(No Model.)

F. V. WINTERS.

STEAM RADIATOR AND MEANS FOR HEATING SAME.

No. 587,072. Patented July 27, 1897.

Fig. 1.

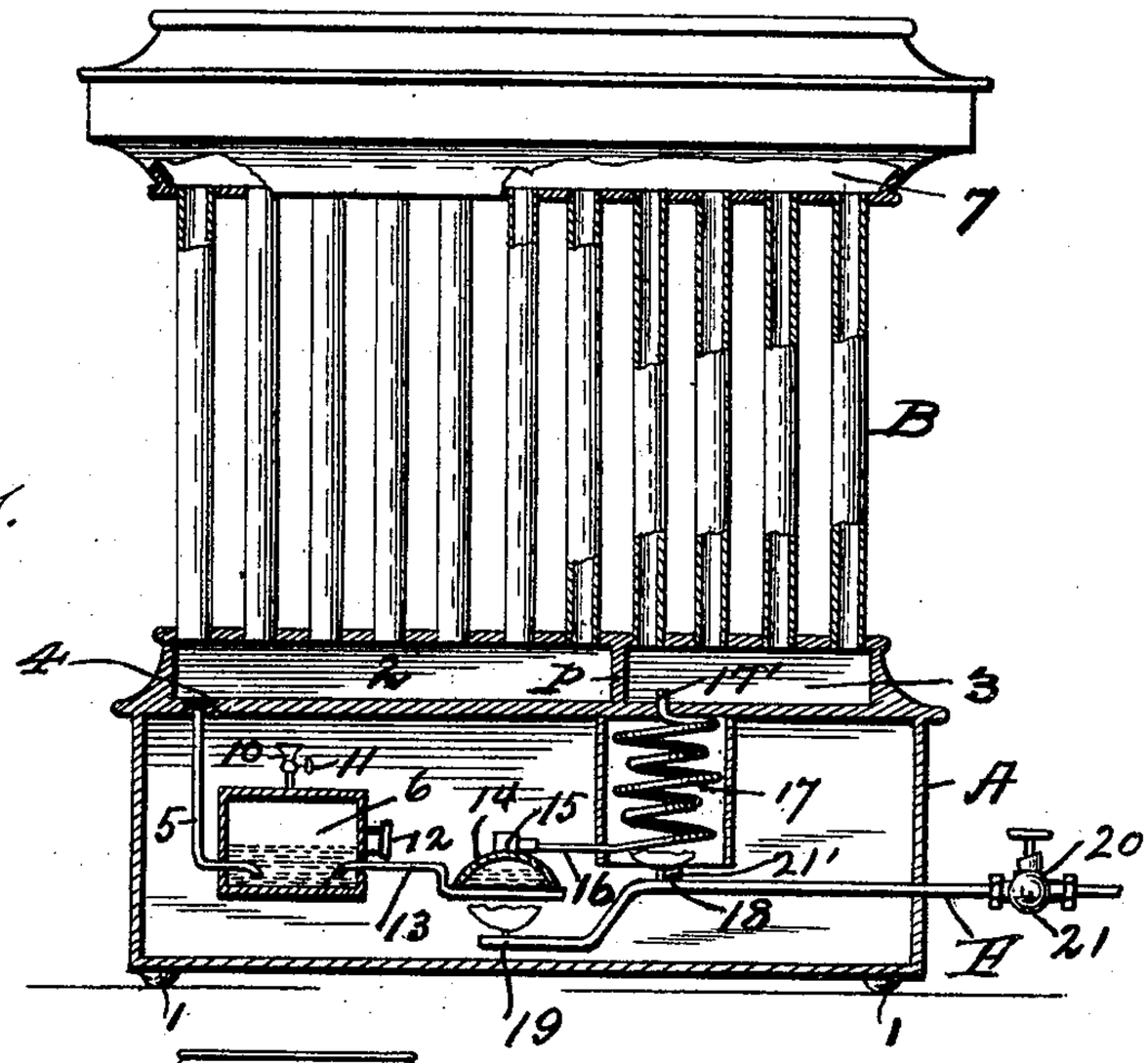
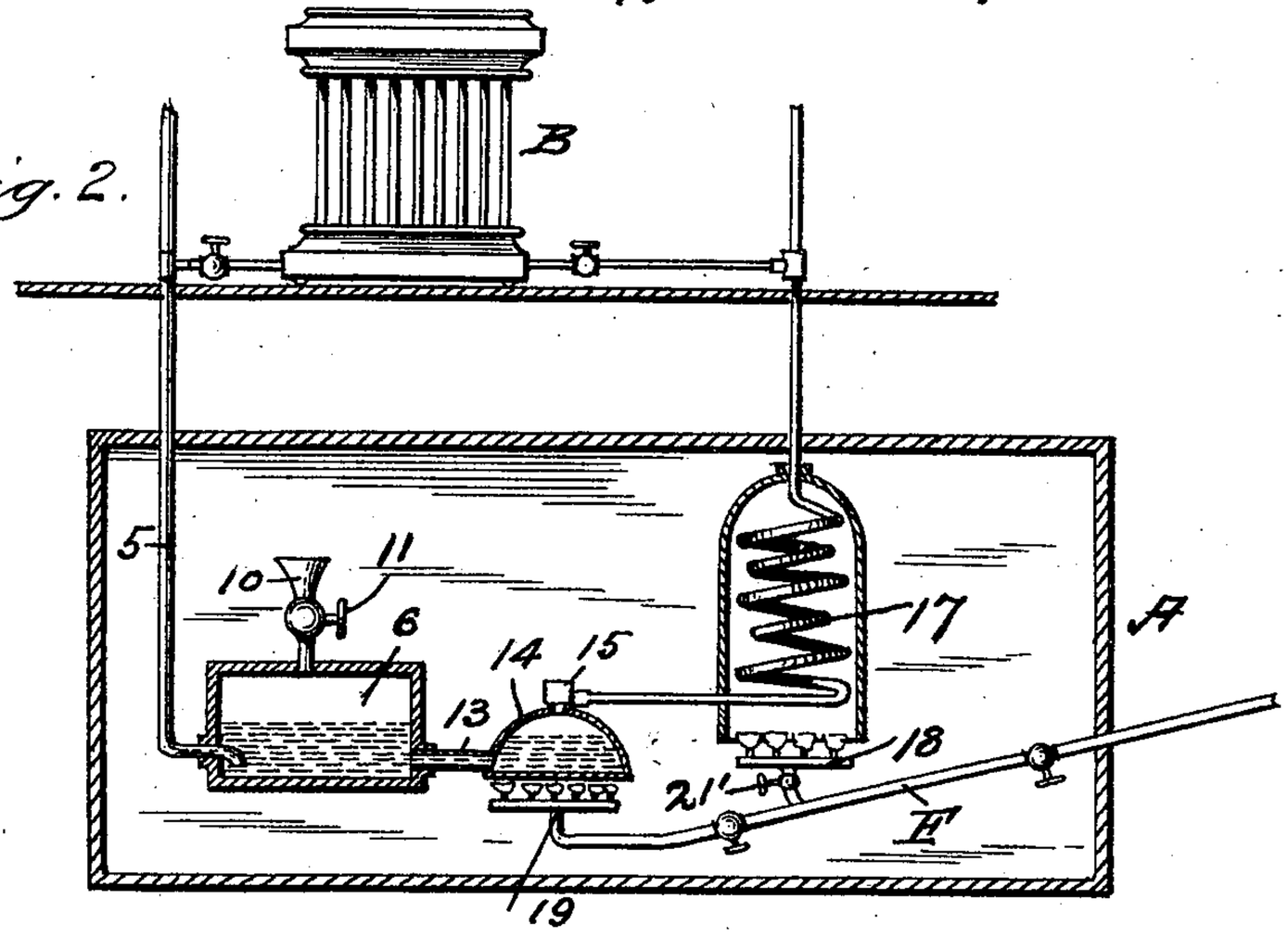


Fig. 2.



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UNITED STATES PATENT OFFICE.

FREDERICK V. WINTERS, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO JOHN A. YORK, OF SAME PLACE.

STEAM-RADIATOR AND MEANS FOR HEATING SAME.

SPECIFICATION forming part of Letters Patent No. 587,072, dated July 27, 1897.

Application filed February 6, 1897. Serial No. 622,300. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK V. WINTERS, a citizen of the United States of America, residing at the city of New York, in the county and State of New York, have invented certain new and useful Improvements in Steam-Radiators and Means for Heating the Same, of which the following is a specification.

My invention relates to improvements in steam-radiators and heating attachments therefor, and the object is to provide a portable radiator and heater which may be used singly or associated with radiators grouped or arranged in a system throughout a building or house. Another purpose is to provide a new and improved heater whereby the water is converted into steam and the steam thus produced superheated in its course to the radiator and the condensing steam returned through the radiator to the water-chamber for use again in supplying the active hot steam. This construction and arrangement enables me to materially reduce the dimensions of the water tank or boiler, since the return condensations are used as a means of supply and render the action long and almost continuous.

In the drawings, Figure 1 is a side view in elevation, partly in section, of a radiator supplied with my improved heating apparatus, the doors of the casing-stand being removed to show the construction and arrangement of the heating apparatus. Fig. 2 is a side view showing the heating apparatus connected to a radiator located remote from the heater and as forming one of a system.

In Fig. 1 of the drawings the invention is shown as applied to a portable radiator the base of which is mounted on casters or wheels, so as to be conveniently moved from place to place in a compartment.

A designates the base-casing of the apparatus, made of such dimensions and capacity as may be required, and is adapted to receive and hold the heating apparatus, and may be provided with casters or wheels 1 to afford convenient movement. Doors (not shown) close the front of this base chamber or casing.

B designates the radiator, composed of a plurality of pipes, as usual, and the base of which is formed with two compartments or chambers 2 3, separated by an impervious partition *p*. The former of these chambers constitutes the deposit and receiving chamber for the reception of the downward-coursing steam and its condensations, being formed with a gutter or way 4, leading into a conduit-pipe 5, the lower end of which opens into the water chamber or tank 6. The chamber 3 opens into the first three or four sets of pipes in the radiator, and the steam finds its way upward through these pipes into the top chamber 7, formed in the top or cover of the radiator, where it is distributed and moves down the pipes communicating with the condensing-chamber 2, where it is condensed, and the water of condensation flows back into the water-tank, as heretofore mentioned.

In the base of the radiator is disposed the heating and water-supply apparatus, consisting of the following-described elements or parts: In the casing is mounted a water-tank 6, adapted to hold the requisite supply of water, according to the size and number of radiators to be supplied with hot steam. In a single and ordinary-sized radiator, say of ten pipes, the capacity of the tank may be not more than one gallon. In the top of the water-tank is secured a filling tube or funnel 10, provided with a suitable shut-off valve 11. In the face of the tank may be a water-glass 12 to permit observation of the height at which the water stands in the tank. A pipe 13 opens from the tank, and at a suitable point in this pipe is arranged and secured a shallow heating-chamber 14, into which a small quantity of water runs or is fed and where it is first subjected to the action of the heater and wherein the water is speedily converted into steam. This heating-chamber 14 consists, preferably, of a hollow shell having a flat bottom and a dome-shaped or conical top terminating in a pipe-nipple 15, to which the conduit-pipe 16 connects and leads to coil of pipes 17, wherein the steam is superheated for transmission into the chamber 3 by the inlet 17′, and from the chamber 3 up through the series of radiator-pipes opening from this chamber into the hollow top of the radiator. This superheating-coil 17 is preferably made up of a single pipe coiled in larger and smaller

coils in alternation, substantially as seen in the drawings, being arranged and disposed in this manner to permit, present, and expose additional surface to the action of the heat from the superheater.

F designates the feed-pipe, through which the gas or gasolene is fed to the burners. In this pipe F is mounted a suitable superheating-burner 18, directly under the coil, and at the inner end of the pipe is mounted and connected another burner 19, located under the chamber 14, substantially as seen in the drawings. In the pipe F is coupled a regulating-valve 20, of any proper make, adapted in its operation to increase or diminish the flow of gas or other burning substance, and in this pipe may be interposed a shut-off valve 21. In case the superheater-burner is not required in active use a valve 21′ is provided to shut it off from communication with the pipe. The pipe F is fed from any proper source, such as connection to a gas-pipe, gas-tip, or to a gasolene-tank.

In Fig. 2 of the drawings I have shown the heating apparatus associated with and connected to a radiator located at a distance from or remote from the apparatus. The construction of this radiator is identical with that shown in Fig. 1, except that the heating apparatus is not carried in the base of the radiator.

It will be seen from the foregoing description, taken in connection with the drawings, that I have provided a simple and effective heating apparatus and system wherein the water will be speedily heated and converted into steam, and the steam thus generated continuously superheated, and that the distributed steam in the radiator is eventually condensed to be used again as a supply to the water-tank.

What I claim is—

1. The combination with a radiator, of a heating apparatus comprising a water-tank, a steam-pipe leading from the water-tank to the radiator, a heating-chamber interposed in said pipe, a superheating-coil in said pipe, and a pipe leading from the radiator to the water-tank.

2. The combination with a radiator having a hollow top and a hollow bottom divided into two compartments, of a heating apparatus comprising a water-tank, a steam-pipe leading from the water-tank into one of the chambers in the bottom of the radiator, a heating-chamber interposed in the steam-pipe, a superheating-coil in the steam-pipe between the heating-chamber and the radiator, and a pipe leading from the other chamber in the bottom of the radiator into the water-tank.

3. The combination with the radiator having a hollow top and a hollow bottom with a partition therein, of a heating apparatus comprising a water-tank, a steam-pipe leading from the tank into one of the compartments in the bottom of the radiator, a heating-chamber interposed in the steam-pipe, a coil of pipe between the said heating-chamber and the radiator, a burner under the heating-chamber, a burner under the coil, and a pipe leading from the other compartment into the water-tank.

4. A portable radiator, comprising a base box or casing, a gas conduit-pipe therein, a superheating-burner and a main burner in said pipe, a radiator mounted on the base, having hollow top and bottom, the bottom thereof being divided into two compartments, a water-tank in the casing, a steam-pipe leading from the tank into one of the compartments in the bottom of the radiator, a heating-chamber in the pipe over the main burner, a coil of pipes in the steam-pipe over the superheating-burner, and a pipe leading from the other compartment in the bottom of the radiator into the water-tank.

In witness whereof I have hereto set my hand in the presence of two attesting witnesses.

FREDERICK V. WINTERS.

Attest:
A. G. HEYLMUN,
HARRY Y. DAVIS.