

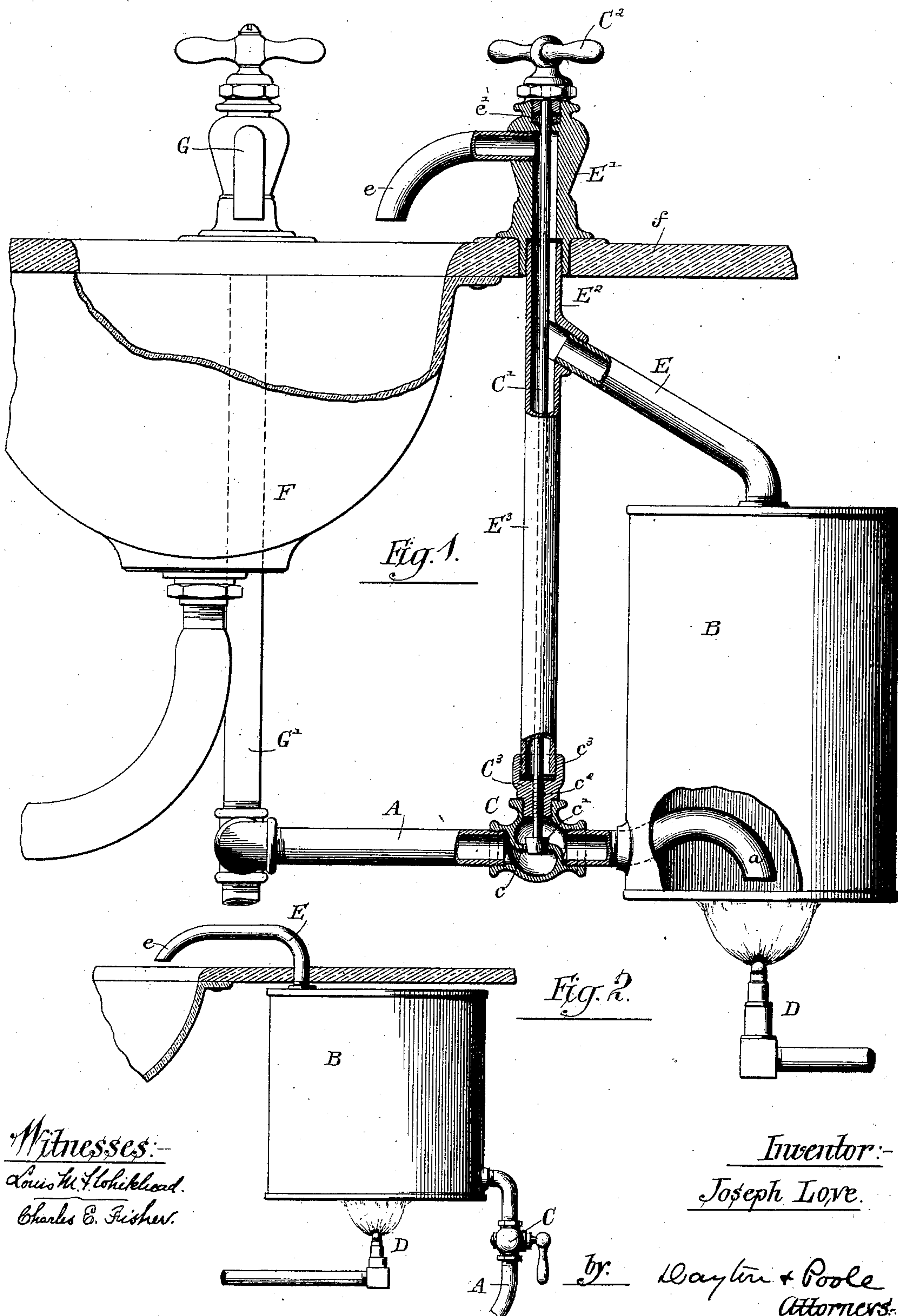
(No Model.)

J. LOVE.

WATER HEATING APPARATUS.

No. 364,181.

Patented May 31, 1887.



Witnesses:-

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UNITED STATES PATENT OFFICE.

JOSEPH LOVE, OF CHICAGO, ILLINOIS.

WATER-HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 364,181, dated May 31, 1887.

Application filed July 13, 1886. Serial No. 207,856. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH LOVE, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Water-Heating Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention is an improved water heating apparatus of that kind in which heat is supplied by a gas or lamp burner, and in which a water-supply under pressure is obtained from a city supply system or other source, the device herein shown as embodying my invention being more especially intended for supplying hot or warm water for basins or bath-tubs in place of the hot-water-supply apparatus commonly employed in dwelling-houses.

The invention consists in the matters herein-after described, and pointed out in the appended claims.

A device embodying my invention comprises as its essential features a tank or receptacle for water connected by a valved passage with the water-supply system of the house, and provided with a valveless or open exit-pipe having a suitably-arranged discharge-orifice, and a gas burner or lamp, which is located beneath said vessel or receptacle for heating the latter. In this device the water in the heating-receptacle is not confined, as in water-heating devices heretofore used; but, on the contrary, the top of the receptacle communicates with the open air through the said discharge-pipe, a valve for controlling the discharge of the water being located in the supply-pipe leading to the receptacle. By this construction the use of a heavy or strong receptacle for the water is rendered unnecessary, and the heater may therefore be readily and cheaply applied in any place where it is desired for use.

The invention may be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is an elevation, with parts in section, of a water-heating device embodying my

invention. Fig. 2 is a similar elevation illustrating another form of the said device.

In the said drawings, A indicates the water-supply pipe; B, the heating receptacle or tank, which is connected at its lower part with the water-supply pipe A; C, a valve in said water-supply pipe; D, a gas or other burner located beneath the receptacle B; E, an exit-pipe leading from the top of the receptacle and provided with a nozzle, *e*, from which the water is delivered as required for use.

The device is shown in Fig. 1 as adapted to supply hot water to a stationary basin, F, having the usual cold-water faucet, G, connected with a water-supply pipe, G', of which the supply-pipe A of the heating-receptacle is a branch. The discharge-nozzle *e* of the exit-pipe E is in this instance connected with a tubular faucet-standard, E', fixed in the top of the basin-casing, and connected by means of a vertical tube, E², with the tube or pipe E, which is immediately connected with the top receptacle, B. In this case the valve C is actuated by means of a vertical valve-stem, C', extending from the valve upwardly through a tube, E³, which is connected with and forms a downward continuation of the connecting-tube E², and through the said connecting-pipe E² and faucet-standard E', said valve-stem being provided above the standard with a handle, C², by which the valve-stem may be readily turned for opening and closing the valve.

As a convenient form of valve for use in connection with the particular construction of the parts described, I employ a "globe" valve provided with a horizontal diaphragm, *c*, in which the valve-seat is formed, and having a conical plug, *c'*, for closing said aperture, said plug being secured at the lower end of the stem C', which latter is threaded at *c*² to engage a correspondingly-threaded aperture in a plug, C³, which is connected with the top of the valve-casing, and is preferably provided in its upper end with a screw-threaded socket, *c*³, receiving the lower end of the tube E³, and thereby forming a coupling-piece connecting said tube E³ with the valve-casing. The tube E³ being in this construction connected with

the discharge passage or nozzle of the apparatus, any packing at the point at which the valve-stem enters the valve-casing is obviously unnecessary, inasmuch as when the valve is
 5 opened, so as to give a pressure within the part of the valve-casing through which the valve-stem passes, the water will be forced through the receptacle and exit-passage, and will, by filling the tube E^3 , give a back-pressure in said
 10 pipe. To prevent leakage of water at the point at which the valve-stem C' passes through the top of the faucet-standard E' , a gland packing-ring, e' , is preferably therein provided, as clearly shown in the drawings.

15 In the operation of the device constructed as above described, water is forced from or through the receptacle B by opening the valve C in the supply-pipe. Upon closing the valve the receptacle will obviously remain full of
 20 water, and the water therein will usually be heated preparatory to its discharge by allowing the flame from the burner D to act upon the bottom of the receptacle for a necessary time. After the water within the receptacle
 25 is sufficiently hot, the valve is opened and the hot water discharged from the receptacle by the pressure of the inflowing cold water. It is of course obvious that water flowing continuously through the receptacle will be heated
 30 to a greater or less extent, according to the abundance of the flow and size of the heating-flame, so that by properly regulating the valve a continuous supply of warm water may be obtained. The size of the receptacle will of
 35 course be varied as may be necessary for the particular purposes for which the device is to be used, and a larger or smaller burner or more than one burner may be employed, as found necessary to heat a required quantity of
 40 water.

In order to facilitate the heating of the water flowing into the receptacle, I preferably extend the supply-pipe A through the side of the said receptacle and provide said pipe with
 45 downwardly-directed exit opening or orifice a , arranged to discharge the water toward and against the bottom of the receptacle, as clearly shown in Fig. 1. By this construction the rapid and continuous heating of all the water
 50 is insured, inasmuch as the water flowing from the supply-pipe is thereby brought into immediate contact with the part of the receptacle directly exposed to the burner-flame.

In Fig. 2 I have illustrated a somewhat different and more simple construction of a device embodying the main features of my in-

vention. In this case the valve C in the supply-pipe A is a simple rotating plug-valve, and the exit-pipe E at the top of the receptacle B consists of a tube bent to form a suitable
 60 discharge-nozzle.

One important advantage obtained by the heating device above described is that the water-pressure from the supply-pipe is usually shut off from the receptacle and the latter is
 65 always in communication with the open air, so that an extreme or dangerous pressure can under no possibility occur in the said receptacle, and the necessity for any great strength in the latter to obviate liability of leakage or
 70 bursting is entirely avoided.

I claim as my invention—

1. The combination, with a heating tank or receptacle, of a water-supply pipe connected with said receptacle, a valve in said supply-
 75 pipe, a gas or other burner located beneath the receptacle, and an exit-pipe connected with the said receptacle, said exit-pipe having constant communication with the outer air, whereby the water passing through the receptacle may be
 80 heated without producing any steam-pressure therein, substantially as described.

2. The combination, with a heating tank or receptacle, of a water-supply pipe communicating with the receptacle, a valve in said supply-
 85 pipe, an open exit-pipe connected with the receptacle, a gas or other burner located beneath the receptacle, a faucet-standard, E' , provided with a nozzle, e , and communicating with the said exit-pipe, a tube, E^3 , connected with the said faucet-standard and with
 90 the casing of the said valve, and a valve-stem passing through the faucet-standard and tube E^3 and connected with the valve for actuating the latter, substantially as described.

3. The combination, with a heating tank or receptacle, of a water-supply pipe extending into the lower portion thereof, and having a downwardly-directed discharge-orifice, a valve in said supply-pipe, an exit-pipe connected
 100 with the top of said receptacle, said exit-pipe having free communication with the outer air, and a gas or other burner located beneath the receptacle, substantially as described.

In testimony that I claim the foregoing as
 105 my invention I affix my signature in presence two-witnesses.

JOSEPH LOVE.

Witnesses:

C. CLARENCE POOLE,
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