

No. 690,759.

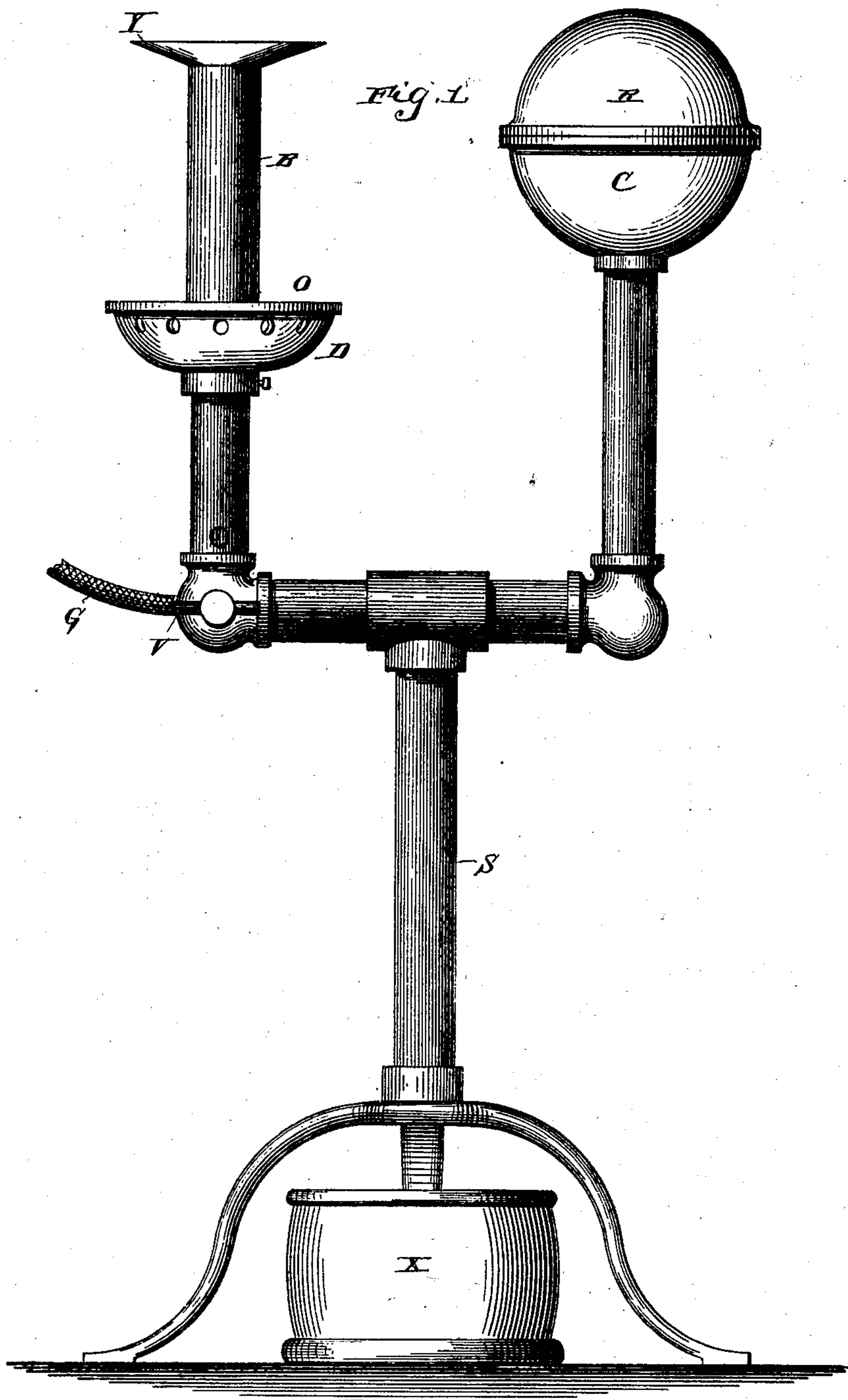
Patented Jan. 7, 1902.

C. E. NORTON.
STERILIZER FOR SURGEONS' USE.

(Application filed Feb. 23, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
Alie Robinson.
Ella Robinson

Inventor:
Charles E. Norton
by Admon Robinson
Att.

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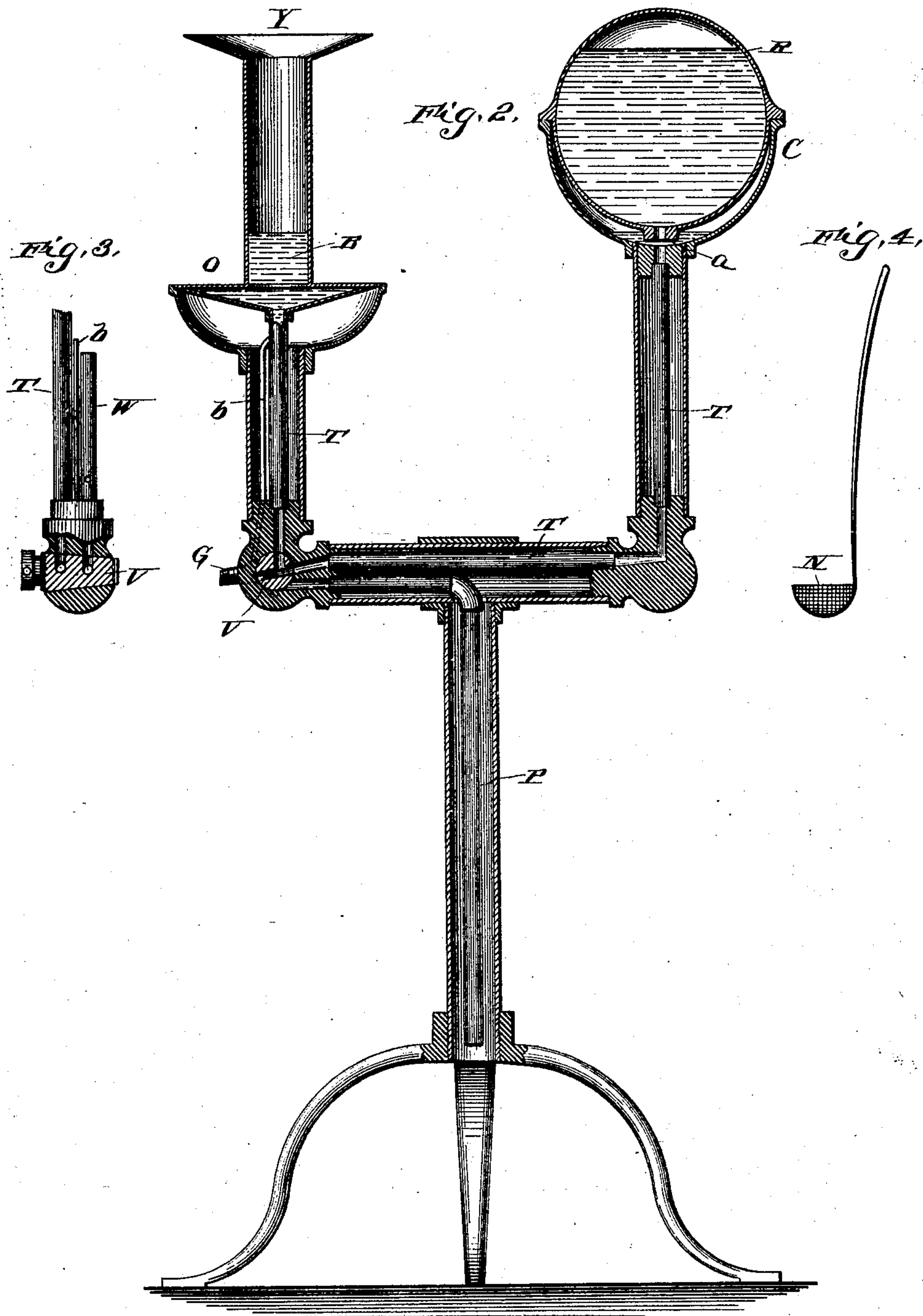
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UNITED STATES PATENT OFFICE.

CHARLES E. NORTON, OF LEWISTON, MAINE.

STERILIZER FOR SURGEONS' USE.

SPECIFICATION forming part of Letters Patent No. 690,759, dated January 7, 1902.

Application filed February 23, 1900. Serial No. 6,206. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. NORTON, a citizen of the United States, residing at Lewiston, in the county of Androscoggin and State of Maine, have invented a new and useful Sterilizer for Surgeons' Use, of which the following is a specification.

My invention relates to that class of apparatus in which surgical instruments and material are rendered aseptic by the action of various boiling liquids. When an aseptic solution is used over and over again for this purpose, the rinsings from the instruments accumulate in it and impair its cleansing power, and where the instruments are those of dentists, laryngologists, and gynecologists such repeated use is likely to offend fastidious patients. With the apparatus heretofore in use for this purpose, however, the emptying of a foul solution, its replacement by a fresh one, and the subsequent heating of this fresh solution cause a troublesome delay, which it is frequently desirable to avoid.

A principal object of my invention is to provide a device in which clean liquid can be used for each instrument, if desired, without any noticeable increase in either time, trouble, or expense from this feature and with an increased convenience from others.

I hereinafter describe apparatus heated by a gas-flame; but by making obvious changes other sources of heat can be substituted without changing the more essential features of the device, since it is apparent that any construction which retains a power-transmitting connection between the cut-off for the source of heat and the valve which regulates the flow of fluid to and from the boiler will have the same characteristic mode of operation without regard to the source of heat.

In the accompanying drawings, Figure 1 is an elevation of the device; Fig. 2, an elevation in partial section; Figs. 3 and 4, details.

In the figures, B is the boiler, which should be no larger than is necessary to hold the instruments. The upper part of the boiler B is enlarged, as shown, to form the broad-topped foam-chamber Y, in which the foam from the boiler B spreads out and cools. The liquid in the boiler B may be boiled very rapidly

without throwing the foam over the edge of Y if the open surface of Y is six to ten times the cross-section of the boiler-tube B. The upper part of Y has the same inward and downward slant on every side, so that the cooled liquid will flow straight inward without the formation of eddies, which would greatly increase the liability to boil over. The lower part of the boiler B is enlarged to increase the heating-surface, and the upper surface of this enlarged part is made flat to serve as a heating-table O for washes and sprays and for other similar uses.

The boiler B is connected with the reservoir R by the tube T and cup C. The reservoir R has an opening α in the bottom through which water flows into the cup C. The combination of R and C acts on the principle of the ordinary pneumatic inkstand to maintain the water-level approximately constant in C and B. In the course of the tube T is inserted the conical valve V. When the valve V is in the position shown in the drawings, the water flows freely from the reservoir R to the boiler B and keeps therein at the height controlled by the pneumatic action between R and C. When the valve V is given a quarter-turn to the left, the boiler B is shut off from R and connected with the waste-pipe P, through which the liquid in the boiler flows to a slop-dish X.

In order to simplify my device as much as possible, I make the plug of the valve V serve as a power-transmitting connection which shuts off the heat from the boiler at the same time that the water is drained away. This I do by making the valve V very much longer than would otherwise be necessary, so that it intersects both the water-pipe T and the gas-pipe G. I then perforate the part of the valve V which passes through the gas-pipe G at such an angle that when the valve V is in the position shown in the drawings gas flows from the pipe G to the burner W, as shown in Fig. 3, and when the valve V is turned to shut off the flow of water through T to B it also shuts off the gas from W.

b is a lighting-burner, which is shown as connected directly to G; but the different constructions which are in common use for such

lighting-burners may be substituted, if preferred.

N, Fig. 4, is a wire basket in which articles to be sterilized are placed for convenience in removing from the boiling liquid.

When I wish to make use of my invention, I fill the reservoir R with water and invert it in the cup C. The water will flow out until it fills T and rises above the level of the aperture *a* in R. I next turn on the gas in G and light the small burner *b*. I then turn the valve V into the position shown in the drawings, when the liquid flows into the boiler until it rises to its level in C, while the gas simultaneously flows into the burner W and is lighted by the small burner *b*. The articles to be sterilized may be put into the boiler B immediately, as the flame of W spreading over the enlarged under surface of B will quickly bring the small amount of liquid contained in B to the boiling-point. As the liquid in B evaporates it is replaced from R, but as the connection between them is essentially a narrow inverted siphon heating B produces no backward convection-currents toward R. If the articles to be sterilized are inconvenient to handle when hot, they are placed in the long-handled wire basket N. When it is judged that the articles in B have boiled long enough, the valve V is turned to shut off the gas from the burner W and to shut off the boiler B from the reservoir R and connect it with the waste-pipe P, through which the contents of B flow to the slop-dish X, placed to receive them. The small lighting-burner *b* will continue to burn as long as G is supplied with gas, and the sterilizing process can be at any time repeated with other instruments and fresh liquid by simply turning the valve V back to the position shown in the drawings.

Having now fully described my invention and the manner of using it, what I claim, and desire to secure by Letters Patent, is—

1. In a sterilizer for surgeons' use a boiler adapted in size and shape to the tools to be sterilized, a cup, a tube connecting the cup and boiler, and a removable water-holder which fits the cup and has an opening in its lower side, all combined with each other substantially as and for the purpose set forth.

2. In a sterilizer for surgeons' use the combination of a boiler which is relatively narrow and deep with a reservoir which replaces the waste from the boiler and a flaring foam-chamber which prevents the liquid from boiling over; all as and for the purpose set forth.

3. In a sterilizer for surgeons' use the combination of a boiler, a reservoir and an in-

verted siphon which passes below the source of heat, all as and for the purpose set forth.

4. In a sterilizer for surgeons' use the combination of a boiler, a pneumatically-controlled reservoir, a waste-pipe and a valve which connects the boiler alternately with the reservoir and with the waste-pipe; all as set forth.

5. In a sterilizer for surgeons' use a boiler, a source of heat therefor, a cut-off for the source of heat, a reservoir from which the boiler is fed, a waste-pipe draining the boiler, a valve alternately connecting the boiler with the reservoir and with the waste-pipe, and a power-transmitting connection between the valve and the cut-off for the source of heat; all as set forth.

6. In a sterilizer for surgeons' use, a boiler, a source of heat therefor, a valve controlling the source of heat, a reservoir from which the boiler is fed, a waste-pipe draining the boiler, a valve alternately connecting the boiler with the reservoir and with the waste-pipe, and a power-transmitting connection between the two valves.

7. In a sterilizer for surgeons' use, a boiler, a reservoir supplying water to the boiler, a waste-pipe leading from the boiler, a burner which heats the boiler, a valve which connects the boiler alternately with the reservoir and with the waste-pipe and a valve which turns about the same axis and controls the flow of gas to the burner, all combined with each other substantially as and for the purpose set forth.

8. In a sterilizer for surgeons' use a boiler, a reservoir, a waste-pipe, a burner and a gas-pipe all in combination with each other and with a conical valve which has a transverse aperture that in one position connects the boiler with the reservoir and in a second position connects the boiler with the waste-pipe, and has a second transverse aperture which connects the burner with the gas-pipe when the boiler is connected with the reservoir; all as set forth.

9. In a sterilizer for surgeons' use an open-topped boiler which has its lower end enlarged to form an annular heating-table substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES E. NORTON.

Witnesses:

HERBERT H. PURINTON,
ALBERTA M. GRAVES.