H. A. BURNS.

ELECTRIC WATER HEATER.

APPLICATION FILED SEPT. 3, 1910.

981,244.

Patented Jan. 10, 1911.

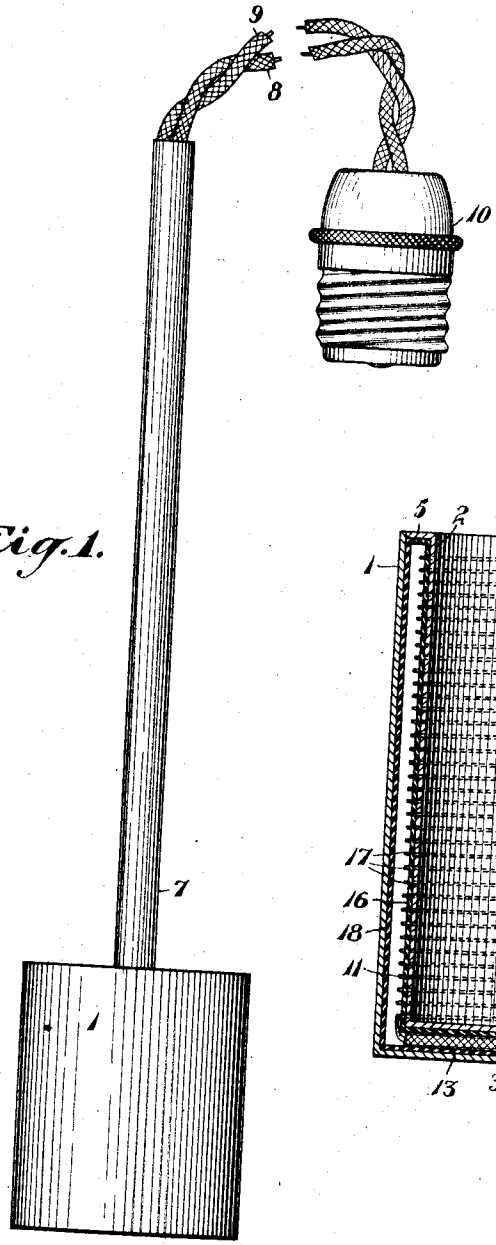

Fig. 1.

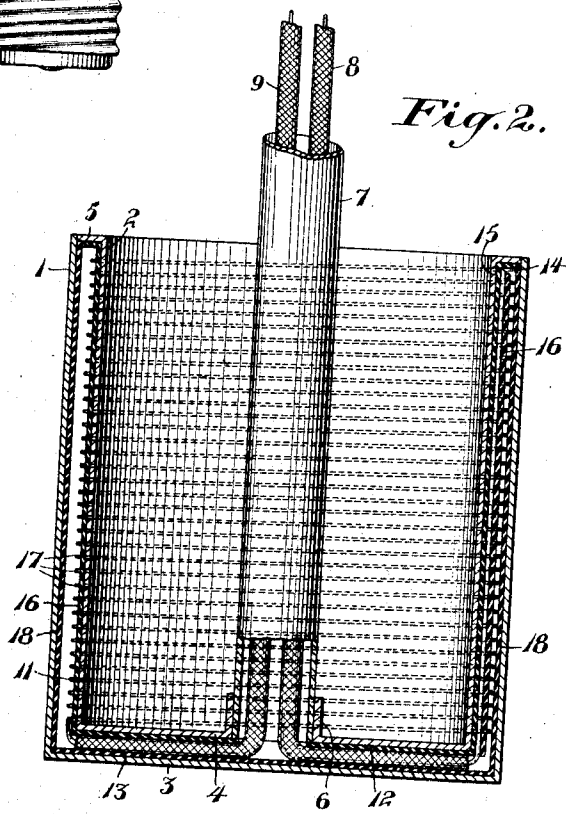

Fig. 2.

WITNESSES

F. C. Fliedner

A. J. Johnson

INVENTOR

Herbert A. Burns,

BY

F. M. Wright,

ATTORNEY

UNITED STATES PATENT OFFICE.

HERBERT A. BURNS, OF OAKLAND, CALIFORNIA, ASSIGNOR TO DIAMOND ELECTRIC WATER HEATER CO., OF SAN FRANCISCO, CALIFORNIA.

ELECTRIC WATER-HEATER.

981,244. Specification of Letters Patent. **Patented Jan. 10, 1911.**

Application filed September 3, 1910. Serial No. 580,317.

To all whom it may concern:

Be it known that I, HERBERT A. BURNS, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Electric Water-Heaters, of which the following is a specification.

The present invention relates to improvements in electric water heaters, one object of the invention being to provide a device of this kind which will be cheap and simple in construction, and effective in use. A drawback heretofore experienced in the use of electric water heaters is that, unless the electric current is turned off before the heater is removed from the water, the high resistance wire of the heater is immediately burned out.

A further object of the invention is to reduce the liability of this occurrence.

In the accompanying drawing, Figure 1 is a side view of my improved heater; Fig. 2 is an enlarged sectional vertical view thereof.

Referring to the drawing, 1 and 2 indicate outer and inner cylindrical shells or casings, which have bottoms 3 and 4 respectively. The inner casing is formed at the top with a flange 5, the outer edge of which is soldered to the upper edge of the casing. The bottom of the inner casing is formed with a centrally arranged vertical ring or flange 6, within which is inserted the lower end of a tube 7, said lower end being then soldered to said flange. Down said tube extend covered wires 8 and 9, leading from a lamp socket 10, the lower ends of said wires passing into the space between the bottoms of the two casings. To said covered wires are secured the ends of a high resistance wire 11. A circular sheet 12 of mica, apertured at the center, is interposed between the bottom 4 of the inner casing and said wires 8 and 9 and a sheet 13 is interposed between said wires and the bottom 3. From the wire 8, said high resistance wire 11 passes up by the side of the inner casing to the top thereof, as shown at 14, a narrow strip 15 of mica being interposed between said wire and inner casing. A sheet 16 of mica is then bent around said inner casing, and over said portion 14 of the wire, and then said high resistance wire is wound over said cylindrical casing 16 in a helical form, as shown at 17, the other end being connected at the bottom to the terminal of the other conducting wire 9. A sheet 18 of mica is interposed between said helical portion of the wire and the outer casing.

The device thus constructed is very convenient in use. To heat water in a vessel all that is necessary is to immerse the electric heater in the water and turn on the electric current. By reason of the comparatively large extent of heated and radiating surface, the water is quickly heated.

The construction is such as to reduce to a minimum the liability of the high resistance wire burning through on account of the current not being turned off before the heater is removed from the water. On account of the heater being cup-shaped it will, when withdrawn from the water being heated, contain a considerable quantity of water, unless it is tilted to discharge the water. This operation of tilting the heater reminds the user that the electric current must be turned off, especially as, when taken out of water and being tilted, the remaining water within the cup-shaped heater will boil very rapidly, and thus impress upon the user the necessity of throwing off the current.

I claim:—

An electric water heater comprising a cup-shaped member having inner and outer cylindrical casings, a coil of high resistance wire between said casings, suitable insulation therefor, a tube secured to the inner casing, and conducting wires extending within said tube and connected to said high resistance wire, substantially as described.

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

HERBERT A. BURNS.

Witnesses:

FRANCIS M. WRIGHT,

D. B. RICHARDS.