(No Model.)

C. B. WANAMAKER.

HEATER.

No. 528,404. Patented Oct. 30, 1894.

Fig. 1

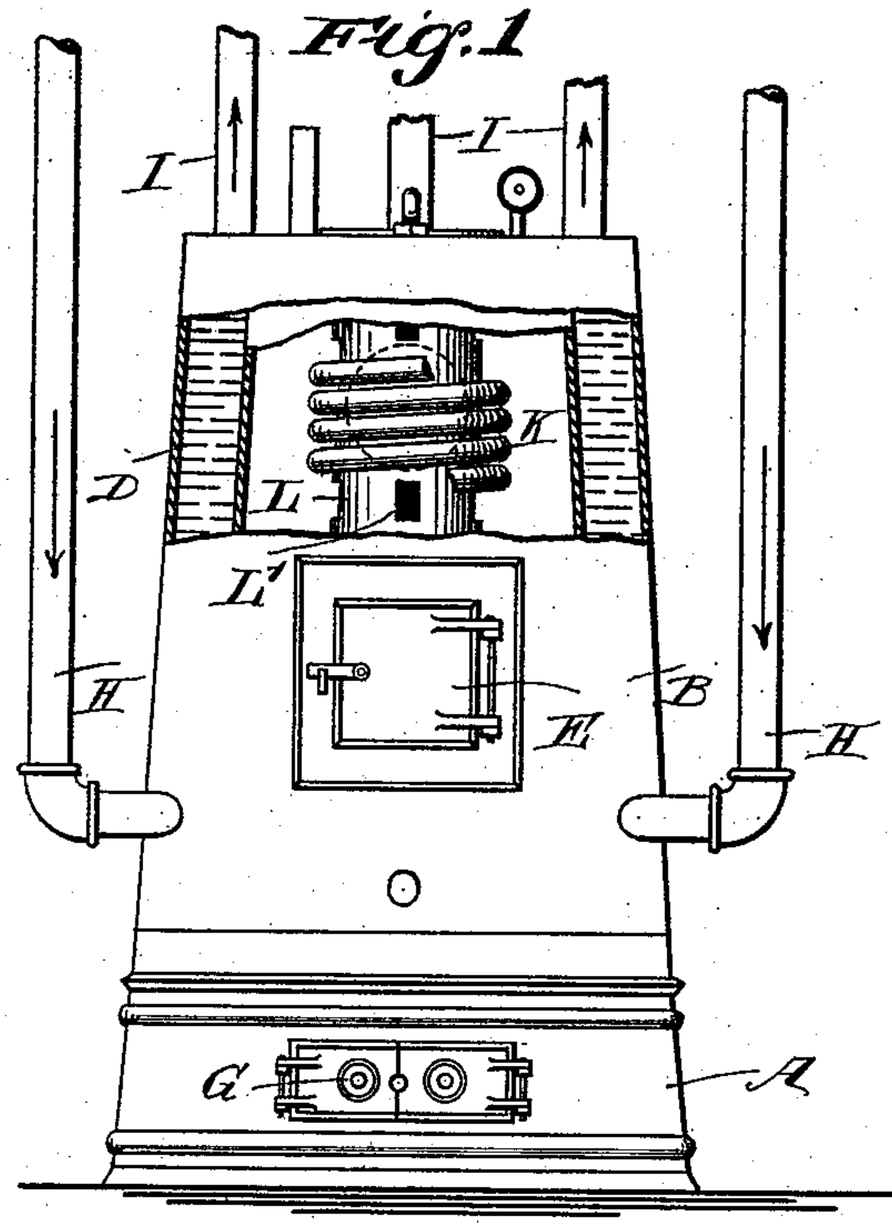


Fig. 2

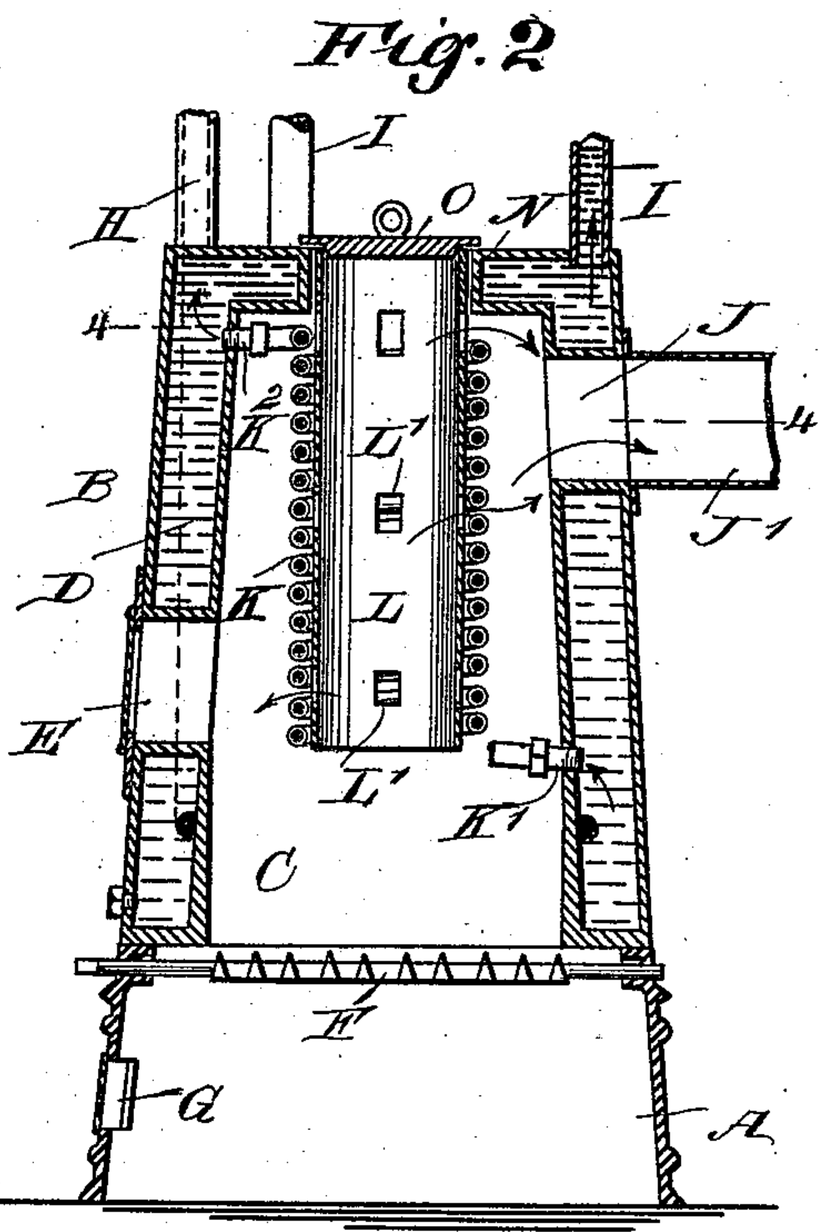


Fig. 3

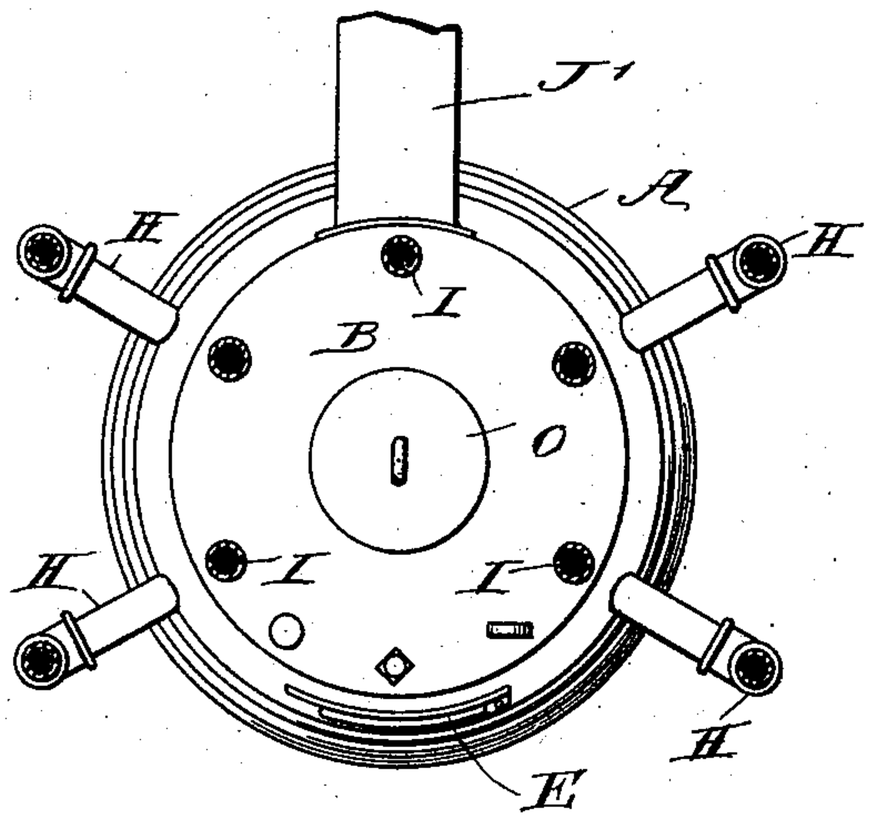
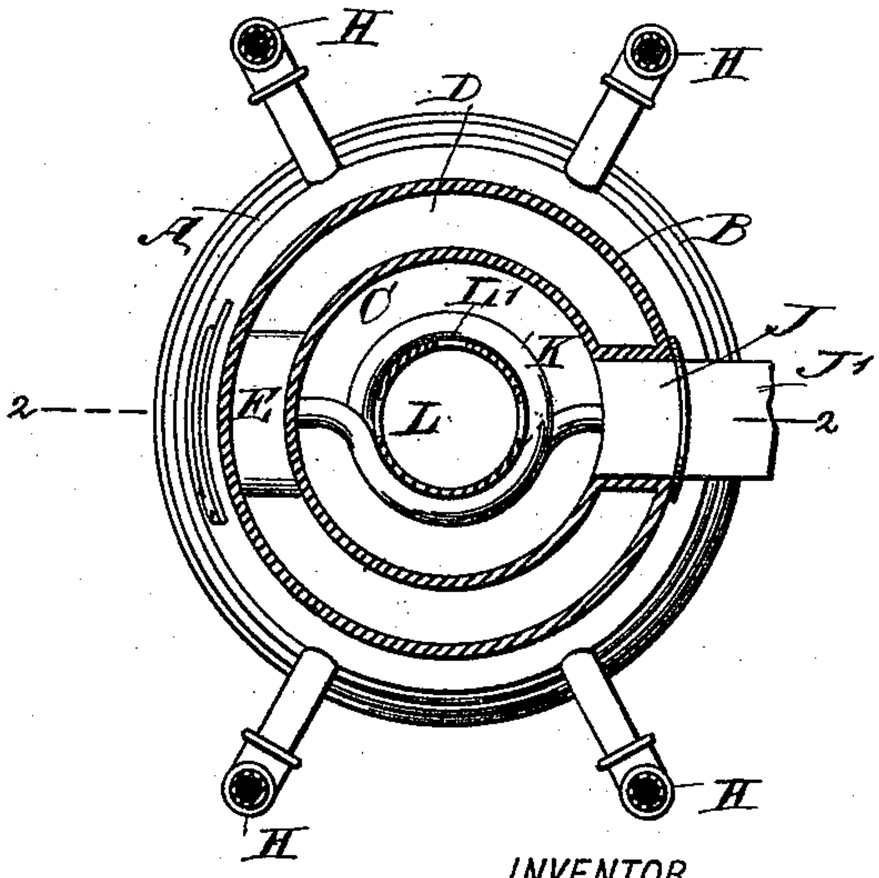


Fig. 4



WITNESSES:

John A. Berglund

Fred'k J. Howson Jr.

INVENTOR

C. B. Wanamaker

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES B. WANAMAKER, OF ALLENTOWN, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO WILLIAM H. HUNSICKER, OF SAME PLACE.

HEATER.

SPECIFICATION forming part of Letters Patent No. 528,404, dated October 30, 1894.

Application filed April 4, 1894. Serial No. 506,327. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. WANAMAKER, of Allentown, in the county of Lehigh and State of Pennsylvania, have invented a new and Improved Heater, of which the following is a full, clear, and exact description.

The invention relates to hot water heating systems, and its object is to provide a new and improved heater, which is simple and durable in construction, and arranged to quickly heat the water to establish a rapid circulation of the water in the entire system.

The general construction and arrangement of parts are hereinafter described, and the features of novelty specifically indicated.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a front elevation of the improvement with parts in section. Fig. 2 is a transverse section of the same on the line 2—2 of Fig. 4. Fig. 3 is a plan view of the same; and Fig. 4 is a sectional plan view of the improvement on the line 4—4 of Fig. 2.

The improved heater is provided with the usual base A, on which is set a casing B, preferably made of one single casting and formed with an interior heating chamber C, surrounded on its sides and top by a water chamber D, as plainly illustrated in the drawings. A fuel inlet E, is arranged in the said casing B to permit of introducing fuel to the grate bars F, extending into the bottom of the chamber C, the said grate bars being held in the usual manner in the top of the base A and may be of any approved construction.

The base A forms the usual ash pit provided with a door G for the removal of the ashes. From the upper end of the heating chamber C extends the smoke outlet J, through the chamber D to connect at its outer end with the smoke flue J′, as shown in the drawings. Into the water chamber D lead the return pipes H, at or near the lower part of the said chamber, and from the top of the latter extend the outflow pipes I, through which the water rises to the several radiators in the building to give off heat and then return through the pipes H into the lower part of the water chamber D to be reheated.

Now, in order to establish a rapid circulation of the water in the system and to quickly heat the water, I provide a coil of pipe K, arranged in the heating chamber C and centrally therein, the lower end of the said coil of pipe being connected by a coupling and nipple K′, with the lower part of the water chamber D, as plainly shown in Fig. 2. The upper end of the said coil K is likewise connected by a coupling and nipple K^2, with the upper part of the chamber D, so that the heat in the heating chamber C heats the said coil and the water contained therein, to cause the water to circulate quickly through the coil of pipe K and to pass into the upper end of the water chamber D, to then flow through the pipes I into the radiators in the building. By this arrangement a very rapid circulation of the water is established, not only in the water chamber D, but also in the outflow and return pipes I and H, as well as the radiators connected with the said pipes.

It will further be seen that the water in the water chamber D on account of surrounding the heating chamber C, is heated from the heat in the said chamber, so that the fuel burned on the grate bars F is utilized to the fullest advantage. The coil of pipe K is arranged centrally in the heating chamber C and surrounds a magazine tube L, extending at its upper end through a pipe N, formed in the top of the chamber C and passing through the water chamber D to the top thereof, the upper end of the said magazine tube L being adapted to be closed by a lid or cap O.

It will be noted, that the coils of pipe, K, not only extend from the lower end of the tube, L, to near its upper end, but are close to each other and to the tube, whereby a maximum exposed heating surface is provided along with the most compact arrangement possible so that a minimum amount of space is occupied in the chamber, C, thus leaving a large space for passage and circulation and combustion of gases.

The tube L is provided with a number of apertures L′, so that the heat, gases, fumes, smoke, &c., passing up into the said magazine

tube can readily pass through the apertures to the interior of the chamber C, to finally pass to the smoke flue J′ together with the other gases, fumes, &c., arising from the burning fuel in the heating chamber.

It will further be seen that a heater having its casing B made in a single casting greatly reduces the cost of manufacturing the same, at the same time insuring rapid circulation of the water in the system, as above described.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

A heater, comprising a casing forming a heating chamber, a water chamber surrounding the said heating chamber, return water pipes discharging into the lower part of the said water chamber, outflow pipes leading from the top of the said water chamber, a coil of pipe arranged within the said heating chamber and connected at its ends with the lower and upper parts of the said water chamber, and an apertured magazine tube extending centrally into the said heating chamber and surrounded by the said coil of pipe, the upper end of the said magazine tube being adapted to be closed by a cover, substantially as shown and described.

CHARLES B. WANAMAKER.

Witnesses:
AARON R. GRENET,
TILGHMAN D. FREY.