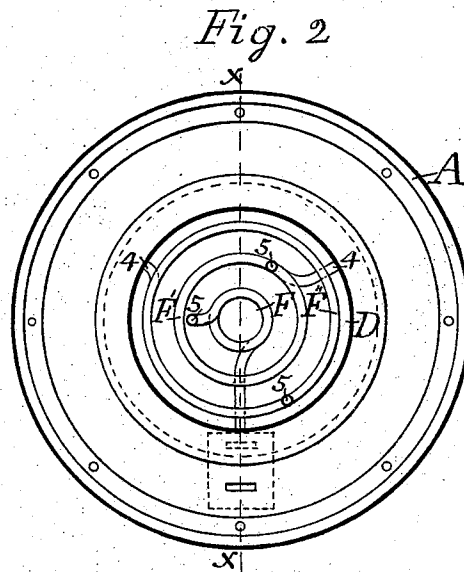
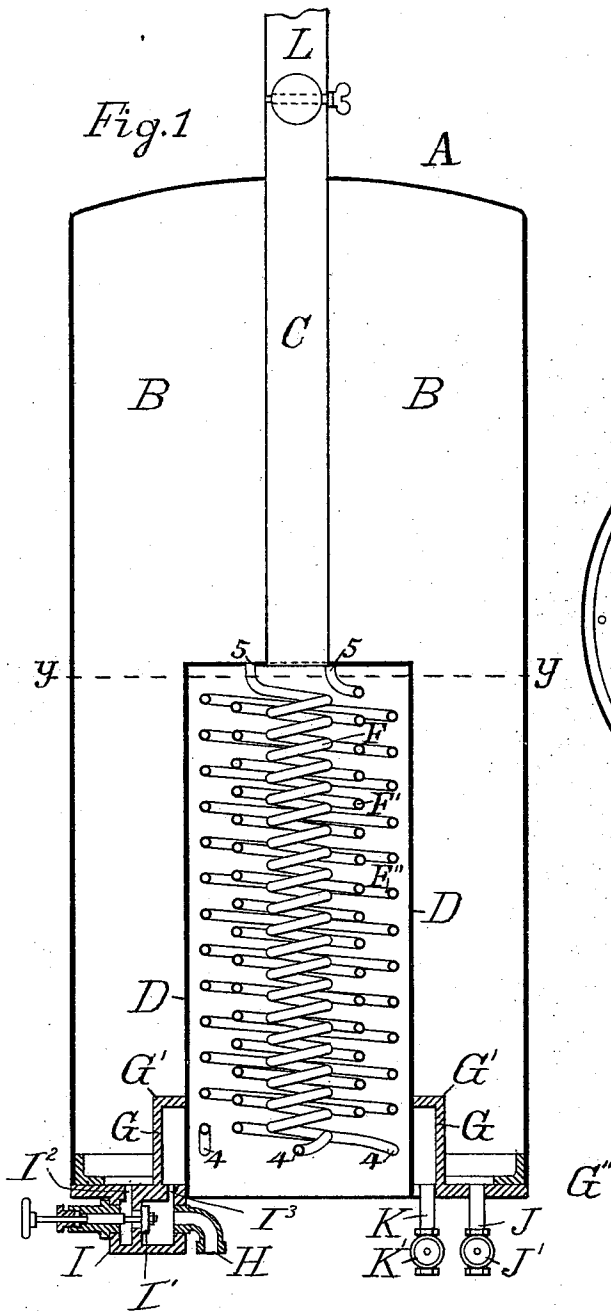


(No Model.)

J. S. COE.
APPARATUS FOR HEATING WATER.

No. 534,494.

Patented Feb. 19, 1895.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN S. COE, OF PATERSON, NEW JERSEY.

APPARATUS FOR HEATING WATER.

SPECIFICATION forming part of Letters Patent No. 534,494, dated February 19, 1895.

Application filed May 10, 1894. Serial No. 510,690. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. COE, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Apparatus for Heating Water, of which the following is a specification.

The object of my invention is to provide a heater for the economical and rapid heating of water for use in hotels or other buildings and for all domestic purposes, and to provide an apparatus which may be used either separate from and independent of or in conjunction with a range having a water heating back or coil and whether the boiler is vertical or horizontal.

The invention consists in having the water supplied by a pipe connected with the ordinary boiler or tank now in common use and having it pass to and from said boiler or tank through heating pipes, placed in an open heating chamber extending vertically a suitable distance through the central portion of said tank or boiler, from the bottom thereof, said coils connecting with the main water space in said boiler above the crown sheet of heating chamber and at the bottom connecting with an annular water space, constructed as shown and hereinafter described, a chimney or flue extending from the heating chamber through the upper portion of tank, and the placing of any number of gas or other burners under said pipes beneath or in the bottom of said heating chamber, so that when the gas or other inflammable substance is ignited the heating chamber and the pipes within the same are heated and the water in the tank and pipes is warmed by contact with the coils, the walls of the heating chamber and the flue, a circulating or two way valve having a faucet connected therewith being employed to connect the two above mentioned water spaces whereby the water is compelled to flow in an undivided current through the tank and pipes when the burners are in operation.

In the accompanying drawings in which similar letters and numerals of reference indicate like parts, Figure 1 is a vertical sec-

tional view of heating apparatus on the line *xx* of Fig. 2. Fig. 2 is a plan view in section of same, on the line *yy*.

In the drawings —A— represents the tank or boiler; —B—, the water space in the same; —C—, the vent pipe or chimney of heating chamber; —D—, the heating chamber or fire box; —E—, space reserved beneath or in the lower portion of the fire box for burners; —F—, the pipes.

—G— is a water space formed by the flange —G'— and by the cylindrical portion which is cast to the bottom —G²—, both the flange —G— and the bottom —G²— being screwed to and around the lower part of the fire box or heating chamber —D—.

The coils are connected with or enter the annular water space —G— at 4, 4, 4, and are connected with the main water space —B— above the crown sheet at 5, 5, 5.

I is a valve-fitting secured to the bottom of the tank and connecting with the water spaces B and G as clearly shown in Fig. 1. This valve-fitting is provided with a faucet H and with a valve I' fitted to a suitable seat in the valve-fitting and adapted to close communication through the port I² into the space B when the valve is in one position, and to close the communication with the faucet H and port I³ into the space G when in its other position. When the faucet H is closed by the valve I' and the valve K' in the outlet pipe K is open the hot water is allowed to circulate through the building in the ordinary way as readily understood.

In the drawings —J— is the supply pipes which may be attached as shown in the drawings or connected with the tank in the usual way at the side of the boiler and —K— is the outlet pipe.

Under the coils —F— in the lower part —E— of the fire box —D— are placed any suitable number of burners to supply the desired heat. It is not deemed necessary to show in the drawings said burners as any burners that will accomplish the purpose may be employed.

The pipe —J— is connected with the cold water and —K— with the distributing pipes for the purpose of carrying the hot water

through the building in the ordinary way in which case the faucet H is closed and the circulating valve —I— is open.

When the water is to be heated for immediate use in the room in which the boiler is situated, or in any other room in the building where a circulating valve is employed or placed then the pipe —K— is not used but the valve —I— is used and the water is drawn at faucet —H— by a manipulation of the circulation valve —I—, the closing of the valve opening the faucet and permitting the water to go from the coils and water space G and the opening of the valve closing the faucet —H—.

As is obvious many styles of pipes or coils may be used and various arrangements thereof may be adopted in rigging up the heating chamber or fire box without departing from my principle of having heating pipes in the heating chamber connected with said two water spaces, and having said water spaces connected by a two way valve, as shown.

I am aware that there are many and various ways and methods of heating water, and that different styles of pipes or coils have been used for that purpose, and, therefore, I do not claim anything more than is shown in the drawings, namely, a water heater complete, being a new article of manufacture consisting of the novel construction, combination and arrangement of the boiler, heating chamber and flue, an annular water space around the bottom of the heating chamber, a set of coils, one within the other, connecting the water space in the boiler and the annular water space around the bottom of the heating chamber, the two-way valve, the feed and supply pipes.

It is obvious that when the range is not in operation my method will be much more

rapid and economical than starting a range, and in warm weather it will obviate the necessity of having a range going in order to have hot water.

With the foregoing description of my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination with a tank or boiler, of a heating chamber within the same, a flanged cylindrical portion forming a water space around the lower part of the said heating chamber with communication between said chamber and the lower portion of the boiler, the heating pipes arranged within the heating chamber, and the supply and outlet pipes connected with the water space of the boiler and with the water space formed by said flanged cylindrical portion respectively, substantially as described.

2. The combination of the tank or boiler, the heating chamber within the same and provided with vent-pipe passed through the water space of the boiler, the heating pipes within the heating chamber, connected at the top with the main water space of the boiler above the crown sheet, an annular water space around the lower end of the heating chamber with which the heating pipes communicate, the valve-fitting connected with the lower portion of the boiler and provided with the circulating valve connecting the two water spaces, and the supply and outlet pipes connected with the main water space of the boiler and with the annular water space around the lower end of the heating chamber respectively, substantially as shown and described.

JOHN S. COE.

Witnesses:

WM. M. DREW,
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