P. FRAIZER & E. A. NATION.

HEATER.

APPLICATION FILED JUNE 14, 1910.

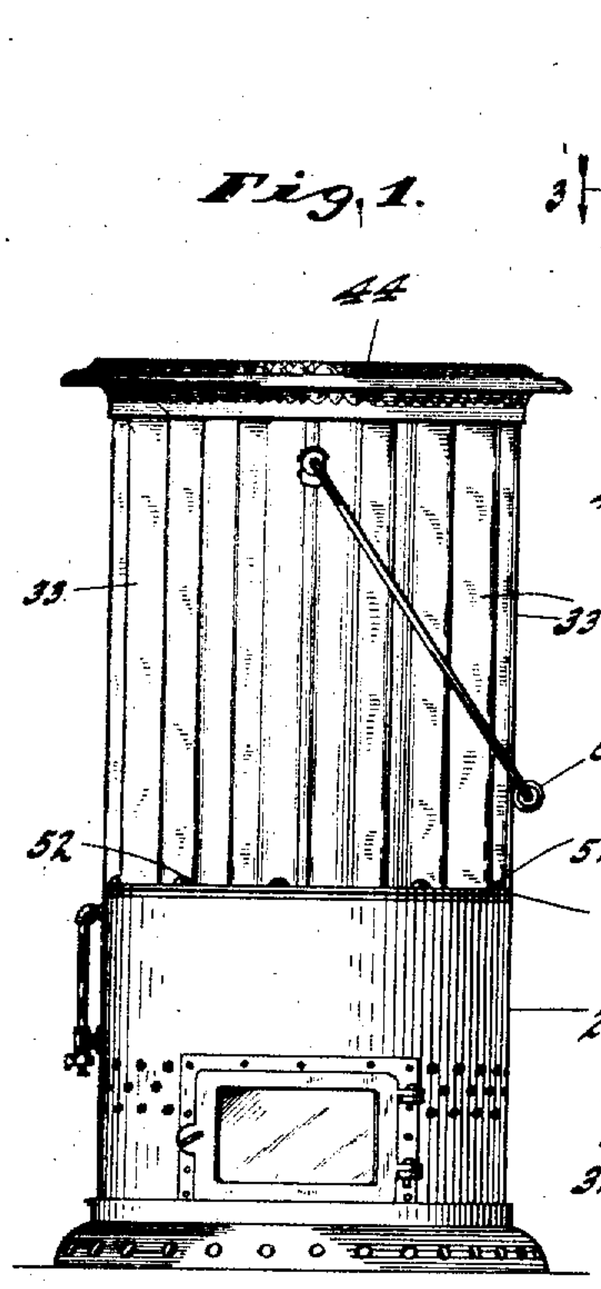
988,993.

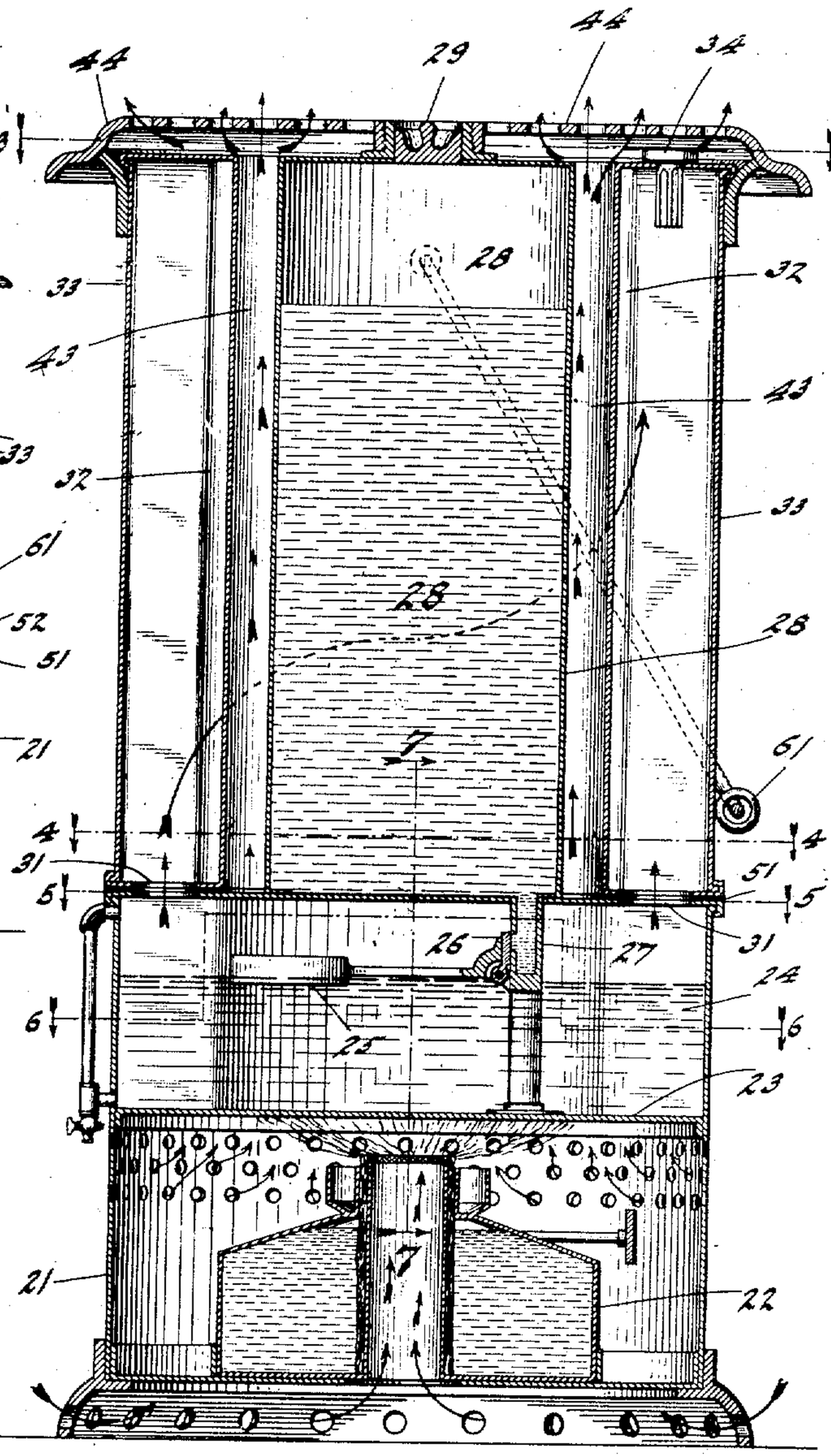
Patented Apr. 11, 1911.

2 SHEETS—SHEET 1.

Fig. 2.

Fig. 1.





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2 SHEETS—SHEET 2.

Fig. 3.

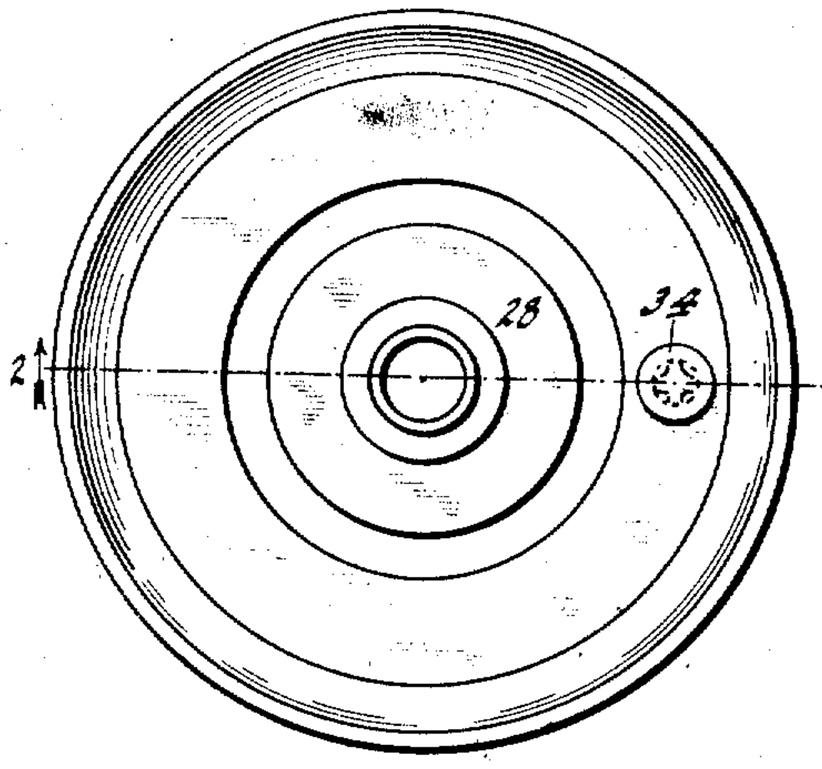


Fig. 5.

Fig. 4.

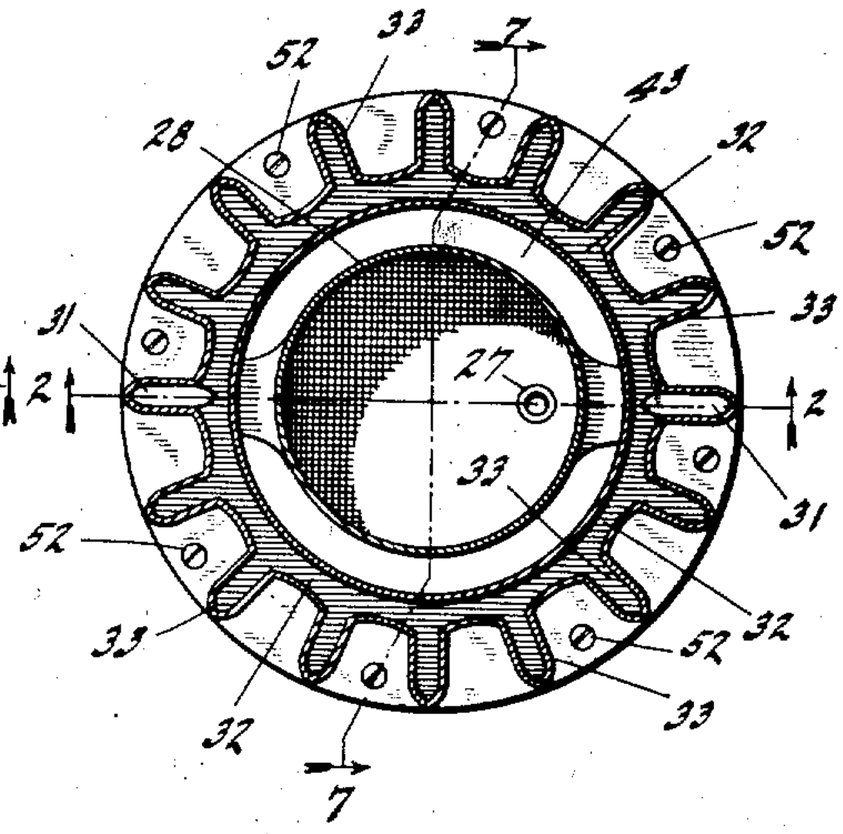
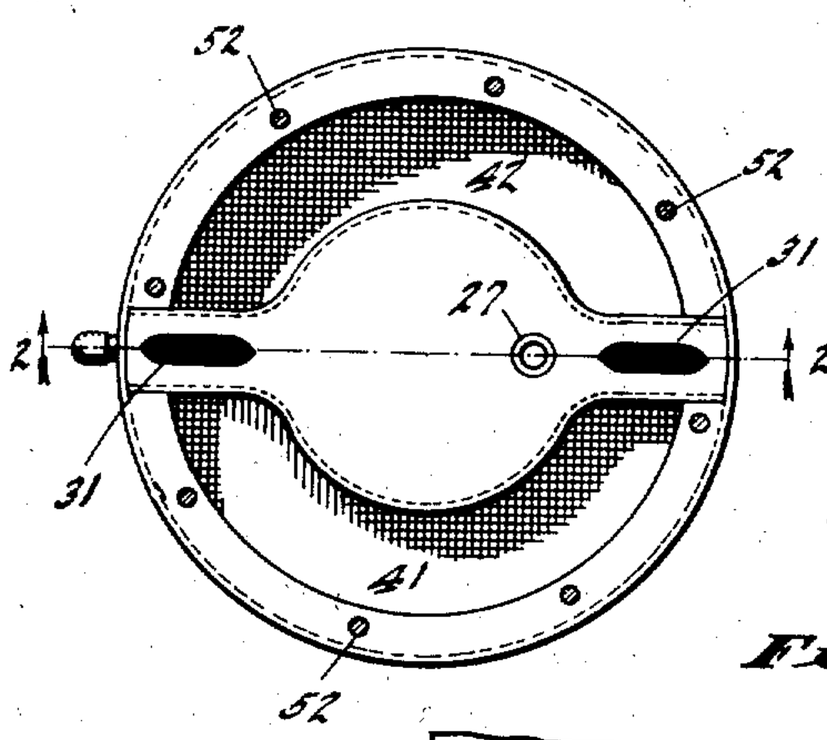


Fig. 6.



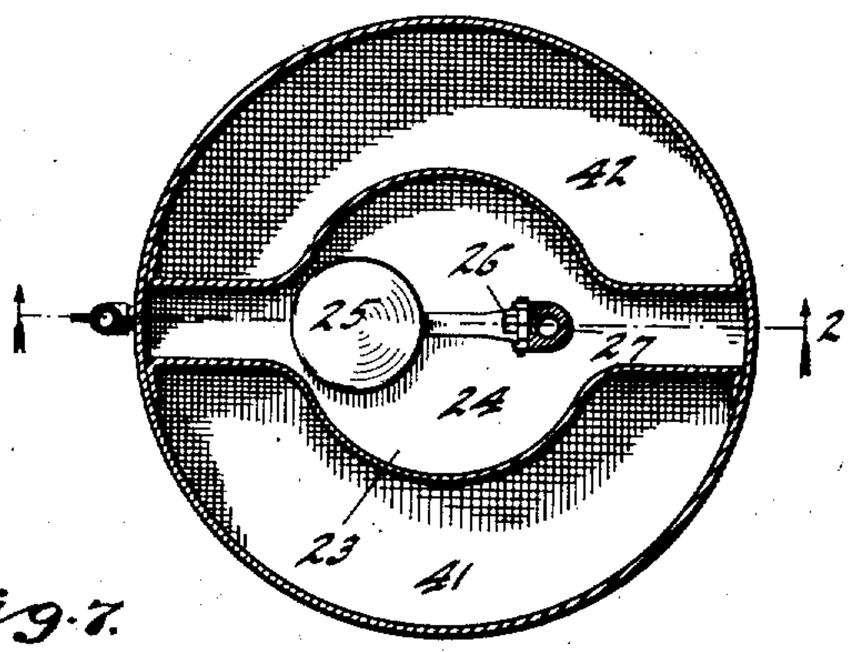
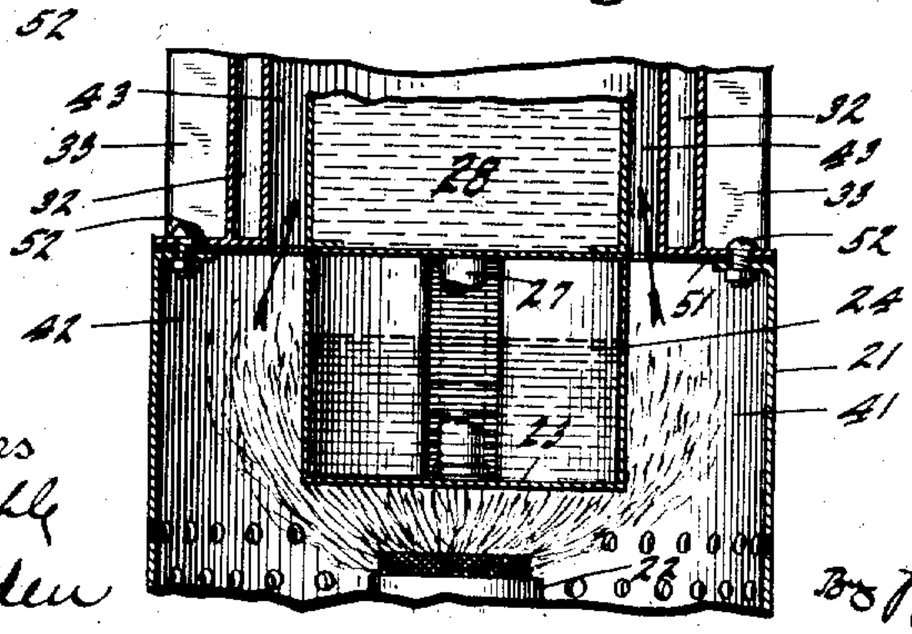


Fig. 7.



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UNITED STATES PATENT OFFICE.

PERRY FRAIZER AND ENOCH A. NATION, OF NEWCASTLE, INDIANA.

HEATER.

988,993. Specification of Letters Patent. Patented Apr. 11, 1911.

Application filed June 14, 1910. Serial No. 566,770.

To all whom it may concern:

Be it known that we, PERRY FRAIZER and ENOCH A. NATION, citizens of the United States, residing at Newcastle, in the county of Henry and State of Indiana, have invented a new and useful Heater, of which the following is a specification.

The object of our present invention is to produce an efficient heater, the necessary combustion wherein is supplied by an oil lamp.

A heater embodying our said invention will be first fully described, and the novel features thereof then pointed out in the claims.

Referring to the accompanying drawings, which are made a part hereof, and on which similar reference characters indicate similar parts, Figure 1 is a side elevation of a heater of the character in question; Fig. 2 a central vertical sectional view, on an enlarged scale, showing much of the interior construction, as seen when looking in the direction indicated by the arrows in the dotted line 2 2 in Figs. 3, 4, 5 and 6; Fig. 3 a top or plan view with the cap or upper plate removed, showing the parts as seen when looking downwardly from the position indicated by the dotted line 3 3 in Fig. 2; Figs. 4, 5 and 6 horizontal sectional views as seen when looking downwardly from the positions indicated by the dotted lines 4 4, 5 5, and 6 6, respectively, in Fig. 2, and Fig. 7 a detail or fragmentary vertical sectional view as seen when looking in the direction indicated by the arrows in the dotted line 7 7 in Figs. 2 and 4.

Within the chamber in the base 21, we place a lamp 22 which customarily is supplied with coal oil as a fuel, and the flame of which is directed against the overhead wall or ceiling 23 of said chamber. This ceiling or wall 23 also forms the bottom wall of a second chamber or boiler 24 which is designed to contain water, and is preferably kept about two-thirds full, or up to a point indicated by the dotted line at substantially the level of the float 25. Said float operates a valve 26 which, when open, permits the ingress of additional water through pipe 27. Said pipe 27 communicates at its upper end with the bottom of a tank 28, which occupies the central upper portion of the structure, and which may be replenished from time to time, as may be necessary, through an opening in its upper end, which is shown as closed by a plug or stopper 29.

The action of the heat upon the water contained within the boiler-chamber 24 has the effect of generating steam, which passes up through openings at 31 in the overhead wall or ceiling of said boiler-chamber, and enters an annular chamber 32 having radial hollow ribs 33 which have the effect of greatly increasing its external superficial area. The form of this steam chamber is best shown in Fig. 4. In case the steam rises in any considerable pressure, it may escape through a relief valve 34, shown in Fig. 2, which seats by gravity and opens under excessive steam pressure.

As best shown in Fig. 6, the boiler-chamber is of an oblong character, and is centrally positioned between two flue openings 41 and 42 which occupy the remainder of the cross-sectional area of the structure. These openings unite in the annular flue 43 situated between a water tank 28 and the steam chamber 32, and the products of combustion from the lamp pass up through said openings and flue, and escape through the top 44 of the heater. The necessary air to produce effective combustion is supplied through a series of fine perforations in the wall of the base surrounding the burner of the lamp.

Our improved heater is preferably made in two parts, and the packing or gasket 51 is interposed between them, and the two parts are secured together by screws or bolts 52. When necessary for purposes of cleaning, repair or otherwise, these two parts can be separated by merely taking out these screws or bolts.

It will be noticed that by the arrangement specified, we are enabled to maintain a uniform quantity of water in the boiler-chamber, which is automatically replenished from the tank as fast as it is converted into steam. The heater is thus adapted to operate for a considerable period without replenishment.

This heater, as a whole, is simply and easily constructed, and produces a very large amount of heat in proportion to the fuel consumed. It is also convenient and portable. It is customarily provided with a handle 61 by which it may be carried from place to place.

Having thus fully described our said invention, what we claim as new, and desire to secure by Letters Patent, is:—

1. The combination, in a heater, of a water supply tank, a steam chamber surrounding said water supply tank, a boiler chamber arranged below the water supply tank and communicating with the water supply tank and steam chamber, means for controlling the flow of water from the supply tank to the boiler, a combustion chamber arranged below the boiler and provided with an outlet passage for the products of combustion, said outlet passage leading from the combustion chamber between the water supply tank and the steam chamber, and a burner arranged in the combustion chamber.

2. The combination, in a heater of a combustion chamber, a burner contained therein, a boiler chamber arranged above said combustion chamber, a water supply tank arranged above said boiler chamber, a conduit leading from said water supply tank to said boiler chamber, a valve within said boiler chamber controlling the outlet from said conduit into the boiler chamber, a float controlling said valve, and an annular steam chamber, having radial hollow ribs, arranged above and in communication with said boiler chamber and spaced from the water supply tank, the combustion chamber having an outlet passage lying between the water supply tank and steam chamber.

3. The combination, in a heater, of a combustion chamber, a burner contained therein, a boiler chamber arranged above said combustion chamber, a water supply tank arranged above said boiler chamber, a conduit leading from said water supply tank to said boiler chamber, a valve within said boiler chamber and controlling the outlet from said conduit to said boiler chamber, a float controlling said valve, a steam chamber arranged above and in communication with said boiler chamber and spaced from the water tank to form a passage for the products of combustion from the combustion chamber, said steam chamber being provided with a safety valve adapted to be opened by excessive steam pressure and to be seated by gravity.

4. The combination, in a heater, of a combustion chamber, a burner contained therein, a boiler-chamber arranged above said combustion chamber, a water-supply tank arranged above said boiler-chamber, a conduit leading from said water-supply tank to said boiler-chamber, a valve within said boiler-chamber controlling said conduit, a steam chamber arranged above said boiler-chamber and communicating therewith and surrounding said water-supply tank, said steam chamber and water-supply tank being spaced apart to form a passage for the products of combustion therebetween.

In witness whereof, we have hereunto set our hands and seals at Newcastle, Indiana, this eleventh day of June, A. D. one thousand nine hundred and ten.

PERRY FRAIZER. [L. S.]
ENOCH A. NATION. [L. S.]

Witnesses:
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