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C. PANDOLFO

ELECTRIC HEATER

Filed Nov. 3. 1926

Fig. 1.

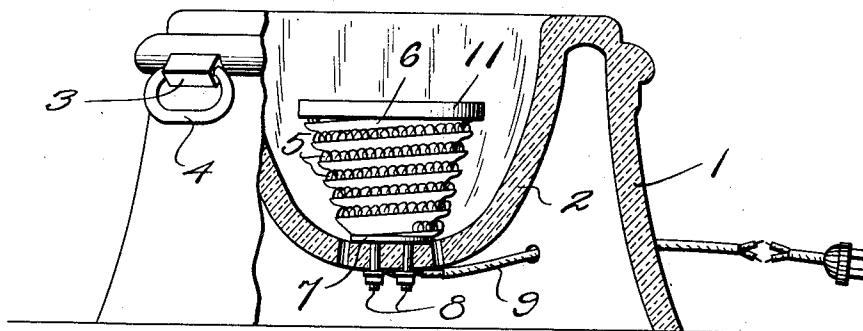
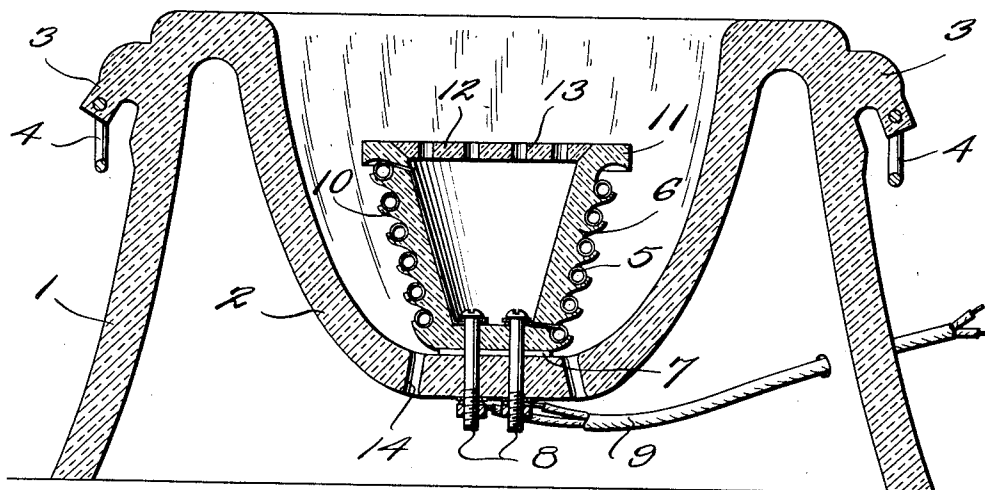


Fig. 2.



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ELECTRIC HEATER.

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This invention relates to certain improvements in electric heaters and essentially has for its object a parabolic heater with an electric heat source arranged at the focus of the said reflector.

Another object of the invention is to form the heater entirely of an electric non-conducting material, with the exception of the electric resistance.

A further object of the invention is to provide an electric heater wherein the electric resistance is entirely and completely protected from contact with any cooking utensils or similar objects which may have been placed thereon.

The heater which forms the subject of this invention essentially consists of a parabolic reflector, made of an electrically non-conducting and heat resisting material. The parabolic part of the heater is provided with a coating or enamel of oxide of lead or of silver nitrate to give the same a reflector or mirror-like surface.

The electric resistance is arranged around a truncated cone placed at the focus of the reflector, with its larger base directed upwardly.

The truncated cone is heated to a red heat by the resistance and its heat is radiated against the mirror which reflects the same in an upward direction.

The reflector and the cone are preferably constructed of a mixture of ordinary and refractory earth in equal parts for the reflector, and the same mixture is used for the truncated cone, with an addition of ordinary black earth powder in equal parts also.

The bodies molded with this material are subjected, in a suitable furnace, to a temperature of 800° C., whereby a suitable degree of hardness and mechanical strength will be imparted thereto.

This material offers the advantage of being solid, and of low cost (owing to its several components being readily obtainable). It is electrically non-conducting and resists shocks or jars as well as the changes of temperature caused by the spilling of cold liquids thereon and, above all, it has the property of radiating almost exclusively red rays when brought to a condition of incandescence; owing to the heat produced by the electric resistance arranged around the truncated cone, being reflected by the oxide of lead coating of the mirror placed in the parabolic part of the heater. Owing to this

latter circumstance, a considerable saving of electric energy is obtained, since this energy is almost entirely transformed into heat rays, that is, red rays.

The reflector is conveniently constructed of such a shape that it will also serve as the main body part or support, of the heater. If desired, it may be provided with handles or ears for conveying purposes.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing my invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is an elevation, with parts broken away, of the invention.

Figure 2 is an enlarged vertical sectional view through the invention.

The main body part 1 of the apparatus which constitutes its support and the mirror, is preferably made of the particular earth, formed in accordance with the formula above set forth, but the same may also be constructed of any other suitable earth or other known product.

The body part is formed at its center with the parabolic part 2, the inner surface of which is coated to form a mirror and the mouth of which extends in an upward direction. The surface of the mirror is formed of an enamel of oxide of lead or is provided with a coating of silver nitrate or other suitable material adapted to constitute a reflecting surface withstanding a high temperature.

Two ears 3 are formed on the part 1, which hold handles 4 for conveying purposes.

The resistance 5 or wire having a high degree of electric resistance (nichrome or other suitable metal) is wound, after the manner of a spring, around a truncated cone 6 constructed of the same earth as the main body part, with the addition of a part of ordinary black earth powder. The said truncated cone is placed at the center of the mirror, with its smaller base bearing on the bottom of the same. Between the cone and the said bottom a washer 7 of asbestos is interposed, the parts being secured together

by means of two screws 8 with their corresponding nuts; said screws form at the same time the terminals of the electric leads 9 and of the ends of the resistance.

5 The said resistance is arranged within a helicoidal groove 10 formed on the outer surface of the truncated cone. The upper larger base of the cone is provided with a flange 11.

10 The truncated cone is formed with a hollow space inside and its top is provided with a removable cover 12 having the holes 13 therein to allow the circulation of the air. Finally, at the bottom of the mirror are provided the orifices 14 for the discharge of
15 any liquid that may have fallen into the apparatus.

The operation of the apparatus is as follows:—

20 The heat generated in the resistance raises the temperature of the truncated cone to a condition of incandescence, emitting heat that is reflected by the mirror in an upward direction in the form of red rays, owing to
25 the characteristics of the oxide of lead enamel. Thus an object placed on the top part of the device will be heated.

The heat not used is practically nil, as owing to the reflecting surface of the mirror,
30 the rays are directed toward the opening and the body part is kept comparatively cool.

It will also be understood that there is no danger of one coming into contact with the
35 current, as besides the resistance, there are no metallic or conducting parts in the apparatus. The pan or other object placed on the heater can in no way come into contact with the resistance, so that no short
40 circuits nor deterioration of the apparatus may take place as regards the resistance, thus avoiding all death dealing accidents by electrocution. The material which forms
45 the cone will not crack or become moistened and the liquid which falls into the mirror will simply be discharged by the orifices at the bottom, without deteriorating the resistance.

What I claim is:—

50 1. An electric heater of the class described comprising a body having a substantially

cylindrical outer part and a bowl-shaped inner part, the two parts being formed integral and of non-conducting material, an inverted truncated cone in the bowl-shaped
55 part and fastened to the bottom of the same, said cone being of hollow construction and formed of non-conducting material, a heating coil connected with the exterior of the cone and a flange at the upper end of the
60 cone for protecting the coil from material dropping into the bowl-shaped part of the body.

2. An electric heater of the class described comprising a body having a substantially
65 cylindrical outer part and a bowl-shaped inner part, the two parts being formed integral and of non-conducting material, an inverted truncated cone in the bowl-shaped part and fastened to the bottom of the same,
70 said cone being of hollow construction and formed of non-conducting material, a heating coil connected with the exterior of the cone, a flange at the upper end of the cone
75 for protecting the coil from material dropping into the bowl-shaped part of the body, said cone having grooves therein for receiving the convolutions of the coil and a perforated removable cover for the upper end
80 of the cone.

3. An electric heater of the class described comprising a body having a substantially
85 cylindrical outer part and a bowl-shaped inner part, the two parts being formed integral and of non-conducting material, an inverted truncated cone in the bowl-shaped part and fastened to the bottom of the same,
90 said cone being of hollow construction and formed of non-conducting material, a heating coil connected with the exterior of the cone, a flange at the upper end of the cone
95 for protecting the coil from material dropping into the bowl-shaped part of the body, said cone having grooves therein for receiving the convolutions of the coil, a perforated removable cover for the upper end of the cone, the interior surface of the bowl-shaped part having a coating thereon which makes
100 said surface a reflecting one and one refractory to heat and developing red rays.

In testimony whereof I affix my signature.

CARMELO PANDOLFO.