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DISTILLATION HEATER

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2 Sheets-Sheet 1

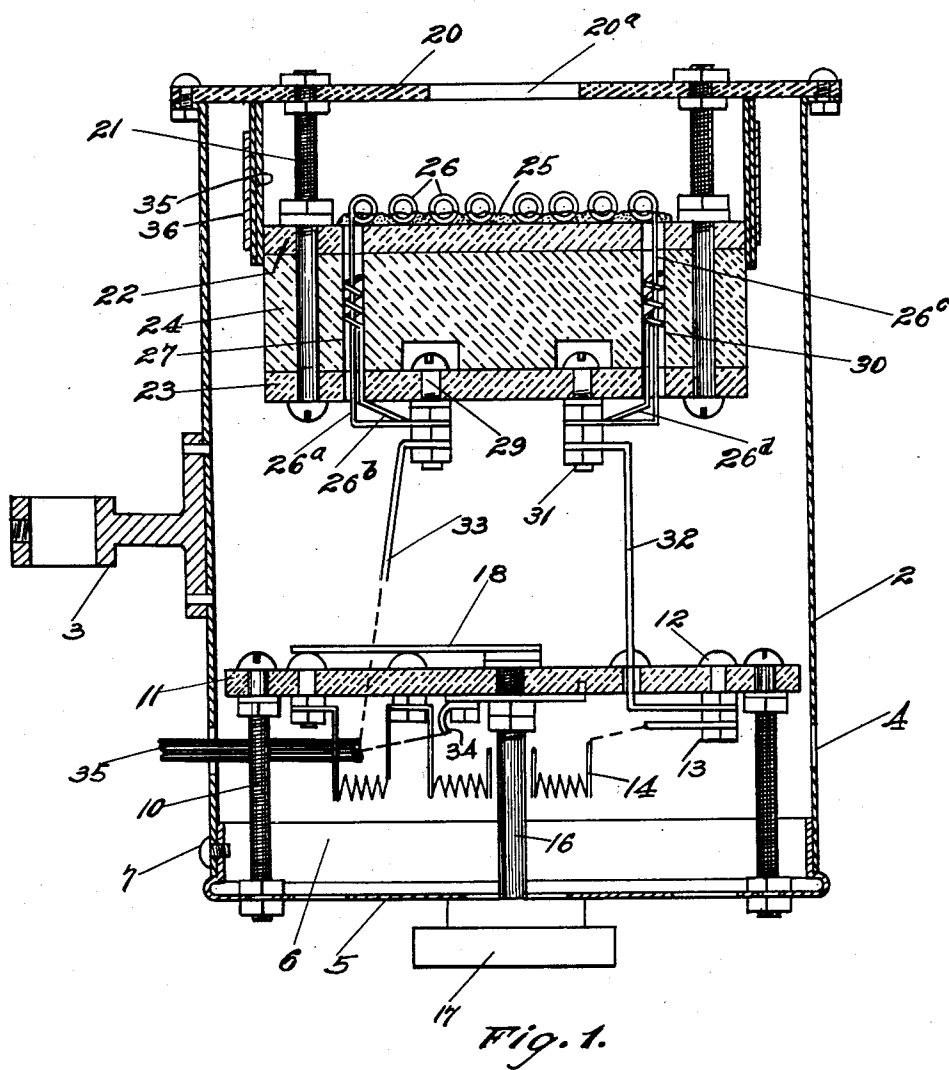


Fig. 1.

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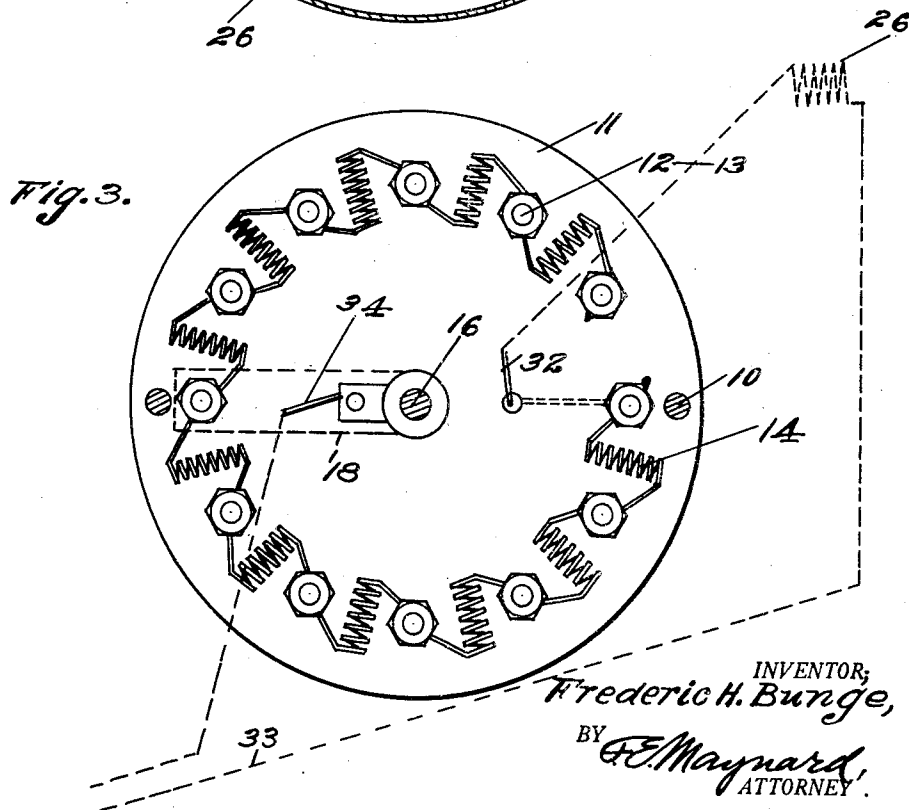
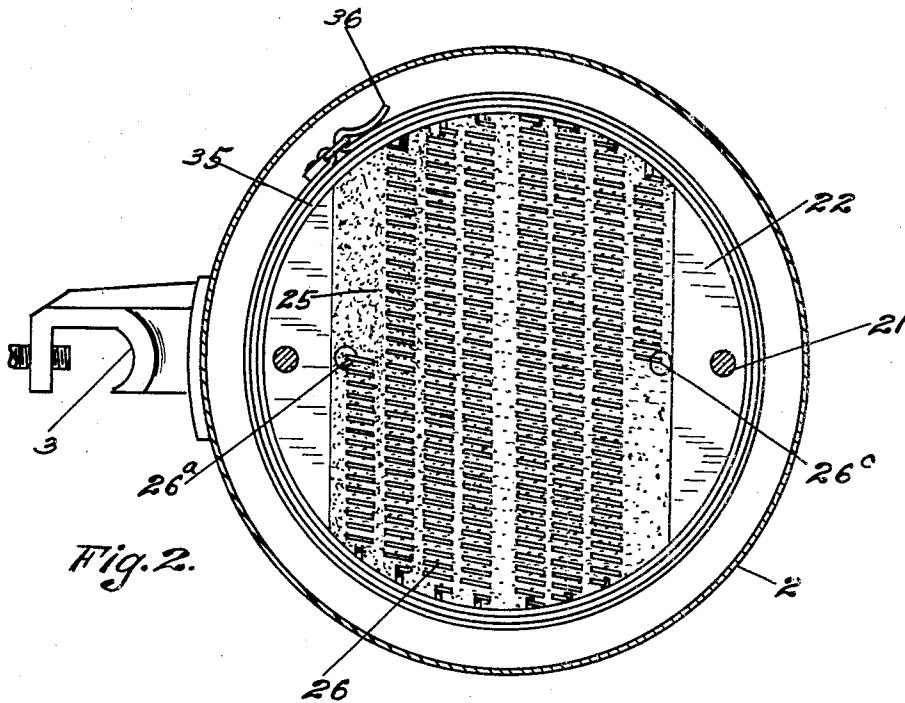
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UNITED STATES PATENT OFFICE.

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DISTILLATION HEATER.

Application filed December 20, 1926. Serial No. 155,979.

This invention relates to electric heaters and more especially to what are known as "distillation heaters".

An object of the invention is to provide for the protection of the terminals of the wire heating coils at their junctions with their respective binding posts.

Another object is to provide a substantially constructed and very compact heater.

A further object is to combine the regulating means with the heating unit in such a manner that heat generated by the regulator is deflected from the heating coil terminals and their posts.

An additional object is to provide for facility of use and regulation of the device.

Numerous other objects, advantages and features of the invention will be made manifest in the following specification of an embodiment of apparatus incorporating the invention and the method of making the same; it being understood that modifications, variations and adaptations may be resorted to within the spirit, scope and principle of the hereinafter claimed invention.

Figure 1 is a central, vertical section of the heater.

Figure 2 is a cross-section just above the heating coils.

Figure 3 is a bottom plan of the regulating resistance or rheostat.

As here constructed and assembled a cylindrical shell or housing 2 has a bracket 3 fixed on one side so as to be clamped on a suitable post or standard, not shown. The lower part of the shell has a number of vent holes 4 below which is a perforated bottom 5 whose upturned flange 6 fits and is fastened in the shell by screws 7.

Stout screw-posts 10 extend up from the bottom and support an insulating shelf 11 having a circular series of contact bottoms 12 on binding bolts 13 which have, on their ends below the shelf, securely fastened respective ends of resistance coils 14 which are connected in series from one bolt to the other.

A center shaft 16 is turnably mounted in the shelf 11 and extends down through the bottom 5 and has an insulating handle 17 to facilitate turning a contact arm 18 from contact (12) to contact to vary the current flow to a heating unit arranged in the upper part of the shell. It will be seen that the rheostat coils are exposed below

the shelf 11 and this, being of asbestos composition, deflects the generated heat and keeps down the temperature of the upper part of the shell.

Secured on the top of the shell is an asbestos or other suitable cover 20 having screw-posts 21 extending down and carrying a built-up, refractory bed including a top plate 22 and a sub-plate 23 of "transite" or some like refractory material spaced by a filling brick 24 of suitable kind. This bed is spaced somewhat below the cover 20 and on its top 22 there is cemented at 25 a series-connected, parallel disposed set of heating wire-coils 26. The initial coil has its end 26^a run down through a hole 27, in the bed, and bent to form a long loop 26^b which turns around its binding post 29 which is secured in the sub-plate 23 and lies under the brick 24 and is thereby protected from the high heat of the coils 26. The terminal 26^c of the last coil, in the series, is run down a hole 20 and has a long loop 26^d laid around the binding post 31. From this leads a feed line 32 to a terminal contact-bolt 13 which is one of the series above mentioned.

The post 29 is connected to the other feed line 33 which, with line 34, from the contact blade 18, leads to a conductor 35 from a source of supply.

I thus, by this structure, obtain a much desired cool junction between the loop ends 26^b—26^d of the heating coils by running the ends through the thick built-up bed 22—23—24 of refractory material and insulatory character. Such cool junction greatly increases the life of the effective coils 26 by preventing burning out at the junctions.

All of the rheostat and heating coils, the terminals, and binding posts are fully protected in the shell 2.

The cover 20 has a central mouth 20^a and loss of heat by radiation laterally is prevented by an asbestos girdle 35' fastened around the plate 22 by a draw-band 36.

The drawing shows the heater in a practical, full size form.

What is claimed is:

1. A distillation heater including a shell, a heating coil unit in the upper part of the shell and including coils having terminals, a deep bed body of refractory material having a sub-plate, binding bolts mounted in the sub-plate, and covered by the bed body;

said body and plate having holes from top to bottom through which bights of the terminals extend and fasten on the said bolts.

2. A distillation heater including a shell, 5 a heating coil unit in the shell and including coils having terminals, a refractory bed on the top of which said coils are disposed and having, fixed in its bottom, a set of binding bolts; said terminals run through holes in 10 the bed and ending in cool juncture loops on the bolts and doubling back into the holes.

3. A distillation heater including a shell, a rheostat supported in the lower part of the shell and including a refractory, insulating 15 base provided on its under face with resistance coils, and a heating unit spaced above the rheostat and connected thereto for regulation of heat, and a cover and a bottom on the shell.

20 4. A distillation heater having, in com-

bination a shell having in its upper part a heating unit with coils exposed upward and having a refractory bed on the bottom of which is a set of binding bolts, and a rheostat spaced below the unit and electrically 25 connected thereto to regulate heat produced, means for mounting the heater in an elevated position, and a handle on the bottom of the heater for adjusting the rheostat.

5. A distillation heater having a shell, a 30 cover secured on the top of the shell, screw-posts extending down from the cover, a refractory bed hung on the posts and having exposed coils on its top face, a bottom on the shell, a rheostat spaced above and secured to 35 the bottom and connected to the coils, and a handle on the bottom for adjusting the rheostat.

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