E. D. JOHNSON & G. A. CATHEY.

ELECTRICAL HEATER.

APPLICATION FILED OCT. 15, 1914.

1,124,910. Patented Jan. 12, 1915.

Fig. 1.

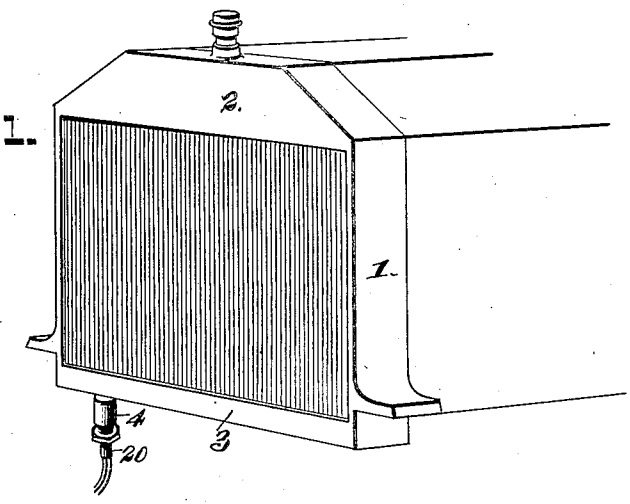
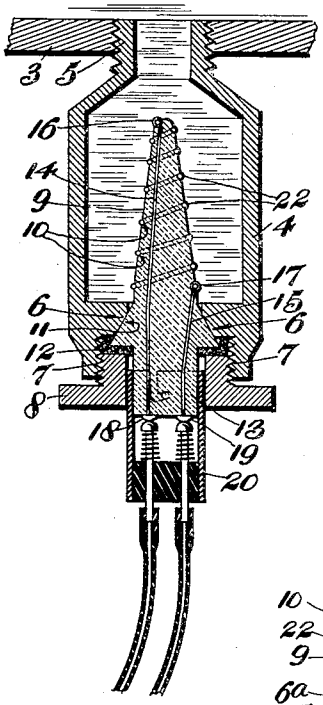


Fig. 2.



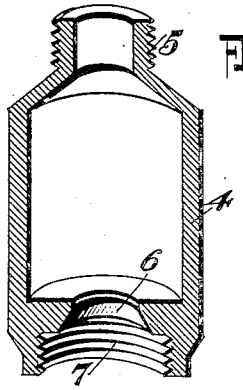


Fig. 3.

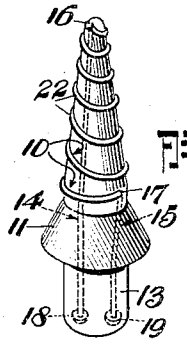


Fig. 4.

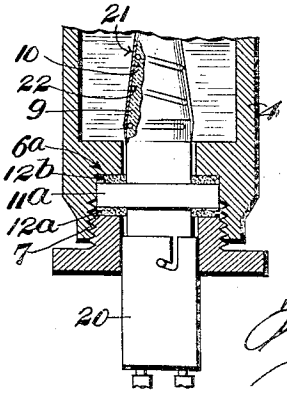


Fig. 5.

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UNITED STATES PATENT OFFICE.

ELZA D. JOHNSON AND GEORGE A. CATHEY, OF KLAMATH FALLS, OREGON.

ELECTRICAL HEATER.

1,124,910. Specification of Letters Patent. Patented Jan. 12, 1915.

Application filed October 15, 1914. Serial No. 866,857.

To all whom it may concern:

Be it known that we, ELZA D. JOHNSON and GEORGE A. CATHEY, residing at Klamath Falls, in the county of Klamath and State of Oregon, have invented certain new and useful Improvements in Electrical Heaters, of which the following is a specification.

The invention relates to certain new and useful improvements in electrical water heaters primarily designed and adapted for attachment to automobile radiators whereby the water in the radiator may be kept from freezing during cold weather, one of the primary objects of the invention being to provide a heater of a simple and inexpensive nature that can be operated from batteries or from current generators, as desired, whereby when an automobile is left standing, the operator may attach the circuit terminals to the heater and thereby maintain the temperature of the water above the freezing point.

In its more detailed nature, the invention includes those novel details of construction, combination and arrangement of parts, all of which will be first fully described, then be specifically pointed out in the appended claims, and illustrated in the accompanying drawing, in which:

Figure 1 is a perspective view of a radiator showing the invention attached. Fig. 2 is an enlarged vertical longitudinal section illustrating the invention. Fig. 3 is a section and part perspective view of the heater casing. Fig. 4 is a detail perspective view of the heating element and its support. Fig. 5 is a detail section and part elevation of a modification.

In the drawing, in which like numerals and letters of reference indicate like parts in all of the figures, 1 designates the radiator which may be of the usual construction and is usually provided with an upper reservoir 2 and a lower reservoir 3.

Our improved heater is designed to be applied, preferably to the lower reservoir 3, and to that end, the invention includes a casing 4 serving as a water receptacle and having its upper end reduced and threaded as at 5 to be tapped into the radiator reservoir wall. The casing 4 is provided with a web having a seat 6 that is coned to be engaged by the conical flange 11 of the porcelain or other suitable resistance element carrier 9. Below the web, the casing 4 is threaded as at 7 to receive the nut 8 which holds the porcelain 9 in place; a suitable gasket 12 may be employed, if desired, to insure against leakage and against the breakage of the porcelain by the pressure of the nut.

The porcelain 9 is preferably of conical form and has a spiral groove 10 extending from the top to a place adjacent to the conical flange 11 and in this groove the resistance element 22 is located. The porcelain 9 has an extension 13 that extends through an opening in the nut 8 and the porcelain 9 is provided with connections 14—15 that are molded in the same and are joined to the ends of the resistance element 22, as at 16—17, respectively. The connections 14—15 may terminate in contact buttons 18—19, to coöperate with the contacts of the connector 20, the latter being of the usual type. If desired, the resistance element 22 may be covered by a suitable water resisting composition 21 that will not fuse under the temperatures usually employed so as to protect the resistance element against electrolytic action, although we do not consider that such protecting coating is an indispensable feature.

Instead of making seat 6 and flange 11 of conical form, the seat 6^a may be a plane surface as also the flange 11^a, as shown in Fig. 5, and when this form is used, we may employ a plurality of gaskets 12^a—12^b to insure a fluid-tight joint.

From the foregoing description taken in connection with the accompanying drawing, the complete construction, operation and advantages of our invention will be readily apparent to those skilled in the art to which it appertains.

What we claim is:

1. In a heater, a casing inclosing a water chamber, one end of said casing being externally threaded for purposes of attachment, said casing having an internal flange near its other end and threaded at said other end, a resistance element carrying body, said flange having a seat and said body having a flange to engage said seat, a nut threaded into engagement with said casing to hold said resistance element carrying body in place, means for effecting a water-tight joint, connecting wires located in said resistance element carrying body, and a resistance element wound on said body and connected to said wires.

2. In a heater, a casing inclosing a water chamber, one end of said casing being externally threaded for purpose of attachment, said casing having an internal flange near its other end and threaded at said other end, a resistance element carrying body, said flange having a seat and said body having a flange to engage said seat, a nut threaded into engagement with said casing to hold said resistance element carrying body in place, means for effecting a watertight joint, connecting wires located in said resistance element carrying body, a resistance element wound on said body and connected to said wires, said resistance element carrying body including a projection, said nut having a passage for said projection, said connecting wires terminating in contact buttons at the end of said projection, said projection adapted to receive a connector.

E. D. JOHNSON.
GEORGE A. CATHEY.

Witnesses:
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