E. P. DOYEN.

Combined Fire-Pot and Water-Heater.

No. 196,884. Patented Nov 6, 1877.

Fig. 1.

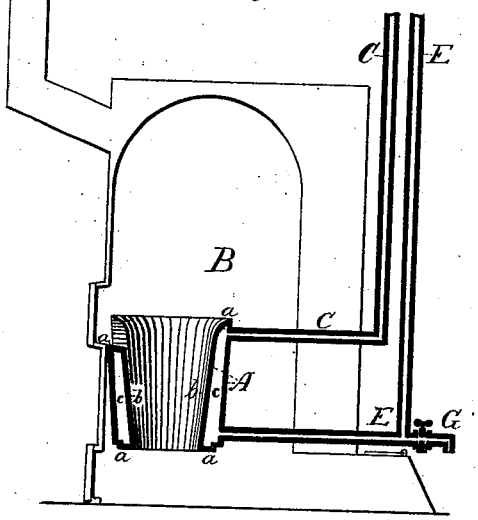


Fig. 2.

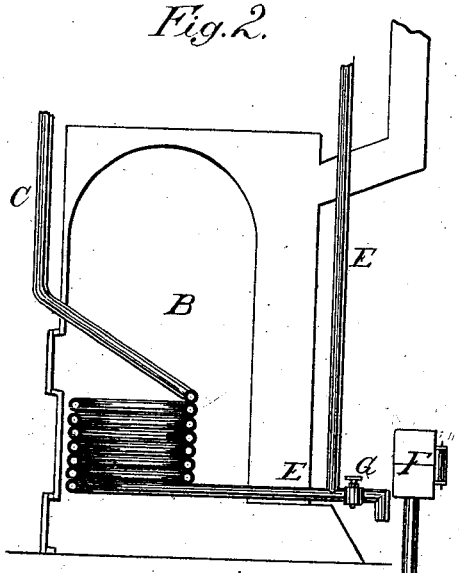
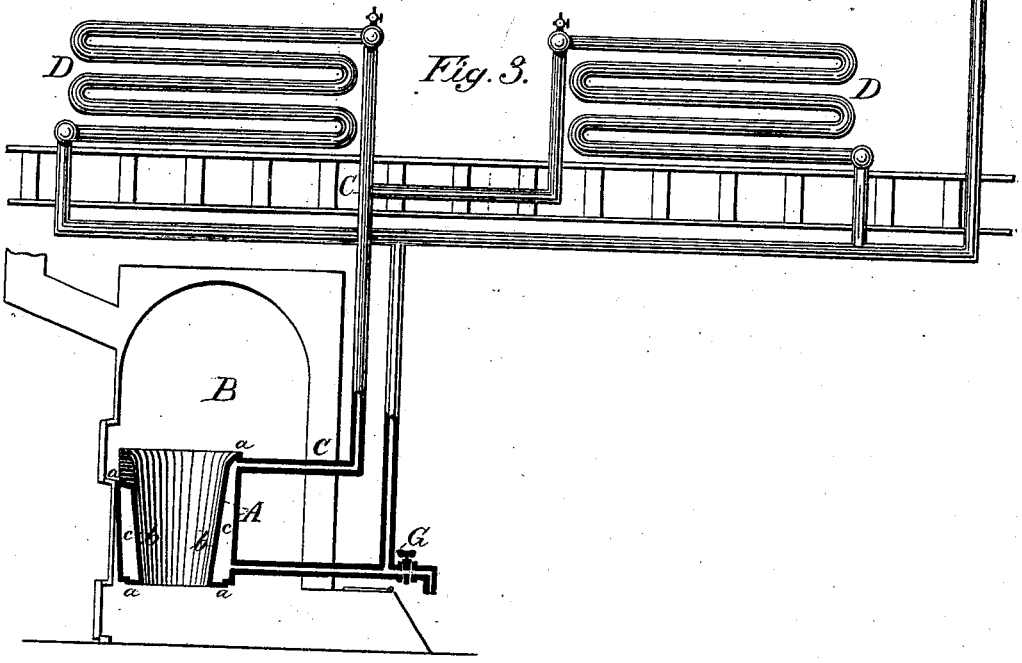


Fig. 3.



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UNITED STATES PATENT OFFICE.

ERASMUS P. DOYEN, OF PORTLAND, MAINE.

IMPROVEMENT IN COMBINED FIRE-POT AND WATER-HEATER.

Specification forming part of Letters Patent No. **196,884**, dated November 6, 1877; application filed March 31, 1877.

To all whom it may concern:

Be it known that I, ERASMUS P. DOYEN, of Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Combined Fire-Pot and Water-Heater; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, and in which—

Figure 1 is a sectional view of a furnace having my improved water fire-pot. Fig. 2 is a similar view, showing a fire-pot of a somewhat modified construction; and Fig. 3 is a sectional view of a building in which an upper floor is arranged to be heated by the water from my improved fire-pot.

Similar letters of reference indicate corresponding parts in all the figures.

The principle of my invention consists in the construction of a water fire-pot, to be applied to furnaces in place of the ordinary lining of fire-brick, and in the connection of said fire-pot, by a suitable system of pipes, with radiators arranged in upper rooms of the house; the object being to economize heat, by heating said upper rooms with the water from the fire-pot, while at the same time the hot-air-pipe system of heating rooms may be carried into execution, in the usual manner, for the purpose of heating other rooms of the house.

In the drawings hereto annexed I have shown two different constructions of my improved fire-pot.

A is a double cylinder, closed at both ends, as shown at *a a*. The walls *b b* of the inner cylinder form the fire-pot of the stove or furnace B, in which it is arranged.

The cylinder, which is preferably made of heavy sheet-iron, is prevented from being injured by excessive heat by the water with which the space *c* between the two cylinders is filled.

C is a pipe leading from the upper end of the cylinder A to the radiators D in the room or rooms above the one in which the furnace or stove is located.

E is the return-pipe, through which the water, after completing the circuit of the radiators, is returned to the bottom of the water-space in cylinder A.

F is the expansion-tank, located above the radiators for the purpose of giving sufficient room for the expansion of the water by heat, and which may be provided with any suitable device for indicating the state of the water; and G is the emptying-faucet, located at the lowest point of pipe E.

From this description, and by reference to the drawing hereto annexed, the operation of my invention will be readily understood. After placing in the fire-pot, and conduit and radiator pipes, and water, in any suitable quantity, the fire in the stove or furnace is started. As the water in the fire-pot becomes heated, it ascends through pipe C, thus making room for the cold water which enters from pipe E. The hot water passes through the pipes of the radiators, thus expending its heat in warming the rooms in which the radiators are placed. After making the circuit of the radiators, and having become comparatively cold, it enters the return-pipe E, which conducts it back to the fire-pot.

Instead of making the fire-pot a double cylinder of sheet metal, it may, as shown in Fig. 2, be made of iron pipe, coiled into a cylindrical shape. The upper end of the coil of pipe is then connected with the pipe C, and the lower end with pipe E, when the operation is exactly the same as in the former case. The fire-pot is formed by the inside of the coil.

It is obvious that my invention may be subjected to various modifications in the detailed construction of the fire-pot, its arrangement within a furnace, and various other details. I do not, therefore, limit myself to the precise form or forms herein shown and described; but,

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

The combination, with a hot-air furnace, of a fire-pot adapted to serve as a reservoir for water, and the system of pipes C E, radiators D, and expansion-tank F, substantially as described, for the purposes herein shown and specified.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

ERASMUS P. DOYEN.

Witnesses:

JOSEPH A. LOCKE,

IRA S. LOCKE.