L. F. PARKHURST.

ELECTRIC HEATER.

APPLICATION FILED APR. 26, 1909.

1,046,103. Patented Dec. 3, 1912.

Fig. 1.

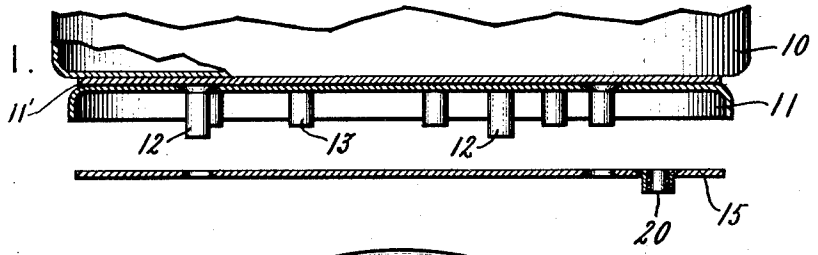


Fig. 2.

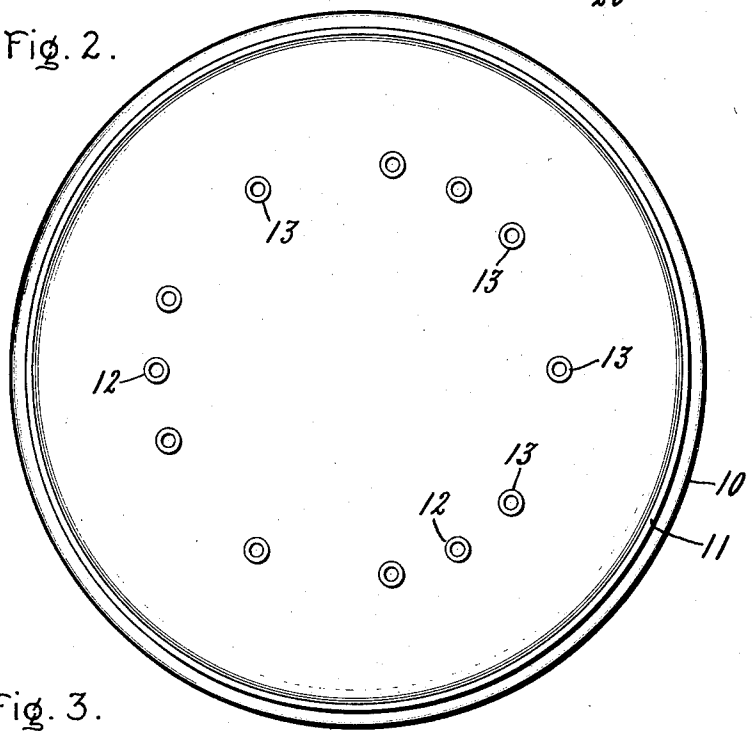
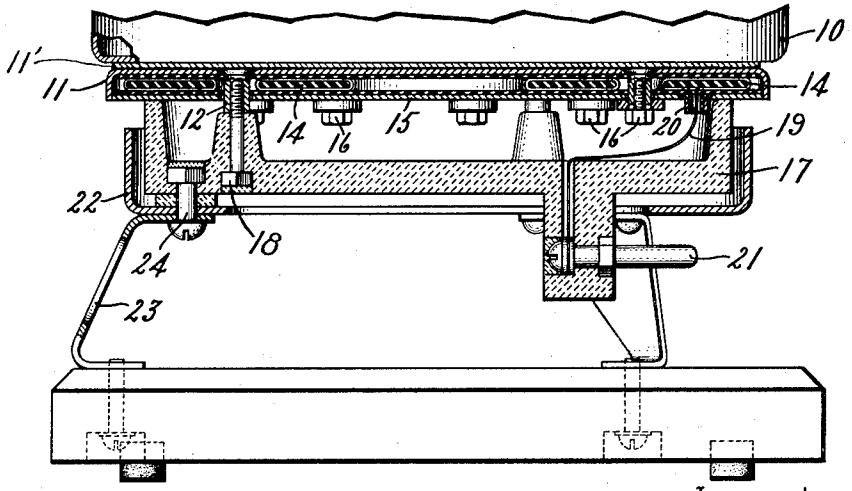


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

LEON F. PARKHURST, OF PITTSFIELD, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

ELECTRIC HEATER.

1,046,103. Specification of Letters Patent. Patented Dec. 3, 1912.

Application filed April 26, 1909. Serial No. 492,411.

To all whom it may concern:

Be it known that I, LEON F. PARKHURST, a citizen of the United States, residing at Pittsfield, in the county of Berkshire, State of Massachusetts, have invented certain new and useful Improvements in Electric Heaters, of which the following is a specification.

This invention relates to electric heaters and has for its object the provision of means whereby an electric heating unit may be secured to the body to be heated in a reliable and efficient manner.

One of the objects of my invention is to produce an electrically heated fluid receptacle in which the heating unit is secured to the bottom in such a manner that the heat joint between the unit and the bottom of the heater will be unaffected by expansion and contraction of the metal.

In carrying out my invention, I provide a reinforcing member which is secured to the bottom of the receptacle without perforating the bottom. This I do by brazing or hard soldering the parts together in the manner hereinafter referred to. The plate or member is cup-shaped and provided with lugs which project into the cupped portion, the face of the member which engages the bottom of the receptacle being perfectly flat. A resistance conductor is inserted in this cupped member and a cover is provided for the resistance. Lugs from the reinforcing member project through the cover plate so as to afford means for securing the cover in place.

My invention will be more clearly understood by referring to the accompanying drawing in which—

Figure 1 is a partial vertical section of a receptacle equipped with my invention showing the reinforcing member and the cover plate before the latter is secured in position; Fig. 2 is a bottom plan view of the reinforcing member; Fig. 3 is a partial vertical section of the device in its completed form.

In the aforesaid drawing, 10 represents the body to be heated, which in this case is a fluid receptacle of any suitable design and material. Secured to the bottom of this receptacle is a reinforcing member 11, which I have shown as cup-shaped. This is secured to the bottom of the receptacle without perforating the bottom. This may be done by adhesive metal 11′ which will unite the member to the bottom by a hard soldering or brazing process. This process may consist of simply heating the bottom of the receptacle and the member until they are united over their entire surface by the adhesive metal. This plate is provided with lugs 12 which project downward from the reinforcing member, the heads of the lugs being countersunk in the plate. Lugs 13 are also provided for securing the cover plate which are shorter than the lugs 12. A resistance 14 is mounted in the member 11 to form a ring but the particular arrangement of the resistance conductor forms no part of my invention. The resistance conductor is held in place and pressed into intimate thermal relation with the bottom of the receptacle by cover plate 15. This plate is perforated to receive the lugs 12 and 13 and the lugs 13 are provided with studs 16. The lugs 12 project through the cover plate for the purpose of securing an insulating ring 17 to the bottom of the cover plate. This is done by passing bolts 18 through the ring and tapping them into the lugs 12. The leads 19 of the resistance conductor project out through perforations 20 on the cover plate and connect with terminal pins 21, as shown. A ring 22 having a flanged portion bent upward around the insulating ring is secured to the bottom of the ring. The legs 23 are secured to the insulating ring and to the bottom ring by bolts 24. It will be seen that by this arrangement, an efficient structure is obtained in a very simple manner. The bottom is reinforced and the unit connected directly to the reinforced bottom in good thermal relation therewith, without perforating the bottom of the receptacle, and as the brazing material will not melt at any temperature of service, a cheap structure which will not buckle is provided, and which will maintain a good thermal relation between the liquid receptacle and the heater at all times.

While I have described my invention as embodied in concrete structure in accordance with the patent statutes, it should be understood that I do not limit my invention thereto, since various modifications of the same will suggest themselves to those skilled

in the art without departing from the spirit of my invention, the scope of which is set forth in the annexed claims.

What I claim as new and desire to secure by Letters Patent of the United States, is—

1. An electric heater comprising a fluid receptacle, a cup-shaped reinforcing member secured to the bottom of the receptacle, a resistance conductor within said member, a cover plate and lugs projecting from the reinforcing plate toward the cover plate.

2. An electric heater comprising a fluid receptacle, a cup-shaped reinforcing member secured to the bottom of the receptacle over the entire surface by an adhering metal, a resistance conductor within said member, a cover plate arranged to enter the reinforcing member and lugs projecting from the reinforcing plate toward the cover.

3. An electric heater comprising a fluid receptacle, a cup-shaped reinforcing member secured to the bottom of the receptacle, a resistance conductor within said reinforcing member, a cover for said resistance, lugs projecting from the reinforcing plate toward the cover.

4. An electric heater comprising a fluid receptacle, a cup-shaped reinforcing member secured to the bottom of the receptacle, a resistance conductor within said member, a cover plate arranged to enter the reinforcing member and lugs projecting from the reinforcing member through the cover plate.

5. An electric heater comprising a fluid receptacle, a cup-shaped reinforcing member secured to the bottom of the receptacle over its whole surface by an adhering metal of high fusing point, a resistance conductor within said member, a cover plate arranged to enter the reinforcing member, and lugs projecting from the reinforcing plate through the cover plate.

6. An electric heater comprising a fluid receptacle, a cup-shaped reinforcing member secured to the bottom of the receptacle over a large surface by an adhering metal of high fusing point, a resistance conductor within said member, a cover plate arranged to enter the reinforcing member, lugs projecting from the reinforcing member through the cover plate and a block of insulating material secured to said lugs.

7. An electric heater comprising a fluid receptacle, a cup-shaped reinforcing member secured to the bottom of the receptacle by an adhering metal of high fusing point, a resistance conductor within said reinforcing member, a cover for said resistance, lugs projecting from the reinforcing member through the cover and a block of insulating material secured to the lugs and in engagement with the cover.

In witness whereof, I have hereunto set my hand this thirty-first day of March, 1909.

LEON F. PARKHURST.

Witnesses:
HARRY G. WEEKS,
W. H. LOCKWOOD.