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BOTTLE WARMER FOR AUTOMOBILES

Filed Aug. 2, 1945

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This invention relates to electric bottle warmers, and more particularly to a device of this kind for use in an automobile. It very often occurs that when people are travelling with children it is necessary to warm the children's food, and it is contemplated by the present invention to provide a bottle warmer which may be readily attached to some part of the car, such, for example, as the door of the glove compartment or the steering post, which device may be electrically operated from the usual low-voltage current delivered by the automobile battery.

In the present instance, I have illustrated a bottle warmer provided with a heat element designed to be immersed in water in the receptacle of the warmer, and to heat this water to the boiling point so that the bottle itself, when positioned in the receptacle, may be heated by the hot water and steam issuing therefrom. The receptacle of the warmer is provided with a pair of projecting contact pins which are adapted to be received in the sockets of a plug so constructed that it may be readily secured to the door of the glove compartment.

The contact pins are so situated relatively to the receptacle that the lower surface of the plug and the bottom of the receptacle are substantially on the same level, so that when the door of the glove compartment is open and the contact pins on the receptacle inserted into the plug, the receptacle will rest upon the door and be held in place by the engagement of the pins with the contacts in the plug. This connection, therefore, serves the double purpose of making the electrical connection with the heat element and holding the receptacle in place.

If desirable, a separate clamping device may be provided upon the plug, which will also clamp the receptacle and hold it in place if the engagement of the contact pins by the plug is not sufficient for this purpose. Also, in the case of cars which have no glove compartment, a clamp may be provided for clamping the receptacle upon the steering post or the like.

I have found it very desirable in a device of this kind to employ a heating element which will be immersed in the water in the receptacle, and not use this water, as is sometimes done, to make electrical contact between two electrical terminals. With the disclosed apparatus I find that it is possible to use a very small amount of water, and that the current from the automobile battery is sufficient to heat this water to the boiling point so that the bottle containing the milk or other food may be efficiently warmed.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is an elevational view of a bottle-warming device embodying my invention, the receptacle and parts therein being shown in section; Fig. 2 is a top plan view of the device; Fig. 3 is a top plan view of the bottle-supporting means within the receptacle; Fig. 4 is a sectional view on line 4—4 of Fig. 3; Fig. 5 is an elevational view of a bottle warmer showing a modified form of my invention; and Fig. 6 is a top plan view of the plug used in the construction shown in Fig. 5.

To illustrate a preferred form of my invention, I have shown a bottle warmer comprising a receptacle having a cover 11, the receptacle and cover being formed of plastic or ceramic material such that it will readily withstand the heat necessary to warm the bottle of food designed to be placed within the receptacle. At the lower portion of the receptacle is provided a flattened wall portion 12 in which are mounted contact pins 13. These pins project from the receptacle, as shown, but pass through the walls thereof to terminate in binding posts 14 disposed interiorly of the receptacle.

Connected to the binding posts are the ends of a heat element 15, which, as illustrated, consists of a circular coil of wire disposed adjacent the bottom of the receptacle and extending peripherally about the interior thereof adjacent the side walls. As has been already inferred, the receptacle is adapted to contain a certain amount, preferably a small quantity, of water, in which this heat element is immersed, and which will receive sufficient heat from the heat element to raise the water to the boiling point.

Means are provided in the receptacle to support a bottle or the like, the contents of which are to be heated. This means comprises a base member 16 which may be of refractory material, and which base member, as shown in Fig. 1, is disposed within the circular heat element 15. Upon the member 16 is supported a disk 17 which may conveniently be formed of sheet metal, this disk containing openings 18, as shown, to permit the passage therethrough of water or steam. The peripheral edge of the disk 17 extends closely against the wall of the receptacle, so that, if after using the device a small amount of water remains therein, this disk will prevent spilling of the water if the receptacle is tipped, due to the fact that the openings 18 are spaced a slight distance from the edge of the disk. It may also be noted that the base 16 rests on the bottom of the re-
ceptacle and occupies a substantial amount of space in the lower part of the receptacle, so that, while the quantity of water employed is small, it will extend a considerable distance up the wall of the bottle of food, which also will take up considerable space within the receptacle.

A switch plug 13 is provided with sockets to receive the contact pins 13, which sockets will, in the usual form, have contact members to make electrical contact with the pins 13, and these contacts will be connected by the wires 20 with the automobile battery in a desired manner. This plug may be provided with a switch lever 21, so that the current may be turned on or off even while the contact pins 13 are engaged with the plug.

It will be noted that the lower surface of the plug is substantially on the same level with the bottom of the receptacle 10, and means are provided for securing the plug to the inner surface of the glove compartment of an automobile, for example, so that the receptacle when connected to the plug, as shown in Fig. 1, may also rest upon the surface of this door.

For this purpose I have secured to the plug 19 a pair of strap-like elements 22 and 23, these members being provided with perforations 24. These members may be pivotally secured to the plug by extending through these perforations the usual screws 25 normally provided in a plug of this character to hold the two halves of the plug together. It will be noted that the fastening element 22 is longer than the fastening element 23, and that, when the screws 25 are passed through the perforations 24, these elements are pivotally connected to the plug so that they may be moved angularly about their pivots to adjusted positions. It will be found that there are certain devices on the doors of glove compartments of automobiles which are secured by screws, and that the plug 19 may be conveniently secured in place by making use of these screws and passing them through the perforations 24. By having the members 22 and 23 pivotally secured to the plug, and by having a number of perforations in each of these members, it will always be possible to adjust the members 22 and 23 so that these screws may be accommodated in some of the openings 24, regardless of the position of the screws. It may also be noted that, while I have shown the screws 26 as engaged in the end perforations of the elements 22 and 23, they may be engaged in any of the other perforations 24, so that the members 22 and 23 are not only adjustable angularly with relation to the plug, but also may be adjusted in the direction of their lengths, if this is necessary to accommodate the existing screws found upon the door of the glove compartment of the particular car in which the device is being used.

As shown in Figs. 1 and 2, a clamping ring 27 may be secured by a screw or the like 27 to the upper portion of the receptacle, so that the receptacle may be secured to the steering post or some other part of the car if the car is not provided with a glove compartment. This clamping ring may be provided with the usual separable ends 23 and 22, secured together by the screw 27 in the usual way, so that it may embrace the steering rod and be tightened in place.

In Figs. 5 and 6 of the drawing I have shown a slight modification of my invention, in which a plug-clamp 31 is secured to the socket 19 by an L-shaped bracket 32 secured upon the upper end of one of the screws 25. This clamp may or may not be used, but if used will cooperate with the engagement of the contact pins 13 to hold the receptacle 10 in place and engaged with the plug 19. It will be understood that the clamp 31 extends only part way about the receptacle 10, and that the two arms of the clamp are resilient so that the receptacle may be sprung into place between them.

By providing the flattened portion 12 upon the receptacle, the contact pins 13 may be readily secured in the wall thereof, and extend outwardly in parallel relation so that they may be received in the ordinary commercial form of plug. They may be sealed in place with a fireproof solder or the like, so as to withstand heat and at the same time be water tight.

While I have shown and described some preferred embodiments of my invention, it will be understood that it is not to be limited to all of the details shown, but is capable of modification and variation within the spirit of the invention and within the scope of the claims.

What I claim is:
1. An electric bottle warmer comprising a receptacle, a heat element therein, contact pins connected to said element and projecting from the receptacle, a plug having sockets to snugly receive said contact pins, said sockets being located adjacent the lower portion of the receptacle whereby the bottom of the plug when attached to the receptacle is on substantially the same level as the bottom of the receptacle, and fastening members secured to the lower side of the plug and adapted to be secured to a support, said members being pivotally secured to the plug and being of different lengths, and each having a plurality of perforations therein.
2. An electric bottle warmer comprising a receptacle, a heat element therein of circular shape, contact pins connected to said element and projecting from the receptacle, a plug having sockets to snugly receive said pins, a member adjustably secured to said plug and adapted to be secured to a support, and supporting means within the receptacle, said means comprising a base resting on the bottom of the receptacle within the heat element and a perforated disk on said base of substantially the same diameter as the interior of the receptacle.
3. An electric bottle warmer comprising a receptacle, a heat element therein of circular shape, contact pins connected to said element and projecting from the receptacle, a plug having sockets to snugly receive said pins, a member adjustably secured to said plug and adapted to be secured to a support, and supporting means within the receptacle, said means comprising a base resting on the bottom of the receptacle within the heat element and a perforated disk on said base of substantially the same diameter as the interior of the receptacle, and said heat element surrounding the base below said disk.

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