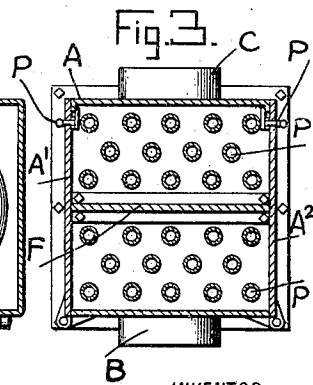
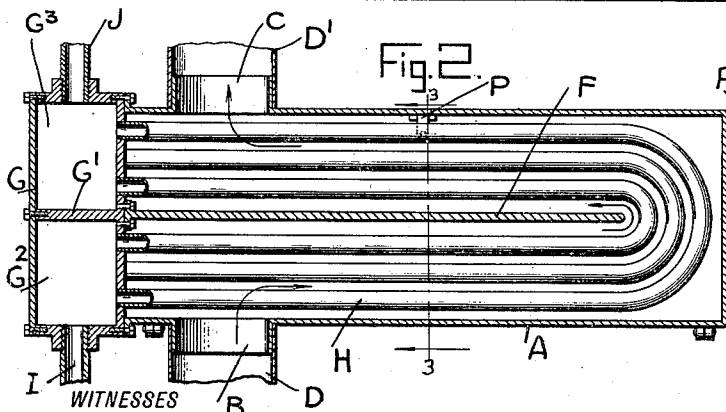
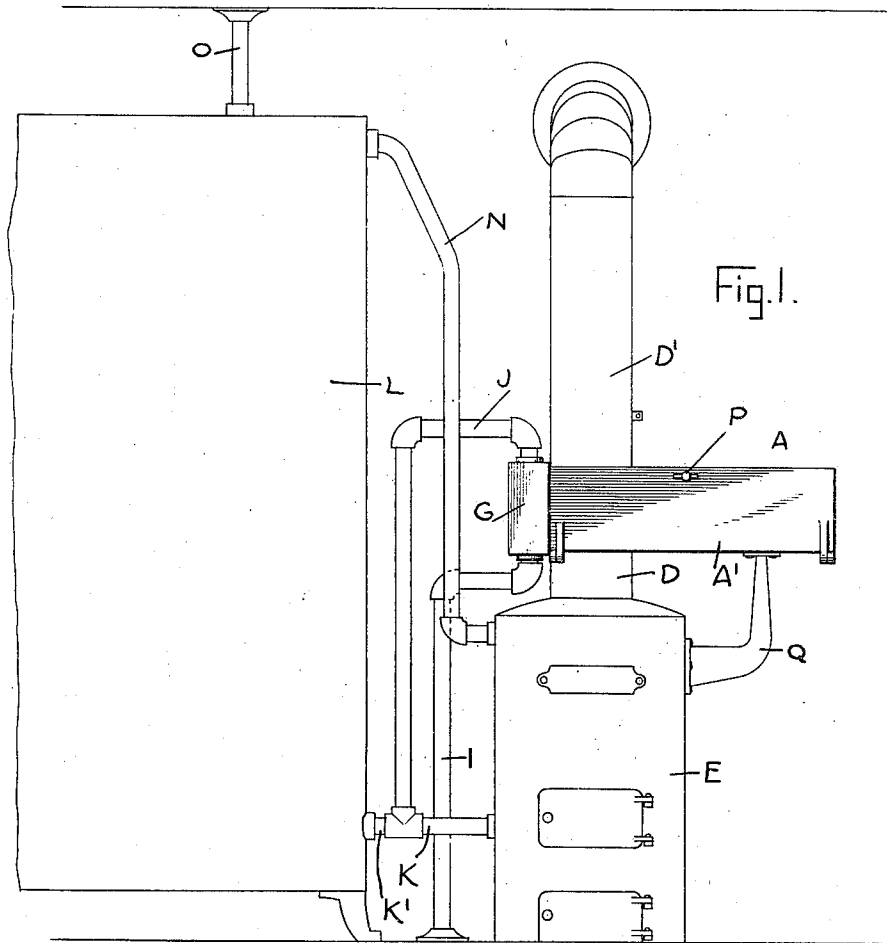


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HOT WATER HEATER.
APPLICATION FILED MAY 29, 1912.

1,065,837.

Patented June 24, 1913.



WITNESSES
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GEORGE REICHHARD, OF NEW YORK, N. Y.

HOT-WATER HEATER.

1,065,837.

Specification of Letters Patent.

Patented June 24, 1913.

Application filed May 29, 1912. Serial No. 700,374.

To all whom it may concern:

Be it known that I, GEORGE REICHHARD, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Hot-Water Heater, of which the following is a full, clear, and exact description.

The invention relates to hot water heaters, such as are used in apartment houses, hotels and other places for supplying the different apartments or rooms with hot water.

The object of the invention is to provide a new and improved hot water heater provided with a preliminary hot water heater to insure quick heating of the water and a proper supply of hot water even in case a large amount of water is used in a given time, and the waste gases of the hot water heater are utilized to heat the feed water thereof by the preliminary hot water heater, thus requiring comparatively little fuel for quickly heating the water to the desired degree.

For the purpose mentioned use is made of a preliminary hot water heater having a shell and water-circulating means within the shell, the shell being interposed in the smoke flue of the ordinary hot water heater to cause the products of combustion of the ordinary hot water heater to circulate through the shell with a view to heat the water passing through the said water-circulating means, the latter being connected at one end with a source of water supply and being connected at the other end with the inlet to the water compartment of the ordinary hot water heater.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a front elevation of the hot water heater; Fig. 2 is an enlarged sectional front elevation of the preliminary hot water heater; and Fig. 3 is a transverse section of the same on the line 3—3 of Fig. 2.

The shell A of the preliminary hot water heater is preferably in the form of a box and is provided at the bottom and top with smoke inlets and outlets B and C, connected with the sections D and D' of the smoke flue of an ordinary hot water heater E of any approved construction. The hot water heater E is provided with the usual water

compartment, and a combustion chamber connected with the smoke flue section D so that the products of combustion arising from the burning fuel in the hot water heater E pass through the shell A. Within the shell A is arranged a horizontally-disposed baffle plate F secured at one end to a box G having a horizontal partition G' dividing the box into a water inlet chamber G² and a water outlet chamber G³. The box G closes one end of the shell A and the baffle plate F extends to within a distance of the other closed end of the shell A, and within the said shell A are arranged a series of U-shaped water-circulating pipes H, each opening at one end into the water inlet chamber G² and at the other end into the water outlet chamber G³, it being understood that the said pipes are secured at their ends to the inner side of the box G, as will be readily understood by reference to Fig. 2. The water inlet chamber G² is connected with a pipe I leading to a water main or other suitable source of water supply, and the water outlet chamber G³ is connected by a pipe J with a water inlet pipe K leading to the water compartment of the boiler E. The pipe K is provided with a branch pipe K' leading to the bottom of a water reservoir L connected at its top by a pipe N with the discharge end of the water compartment of the heater E, and the water reservoir L is also provided at the top with the usual outlet O for distributing the hot water to the different rooms in the building in which the water heater is used.

When the water heater is in use then water from the water main or other source of water supply passes by way of the pipe I into the water inlet chamber G², and from the latter the water passes through the circulating pipes H heated by the products of combustion circulating through the shell A on their way from the combustion chamber of the hot water heater E to the smoke stack, as previously explained, and the heated water passes from the pipes H into the water outlet chamber G³, and is conducted by way of the pipes J and K into the water compartment of the hot water heater E, in which the water is heated to the desired degree to be finally discharged into the water reservoir L by way of the pipe N for distribution to the various rooms by way of the pipe O.

From the foregoing it will be seen that the water from the street main or other

source of supply receives a preliminary heating in the preliminary heater prior to the water passing into the hot water heater E, and consequently it takes but a comparatively short time to heat the water to the desired degree even if a large amount of water is withdrawn at one time from the reservoir L. It will also be noticed that the products of combustion or waste gases from the hot water heater E are utilized to heat the water circulating through the circulating pipes H, and hence less fuel is required in the hot water heater E to quickly heat the water to the desired degree in the manner set forth.

The front A' and the rear A² of the shell A are preferably hinged to the bottom of the shell to permit of conveniently opening the said front and rear for cleaning the preliminary hot water heater of any soot that may accumulate therein. Suitable fastening devices P are employed for locking the front A' and the rear A² to the top of the shell as indicated in Figs. 1 and 3. The shell A is preferably supported by a bracket Q attached to the hot water heater E and also by the pipe I connected with the box G.

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

1. In a hot water heating system, the combination with a main water heater having a combustion chamber, a smoke flue and a water compartment having an inlet and outlet, and a water reservoir with which the inlet and outlet of the said water compartment are connected, of a preliminary water

heater interposed in the smoke flue for the passage of the products of combustion through the same, an inlet pipe leading from a water main to the preliminary heater, and a discharge pipe leading from the preliminary heater and connected with the inlet of the water compartment of the main water heater between the said heater and reservoir.

2. In a hot water heating system, the combination of an ordinary water heater having a combustion chamber, a water compartment provided with an inlet and an outlet, and a smoke flue for carrying off the products of combustion from the said combustion chamber, a water reservoir connected at one end with the inlet and at the other end with the outlet of the water compartment, the reservoir having an outlet for carrying off the hot water, and a preliminary water heater having a shell and water-circulating means within the said shell, the said shell being interposed in the said smoke flue for the passage of the products of combustion through the shell, and the said water-circulating means being connected at one end with a source of cold water supply and being connected at the other end with the said inlet to the said water compartment between the heater and reservoir.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE REICHHARD.

Witnesses:

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PHILIP D. ROLLHAUS.