volatilization of Paraform and Formaldehyde in Paste Form

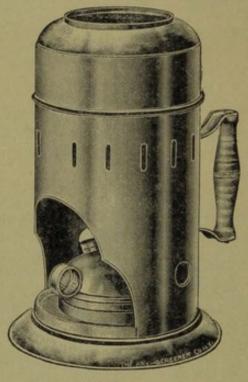
A simple and convenient form of Formaldehyde Generating Apparatus has lately come into demand and is largely recommended and prescribed by the medical profession to the general public, for the disinfection of sickrooms and living apartments.

The apparatus is of very simple construction, and its manipulation is readily understood. It consists of a stand similar in form to that of a steam atomizer. Into the top fits a metal kettle, the receptacle for the solidified Formaldehyde. Underneath this kettle is placed an alcohol burner, the intense heat of which volatilizes the Paraform, converting it into Formaldehyde Gas.

For the thorough disinfection of a room, a quantity equal to 34 of one ounce of Paraform for each 1000 cubic feet of space (10x10x10 feet) should be used. The kettle should be filled one-third full of water before placing the required quantity of Paraform into it.

Light the alcohol burner and place the apparatus into the centre of the room. Close the same as tight as possible and let the flame burn until the alcohol contained in lamp is exhausted.





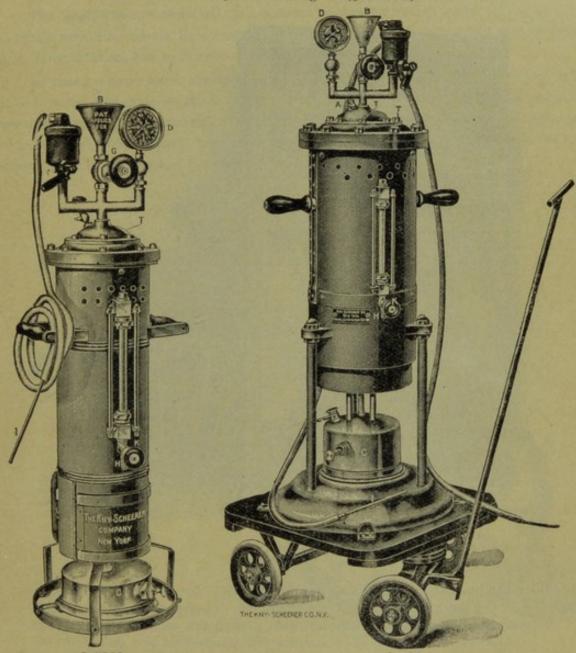
Q/7076

| Q/7075 Formaldehyde Generator, medium size | \$ 3.00 |
|--|---------|
| Q/7076 Formaldehyde Generator, large size | 5.00 |
| Formaldehyde in Paste Form (Solidified Formaldehyde) | |
| In 4 oz. bottles, per dozen bottles | 3.00 |
| In 8 oz. " " | 6.00 |



Improved Pressure Steam Formol Generators.

See Description on Pages 295 and 296.



Q/7080 Improved Formol Generator No. 1.

Q/7085 Improved Formol Generator No. 2

Q/7080 Formaldehyde Gas Generator No. 1, medium size, with Automatic
Code ZYGIA Pressure Valve. \$75.00

Q/7085 Formaldehyde Gas Generator No. 2, large size, with Automatic Pressure
Code ZYLEO Valve. 110.00

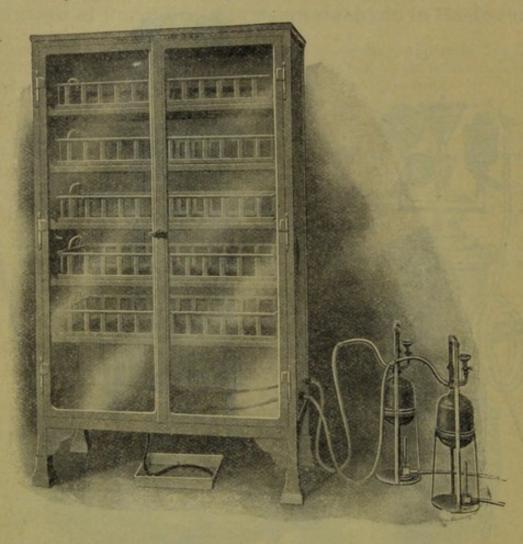
The advantages of these Autoclaves in which the Formaldehyde Gas is generated under pressure, are fully set forth on pages 295 and 296.

N. B.—We furnish Formaldehyde 40% solution and all the ready mixtures for the generators as chloroformol and glyco-chloroformol at lowest market prices. (Send for quotations.)



Formaldehyde Gas Cabinet

FOR DISINFECTION OF BOOKS AND PAPER MONEY.



Q/7090

Q/7090 Formaldehyde Disinfecting Cabinet, designed by Dr. Andrew F. Currier, Code ZYPOW for the disinfection of books, pamphlets, etc. The Apparatus is constructed

of steel, white enameled fiinish, with glass doors, admitting of thorough observation. The books or material for disinfection are placed in five removable, enameled metal trays, which can be carried about conveniently.

The Formaldehyde gas is generated in an independent apparatus which is connected by means of flexible tubing, and after disinfection has been effected the Formaldehyde can be neutralized by admitting ammonia vapors from a second generator, which is also connected by means of flexible tubing. While not in use these generators can be disconnected.

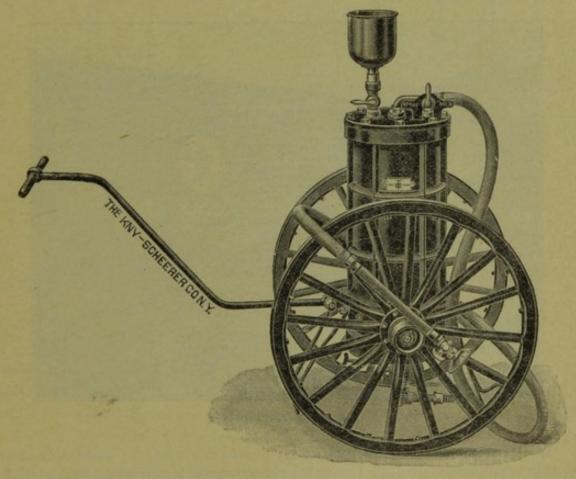
| Dimensions of Cabinet | , 42 in. wid | le, 72 in. | high, 18 in. | deep. | |
|------------------------|--------------|------------|--------------|-------|----------|
| Price, complete with 2 | generators | | | | \$225.00 |
| Packing | | | | | 3.00 |



Hydraulic or Steam Pressure Disinfectant Spray Apparatus

The application of chemical disinfectants, in liquid form, to walls, ceiling and floor of lazarettos, operating rooms, living apartments and particularly of railroad cars intended for cattle transportation, has been exceedingly difficult.

By using a hand brush the disinfecting fluid would be unevenly distributed or could not be injected into crevices at all. Carbolic acid and other disinfectants of corrosive nature were apt to cause painful injuries to the operator by dropping into his face or running over his hands and body. Aside from this the old method was expensive both as to time required for disinfection and the quantity of material wasted.



Q/7097

Hydraulic or Steam Pressure Disinfectant Spray Apparatus mounted on Wheels.

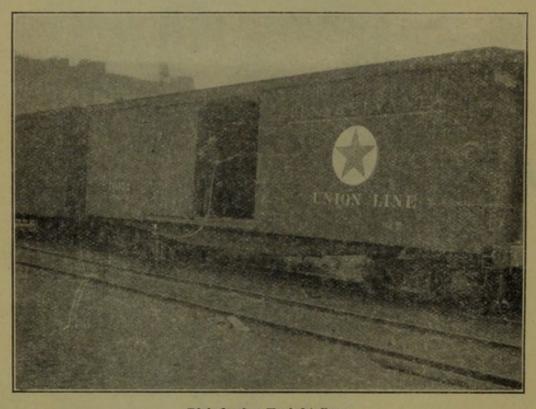
Our Hydraulic or Steam Pressure Disinfectant Spray Apparatus solves the problem of wet disinfection in a most perfect and ideal way.

It affords absolute protection to the operator against injury. It disinfects the walls, floor, ceiling and simultaneously the air by a finely atomized spray. It effects considerable saving in time, labor and material, in fact surpasses all other known methods of wet disinfection.

DISINFECTANT SPRAY APPARATUS-Continued.

The Disinfectant Spray Apparatus itself consists of a cylindrical metal receptacle into which is filled the disinfecting fluid through a funnel on top. The cylinder proper is calibrated as accurately as a syringe barrel, and a plunger without piston is carefully fitted into it.

The spray of the disinfection fluid is secured through either hydraulic or steam pressure, whichever of the two may be available. The pressure required should not be less than twelve pounds nor more than sixty pounds per square inch. A pressure reducer should be used whenever the available steam or hydraulic pressure exceeds the maximum for use. In case neither steam nor water pressure can be had, a hand force pump has to be employed.



Disinfecting Freight Cars.

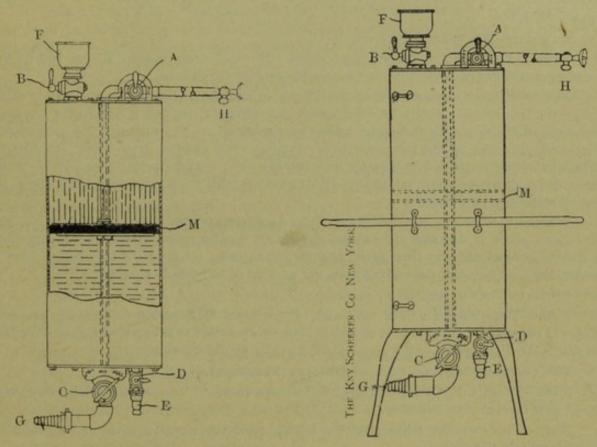
After the cylinder has been filled with the disinfecting fluid, the element of pressure enters the vessel from underneath forcing the plunger upwards against the fluid which finds its exit in the spray nipple of the annexed rubber hose.

The atomization of the fluid is a very fine one and the spray covers a large area of surface, thus accomplishing a thorough disinfection of the objects inside of a few minutes.

The apparatus proper can be placed at a distance from the object for disinfection. A rubber hose as long as 150 feet can be used with the same good effect as a short one.

We recommend our Hydraulic or Steam Pressure Disinfectant Spray Apparatus to Railroad and Steamship Companies, Abattoirs, Boards of Health and Quarantine Stations, Hospitals, Governmental and Surgical Institutions.

DISINFECTANT SPRAY APPARATUS—Continued.



Sketch of Portable Hydraulic or Steam Pressure Disinfectant Spray Apparatus.

| Q/7095 Code ZYOCE | Hydraulic or Steam Pressure Disinfect at Spray Apparatus. Capacity 4 gallons of fluid, completely equipped with twenty feet of rubber hose for spray, but without hose for water or steam supply. Apparatus rests on feet and is arranged to be carried by two persons |
|----------------------|--|
| Q/7097 Code ZYOGA | Hydraulic or Steam Pressure Disinfectant Spray Apparatus, same as above, but mounted on wheels. See illustration page No. 613 150.00 |
| Q/7099 Code ZYOMY | Hand Force-Pump, suitable for working spray in the absence of hydraulic or steam pressure supply |

Rubber Hose at market prices.



DIRECTIONS

for Operating the Pressure Disinfectant Spray Apparatus.

First:—Connect nipple "G" with water pressure supply by means of hose or pipe and also provide a hose to waste valve "D" on nipple E, so as to draw off water or steam into any desired place.

Second:-Open waste pipe valve "D."

Third:—Pour the disinfectant into funnel "F" and open valve "B" to admit any required amount of disinfectant up to its capacity of four (4) gallons.

Note:—If the disinfectant is to be diluted in chamber, it is only necessary to fill in through the funnel the quantity of disinfectant, full strength, needed to obtain the required percentage in dilution with the water added as explained in 5th, 6th, and 7th paragraphs below, so as to make up the full capacity of chamber—four gallons. Should less disinfecting solution be required than full capacity of chamber, it is best to have the solution of the desired strength before pouring it in through the funnel; this holds good also where steam instead of water pressure is used.

Wherever it is not necessary to dilute disinfectant after it is in the chamber, the instructions given in 5th and 6th paragraphs should not be taken note of, but it may then take up to several minutes time after apparatus has been set for SPRAY, before flow is secured, the time required depending upon the amount of solution in chamber.

Fourth:-Close valve "B"

Fifth:—To mix: Set valves "A" and "C" to word MIX and turn on water pressure which will cause the disinfectant in chamber above piston "M" to fill up entirely, and in this way dilute the disinfectant to the required strength as explained above.

This operation may take up to about three (3) minutes.

Sixth—When disinfecting chamber is full, set valve "C" to word FULL, thus cutting off flow from mixing chamber.

Note-To determine when chamber is full, open valve "B" and when full, solution will gush up into the funnel.

Seventh:-Close valves "B" and "D."

Eighth:-To Spray: Set valves "A" and "C" to word SPRAY and open hose nozzle "H."

SOLUTOL

THE IDEAL DISINFECTANT,

The rules laid down by the various cattle commissions and veterinary authorities relating to the disinfection of stalls, cattle cars, etc., are not as yet well defined.

In most cases the spaces to be disinfected are too open in their construction to permit any part of the work to be done by gaseous disinfectants.

Heretofore the work had to be done wholly with solutions applied with a brush, while now the *Hydraulic or Steam Pressure Disinfectant Spray Apparatus* is available for this work. The use of this apparatus increases the efficiency of the method, but as the period of exposure of infectious matter to the disinfectant in its liquid form is necessarily brief, disinfecting agents should be used the action of which is rapid and vigorous.

For this purpose we strongly recommend the use of Solutol as a disinfectant of absolutely reliable efficiency. It destroys all infecting germs and putrefaction odors. It is readily mixable with water.



SOLUTOL DISINFECTANT—Continued.

By recent investigations and bacteriological experiments, it has been proven that most of the usual disinfectants, as crude Carbolic Acid, Chloride of Lime, Carbolate of Lime, etc., do not fulfill the hygienic requirements, but are of illusory value, as their disinfecting action is much too slow and unreliable. All such disinfectants, Creolin and Lysol included, act within the available limits of time and concentration only on the less resistent and less dangerous bacilli. The only exception so far known is Solutol, which destroys even the most dangerous permanent forms of the bacilli—the spores.

The Imperial German Hygienic Department in Berlin, has published experiments according to which Crude Solutol kills anthrax spores of highest power of resistance in less than one day, while other disinfectants like Carbolic Acid, Lysol, etc., show, under the same conditions, no action at all after ten days. The above mentioned department herefrom draws the conclusion that a disinfectant is quite worthless, if it acts only after the lapse of a number of days; the practical use requires not only a thorough but also speedy disinfection, and such a result could not be obtained with any disinfectant except Solutol.

Experiments of a number of other health authorities in various states have lead to exactly the same results. Thus Prof. Hueppe, director of the Hygienic Institute in Prague, has found Solutol to be the best of modern disinfectants in cholera epidemics, and states: "We now possess in Solutol a disinfectant for all cases which hitherto were only accessible to Corrosive Sublimate."

The use of Solutol is much cheaper than that of crude carbolic acid, as it is 40-60 times stronger. Crude carbolic acid moistens the objects only with difficulty and does not penetrate them, while Solutol enters into all of their pores and crevices. It impregnates the objects thoroughly, by dissolving any grease from them in consequence of its alcalicity.

Solutol is sold in carboys, barrels or in bottles of one gallon each.

Directions for Using.

Solutol is preferably to be diluted with hot water, as hot solutions act stronger.

Caution! Undiluted Solutol affects the skin! One pint of Solutol is to be diluted with about eight gallons of water and with this solution the walls and floors of the room to be disinfected are thoroughly moistened. This solution is of thorough efficiency for all regular disinfections; only the most resisting of all micro-organisms, the anthrax spores, require more concentrated solutions.

Solutol is of the greatest importance for the disinfections of stables, to prevent contagious diseases.

For washing cattle a solution of one ounce of Solutol in 1½ gallons of water has given excellent results.

Solutol does not corrode iron or other metals and is also in this respect greatly preferable to other disinfectants like Chloride of Lime, etc.

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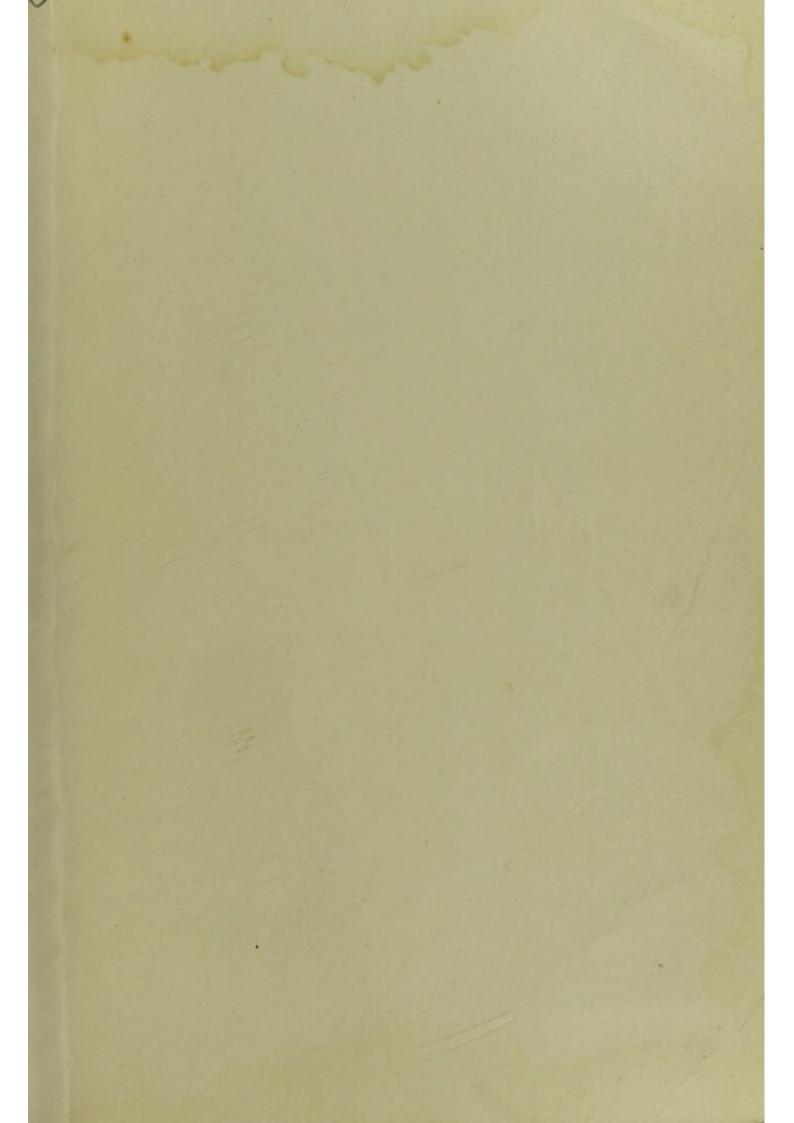


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