H. S. ALBERT.

WATER HEATER.

APPLICATION FILED DEC. 11, 1916.

1,237,737.

Patented Aug. 21, 1917.

2 SHEETS—SHEET 1.

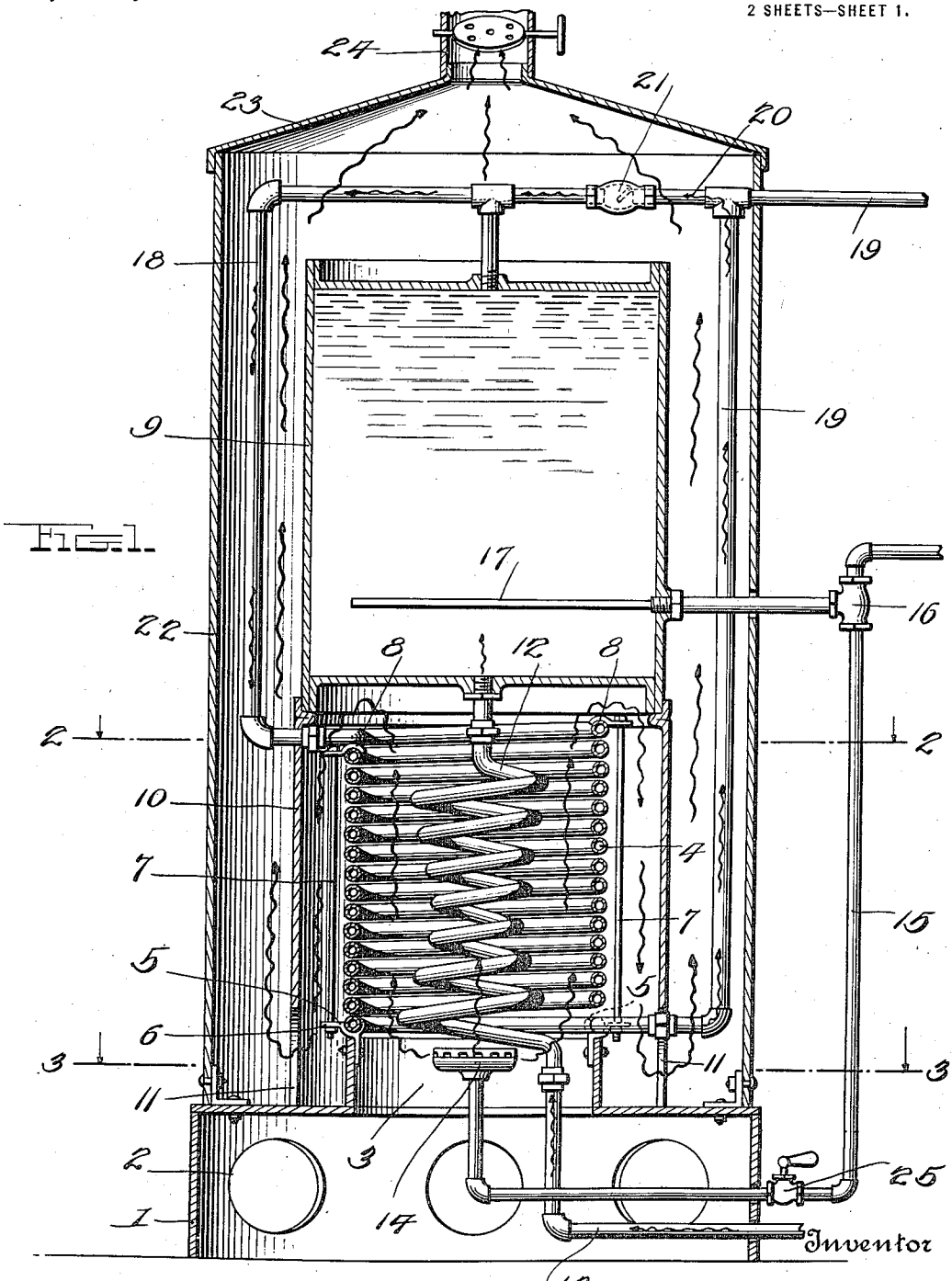


Fig. 1.

Inventor

H. S. Albert

Witness

I. R. Pierce

By H. B. Williamson & Co.

Attorneys

H. S. ALBERT.

WATER HEATER.

APPLICATION FILED DEC. 11, 1916.

1,237,737.

Patented Aug. 21, 1917.

2 SHEETS—SHEET 2.

FIG. 2.

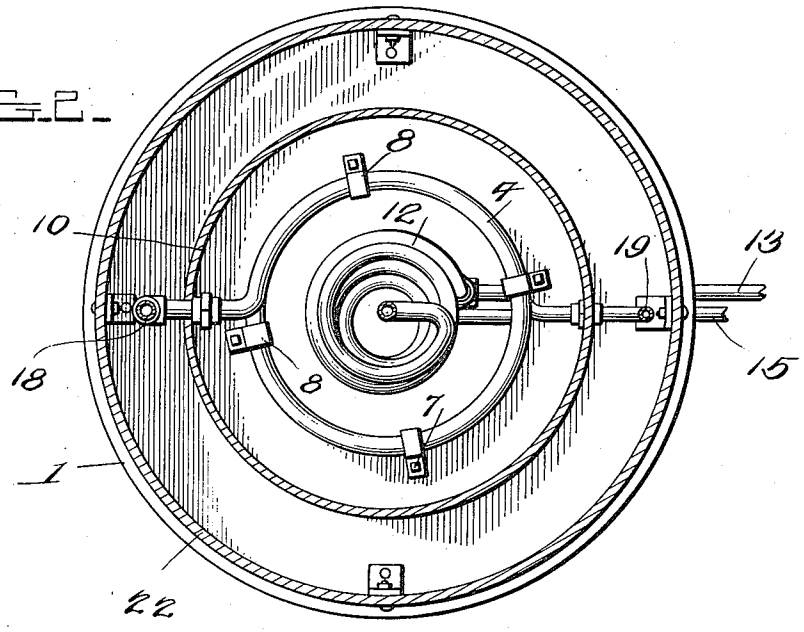
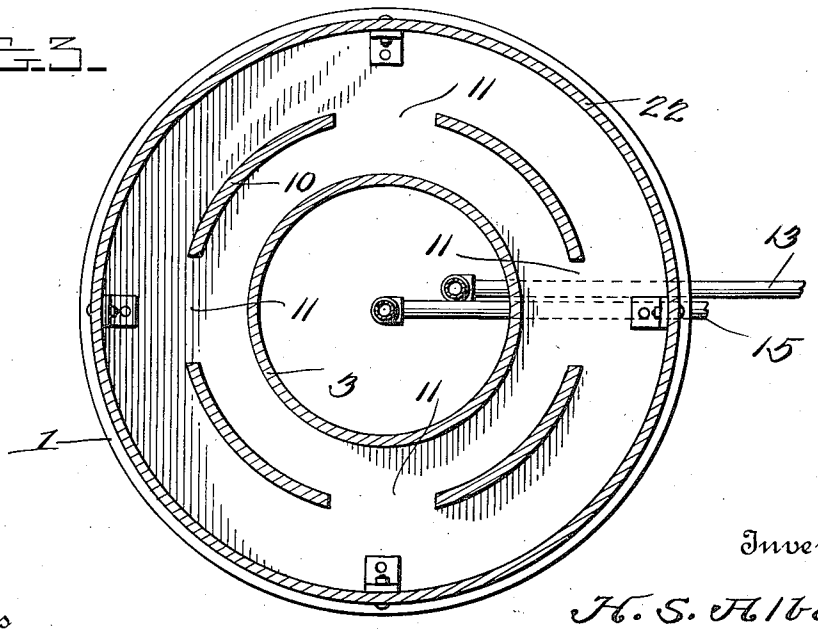


FIG. 3.



Witness

D. R. Pierce

Inventor

H. S. Albert

By H. B. Williamson & Co.

Attorneys

UNITED STATES PATENT OFFICE.

HOMER S. ALBERT, OF MERCER, PENNSYLVANIA.

WATER-HEATER.

1,237,737. Specification of Letters Patent. Patented Aug. 21, 1917.

Application filed December 11, 1916. Serial No. 136,332.

To all whom it may concern:

Be it known that I, HOMER S. ALBERT, a citizen of the United States, residing at Mercer, in the county of Mercer and State of Pennsylvania, have invented certain new and useful Improvements in Water-Heaters; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide a simply constructed and comparatively inexpensive device for quickly heating water with the use of a single gas burner, and to this end the invention resides in certain novel features of construction and in unique combinations of parts to be hereinafter fully described and claimed, the descriptive matter being supplemented by the accompanying drawings which constitute a part of this application and in which:

Figure 1 is a vertical section of the improved heater; and

Figs. 2 and 3 are horizontal sections on the planes of the lines 2—2 and 3—3 of Fig. 1.

In the drawings above briefly described, the numeral 1 has reference to a hollow base preferably of circular formation, said base having air inlets 2 in its side wall and having a hollow neck 3 rising from its upper side. The neck 3 supports thereon a comparatively large water coil 4 which is of the same diameter throughout its length, said coil preferably having on its upper edge a plurality of U-shaped seats 5 receiving the lower end of the coil. Ears 6 project outwardly from the seats 5 and vertical bolts 7 pass through said ears and through hooks or the like 8 which take over the upper end of the coil 4 whereby the latter is effectively secured in place.

A water tank 9 is disposed above the coil 4 and rests on a sleeve 10 which surrounds and is spaced from said coil, the lower end of said sleeve being secured to the upper side of the base 1 and being formed with heat passages 11. A second water coil 12 is disposed coaxially in the coil 4 in spaced relation to the latter, the upper end of this coil delivering into the bottom of the tank 9 while its lower end is connected with a cold water supply pipe 13. A gas burner 14 is disposed below the coil 12 and is supplied with gas by means of a gas line 15 having a valve 16 controlled automatically by an appropriate thermostat 17 located in the tank 9.

A pipe 18 leads from the upper end of the tank 9 to the upper end of coil 4 while another pipe 19 extends from the other end of said coil to the spigot or spigots from which the hot water is to be drawn. A short pipe 20 having a check valve 21 connects the upper end of pipe 18 with the pipe 19 as shown clearly in Fig. 1, the check valve 21 being positioned for opening toward said pipe 18 so that ordinarily circulation of water is allowed downwardly through the pipe 18 and coil 4, upwardly through the pipe 19 and through the pipe 20 and its check valve 21. When water is being withdrawn from the apparatus, however, the valve 21 automatically closes so that the water in being drawn from the tank 9 must first pass through the pipe 18 and the coil 4, the latter serving to superheat such water.

A jacket 22 surrounds and is spaced from the sleeve 10 and tank 9, the upper end of said jacket being closed by a hood 23 having a dampered heat outlet 24. All of the pipes 18, 19 and 20 are confined within the jacket 22 and since heat flows through this jacket in the manner to be described, said pipes are always maintained at a high temperature.

In operation, the burner 14 will be lighted after first opening the usual gas cock 25 in the gas line 15. The water in the tank is thus heated by impingement of the hot air from the burner upon the bottom of the tank 9 and also by the contact of this air with the sides of said tank as it passes upwardly from the openings 11. During periods of inactivity, the water in the coils 4 will become highly heated and thus will be in readiness for use when withdrawn through the pipe 19. The heating efficiency of the device is increased by the tortuous course of the heat from the burner 13, this heat traveling first upwardly through the two coils 4 and 12, and then downwardly between the former and the sleeve 10, being discharged through the passages 11 into the jacket 22 from which it escapes through the outlet 24. It is obvious that the sleeve 10 serves to confine the heat around the coil 4 to effectively heat the latter and that the jacket 22 causes the upwardly moving heat to travel around the tank 9 to maintain said tank at a high temperature.

When any of the faucets are opened, the

check valve 21 closes and the water is drawn from the tank 9 through the coil 4 so that it is superheated in the latter. The device operating in this manner is practically an instantaneous heater and has given excellent results in actual use. The thermostat 17 automatically controls the passage of gas to the burner 14 and thus prevents any possibility of heating the water in the tank 9 to a dangerous temperature.

From the foregoing, taken in connection with the accompanying drawings, it will be observed that although the improved heater is comparatively simple and inexpensive, it will be efficient and durable and for these reasons, the construction shown constitutes the preferred form of the apparatus, but it is to be understood that within the scope of the invention as claimed, numerous changes may be made without sacrificing the principal advantages.

I claim:

1. A water heater comprising a water tank, a sleeve extending downwardly therefrom and having heat passages formed through its lower end, a comparatively small vertically disposed water coil in said sleeve and discharging into the bottom of said tank, a fresh water inlet for said coil, a burner below the coil, a larger coil surrounding the other and spaced therefrom and from the sleeve and tank to allow heat from the burner to travel downwardly around the outer coil and through the aforesaid heat passages after first passing upwardly within the two coils, a jacket surrounding and spaced from the sleeve and tank, said jacket having a hood extending over the tank and formed with a heat outlet, a pipe in the aforesaid jacket leading from the upper end of the tank to one end of the larger coil, and a hot water outlet pipe leading from the other end of said larger coil and having a portion of its length disposed in the jacket.

2. A water heater comprising a water tank, a sleeve extending downwardly therefrom and having heat passages formed through its lower end, a comparatively small vertically disposed water coil in said sleeve and discharging into the bottom of said tank, a fresh water inlet for said coil, a burner below the coil, a larger coil surrounding the other and spaced therefrom and from the sleeve and tank to allow heat from the burner to travel downwardly around the outer coil and through the aforesaid heat passages after first passing upwardly within the two coils, a jacket surrounding and spaced from the sleeve and tank, said jacket having a hood extending over the latter and formed with a heat outlet, a pipe in the aforesaid jacket leading from the upper end of the tank to one end of the larger coil, a hot water outlet pipe leading from the other end of said larger coil and having a portion of its length disposed in the jacket, a third pipe connecting said portion of the last named pipe with the upper end of the first named pipe, and a check valve in said third pipe opening toward said first pipe.

3. A water heater comprising a hollow base having an air inlet or inlets and having at its upper side a vertically extending outlet neck, a vertically disposed heating coil rising from and supported by said neck, a sleeve surrounding and spaced from said heating coil, said sleeve being supported upon the base and being formed at its lower end with heat passages, a water tank supported on said sleeve and disposed above the aforesaid coil, a smaller coil disposed coaxially in the first named coil and delivering at its upper end into the tank, a fresh water inlet for said smaller coil, a burner at the lower end of this coil, a pipe leading from the upper end of the tank to one end of the larger coil, a water outlet pipe leading from the other end of said larger coil, and a jacket rising from the base and surrounding the sleeve and tank, said jacket having at its upper end a hood formed with a heat outlet.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HOMER S. ALBERT.

Witnesses:
F. M. LIVERMORE,
CHARLES STEWART.