Oct. 29, 1929. C. A. XARDELL 1,733,145

ELECTRIC HEATER

Filed March 1, 1929

Fig. 1.

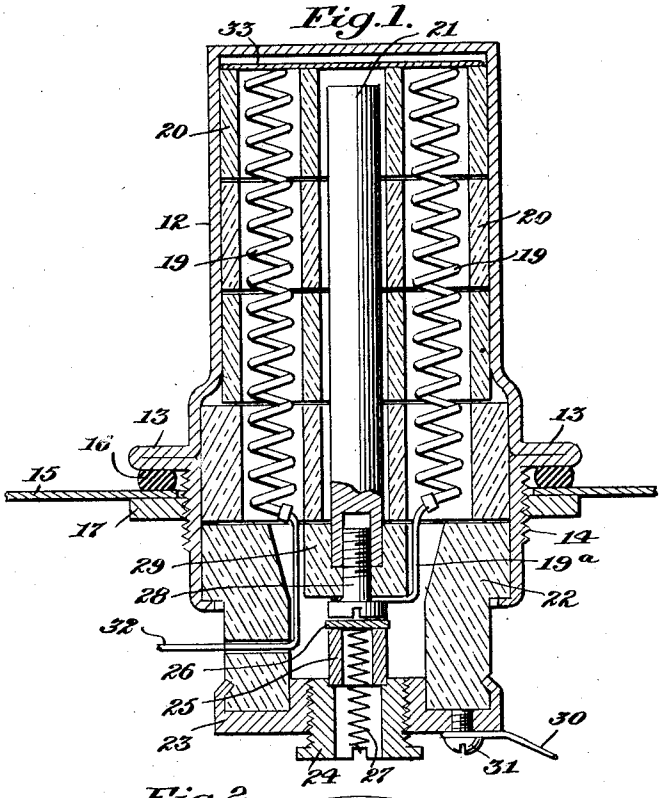


Fig. 2.

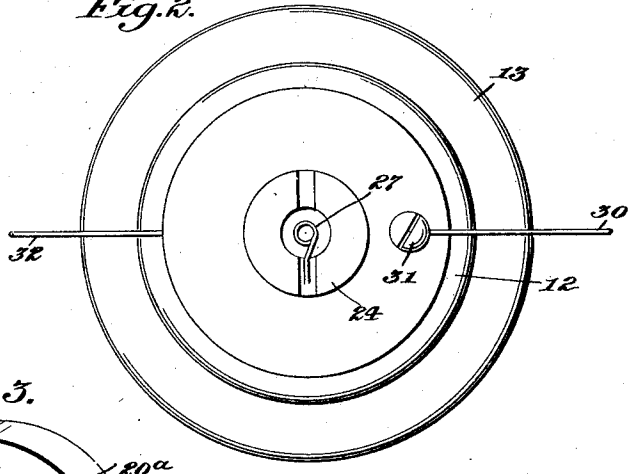
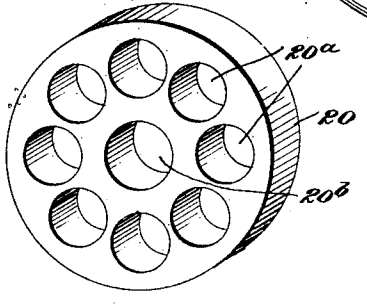


Fig. 3.



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UNITED STATES PATENT OFFICE

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ELECTRIC HEATER

Application filed March 1, 1929. Serial No. 343,631.

This invention has for its object to provide a coffee percolator heater of such construction that it may be conveniently attached to the bottom of a coffee percolator pot and which comprises a fusible member which will be melted and collapsed, so that the electric circuit will be opened, when the liquid in the percolator pot becomes so low that there is danger of overheating the pot and melting out the solder used in its construction, thereby ruining the pot, all as will be hereinafter fully set forth.

In the accompanying drawing Fig. 1 is a vertical section of the improved heater. Fig. 2 is an end view thereof looking from the bottom of Fig. 1, with some parts omitted, and Fig. 3 is a detail view of a porcelain insulator section.

Referring to the drawing, 12 denotes a metal casing provided with a flange 13 and having near its bottom a screw threaded portion 14. Between the bottom 15 of a percolator pot and the flange 13 is interposed a gasket 16, and beneath the bottom of the pot on the screw threaded portion 14 is a nut 17, which, when tightened against the bottom of the pot, will compress the gasket 16 so as to make a liquid tight joint around the heater.

Within the heater are located suitable resistance elements, herein shown in the form of coils 19 of resistance wire, these coils being enclosed in insulating parts, consisting in the construction shown, of porcelain cylindrical elements 20 preferably formed in sections to allow for expansion and contraction, these sections being provided with openings 20^a in which the resistance coils are enclosed, and with a central opening 20^b in which a heat control bar or rod 21 of copper or other suitable material is loosely housed. Said bar or rod becomes heated by radiation from the resistance heating elements, as will be understood.

Beneath the non-conducting porcelain sections 20 is a somewhat larger porcelain insulating sleeve or member 22 to the lower end of which is attached a metal cap 23 having a central screw-threaded opening in which a metal fuse holder 24 is fitted. Supported by said fuse holder is a small fusible sleeve 25, of a low temperature melting point, said sleeve being surmounted by a disk 26 of brass or other suitable conducting material which is held against the top of said fusible sleeve 25 by a spiral spring 27. The head of a screw 28 of conducting metal rests on the said disk 26, said screw serving to secure the said rod or bar 21 in place and also serving to attach the terminal 19^a of one of the coils 19 in place between the head of said screw and an insulating cup-like element 29 to which said screw secures the said rod or bar 21.

A line terminal 30 is secured against the metal cap 23 by a binding screw 31 so that current from said line terminal is passed through the conducting elements afforded by the metal cap 23, the fuse holder 24, the fuse 25, the disk 26, and the screw 28 to the heating coils 19 and the heating bar or rod 21. The current passes through the said heating coils, which are electrically connected in any suitable manner, to a line terminal 32 which extends outward through the opening in the lower part of the sleeve member 22, thus affording a proper electric current connection through the heater. Between the top of the casing 12 and the upper ends of the heating coils 19 insulating washers 33 of mica are preferably located.

From the foregoing it will be understood that when the current is turned on the resistance coils 19 and the copper heat-control rod or bar 21 will be heated. If, however, the liquid in the percolator pot is boiled away by evaporation or runs dangerously low said rod or bar 21 will become so hot that the heat therefrom passing by conduction through the screw 28 and disk 26 to the fusible sleeve 25 will soften or melt said sleeve, so that it will be collapsed by the tension of the spring 27 attached at its lower end to the fuse holder 24 and pulling downward on the disk 28, this collapsing of the fuse breaking the electric connection between said disk and the screw 28 so as to interrupt the current and thus turn off the heat.

The fuse holder 24, being located at the

bottom of the heater, is conveniently accessible for inserting or replacing the fuse, as will be understood.

The invention is not to be understood as being limited to all of the details shown and described, as such details might be varied widely, within the limits of mechanical skill, as, for example, by providing different heating means, as a helical coil, without departing from the scope of the invention as defined by the claims hereunto appended.

Having thus described my invention, I claim and desire to secure by Letters Patent:

1. An electric heater comprising a suitable casing and means for securing said casing to the bottom of a coffee percolator pot with a liquid-tight joint, combined with resistance wire heating means within said casing, a control bar located centrally within said casing and surrounded by said heating means so as to be heated by radiation therefrom, and a collapsible fusible member beneath said bar and electrically connected therewith so that it may be melted by excessive heat, thus opening the electric circuit.

2. An electric heater comprising a suitable casing and means for securing said casing to the bottom of a coffee percolator pot with a liquid-tight joint, combined with resistance wire heating means within said casing, a control bar located centrally within said casing and surrounded by said heating means so as to be heated by radiation therefrom, and a collapsible fusible member beneath said bar and electrically connected therewith so that it may be melted by excessive heat, thus opening the electric circuit, the connections between said bar and said fusible member comprising a cup-like insulating member into which said control bar extends, a metal screw securing said bar to said cup-like member and a metal disk interposed between the head of said screw and said fusible member.

In testimony whereof I affix my signature.

CHARLES A. XARDELL.