March 8, 1927. 1,620,537

C. C. GAREY

ELECTRICAL HEATER

Filed May 15, 1926 3 Sheets-Sheet 1

Fig. 1.

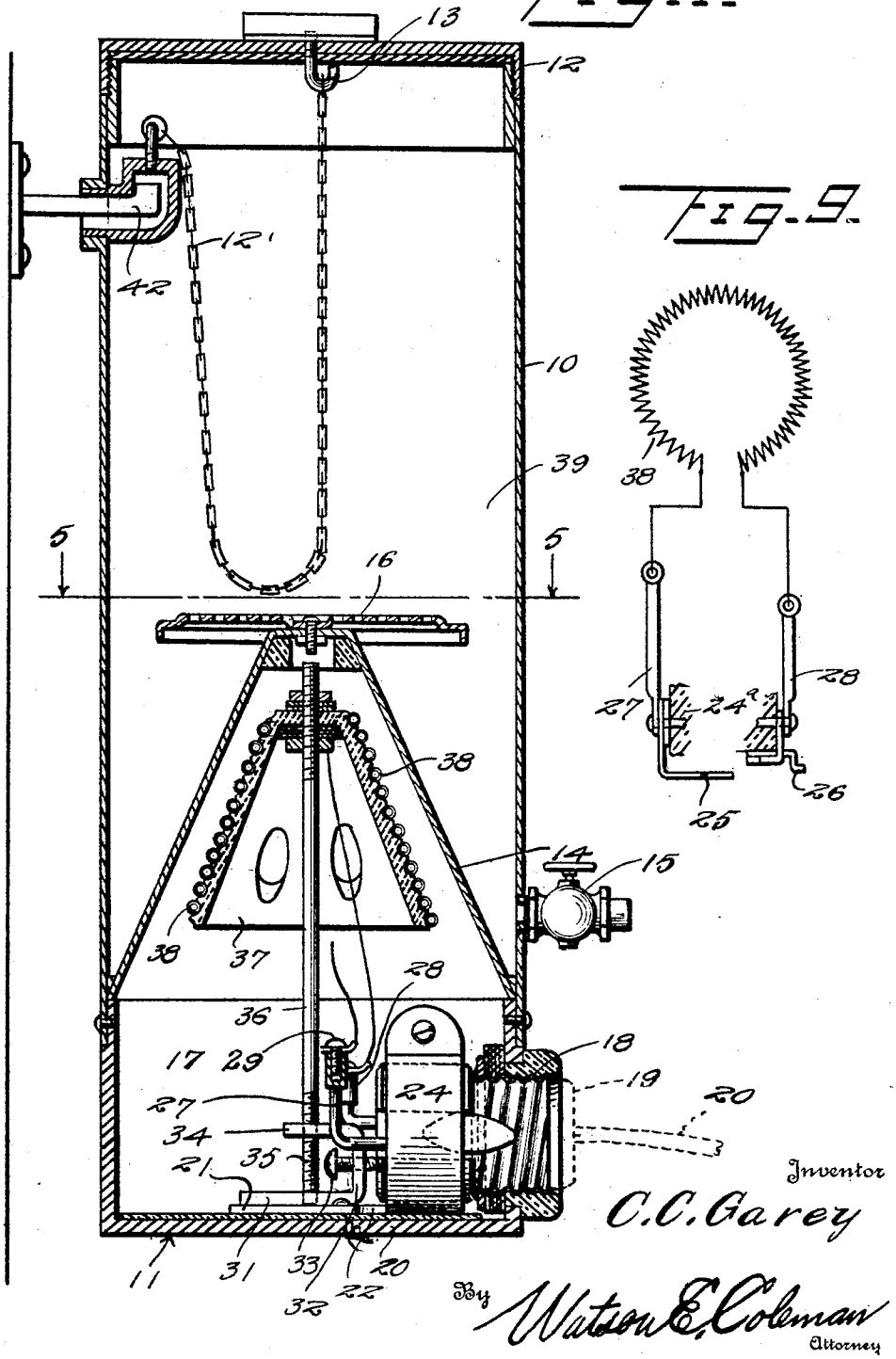


Fig. 9.

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Fig. 2.

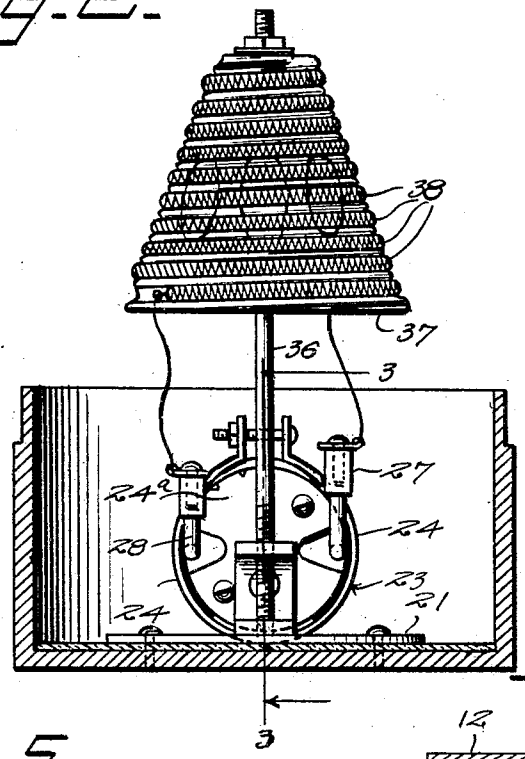


Fig. 10.

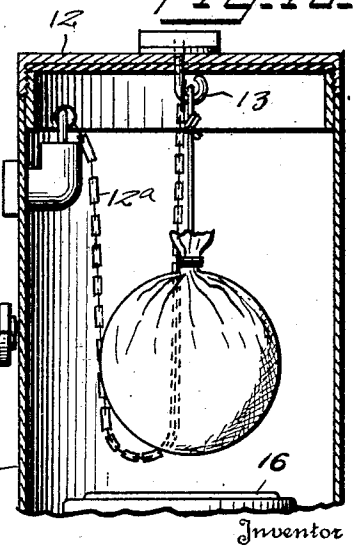
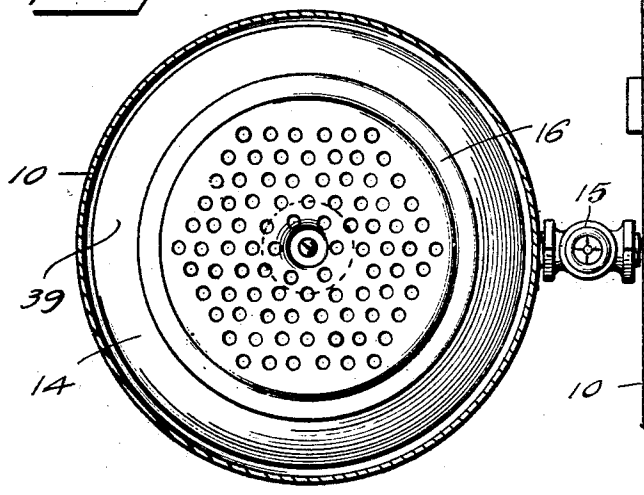


Fig. 5.



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Fig. 3.

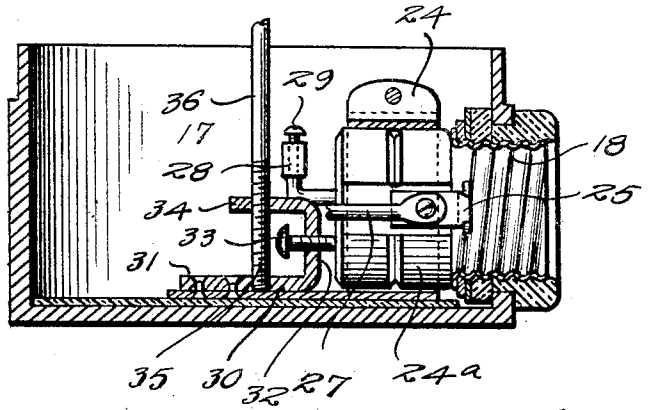


Fig. 4.

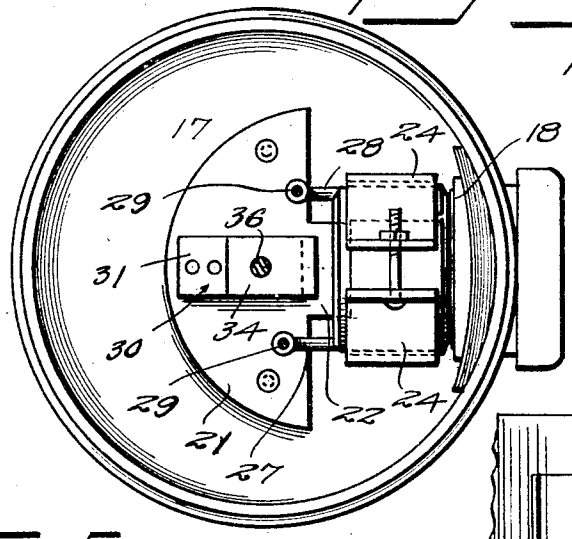


Fig. 8.

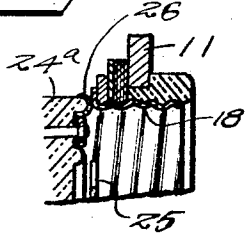


Fig. 7.

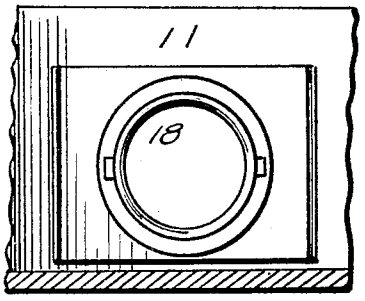
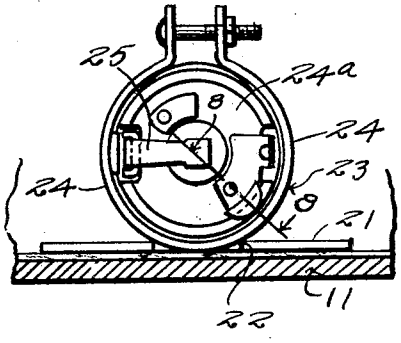


Fig. 6.



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Patented Mar. 8, 1927. 1,620,537

UNITED STATES PATENT OFFICE.

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ELECTRICAL HEATER.

Application filed May 15, 1926. Serial No. 109,340.

This invention relates to electrical heaters and more particularly to the production of an electrical heater capable of general application in the home.

An important object of the invention is to provide a device which may be cheaply and yet durably constructed and which may be used for supplying water for a variety of purposes or for use as a foot warmer or warmer for babies' nursing bottles.

A further object of the invention is to produce a construction by means of which circulation of water heated within the heater will be expedited, so that a more rapid and uniform heat therefor may be obtained.

These and other objects I attain by the construction shown in the accompanying drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention and wherein:—

Figure 1 is a vertical sectional view through a heater constructed in accordance with my invention;

Figure 2 is a vertical sectional view through the base showing the mounting of the connector;

Figure 3 is a section on the line 3—3 of Figure 2;

Figure 4 is a plan view of the bottom cap, portions being broken away;

Figure 5 is a section on the line 5—5 of Figure 1;

Figure 6 is a detail view showing the front face of the insulating blocks and the contacts carried thereby;

Figure 7 is an inner face view of the threaded sleeve for the reception of the attachment plug;

Figure 8 is a section on the line 8—8 of Figure 6;

Figure 9 is a partially diagrammatic view showing the connections of the resistance element;

Figure 10 is a reduced sectional view through the casing showing the manner of supporting a coffee or tea ball therein.

Referring now more particularly to the drawings, the numeral 10 generally designates a cylindrical casing, one end of which has engaged therewith a cup-shaped base 11 and the opposite end of which is threaded or otherwise adapted for the reception of a removable cap 12 connected with the casing 10 by a chain or other flexible element 12. The connection of the flexible element with the cap is at the inner face of the cap and is preferably in the form of an eye 13 for a purpose hereinafter to appear.

Adjacent its lower end the casing is provided inwardly with a cone-shaped partition wall 14, the axis of the cone being concentric with the axis of the casing and the cone about the edges of its larger end being secured to the casing wall in any suitable manner. Immediately adjacent the lower end of the partition, the wall of the casing above the partition is formed with a valved outlet 15 by means of which the contents of the container may be drained. The upper end of the cone supports a perforated disk 16 which may provided a seat for bottles or the like which are to be heated within the container. Directed through and insulated from the side wall 17 of the cup-shaped bottom 11 is a threaded sleeve 18 for the reception of the plug 19 of an extension cord 20. Mounted upon the base 20 of the bottom section is a plate 21 provided at one side with an extension 22 having a T-head 23, the arms 24 of which are bent upwardly from the plate and combine to provide a circular clamp which may be drawn together to secure in position an insulating block 24ª, preferably of porcelain. This block provides a mounting for a spring terminal 25 similar to the center terminals of lamp sockets and having its end portion disposed axially of the sleeve 18 when the block is in applied position and a second or fixed terminal 26 which opposes the inner end of the sleeve 18 when the block is in position. The connections for these terminals include a pair of rigid leads 27 and 28, the ends of which are vertically directed at the rear end of the block and are provided with threaded sockets for the reception of terminal screws 29, the purpose of which will presently appear. The leads 27 and 28 are, of course, properly insulated from the clamping band formed by the T head 23.

Suitably secured to the plate 21 is a J-shaped bracket 30, the longer arm 31 of which is engaged with the plate and the bight 32 of which opposes the rear end of the insulating block 24ª. Through this bight portion is threaded an adjusting screw 33 for engagement with the rear end of the block 24ª to force the block 24ª toward the sleeve

and to thereby insure proper contact between the inner end of the sleeve and the fixed contact 26 of the block. The longer and shorter arms 31 and 34 of the J-shaped bracket have aligned threaded openings for the reception of the threaded lower end 35 of a vertically directed bar 36 which, when in position, is disposed axially of the cup-shaped bottom and of the casing 10. The upper end of this bar is likewise threaded and provides a mounting for a conical insulating element 37 about which is spirally wound a resistance heating coil 38. This resistance heating coil substantially parallels the conical partition 14 in fairly close relation thereto, so that this partition wall is very highly heated and will transmit heat to the contents of the chamber 39 formed within the casing 10 above the partition wall. The terminals of the resistance heating element are connected with the leads 27 and 28 by the terminal screws 29.

In the use of the device, it may be employed simply as a heater, the chamber 39 being left empty or filled with water, as desired. It will be obvious that the high heat provided against the wall 14 will permit the contents of the chamber 39 to be boiled, so that this chamber may be used in preparing coffee or the like. In this latter use of the device, a bag containing coffee or tea may be supported from the eye at the inner surface of the cap, as generally illustrated at 40 in Figure 10. The perforated disk 16 provides a support for milk bottles or similar containers which are to be heated and at the same time, when not employed as a support, does not interfere materially with the circulation of the water. It is pointed out that since the water will naturally tend to cool at the outer face of the container, it will move downwardly along this outer wall and come into contact with the conical partition at the lower end thereof, moving up this conical partition and becoming highly heated by its contact therewith. Thus, a fairly rapid circulation is provided. The cap 12 is provided with a water-tight joint with the upper end of the container, so that the upper end of the chamber 39 may be sealed, thus enabling use of the device as a hot-water bottle, foot warmer or the like. A douche hose may be connected at the valved outlet 15 and the container supported from an elevated hook by engaging this hook in a socket 42 formed in the wall thereof.

Since the construction hereinbefore set forth is obviously capable of a considerable range of change and modification without materially departing from the spirit of the invention, I do not limit myself to such specific structure except as hereinafter claimed.

I claim:—

1. In a heater of the type described, a casing in the form of a cylinder having adjacent its lower end a conical bottom wall providing in the upper end of the cylinder a water chamber, a cap engaged with the lower end of the cylinder, a conical electrical heating element supported from the cap to maintain its heating area in approximate parallel relation to said conical wall and a perforated disk supported from the upper end of said conical wall.

2. In combination with an electrical heater casing, a cap engaged with the lower end of the casing, a threaded conducting sleeve extending through and insulated from the wall of the cap, a clamping yoke arranged within and supported from the bottom wall of the cap in concentric relation to the sleeve, an insulating block within the yoke having spring and fixed contacts, the fixed contact opposing the inner end of the sleeve, a standard for a heating element, a heating element carried thereby and disposed adjacent the bottom wall of the container and a bracket for receiving the lower end of said standard having a portion opposing the inner end of said insulating block and means adjustable through said portion to engage the insulating block and urge the same toward the sleeve to thereby bring said stationary contact into electrical engagement with the sleeve.

In testimony whereof I hereunto affix my signature.

CHARLES CORNELIOUS GAREY.