

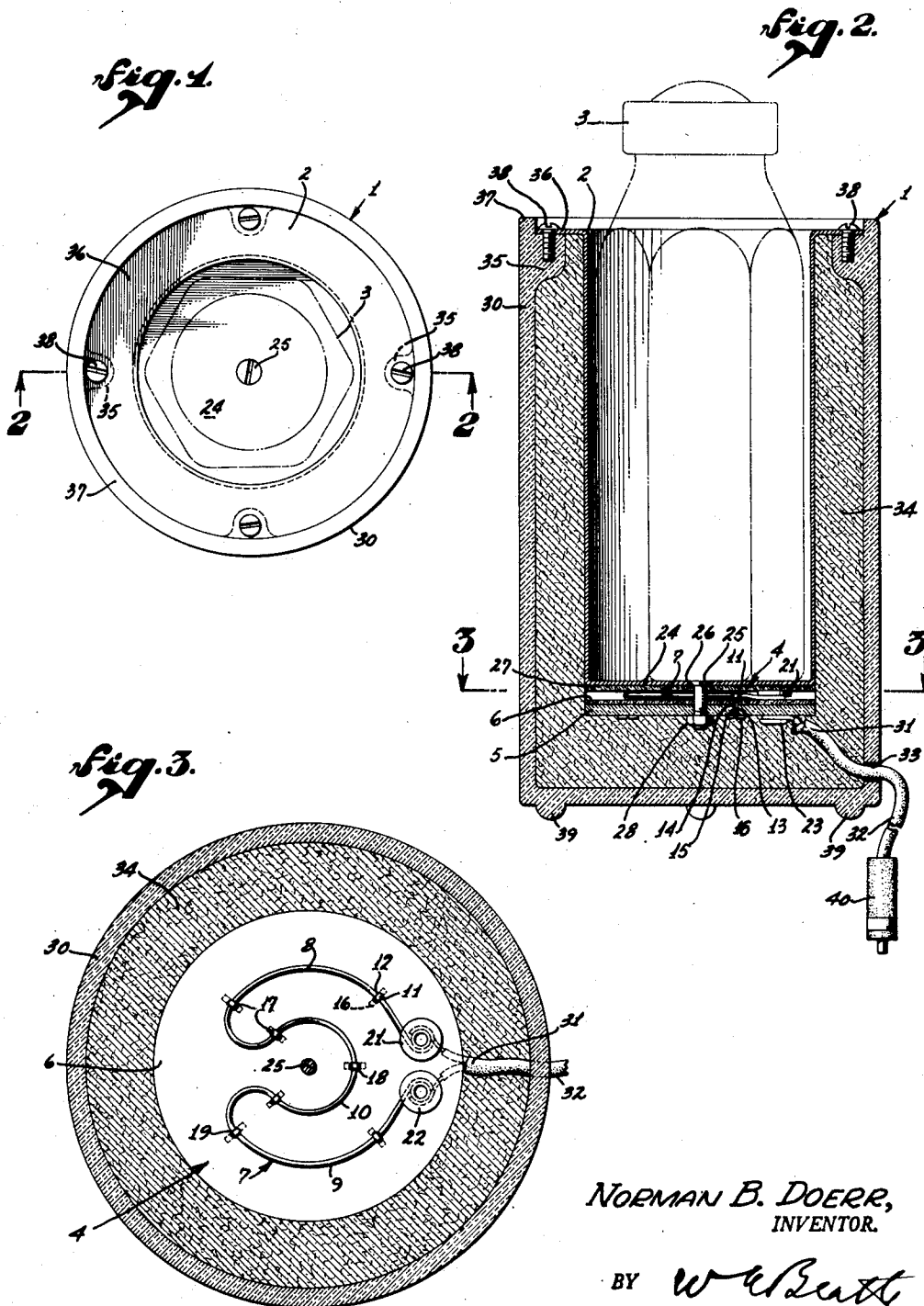
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BOTTLE HEATER

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BOTTLE HEATER

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1 Claim. (Cl. 219-43)

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The invention relates to a bottle heater and more particularly to a heater which is adapted to heat a nursing bottle without the use of water, and wherein the heater is an electrical heater which can be operated on a low voltage such as six volts so that it can be operated by the cigar lighter socket in an automobile.

In co-pending application S. N. 713 368, filed November 30, 1946, for "Baby Supply Cabinet," I have disclosed and claimed a cabinet which comprises a combined refrigerator, storage cabinet, and heater wherein the heater is similar to that described above. The present case is directed to the heater itself and more particularly to improvements in the heater disclosed in the co-pending case.

An object of the invention is to provide a bottle heater requiring no water and suitable for operation by a low voltage source such as a cigar lighter socket in an automobile.

A further object of the invention is to simplify the manufacture of such heater and to increase the heating efficiency.

For further details of the invention, reference may be made to the drawings wherein

Fig. 1 is a top plan view of the bottle heater according to the present invention.

Fig. 2 is a vertical sectional view on line 2-2 of Fig. 1 looking in the direction of the arrows.

In Figs. 1 and 2 the bottle is shown in dot-dash lines.

Fig. 3 is a sectional view on line 3-3 of Fig. 2 looking in the direction of the arrows.

Referring in detail to the drawings, the bottle heater 1 comprises a metal can 2 which is cylindrical and as long as the major length of the bottle 3 whereby the neck of the bottle protrudes enough so that the bottle can be grasped to remove it from the can 2. It is not possible to grasp the sides of the bottle when it is in the can 2 because the can 2 is only slightly larger than the bottle, in order to efficiently heat the bottle by the can 2, by radiation and conduction, without the use of water in the can 2.

The can 2 is heated by an electrical heater 4 having a base 5 of rigid insulating material such as an asbestos composition known as Transite. The base 5 is a disk of the same diameter as the can 2. It is common to wet Transite when tooling it to shape and it smolders when it is heated. To prevent this, on top of the base 5 is arranged a sheet 6 of mica and on top of sheet 6 is a heater wire 7 suitable for connection to a six-volt supply such as a cigar lighter socket of an automobile. Wire 7 is arranged in a plane along the top of the

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base 5 and it extends for part of a circle as indicated at 8 and 9 and then re-enters in a smaller circle as indicated at 10. The wire 7 and sheet 6 are held in position on base 5 by U-shaped rivets like 11 which, in fact, may be small cotter pins. The wire 7 is embraced by the bight 12 of each cotter pin and the legs 13 of each cotter pin extend through aligned apertures 14 and 15 under the wire 7 and through the mica sheet 6 and the base 5. The ends of the rivets are bent over the bottom of base 5 as indicated at 16. The rivets like 11 are spaced throughout the length of the wire 7, others being similarly indicated at 17, 18, 19 and elsewhere.

The ends of the heater wire 7 have terminals 21, 22 which extend through the base 5 and mica sheet 6 as indicated at 23. The heater 4 thus described in a complete unit and it is held in operative relation to the bottom 24 of the can 2 by means of a bolt 25 which passes through a central aperture 26 in the bottom 24 and through a central aperture in an upper mica sheet 27 and through the center of the sheet 6 and base 5. The mica sheet 27 extends over the heater wire 7 at the top of heater 4 and prevents bottom 24 from short circuiting the heater wire 7. The base 5 and sheets 6 and 27 are disks of the same diameter as can 2.

The heater wire 7 with its upper mica sheet 27 is pressed or clamped against the can bottom 24 by the bolt 25 which has a nut 28 below the base 5. The heater wire 7 and its outer sheets 6 and 27 are thus pressed or clamped between base 5 and the can bottom 24. The heater wire 7 is thus in a position to efficiently heat the bottom 24 of the can, the side wall of the can being heated by conduction from the heated bottom 24. Radiation of heat in a downward direction from the wire 7 is reduced as the base 5 is a heat insulator as well as an electrical insulator. A further advantage of this arrangement is that it simplifies the manufacture of the device for the reason that the heater unit 4 with its base 5, sheet 6, heater wire 7 and terminals 21 and 22 can be made up in one unit which is readily assembled on the bottom 24 by placing the upper mica sheet 27 on the heater wire 7 and by passing the bolt 25 through the bottom 24 and the base 5, and clamping it in position with the nut 28. This is done at a time when the can 2 is outside of the outer casing 30. Then the inner end 31 of the electrical cord 32 is passed inwardly through the hole 33 at the lower end of the side of casing 30 and out the top of casing 30 to a position where the cord 31 can be connected to the terminals

21 and 22. Then insulation such as glass wool 34 is packed around the side of the can 2 and around the side and under the heater 4 and the can thus covered is pushed into the casing 30, as shown in Fig. 2.

Casing 30 is cylindrical and may be made of plastic or other suitable material. Casing 30 at its upper end has a series of lugs, four being shown and one of them indicated at 35. The top of can 2 has a circular flange 35 which fits inside the casing wall 37, and flange 36 is held on the lugs 35 by screws such as 38. The can 2 and its heater 4 form a unit which is suspended in the casing 30. The glass wool 34 is compressible and the lugs 35 do not materially interfere with inserting the can 2 and its associated parts and the glass wool 34 into position in the casing 30.

The casing 30 is preferably an integral one piece member and it may have integral feet as indicated at 39.

The cord 32 has a plug 40 which may be plugged into the cigar lighter of a car.

Various modifications may be made in the invention without departing from the spirit of the following claim.

I claim:

A bottle heater comprising a one piece outer casing of plastic material having an integral closed bottom and open at its top, said top having a side wall having a plurality of spaced inwardly projecting lugs within the end of said wall, a one piece metal can smaller than the area enclosed by said lugs, said can having an outer end having a

flange fitting inside of said wall on said lugs, screws having heads within the outer end of said casing wall for securing said flange to said lugs, said can having a bottom wall, an electric heating element secured to the outside of said bottom wall, said can and heater being insertable as a unit into said outer casing through the open top of said casing, a packing of insulating material between said casing and both said can and heater, and an electrical connection extending through said casing to said heater.

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