

June 24, 1924.

1,499,192

J. G. PARKHURST

ELECTRIC WATER HEATER

Filed July 24, 1922

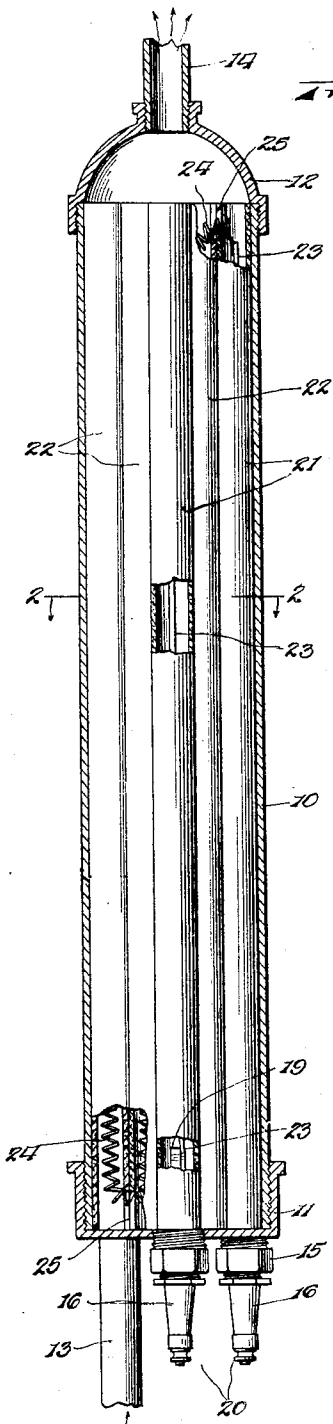


Fig. 1.

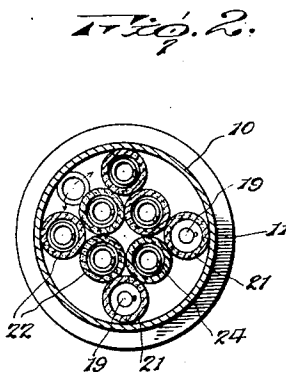


Fig. 2.

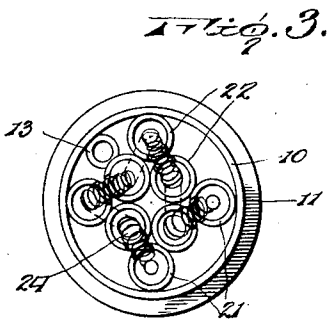


Fig. 3.

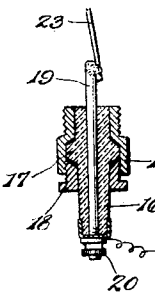


Fig. 4.

Inventor

J. G. Parkhurst.

By

Lacey Flannery, Attorney.

UNITED STATES PATENT OFFICE.

JOHN G. PARKHURST, OF TACOMA, WASHINGTON.

ELECTRIC WATER HEATER.

Application filed July 24, 1922. Serial No. 577,136.

To all whom it may concern:

Be it known that I, JOHN G. PARKHURST, citizen of the United States, residing at Tacoma, in the county of Pierce and State of Washington, have invented certain new and useful Improvements in Electric Water Heaters, of which the following is a specification.

This invention relates to an improved electric water heater for use in connection with domestic water tanks, hot water heating systems, or as a steam generator and seeks, as one of its principal objects, to provide a device of this character wherein thermal losses will be reduced to a minimum by immersing the resistance element of the device in the water to be heated.

The invention has as a further object to provide a heater embodying a novel mounting for the resistance element and wherein the water to be heated will be caused to circulate over and around said element.

And the invention has as a still further object to provide a device wherein the resistance element may be readily renewed.

Other and incidental objects will appear hereinafter.

In the drawing:

Figure 1 is a vertical sectional view of my improved water heater,

Figure 2 is a transverse sectional view on the line 2—2 of Figure 1, looking in the direction of the arrows,

Figure 3 is a top plan view of the device, the top cap for the casing of the device being removed, and

Figure 4 is a detail sectional view showing one of the terminals of the device.

In carrying the invention into effect, I employ a preferably cylindrical casing 10 upon the ends of which are threaded a bottom cap 11 and a top cap 12. Connected to the bottom cap is an inlet pipe 13 and leading from the top cap is a centrally disposed outlet pipe 14. Mounted upon the bottom cap is a pair of terminals each including a metal shell 15 threaded through the cap and removably fitting in said shell is an insulator 16 having an annular shoulder 17 confronting a similar shoulder within the shell. Threaded into the outer end of the shell is a nut 18 clamping the insulator in position and embedded in the insulator to extend therethrough is a conductor 19 projecting at its inner end into the casing while upon the outer end of said conductor is

threaded a binding nut 20 for connecting a circuit wire to the conductor. Resting at their lower ends upon the base cap is a plurality of insulating tubes extending longitudinally of the casing throughout the length thereof, being held in abutting relation by the casing. These tubes may be of any suitable insulating material and, for convenience, two of said tubes are indicated at 21 while the remaining tubes are indicated at 22. The tubes 21 are positioned at their lower ends over the projecting upper ends of the terminals of the device and appropriately connected to said conductors are leads 23 extending to the tops of said tubes. Connected at its ends to the upper ends of said leads is a resistance element 24 which is threaded back and forth through the tubes 22. At their ends, these tubes are, as brought out in Figure 1, provided with mating notches 25 accommodating the resistance element to extend from each tube to the next through said notches. Thus, as will be seen, the tubes will serve to insulate the reaches of the resistance element within the tubes with respect to each other and will support said element out of contact with the casing. At the same time, the cap 12 of the casing may be detached and the resistance element disconnected from the leads 23 when the tubes 22 may be removed for displacing the resistance element. Accordingly, said element may be readily renewed.

As will now be understood in view of the preceding description, water entering the casing 10 through the pipe 13 will, in passing through the casing and out the pipe 14, be caused to circulate over and around the resistance element so that said element will normally be immersed in the water to be heated. Heat losses will thus be reduced to a minimum while, at the same time, the resistance element will be maintained at a temperature well below fusing. I accordingly provide a particularly simple and efficient device for the purpose set forth and, as will now be seen, a water heater adapted for a wide range of use.

Having thus described the invention, what is claimed as new is:

1. In an electric water heater, a casing, a shell having threaded engagement with the wall of the casing, an insulator carried by the shell, a nut threaded upon the shell for securing the insulator thereon, a conductor

extending through said insulator into the casing, a resistance element within the casing connected to said conductor, and means supporting said element and insulating said element with respect to the casing.

2. In an electric water heater, the combination of a casing having removable top and bottom caps, a plurality of independent water conducting insulating tubes confined within the casing in parallel abutting relation resting at their lower ends upon said bottom cap and closed at said ends thereof by the bottom cap, the tubes cooperating to define a plurality of restricted water passages therebetween, a resistance element ex-

tending back and forth through the tubes and insulated thereby from the casing, the tubes being provided at their ends with mating notches accommodating said element to extend from each tube to the next successively, the notches at the lower ends of the tubes forming water inlets therefor, a water inlet pipe connected to the bottom cap to discharge into the casing at the lower end thereof, and a water outlet pipe connected to the top cap and leading from the casing at its upper end.

In testimony whereof I affix my signature.

JOHN G. PARKHURST. [L. s.]