

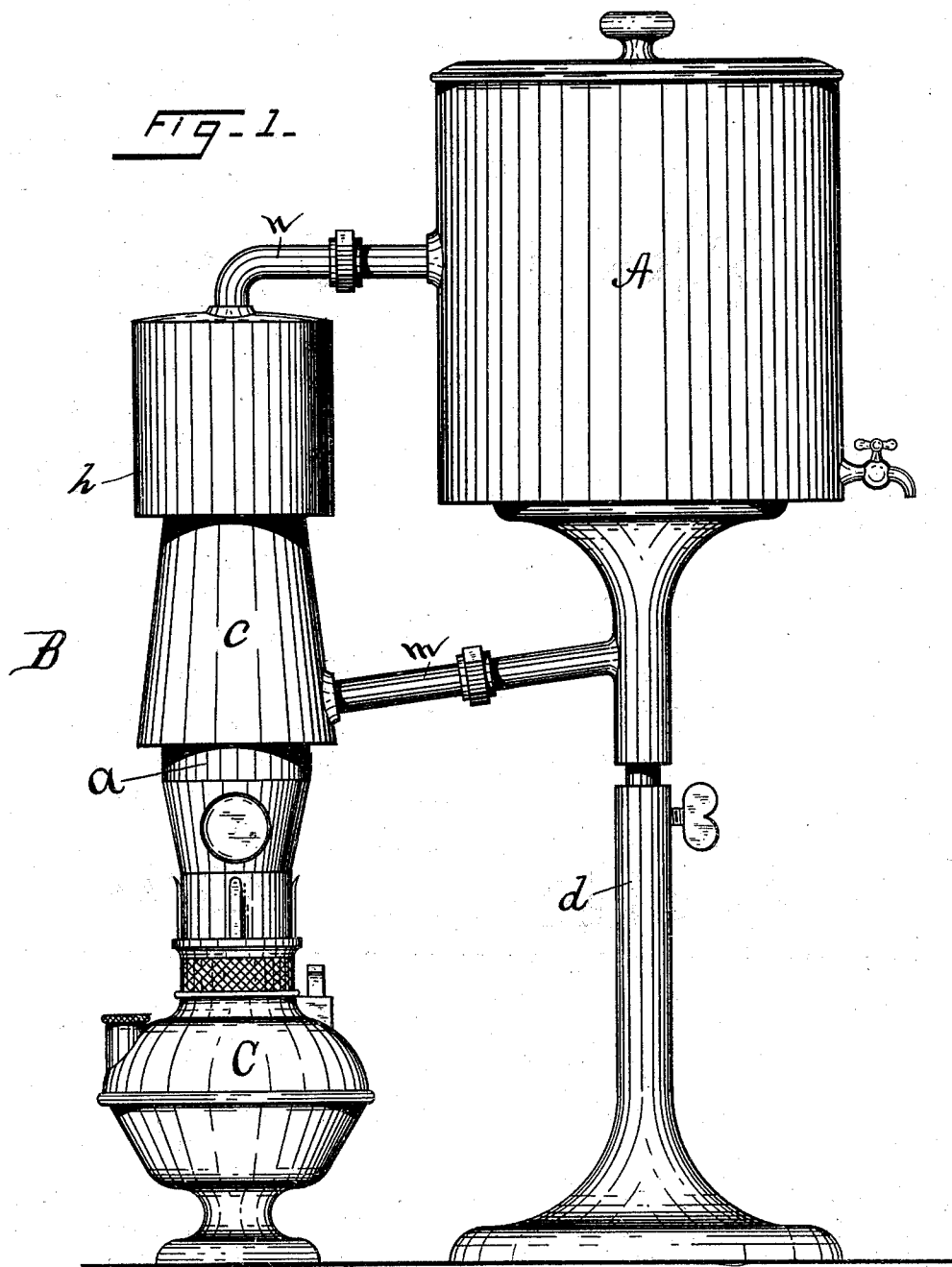
(No Model.)

3 Sheets—Sheet 1.

J. THORP.
HOT WATER HEATER.

No. 504,852.

Patented Sept. 12, 1893.



Witnesses

Alonso M. Luther.
Allen Terry.

Inventor

Job Thorp,

By Attorney

Frank H. Allen

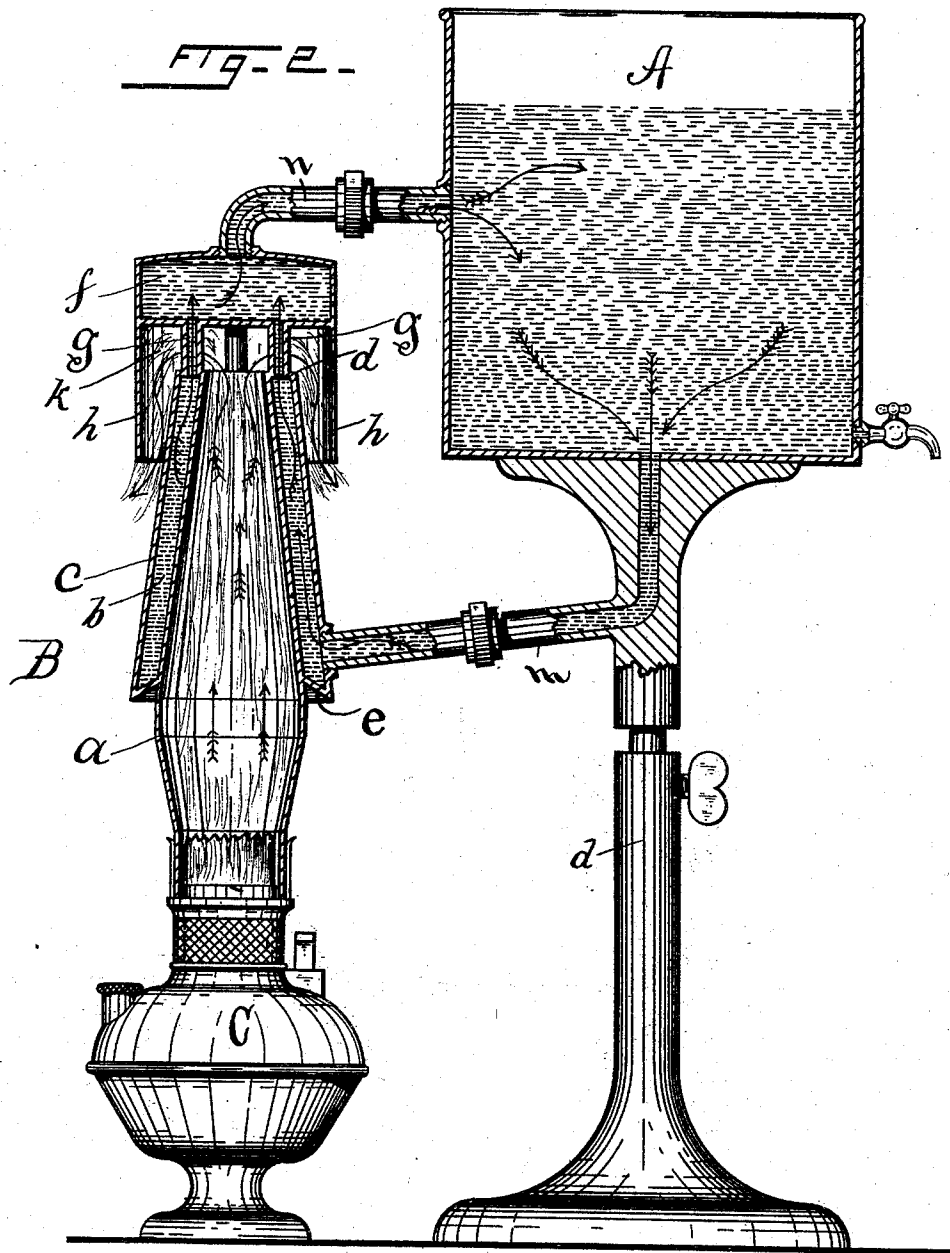
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3 Sheets—Sheet 2.

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3 Sheets—Sheet 3.

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FIG-3-

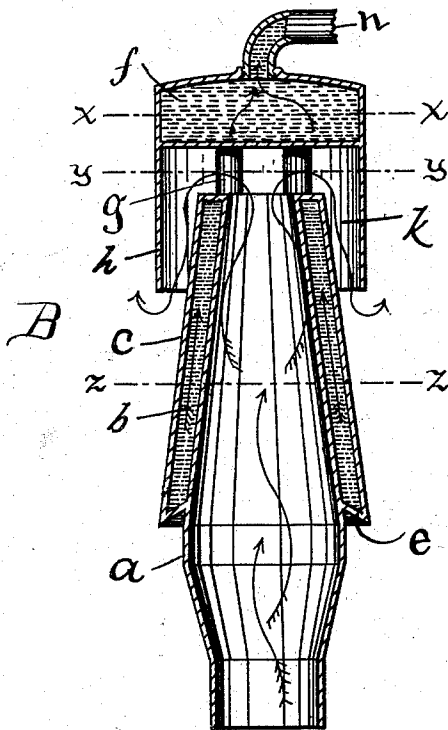


FIG-7-

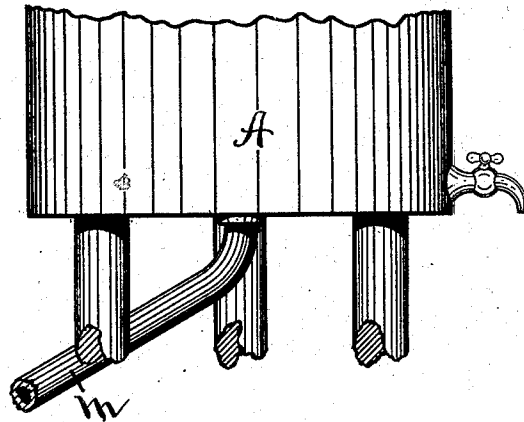


FIG-4-

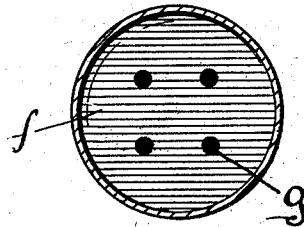


FIG-5-

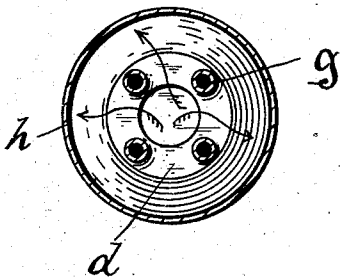
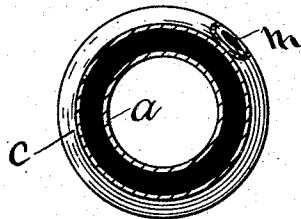


FIG-6-



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UNITED STATES PATENT OFFICE.

JOB THORP, OF WESTERLY, RHODE ISLAND.

HOT-WATER HEATER.

SPECIFICATION forming part of Letters Patent No. 504,852, dated September 12, 1893.

Application filed March 27, 1893. Serial No. 467,713. (No model.)

To all whom it may concern:

Be it known that I, JOB THORP, a citizen of the United States, residing at Westerly, Washington county, State of Rhode Island, have invented certain new and useful Improvements in Hot-Water Heaters, which improvements are fully set forth and described in the following specification, reference being had to the accompanying three sheets of drawings.

The object of my invention is to provide a device of comparatively simple and cheap construction by means of which, when used in connection with a common lamp, small quantities of water may be readily and quickly heated, such a device being especially desirable for use in the sick room, in barber shops, bath rooms and many other places where it is often desired to heat quickly small quantities of water and where other facilities for heating the same are not conveniently at hand. To fully explain the same I have provided the annexed drawings.

Figure 1 shows an elevation of my device set up and ready for use; a lamp being shown in proper position in relation thereto. Fig. 2 is a similar view largely in central, vertical section. Fig. 3 is a detached central, vertical, sectional view of the heater proper which consists of the shell and surrounding water jacket, (serving as a chimney for the lamp) and of the water chamber, hereinafter described, supported above said water jacket and through which water jacket and chamber the water from the tank circulates during the process of heating. Figs. 4, 5 and 6 are sectional views taken respectively on lines $x-x$, $y-y$ and $z-z$ of Fig. 3. Fig. 7 is a view of a slight modification of my invention.

My device consists of two principal or essential parts, viz., a water tank A which contains the water to be heated, and the heater proper indicated as a whole by the letter B, into and through which the water from tank A passes during the process of heating. This heater is composed of thin sheet metal, or other suitable material, and the lower portion of the same, a , is shaped substantially as a common lamp-chimney. The chimney a supports on the upper portion of its outer surface a chamber or water jacket b which encircles said chimney (see Figs. 2, 3 and 6) and whose outer side wall c is concentric therewith; the top

and bottom walls of said water jacket being indicated respectively by reference letters d and e .

The letter f indicates a circular chamber supported upon and above the water jacket b by means of a number of water legs g (here shown as four in number), through which the water passes, during the process of heating, from said water jacket b into the chamber f as hereinafter described. (See Figs. 2, 3, and 5.) This chamber f is of a larger diameter than the top of the water jacket b , and has a depending circumferential shell h which forms a chamber k beneath the water chamber f , open at its lower end, and into which chamber k the upper portion of chimney a and water jacket b extend, (Figs. 2 and 3.) It will now be understood that should the heater a be placed in position upon a lamp C, as shown in Figs. 1 and 2, the products of combustion from the flame of said lamp will pass upward through the chimney a into the chamber k , heating during such passage the inner walls of the water jacket b and the lower wall or bottom of the chamber f . The products of combustion are caused to deflect, by reason of said lower wall or bottom of chamber f , and then pass between the described water legs g thereby heating the same, thence downward, following the outer wall of the upper portion of water jacket b , and thus heating said upper portion of said outer wall and finally outward through the open lower end of chamber k . By extending the bottom of the vessel f beyond the periphery of the jacket b , a larger area is secured for the heat to act upon, and by providing the bottom of the vessel with a shell h , which is preferably made cylindrical and of the same diameter through its length as the vessel f , the heat is retained a longer time under the vessel than it would be otherwise. It is then deflected down upon the top of the jacket, and finally it passes up around the outside of the vessel, whereby a greater amount of heat is imparted to the water than would be the case if the products of combustion were permitted to pass from the top of the chimney outward up around the sides of the vessel, as has heretofore been done. The directions taken by said products from the flame to its final exit from the open under side of

chamber *k* are clearly illustrated by arrows in Figs. 2 and 3.

The heater B and the tank A are connected at two different points, viz., first by a short outlet pipe *m* leading from the bottom, or lower part, of said tank to the lower portion of water jacket *b* and second by an inlet pipe *n* connecting the upper portion of said tank with the chamber *f*. It will now be readily seen that when the heater and tank are properly assembled in relation to each other a complete circuit is formed starting from the tank *a* and leading downward from said tank through the pipe *m*, thence upward through the water jacket *b*, the water legs *g* and the chamber *f* and, finally, through the inlet pipe *n* back into the tank *a*. (See Fig. 2.)

When in use, the heater B rests upon, and is supported by, a lamp of common construction, the lower or chimney portion of said heater fitting snugly down upon said lamp.

The tank or reservoir is here shown as supported on a standard *d* although other means could be employed for supporting the same, as shown in the modification of Fig. 7. The standard *d'* of Figs. 2 and 3 is vertically adjustable, thereby making it possible to raise and lower said tank to accommodate lamps of varying heights. Assuming now that we have a water heater of the kind described, suitably supported, and assembled, and that it is desired to use the same, the water to be heated is placed in the tank A and it will be readily understood that it will at once flow from thence through the outlet pipe *m* and the inlet *n* and fill the water jacket *b*, the water legs *g* and the chamber *f*, as clearly shown in Fig. 2. The products of combustion, rising within the chamber *a* from the flame of the lamp, at once commence to heat the inner wall of water jacket *b*, the lower wall of chamber *f*, the water legs *g* and the upper portion of the outer wall of the said water jacket *b* as above described and, consequently, commence to heat that portion of the water within the above mentioned sections of the

heater. The action of the heat upon that portion of water within the heater B will cause such water to gradually rise, the same flowing freely from the water jacket *b* up through the water legs *g* into the chamber *f* and thence through inlet pipe *n* into the tank *a*, the place vacated by such heated water being at once filled by cooler water flowing from tank A through pipe *m* into the lower part of water jacket *b*. A constant circulation is thus provided, the cooler water passing from the bottom of the tank into the heater and after becoming heated passing from said heater back into the tank, as shown by arrows in Fig. 2, this operation being continued until the same has reached the boiling point.

For convenience in drawing the water off from tank A I have provided the same with a faucet *p*.

The chimney may if desired be provided with a small window of mica whereby the height of the flame may be readily ascertained in order that the same may be regulated.

My device is extremely simple of operation and is of great convenience.

Having described my invention, I claim—

In combination, a water tank, an annular water jacket, the inner wall of which is extended below the bottom of the jacket and forms a support and a chimney, a vessel above, and of a larger diameter than the jacket, the bottom of which vessel is provided with a depending cylindrical shell which is of the same diameter throughout its length as the vessel, and extends below the top of the jacket, a series of water legs connecting the top of the jacket with the bottom of the vessel, and two pipes for connecting the vessel and the jacket with the top and bottom respectively, of the tank, substantially as set forth.

JOB THORP.

Witnesses:

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