

(No Model.)

A. WHITE.
PORTABLE HEAT GENERATOR.

No. 463,559.

Patented Nov. 17, 1891.

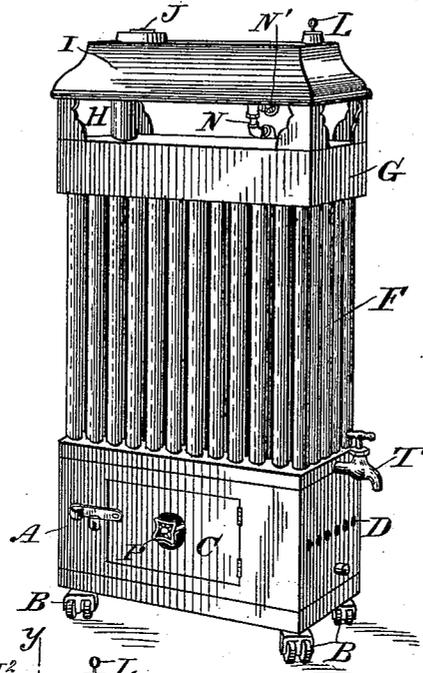


Fig. 1.

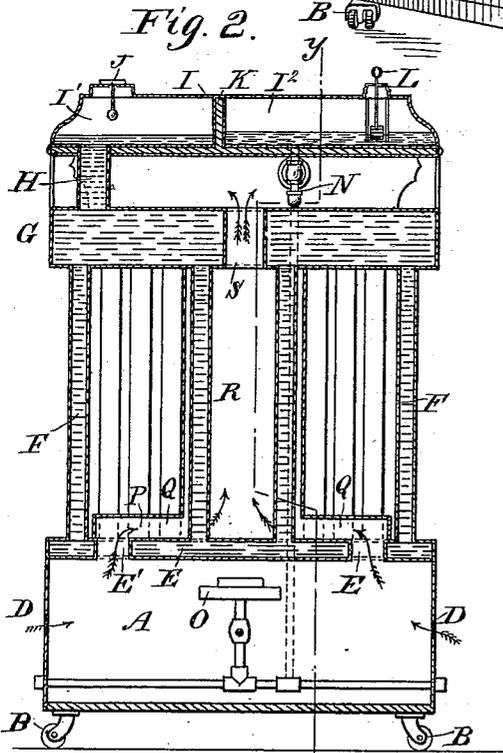


Fig. 2.

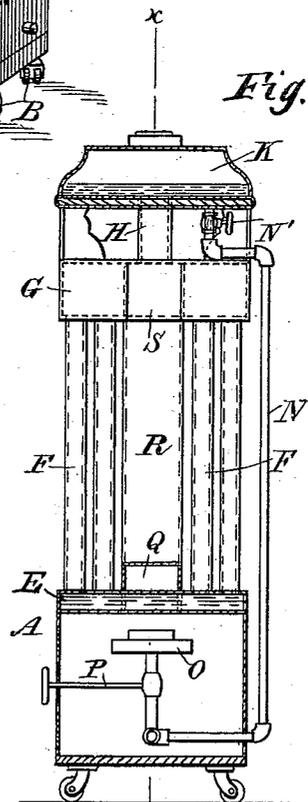


Fig. 3.

WITNESSES:

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UNITED STATES PATENT OFFICE.

ALEXANDER WHITE, OF GENESEO, ASSIGNOR OF ONE-HALF TO WILLIAM E. WHEELER, OF CHICAGO, ILLINOIS.

PORTABLE HEAT-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 463,559, dated November 17, 1891.

Application filed May 4, 1891. Serial No. 391,448. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER WHITE, of Geneseo, in the county of Henry and State of Illinois, have invented a new and Improved Portable Heat-Generator, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved heat-generator which is simple and durable in construction, can be readily moved about to any desired room or place, and is adapted to be heated by a suitable fuel—such as oil, gasoline, gas, &c.—to generate steam and to heat water.

The invention consists of a fire-box containing the burner and supporting on top a hollow base, pipes connecting the base with the hollow top, and a central flue extending through the hollow top and connected by branches with openings in the hollow base.

The invention also consists of certain parts and details and combinations of the same, as will be hereinafter fully described, and then pointed out in the claims.

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 perspective view of the improvement. Fig. 2 is a longitudinal section of the same on the line *xx* of Fig. 3, and Fig. 3 is a transverse section of the same on the line *yy* of Fig. 2.

The improved heat-generator is provided with a fire-box A, preferably mounted on wheels or casters B for conveniently moving the generator about from one room or place to another. The fire-box A is formed in its front with a door C, and in the ends are arranged openings D for admitting the necessary air for combustion to the burner located in the fire-box. The top of the fire-box A is formed by a hollow base E, being part of the boiler proper. The base E is connected on its top by pipes F with the under side of a hollow top G, from which leads a pipe H, connecting with a steam-chamber I', formed in a casing I, supported above the hollow top G. In the steam-chamber I' is arranged a safety-valve J, of any approved construction, and the said steam-chamber is divided by a partition K from a reservoir I², also formed in

the casing I, and containing a float L for indicating the amount of liquid fuel held in the reservoir I². The bottom of the casing I, as well as the partition K, are preferably lined with asbestos or other non-conducting material to prevent the fuel from being heated above a normal temperature.

From the reservoir I² leads downward a pipe N, provided with a valve N' for regulating the amount of fuel passing through the said pipe. The latter extends into the fire-box A and supports a burner O, of any approved construction, the said burner extending under the bottom of the hollow base E at or near its middle, as plainly shown in Figs. 2 and 3. A valve P extends from the burner O through an opening in the door C, to permit the operator to regulate the flame of the burner, as desired.

In the hollow base E and near the ends of the same are arranged openings E', leading to branch pipes Q, extending over part of the top of the base E and opening into a vertical flue R, held in the middle between the base E and the hollow top G and being entirely surrounded by the water-pipes F. The upper end of the flue R is provided with a branch S, extending through the chamber G.

The device is used as follows: When it is desired to use the generator for heating water, then the base E, the pipes F, the top G, the pipe H, and part of the chamber I' are filled with water, as indicated in Fig. 2. The liquid fuel from the reservoir I² is permitted to flow through the pipe N by opening the valve N', so that the burner O can be ignited, the heat from the said burner heating the under side of the base E, thus heating the water contained therein. The water is more highly heated at or near the middle of the base E, so that the heated water ascends the innermost pipes F to pass into the chamber G, and along the same to finally pass down the outermost pipes F back into the base E, to again flow toward the middle to be reheated, thus establishing a complete circulation of the water in the boiler proper. The gases, smoke, &c., arising from the burning fuel on the burner O pass through the openings E' into the branch pipes Q, and from the latter into the flue R, to finally escape through

the branch pipe S. As a complete combustion takes place in the fire-box A no obnoxious gases are liable to pass into the pipe S and from the latter into the room in which the generator is located. In case it is desired to use the generator for generating steam, then the base E and lower part of the pipes F are filled with water, the upper part of the pipes as well as the top G being free to receive the steam generated by heating the water in the manner above described. In one end of the hollow base E is arranged a faucet T for drawing off the water whenever desired.

When gas or oil is to be used as fuel, the top reservoir I² and steam-chamber I' may be dispensed with by enlarging the tube H for a steam or expansion chamber, and in case of gas being used the burner O is connected by suitable tubes with the gas-supply, and when oil is used the burner O is substituted by oil-lamp stoves in the fire-box A.

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

1. A portable heat-generator comprising a fire-box containing the burner, a boiler supported on the said fire-box and comprising a hollow base, pipes extending upwardly from the said base, a hollow top connected with the upper end of the said pipes, and a central flue extending through the hollow top and provided with branch pipes leading to openings formed in the said hollow base near its ends, substantially as shown and described.

2. In a portable heat-generator, the combination, with a fire-box and a burner held therein, of a boiler supported on the said fire-box and comprising a hollow base, forming the top of the fire-box, pipes extending from the top of the said hollow base, a hollow top connected with the upper end of the said pipes, and a central flue arranged in the middle of the said pipes between the said base and hollow top, and branch pipes leading from the lower end of the said flue to openings in the hollow base at the sides of the said burner, substantially as shown and described.

3. In a portable heat-generator, the combination, with a fire-box and a burner held therein, of a boiler supported on the said fire-box and comprising a hollow base, forming the top of the fire-box, pipes extending from the top of the said hollow base, a hollow top connected with the upper end of the said pipes, a central flue arranged in the middle

of the said pipes between the said base and hollow top, branch pipes leading from the lower end of the said flue to openings in the hollow base at the sides of the said burner, and a casing supported above the said hollow top and containing a steam-chamber and a fuel-reservoir, of which the former is connected with the hollow top and the latter with the said burner, substantially as shown and described.

4. In a portable heat-generator, the combination, with a fire-box and a burner held therein, of a boiler supported on the said fire-box and comprising a hollow base, forming the top of the fire-box, pipes extending from the top of the said hollow base, a hollow top connected with the upper end of the said pipes, a central flue arranged in the middle of the said pipes between the said base and hollow top, branch pipes leading from the lower end of the said flue to openings in the hollow base at the sides of the said burner, a casing supported above the said hollow top and containing a steam-chamber and a fuel-reservoir, a branch pipe connecting the said hollow top with the said steam-chamber, and a pipe containing a valve for connecting the said reservoir with the said burner, substantially as shown and described.

5. In a portable heat-generator, the combination, with a fire-box and a burner held therein, of a boiler supported on the said fire-box and comprising a hollow base, forming the top of the fire-box, pipes extending from the top of the said hollow base, a hollow top connected with the upper end of the said pipes, a central flue arranged in the middle of the said pipes between the said base and hollow top, branch pipes leading from the lower end of the said flue to openings in the hollow base at the sides of the said burner, a casing supported above the said hollow top and containing a steam-chamber and a fuel-reservoir, a branch pipe connecting the said hollow top with the said steam-chamber, a pipe containing a valve for connecting the said reservoir with the said burner, a safety-valve held in the said steam-chamber, and a float arranged in the said reservoir, substantially as shown and described.

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Witnesses:
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