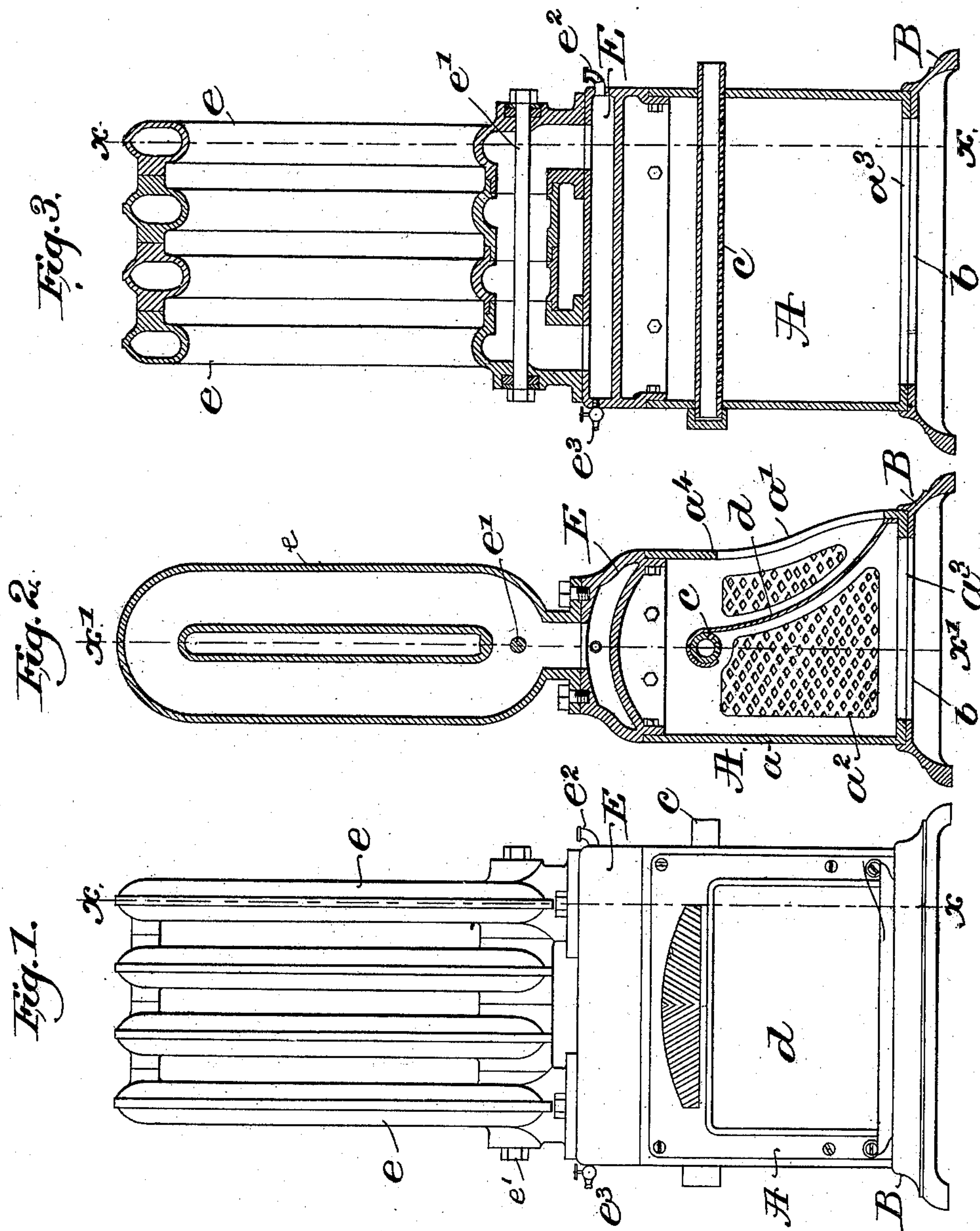


(No Model.)

T. J. MAW.
HEATING APPARATUS.

No. 505,713.

Patented Sept. 26, 1893.



Witnesses.
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UNITED STATES PATENT OFFICE.

THOMAS J. MAW, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF TWO-THIRDS
TO WALTER J. MAW AND WALTER F. MANSFIELD, OF SAME PLACE.

HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 505,713, dated September 26, 1893.

Application filed March 2, 1893. Serial No. 464,331. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. MAW, a subject of the Queen of Great Britain, residing at Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Heating Apparatus, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 Prior to this invention heating apparatus have been devised comprising a heat generator which may be either an oil or gas stove, and a radiator arranged in close proximity thereto and to contain water which is heated
15 by the generator, whereby the usual heat given off directly by the generator or stove is augmented by the additional heat radiated from the radiator.

20 This invention has for its object to provide an improved heating apparatus of this class whereby the heat generated by the stove or generator is collected or concentrated and used to better advantage in raising the temperature of the water in the radiator to thereby increase the quantity of heat radiated
25 therefrom, and this without lessening the heat given off directly by the generator.

30 The invention also comprehends a portable apparatus, that is, one which may be set up in a room like an ordinary stove, being complete in itself and not dependent upon any permanent wall-setting like apparatus of this class as heretofore usually constructed.

35 Figure 1 of the drawings, represents in front elevation one form of heating apparatus embodying this invention; Fig. 2, a vertical cross-section of the same taken on the dotted line $x-x$; and Fig. 3, a vertical longitudinal section taken on the dotted line $x'-x'$,
40 Fig. 2.

Referring to the drawings, A is a suitably formed heating chamber, preferably having an imperforate back-wall a , with an opening a' in its front wall, the sides of said chamber
45 also having perforations a^2 of suitable form to permit escape of the heated air from the chamber.

50 As shown, the chamber A has an open bottom a^3 and rests upon a base B having an open top b , which registers with the opening a^3 in the bottom of the chamber, said base

being preferably mounted upon legs to permit a free passage of air under the base and up into the heating chamber. This heating chamber receives the heat generator of suitable form, and which may be an ordinary oil stove, or it may, and preferably will, consist of a gas burner, herein shown as a perforated gas supply pipe c , plugged at one end, as shown in Fig. 3, the gas being admitted to the opposite end of the pipe. A suitable deflecting plate d extends from the gas burner c to the lower edge of the front opening a' , so that in the form shown the gas burner or heat generator with the inclosing chamber A and deflector, constitutes a gas stove similar in form and construction to the usual gas stove now in use, and known to produce an intense heat.

Upon the heating chamber A, I mount a water reservoir E having a concave bottom which constitutes a closed crowning or arch top for the heating chamber. To the top of this reservoir I connect several vertical radiator legs e , e , secured together by a long bolt e' , said legs and reservoir constituting what I shall hereinafter term the radiator. An inlet or filling opening shown as through a pipe e^2 at one end of the reservoir furnishes means by which water may be introduced into the reservoir, and a petcock e^3 at the opposite end of the reservoir is placed at a level to indicate when a sufficient quantity of water has been introduced, the level of the cock being varied according to the size of the radiator and the quantity of water which it is to contain.

When the heating apparatus is to be put in use, it is set up at the desired point in the room to be heated, the pipe c connected by flexible tube or otherwise with a gas supply, water is poured into the reservoir until it shows at the cock e^3 , and the gas is turned on and lighted at the burner. The heat from the gas flame rises into the closed arch or dome-like upper part of the heating chamber A and then works down and out into the room under the depending lip a^4 , and also out through the side perforations. The heat from the flame of the generator is concentrated in the arched top of the chamber and heats the water in the reservoir, converting the same into steam, which ascends into the

radiator legs, becomes condensed by the radiation of heat therefrom, and falls back into the reservoir.

The quantity of water placed in the reservoir and controlled by the level of the cock e^3 , is so proportioned to the area of the radiating surface that the latter radiates the heat and condenses the steam as fast as the latter is generated, thereby preventing a pressure being created above a certain predetermined point.

The great advantage of my improved apparatus over any heretofore known to me lies in the location of the heat generator in a heating chamber near and directly beneath the closed crowning or arched top of said chamber, which top constitutes the bottom of the radiator, for by this construction the maximum heat from the generator is concentrated and collected in the closed dome-like top of the chamber and is utilized to the best possible advantage in heating the water in the radiator. The heat which passes out into the room from the generator is, however, practically undiminished, the result being that by my improved apparatus as demonstrated in practice, I secure a much greater heat and can thus warm a much larger room than with any apparatus of this class heretofore known to me. Another advantage is in the portability of the apparatus.

The water in the radiator need not be sufficiently heated to generate steam, but may be used as a hot water heater if desired.

I claim—

1. A heating apparatus containing the following instrumentalities, viz;—an open sided

heating chamber to contain a heat generator, said chamber opening directly into the room to be heated, a closed fluid-containing radiator reservoir mounted upon and constituting the top of said heating chamber; and a series of radiator legs projecting from said reservoir into the room to be heated, the heated air and products of combustion from the generator first rising into the top of the heating chamber to heat the water in the reservoir and thereafter passing through the open side or sides of the chamber into and to heat the room, the radiator reservoir and legs also radiating heat directly into the room, the products of combustion being thus employed directly and indirectly to heat the room, substantially as described.

2. In a heating apparatus, a heating chamber, a gas burner c therein, and a deflector d extending therefrom to the bottom of the chamber back of an opening a' therein, combined with a fluid-containing radiator mounted upon and constituting the top of said heating chamber, and to receive heat from the generator therein, the heat from said generator first rising in contact with and to heat the water in said radiator, and thereafter escaping from said chamber below said radiator, substantially as described.

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

THOMAS J. MAW.

Witnesses:

FREDERICK L. EMERY,
LOUIS N. GOWELL.