To all whom it may concern:

Be it known that we, ISIDOR BLICKMAN and SAUL BLICKMAN, citizens of the United States, residing in the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Combined Hot-Water Heaters, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

We have illustrated a type of our invention in connection with a sterilizer in the accompanying drawings, wherein:

Figure 1, is an elevation of our improved apparatus shown as connected with the pipe, the top and bottom of the lower-boiler 8, and this leg passes bodily through the interior of said lower-boiler where it is constantly subjected to the high heat of the water 18, in said lower-boiler. This water-leg is composed of a tube which communicates with the interior of the upper-boiler and extends to a point below the lower-boiler where it is provided with an enlarged foot 14, which is circular or annular in shape and has upon its upper side a threaded opening 15, which fits the thread 15 upon the exterior of the leg. Thus the foot is removably secured to the end of the leg and may be readily detached for repairs or replacement. This foot is made of a comparatively heavy brass casting to withstand the intense heat and to serve to quicken the heating of water in the leg. The bottom of the lower-boiler is recessed or made concave at 16, to receive the foot 14 in order that the flame from the burner 11, may strike directly against the bottom of the lower-boiler in a comparatively extended zone surrounding said foot. The leg 12, is supported in operative position by means of a nut 17, within the upper-boiler engaging the external thread 18 on the leg, the nuts 19 and 20 engaging the thread 18 lower down on the leg, and lying to the outside and inside, respectively, of the top of the lower-boiler, and the nuts 22 and 23, engaging the thread 24 at the lower end of the leg and lying respectively to the inside and outside of the bottom of said lower-boiler. When these various nuts are tightened up the water-leg is held securely in place and gives a certain rigidity and support to both boilers. All of the joints are of course made water and steam tight.

The bottom of the lower-boiler is preferably made of copper and it is riveted and soldered to the body of the boiler. Before inserting the bottom in place it is set to the water-leg 12, by means of the clamping nuts 22 and 23, and then the leg is placed in position and made fast.

When the heat is applied to the foot of the leg 12, the water therein is quickly heated and then it rises in the leg and passes into the upper-boiler into the body of water 26, wherein, the cooler water at the same time descending from the upper-boiler to be heated in turn. In this way the water-leg acts to heat the water in the upper-boiler to the
boiling point, and this boiler is thus enabled to supply steam to the sterilizing-chamber 4, for the purpose of sterilizing articles placed therein. In order, however, to quicken the circulation of the water 26, from the upper-boiler to the bottom of the leg and thence back again, a circulating tube 27, is suspended centrally in the water-leg and has the lower end thereof flared or made funnel-shaped at 28, and extending into the foot of the leg. The upper end of the circulating tube extends a short distance up into the upper-boiler and it is held securely but removably in place by means of a brace or spider 29, fastened to the exterior of the tube and secured by solder to the interior wall of the water-leg. A similar spider 30, is secured to the circulating tube near its lower end and loosely engages the interior of the water-leg and the tube can be lifted out of the leg when the spider 29, at the top is loosened. The presence of the tube within the leg causes the water to circulate more readily between the upper-boiler and the foot of the water-leg and the course of the moving water is indicated by the adjacent arrows on Fig. 2.

A water supply pipe 31, is tapped into the cold water service pipe 32, of the wash-stand 33, and is provided with a hand-operated valve 34, which is shown as open and as supplying the water 13 to the lower-boiler. The valve 34, is closed when the lower-boiler is sufficiently supplied with water. The upper-boiler may be supplied with water in any suitable and well known way. A hot water-supply pipe 38, leads from the upper part of the lower-boiler to a faucet 37, on the wash-stand and by means of this drawing-off pipe, a quantity of boiling or hot water may be drawn off at will and in such quantities as needed.

While we have shown our improved apparatus as connected with a wash-stand, it will be understood, of course that the apparatus may be used independently of such appliance and that hot water may be drawn directly from the lower-boiler by one or more faucets as desired.

It will be noted that the peculiar arrangement of the water-leg with its foot, as herein set forth, in combination with the lower-boiler, provides a very efficient construction, and in which a single large gas-burner may be utilized to quickly heat to a high temperature the water in both the upper and lower boilers simultaneously.

The employment of the pedestal for supporting the apparatus, which is also made to conform somewhat to the outlines of the pedestal, gives the complete apparatus a very shapely and pleasing appearance. This pedestal or base 1, which is circular in cross-section, has a flaring lower end on which it stands, and its upper end is also made to flare outwardly and upwardly and its upper edge is rabbed at 38 for receiving the edge of the flange 2, of the bottom of the upper boiler. At a suitable point in the side of the pedestal 1, is formed a hand-opening 39, for giving access to the burner arranged within this part of the pedestal.

Our invention is hereby illustrated in connection with an ordinary sterilizer, the upper boiler serving to supply the sterilizer 75 with the sterilizing vapor. It will be understood, however, that the combined apparatus may be used in conjunction with other devices than sterilizers.

Having thus described our invention, what we claim and desire to secure by Letters Patent is:

1. The combination of a lower boiler having means beneath it for heating the water therein, a water supply for said lower boiler and a drawing-off pipe connected with said lower boiler and provided with a valve controlling the flow of hot water therefrom, an upper boiler arranged above the lower one, a water-leg extending from said upper boiler downwardly through the interior of said lower boiler and exposed to the direct action of the hot water in said lower boiler, the foot of said water-leg lying beneath and to the outside of said lower boiler and being exposed to the direct action of the said heating means, substantially as described.

2. The combination of a lower boiler having means beneath it for heating the water therein, a water supply for said lower boiler and a drawing-off pipe connected with said lower boiler and provided with a valve controlling the flow of hot water therefrom, an upper boiler arranged above the lower one, a water-leg extending from said upper boiler downwardly through the interior of said lower boiler and exposed to the direct action of the hot water in said lower boiler, said water-leg comprising a single tube extending from the bottom of the upper boiler through the interior of the lower boiler and through its bottom and provided upon its lower end with a hollow foot lying to the outside of the lower boiler and exposed to the direct action of said heating means, the horizontal dimension of the interior chamber of said foot being considerably greater than the diameter of said tube, substantially as described.

3. The combination of a lower boiler having means beneath it for heating the water therein, a water supply for said lower boiler and a drawing-off pipe connected with said lower boiler and provided with a valve controlling the flow of hot water therefrom, an upper boiler arranged above the lower one, a water-leg extending from said upper boiler downwardly through the interior of said lower boiler and exposed to the direct action of the hot water in said lower boiler, said
water-leg comprising a single tube extending from the bottom of the upper boiler through the interior of the lower boiler and through its bottom and provided upon its lower end with a hollow foot lying to the outside of the lower boiler and exposed to the direct action of said heating means, the horizontal dimension of the interior chamber of said foot being considerably greater than the diameter of said tube, and a circulating pipe suspended in said water-leg tube and having its lower end flaring within the said interior chamber of the foot, substantially as described.

4. The combination of a lower boiler having means beneath it for heating the water therein, a water-supply for said lower boiler and a drawing-off pipe connected with said lower boiler and provided with a valve controlling the flow of hot water therefrom, an upper boiler arranged above the lower one and having its bottom made concave with the upper end of the lower boiler projecting into said concavity, a water-leg extending from said upper boiler downwardly through the interior of said lower boiler and exposed to the direct action of the hot water in said lower boiler, the foot of said water-leg lying beneath and to the outside of said lower boiler and being exposed to the direct action of the said heating means, substantially as described.

5. The combination of a lower boiler having means beneath it for heating the water therein, a water supply for said lower boiler and a drawing-off pipe connected with said lower boiler and provided with a valve controlling the flow of hot water therefrom, an upper boiler arranged above the lower one, a water-leg extending from said upper boiler downwardly through the interior of said lower boiler and exposed to the direct action of the hot water in said lower boiler, said water-leg comprising a single tube extending from the bottom of the upper boiler through the interior of the lower boiler and through its bottom, and provided upon its lower end with a hollow foot lying to the outside of the lower boiler and exposed to the direct action of said heating means, the horizontal dimensions of the interior chamber of said foot being considerably greater than the diameter of said tube, and the bottom of said lower boiler being formed with an upwardly extending recess for receiving said foot of the water-leg, substantially as described.

6. The combination of a pedestal having its upper end hollow and flared outwardly and upwardly, a lower boiler extending down into said pedestal and supported therein, an upper boiler arranged above the lower one and provided with a downwardly extending part adapted to rest upon the upper edge of the pedestal and support said upper boiler independently of the lower one, and means located within the pedestal for heating the water in both said boilers, substantially as described.

7. The combination of an upper and lower boiler, heating means beneath said lower boiler, a water-leg depending from said upper boiler and comprising a tube extending through the bottom of said upper boiler and through the top and bottom of said lower boiler, screw-threads on the exterior of said tube, a nut within said upper boiler engaging the thread on said tube, and nuts outside and inside both the top and bottom of said lower boiler and engaging threads on said tube, the lower end of said tube being provided with a detachable foot below the bottom of said lower boiler and said foot being exposed to the action of said heating means, a water-supply for said lower boiler and a drawing-off pipe connected with said lower boiler and provided with a valve for controlling the flow of hot water therefrom.

8. The combination of an upper and lower boiler, heating means beneath said lower boiler, a water leg extending downwardly from said upper boiler and comprising a tube leading from the bottom of said upper boiler down to or near the bottom of said lower boiler and having its lower end provided with an enlarged detachable foot comprising a heavy metal casting which is exposed to the action of said heating means, a water supply for said lower boiler, a drawing-off pipe connected with said lower boiler and provided with a valve to control the flow of hot water therefrom.

In testimony whereof, we have hereunto set our hands in the presence of the two subscribing witnesses.

ISIDOR BLICKMAN.
SAUL BLICKMAN.

Witnesses:

WILLIS FOWLER,
HARRY I. PICKETT.