Nov. 16, 1926. 1,607,127

R. C. HOYT

WATER HEATER JACKET

Filed Nov. 23, 1925

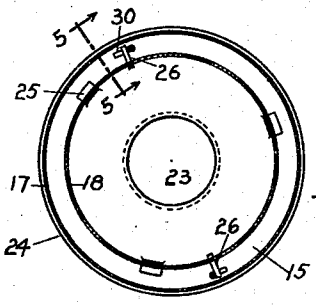

Fig. 4

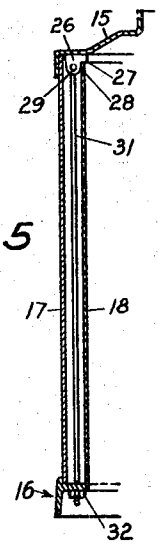

Fig. 5

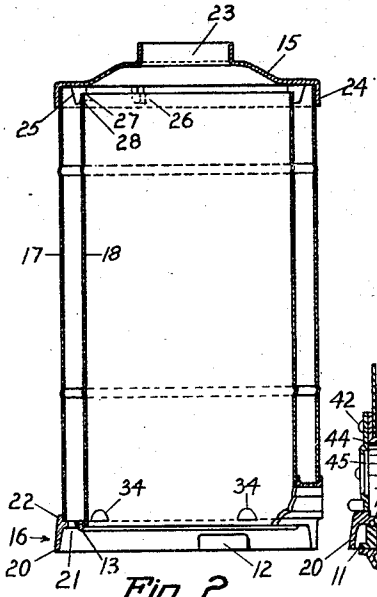

Fig. 2

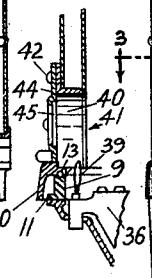

Fig. 6

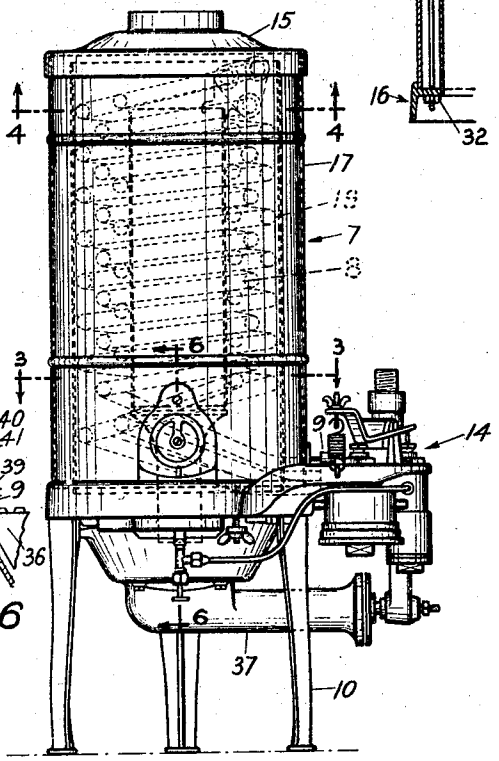

Fig. 1

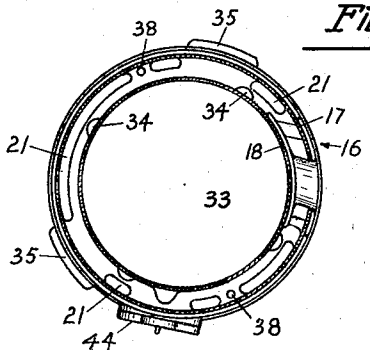

Fig. 3

INVENTOR

Robert C. Hoyt

BY M. C. Frank

ATTORNEY

Patented Nov. 16, 1926. 1,607,127

UNITED STATES PATENT OFFICE.

ROBERT C. HOYT, OF OAKLAND, CALIFORNIA, ASSIGNOR TO HOYT HEATER COMPANY, OF LOS ANGELES, CALIFORNIA, A CORPORATION OF CALIFORNIA.

WATER-HEATER JACKET.

Application filed November 23, 1925. Serial No. 70,831.

My invention relates to jackets for water heaters, and it has special reference to jackets adapted for use in connection with that type of water heaters that are provided with heating-coil units therein.

In ordinary automatic water heaters, if there is no provision made for diverting the increased air pressure from the flame of the burner or for relieving such air pressure when strong winds are blowing, the air will force itself downwardly through the vent of the heater and impinge upon the flame of the pilot light and the flame of the burner and will often extinguish one or both flames or force the carbon monoxide and dioxide gases, for the escape of which the vents to the atmosphere are provided, into the dwellings equipped with such heaters, with the result that the lives of the persons in the dwellings are jeopardized.

Also, in such heaters it is often necessary to remove the jacket for the purpose of repairing parts of the heaters. A service man doing this work is then compelled to remove several nuts and bolts before he succeeds in removing the jacket. Sometimes the repair is very simple and consumes only a fraction of the time expended on the removal of the jacket. Thus, much annoyance and inconvenience as well as unnecessary expense are caused the persons that have such heaters installed in their dwellings.

An important object of my invention is to construct a heater jacket in such a manner that, when back drafts occur in the vent to the heater, the increased air pressure is diverted from the burner and the pilot light so that neither of them can be extinguished thereby.

A further object of the invention is to provide for air to pass between the walls of the jacket and which air tends to cool the outer wall so that no insulating material is required between the walls, thus making the jacket inexpensive, lighter and easier to handle as well as easier to assemble.

Another object of the invention is to construct a complete jacket removable as a unit that is adapted to be supported upon and by a heater base without necessitating the use of nuts and bolts therefor, and to provide a seal between the top of the base and the bottom of the jacket so that, when the jacket unit is placed in position on the base, the weight of the jacket alone or the combined weight of the jacket and the vent pipe connected therewith is sufficient to make a tight seal between the two bodies. The latter feature prevents side escapement of any flare from the burner of the heater or other intercommunication with the space between the walls.

It is still further the purpose of my invention to provide the bottom member of the jacket with a peripheral flange adapted to fit around the base of the heater and to serve as an auxiliary retaining means for legs driven into the base or a means adapted to prevent the legs from laterally working out of engagement with the base.

An additional important object of my invention is to make the jacket so that the inner wall thereof slidably fits over the outer coil of the heating-coil unit and so that the coil serves as a means for guiding the jacket into place on the heater base.

Other objects and advantages will appear as the invention is unfolded in the following detailed description having reference to the accompanying drawings in which:

Figure 1 is a side elevation of an automatic water-heater of an improved type and provided with a jacket constructed according to the principle of my invention;

Fig. 2 is a vertical, mid-sectional view of the jacket unit shown in Fig. 1;

Fig. 3 is a sectional plan of the jacket unit, the view being taken along the line 3—3 of Fig. 1;

Fig. 4 is another sectional plan of the jacket unit, the view being taken along the line 4—4 of Fig. 1 and looking in the direction of the arrows;

Fig. 5 is a vertical section through one side of the jacket unit and may be considered as a view taken along the line 5—5 of Fig. 4 to primarily show one of the securing elements in the assembly of the jacket; and

Fig. 6 is a sectional view taken along the line 6—6 of Fig. 1 and shows the inclosure extending between the outer and the inner walls of the jacket for housing the pilot light; the base and burner for the heater are also fragmentally shown.

I will now describe the figures of the drawing in detail by reference numerals.

In a water heater 7, which is preferably of the automatic type and of an improved

construction, the heating-coil unit 8 therein is suitably secured to the upper member 9 of the base, and in the underside of the member are secured legs 10 for supporting the heater thereon. A jacket which comprises a top member 15, a bottom member 16, an outer wall 17 and an inner wall 18, is adapted to fit slidably over the coil unit and with its inner wall substantially in contact with the outer coil 19 thereof and which facilitates the placing of the jacket in position on the base.

On its underside the bottom member 16 is provided with a peripheral flange 20, which surrounds the upper member 9 of the base so that openings 21 in said bottom member are adapted to communicate with the atmosphere through the space between the flange 11 of the base and the said flange 20, Fig. 6. Another peripheral flange 22 is also provided on the bottom member 16 at the top thereof for the purpose of engaging the outside of the outer wall 17.

The top member 15, which is provided with the usual vent 23 centrally therein, has a corresponding flange 24 also adapted to engage the outside of the outer wall 17, and spaced from the outer flange 24, the top member 15 has on its underside a number of lugs 25 and 26, each of which has formed thereon a step portion 27, spaced from the underside of the top member and adapted to rest on the top edge of the inner wall 18 so as to provide a space between the top of the inner wall and the top member. Each of the lugs 25 and 26 has also a shoulder portion 28, adapted to engage the outside of the inner wall 18. The lugs 26 are further provided with openings 29 adapted to receive therein the hook ends 30 of rods 31, which at their other ends have threaded engagement with nuts 32. In the bottom member 16 is a central opening 33, the wall of which is adapted to engage the outside of the inner wall 18 so that by the lugs 25 and 26 and the wall of the opening 33 the inner wall 18 is spaced from the outer wall 17, and the inner wall 18 has on its outside, and integral with the wall, projections 34, which may be struck-up portions of the wall, for the purpose of spacing and positioning the said inner wall on the top of the bottom member 16.

At present I prefer to form the peripheral flange 20 in the bottom member 16 with outstanding portions 35, Fig. 3, recessed on the inside as at 12, Fig. 2, adapted to close over the upper part of the legs 10, when they have been secured to the base, in order to prevent them from working loose of the base.

Adapted to register with the lugs 26 in the top member 15, are holes 38 in the bottom member 16 for the purpose of receiving therein the threaded ends of the rods 31 so that in the assemblage of the jacket, after the outer and the inner walls have been placed in proper position upon the top member, the hook ends 30 may be slipped into the openings 29 in the lugs, and the straight ends may be slipped through the holes 38 of the bottom member and then the nuts 32 may be screwed onto the rods and thereby secure the elements comprising the jacket firmly together.

For convenience in lighting the pilot light 39 and also for the purpose of protecting the flame of the pilot light from draft there is through the jacket an opening adapted to be in alignment with the flame of the pilot light and to house the latter. This opening is formed by the wall 40 of an inclosure 41 in front of the jacket and at the top of the bottom member. The wall 40 of this inclosure extends from the outer to the inner wall and has a front flange which overlaps the outer wall 17 and is secured thereto by any suitable means, such as the screw 42. The latter screw also serves as a pivot for a shutter 44, which is provided with a disk 45 of mica or other suitable transparent, fireproof material, so that the flames of the pilot light and the burner 36 of the heater 10 may be observable therethrough at all times.

In the underside of the lower member 16 a groove is formed therearound to receive a packing 13 of asbestos cord or equally suitable material, the purpose of which is to form a seal between the jacket unit and the base, as shown to advantage in Fig. 6, so that when the burner 36 side-flares, which is quite common, the flame will be prevented from flaring radially outwards by reason of the said seal 13.

It should be further noticed that, if any back draft occurs through the vent 23 to the heater, the heater-coil unit 8 sufficiently resists the draft to cause it to be diverted to and through the passage provided between the top edge of the inner wall 18 and the top member 15, and thence downward between the outer and the inner walls and through the openings 21 in the bottom member 16, and out to the atmosphere between the flange 20 and the flange 11 of the base, thus the back draft is thereby prevented from reaching and extinguishing the flames from the burner and pilot.

The mechanism 14 supported on the base 9, Fig. 1, is the automatic control valve for the heater and 37 is the gas mixing chamber for the burner 36.

Having thus described my invention, I claim as new and desire to secure by Letters Patent of the United States the following:

1. A water-heater jacket comprising a top member having a vent centrally therein; an inner wall and an outer wall spaced from

each other; lugs on the underside of the top member for spacing the inner wall from said top member; a bottom member having openings therein communicating with the space between said walls; and means for securing said members and walls together, whereby a removable jacket unit is formed for the heater.

2. A water-heater jacket comprising an inner cylindrical wall and an outer cylindrical wall; a top member having a vent centrally therein and a peripheral flange adapted to engage the outside of the outer wall; concentric lugs on the underside of the top member adapted to engage the outside of the inner wall and to space the inner wall from said top member; a bottom member having an upper peripheral flange adapted to engage the outside of the outer wall and being also provided with a lower peripheral flange adapted to fit over a support therefor, whereby the outer wall by its engagement with the flange of the top member and the upper flange of the bottom member will be spaced from said inner wall; and means for securing said members and walls together, whereby a removable jacket unit is formed for the heater.

3. A water-heater jacket comprising an inner cylindrical wall and an outer cylindrical wall; a top member having a vent centrally therein and a peripheral flange adapted to engage the outside of the outer wall; concentric lugs on the underside of the top member adapted to engage the outside of the inner wall and to space the inner wall from said top member, some of said lugs being provided with openings therein; a bottom member adapted to fit around said inner wall and having an upper peripheral flange adapted to engage the outside of the outer wall and being also provide with a lower peripheral flange adapted to fit over a support therefor, whereby the outer wall by its engagement with the flange of the top member and the upper flange of the bottom member will be spaced from said inner wall; projections on said inner wall for engagement with the top of said bottom member; and rods, each having a bend at one end adapted for engagement with the opening in one of said lugs and being threaded at its other end for receiving a nut thereon, and the bottom member having openings for receiving said rods therein so that by the engagement of said nuts and rods said members and walls may be secured together, whereby a removable jacket unit is formed for the heater.

4. In a water heater provided with a base, a jacket comprising a vented top member; an inner and outer wall spaced from each other; and the top of the inner wall spaced from the top member so that the vent and the space between the walls are in communication; a bottom member having openings therein communicating with said space and being adapted to be supported on the top of the base so that the said openings communicate with the atmosphere; means for securing said members and walls together; and means for sealing said bottom member on the said top of the base for the heater.

5. In a water heater provided with a pilot and a base, a jacket comprising a vented top member; an inner and an outer wall spaced from each other, and a top of the inner wall spaced from the top member so that the vent and the space between the walls are in communication; a bottom member having openings therein communicating with said space, said bottom member being adapted to fit over the top of the heater base so that the openings in the bottom member communicate with the atmosphere; a walled inclosure at the bottom of, and extending between, said outer and inner walls and adapted to house the flame of the pilot light of the heater; and means for securing said members and outer and inner walls together so as to form the completed jacket of the heater.

6. In a water-heater provided with a base supported on legs, a jacket comprising a vented top member; an inner wall and an outer wall spaced from each other, and the top of the inner wall spaced from the top member so that the vent and the space between the walls are in communication; a bottom member having openings in communication with said space, said bottom member being adapted to fit on the top of the heater base and having a peripheral flange adapted to fit around the top of the base so that the openings in the bottom member communicate with the atmosphere, and the flange provided with means for preventing the legs of the base from working out of engagement with said base; and means for securing said members and walls together, whereby a removable jacket unit is formed for the heater.

7. In a water heater provided with a heating-coil unit and a base, a jacket comprising a vented top member; an inner wall and an outer wall spaced from each other, and the top of the inner wall spaced from the top member so that the vent and the space between the walls are in communication; a bottom member having openings therein communicating with the space between said walls, said bottom member being adapted to fit over the top of the heater base so that the openings in the bottom member communicate with the atmosphere; the inner wall being adapted to fit slidably over the outer coil in the heating-coil unit of the heater so that the coil serves as a means for guiding the jacket into place on said base; and means for securing said members and walls together, whereby a removable jacket unit is formed for the heater.

In testimony whereof I affix my signature.

ROBERT C. HOYT.