

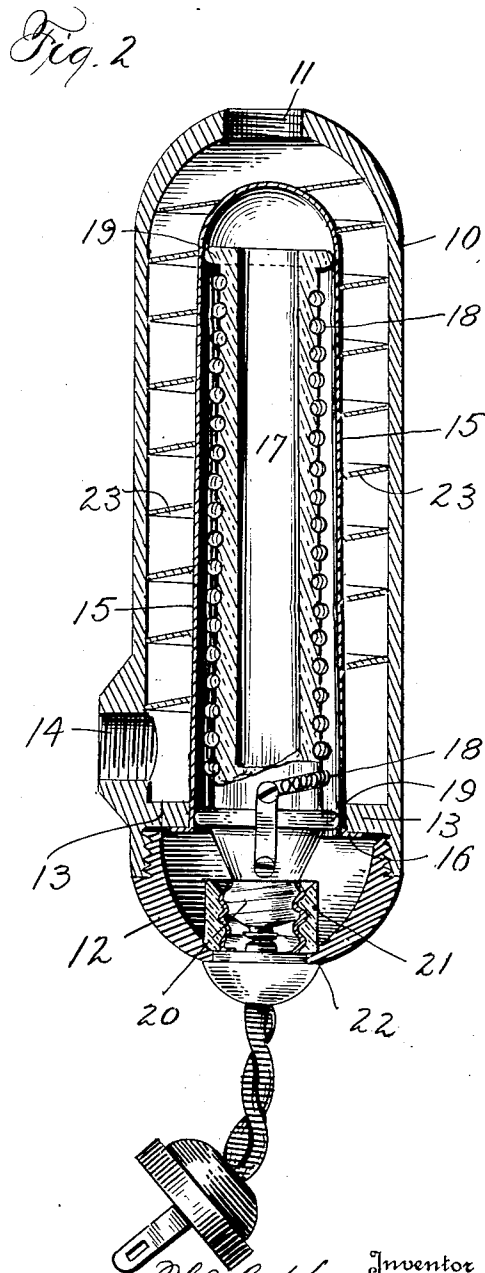
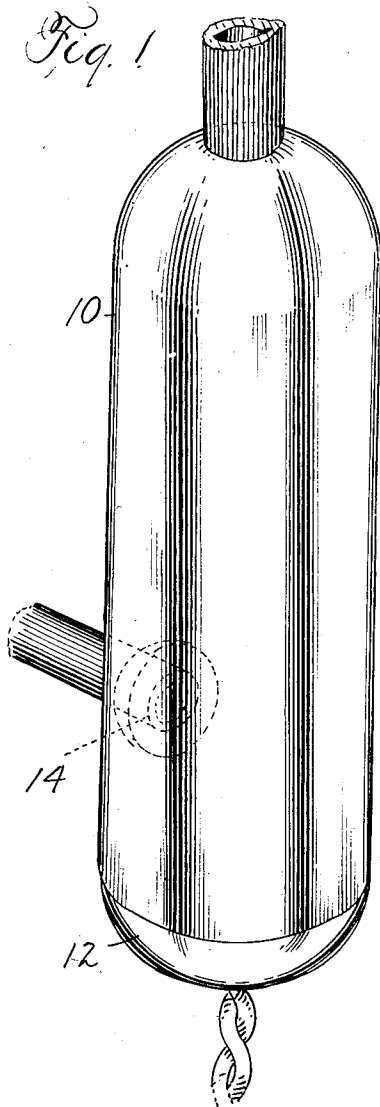
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ELECTRIC WATER HEATER

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ELECTRIC WATER HEATER.

Application filed March 14, 1927. Serial No. 175,219.

The object of my invention is to provide an electrical water heater for use in connection with boilers which will be of the utmost simplicity of construction, and therefore, of less cost of manufacture, and which to the end of reduction of cost of manufacture, and replacement of parts requiring to be replaced, will utilize electrical parts that are standard. My invention consists in whatever is described by or is included within the terms or scope of the appended claims.

In the drawings:

Fig. 1 is a view of the complete heater.

Figure 2 is a vertical section through a heater embodying my invention.

Briefly described, my heater comprises an external shell of hollow cylindrical or tubular form with threaded holes at top and bottom for the pipe connections with the boiler, an internal shell spaced from the interior of the outer shell to provide the water space, in which space is a spiral reaching from top to bottom which forms a tortuous or spiral passage for the water through the heater, an electrical heating unit within the inner shell, and a detachable closure at the bottom of the outer shell which has an electrical socket to which the heater unit is detachably connected.

Describing in detail what is shown in the drawings, the outer shell, 10, preferably of brass, is cast in one piece, its top being dome-shaped, and provided with a central threaded hole, 11, for the pipe connection, and its bottom being open and provided with internal screw thread for the detachable connection of the plug 12, and having just above the lower end an inwardly projecting annular flange, 13, which forms the bottom of the water space in which just above the flange opens a screw threaded opening, 14, for the attachment of the other pipe connection with the boiler, and to which flange is attached, as by electric welding, the inner shell, 15, preferably of copper, which is closed at the top, but open at the bottom, being in effect a tube closed at the upper end. The shell, 15, at the bottom has an outwardly turned flange, 16, which overlaps the margin of the flange, 13, and forms a part of the connection between the two. The space within the inner shell, 15, is to accommodate the heater unit, 17, which is of the type comprising a porcelain core or bar, with the resistance coil, 18, wound spirally about it

from top to bottom, this being of standard construction, and because the coil is on the exterior of the core, it is important to prevent its contact with the copper inner shell, 15, to avoid short circuiting, and to that end at top and bottom the porcelain bar has an annular enlargement or projection, 19, which contacts with the copper shell on the interior, and thus maintains a space between the shell and the resistance coil. The heater unit has at its lower end a plug, 20, which screws into a socket, 21, of standard two-part construction, which screw together and clamp the margins of a central hole, 22, in the bottom of the plug, 12. It will be seen that when a heater unit burns out or is otherwise unfit for use, it is a very simple matter merely by unscrewing the plug, 12, to withdraw the unit along with the plug and then the unit may be unscrewed from the socket and a fresh unit substituted.

Within the internal space between the inner and outer shell is a spiral, 23, of metal that winds from top to bottom of the space, and is of thin ribbon-like material, so that while serving the purpose of delaying the passage of water through the heater, it occupies a minimum of space, and such spiral is cast to the inner wall of the outer shell, 10.

It will be seen that disregarding the heater unit and the socket member, my device consists of but four parts, namely, the external shell, 10, the plug, 12, the inner shell, 15, and the spiral, 23. The exterior is smooth and free from external abrupt projections, so that it is not only light and attractive looking, but it is free from any external abrupt surface upon which dust or dirt can lodge that would be both unsightly and difficult to remove.

What I claim is:

1. An electrical water heater comprising an external shell with integral side and top walls, a removable plug closing the bottom, said shell having above the plug an integral inwardly projecting flange, an inner shell closed at the top and open at the bottom and joined to said flange at the bottom, and an electrical heater unit supported within the inner shell from said plug and removable and replaceable with the plug, said plug having an electrical socket connection with which said unit is detachably connected.

2. An electrical water heater comprising an external shell with integral side and top

walls, a removable plug closing the bottom, said shell having above the plug an integral inwardly projecting flange, an inner shell closed at the top and open at the bottom and joined to said flange at the bottom, an electrical heater unit supported within the inner shell from said plug and removable and replaceable with the plug, and a ribbon-like spiral attached to the interior of the outer shell and reaching therefrom to the exterior of the inner shell. 10

In testimony whereof I hereunto affix my signature.

HENRY H. KEETON.