June 30, 1925. 1,543,938

R. H. MacINNES

ELECTRIC STOVE HEATER ELEMENT

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Fig. 1.

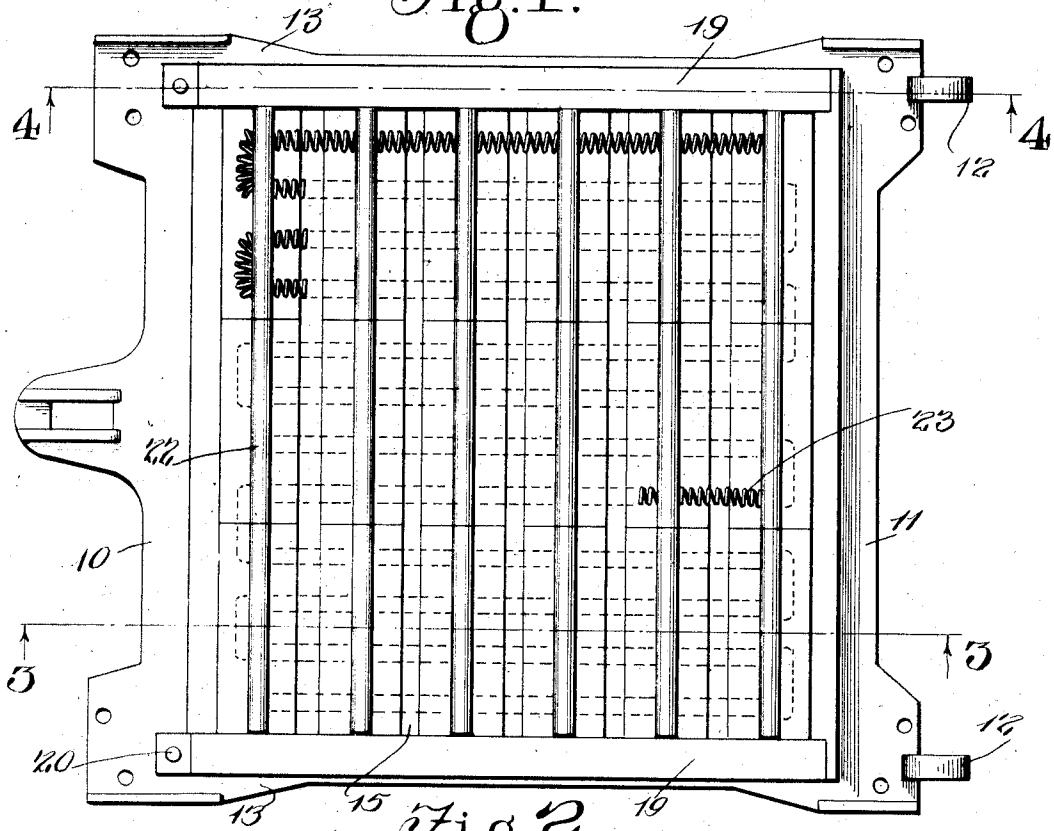


Fig. 2.

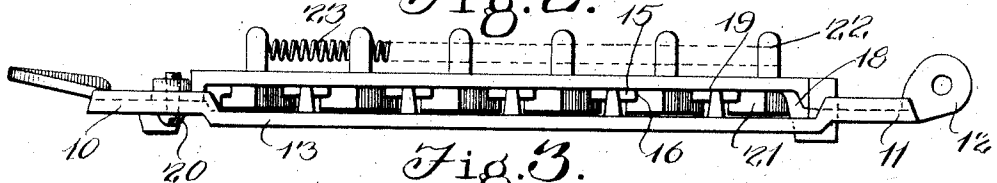


Fig. 3.

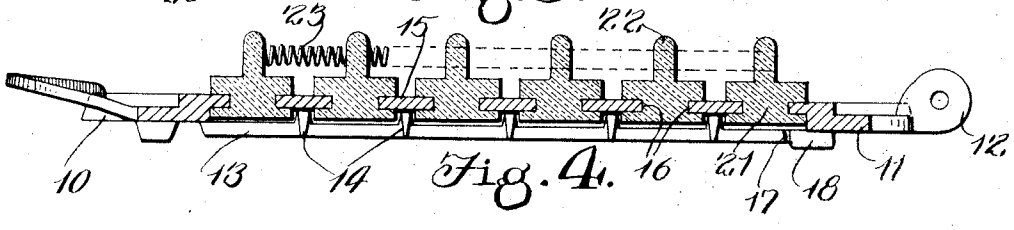
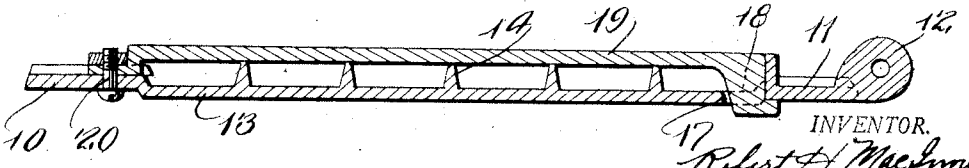


Fig. 4.



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ELECTRIC STOVE HEATER ELEMENT

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Fig. 5

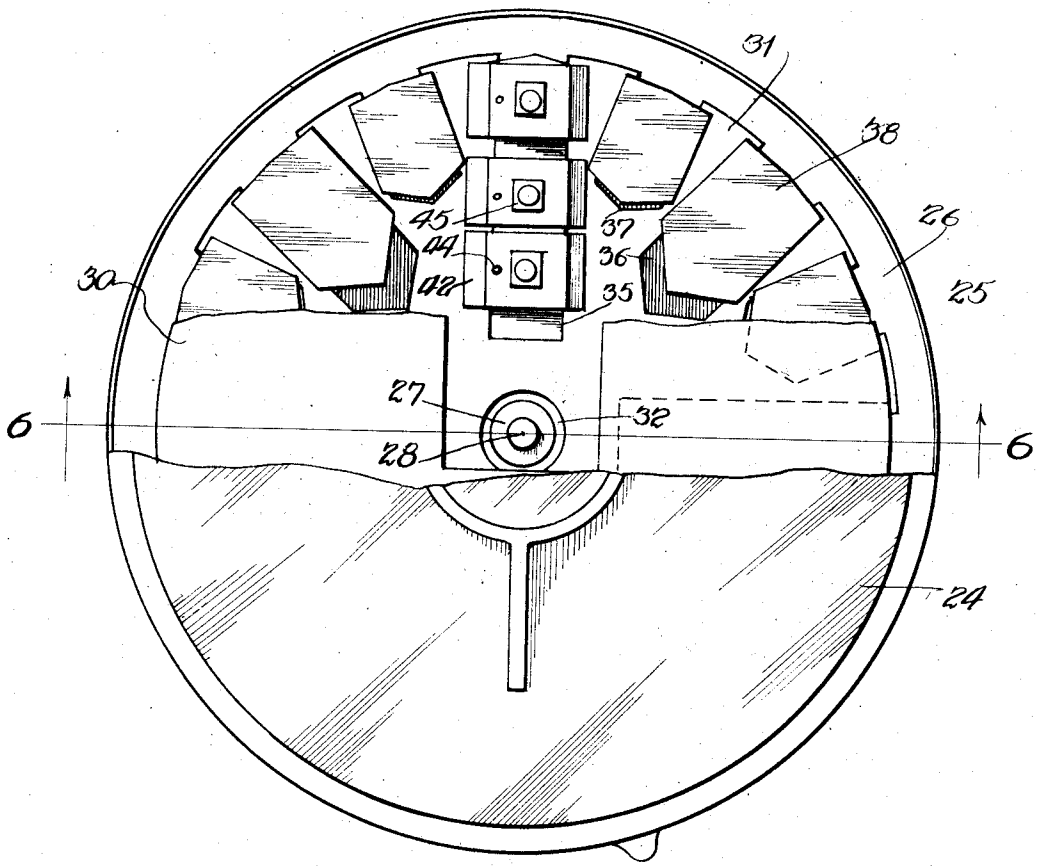


Fig. 6.

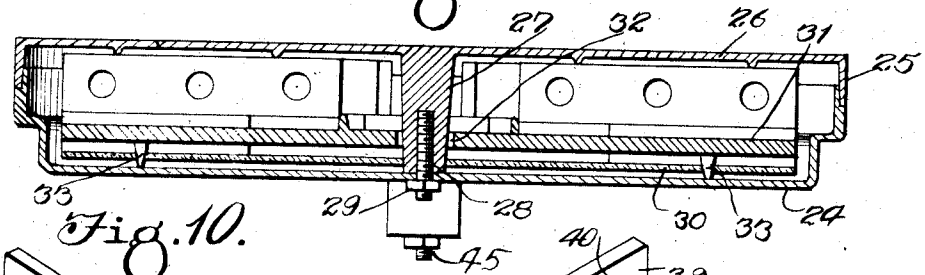


Fig. 10.

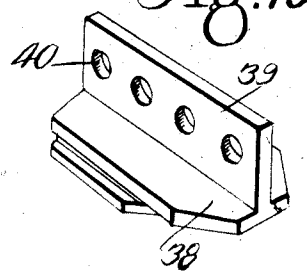
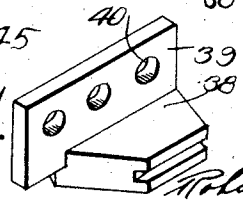


Fig. 11.



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ELECTRIC STOVE HEATER ELEMENT

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Fig. 7.

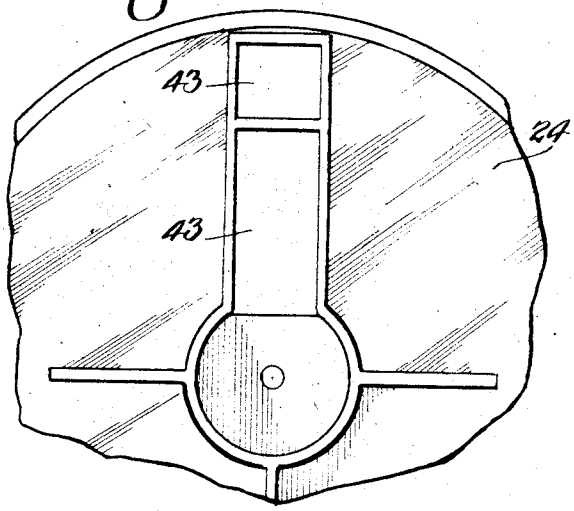


Fig. 8.

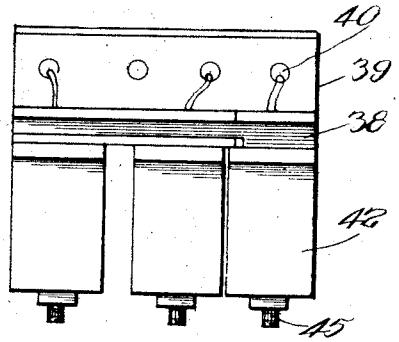
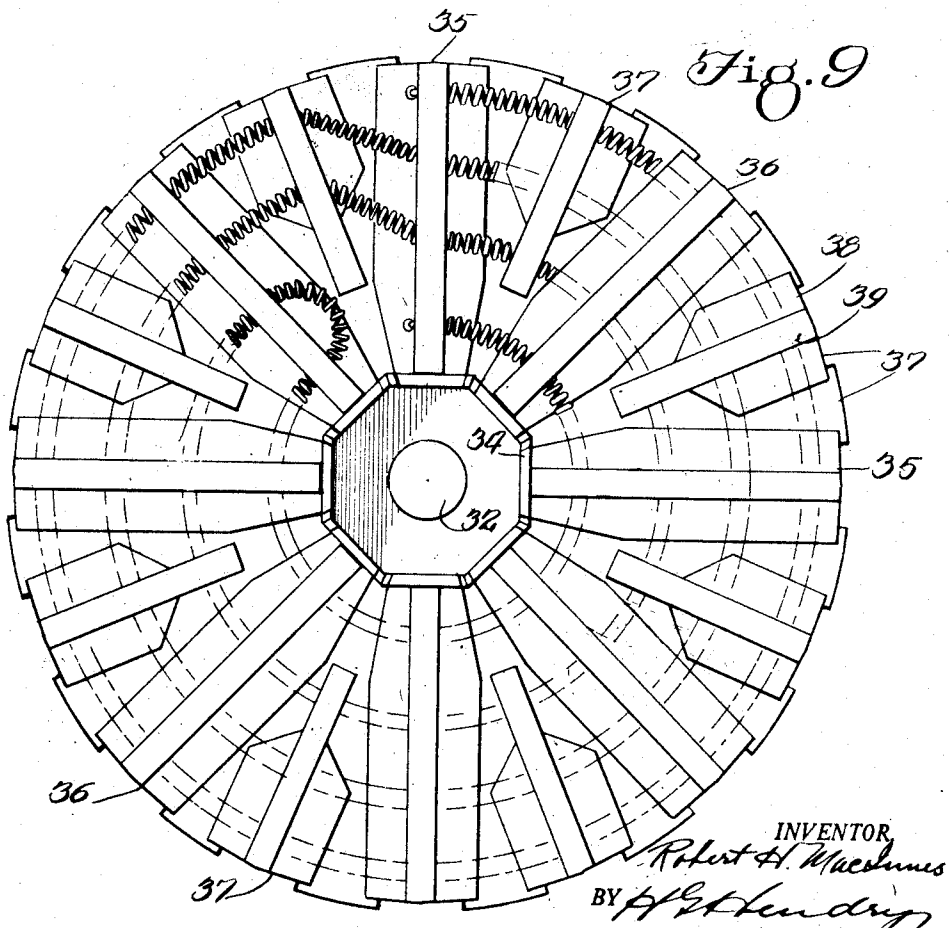


Fig. 9



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Patented June 30, 1925. 1,543,938

UNITED STATES PATENT OFFICE.

ROBERT H. MacINNES, OF HAMILTON, ONTARIO, CANADA, ASSIGNOR TO D. MOORE COMPANY, LIMITED, OF HAMILTON, ONTARIO, CANADA.

ELECTRIC-STOVE HEATER ELEMENT.

Application filed February 9, 1925. Serial No. 7,904.

To all whom it may concern:

Be it known that ROBERT H. MacINNES, a subject of the King of Great Britain, residing at Hamilton, in the county of Wentworth and Province of Ontario, Canada, has invented certain new and useful Improvements in an Electric-Stove Heater Element (Case 2), of which the following is a specification.

This invention relates to heating elements or, as they are commonly called, burners for electric stoves.

It is to be noted here that the term "burner" will be used throughout this specification and the claims to indicate the device as a whole while the terms "heating element" or "heater element" wherever used herein are to be understood as referring to the resistance wire which is the part actually heated to working efficiency by the passage of a current therethrough.

With this in mind one principal object of the invention is the provision of an improved general construction of burner for the purpose set forth.

A second important object of the invention is to provide a novel construction of supporting plate and heater element supporting bars for burners of this class.

A third important object of the invention is to provide an improved arrangement of heater element support and lead in insulators in such a burner.

With the above and other objects in view as will be hereinafter apparent, the invention consists in general of certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings and specifically claimed.

In the accompanying drawings like characters of reference indicate like parts in the several views, and:

Figure 1 is a plan view of a square or oven burner constructed in accordance with this invention.

Figure 2 is a side view thereof.

Figure 3 is a section on the line 3—3 of Figure 1.

Figure 4 is a section on the line 4—4 of Figure 1.

Figure 5 is a bottom plan view of a round burner constructed in accordance with this invention, a portion of the bottom casing and a portion of the refractory insulating plate being each broken away, the better to show the invention.

Figure 6 is a section on the line 6—6 of Figure 5.

Figure 7 is a bottom plan view of a portion of the casing bottom showing the openings for the lead in blocks.

Figure 8 is a side view of the lead in supporting blocks and one of the heater element supporting bars associated therewith.

Figure 9 is a top plan view of the burner with the casing left off.

Figure 10 is a perspective view of one form of supporting bar.

Figure 11 is a similar view of a second form of bar.

In the form of the invention shown in Figures 1 to 4 there is disclosed a rectangular frame having a front member 10, a rear member 11 carrying hinge lugs 12 by means of which the frame may be hinged to the top or bottom of an oven, and side members 13. Supported above these side members by ribs 14 is a plate 15 provided with spaced parallel side slots 16. Adjacent each hinge the respective side members are each provided with an opening 17 to receive the locking lug 18 of a retaining strip 19, the other or forward end of each strip being secured to the front member by a bolt 20.

The heater element supporting bars in this form of the device are preferably square ended and are made in short sections each having a base 21 provided with channelled side edges and an upstanding rib 22 provided with suitable openings through which may be led the heater element 23. Several of these supporting bars are slid into each slot 16, being retained in position by the strips 19 after being assembled and it is to be noted that these supporting bars are formed of insulating material, porcelain being preferred for the purpose.

In the form of the invention shown in Figures 5 to 9 a round burner is disclosed such as is suitable for stove tops, hot plates and the like. In this form there is provided a casing consisting of a lower pan like member 24 having around its rim a rabbet wherein fits the depending flange 25 of a casing top 26. This casing top is provided with a depending central stem 27 wherein is fitted a stud bolt 28 which passes through a cen-

trally disposed opening in the lower member 24 to permit a nut 29 to be screwed thereon and thus hold the top securely on. Resting on the bottom of the member 24 is a pad 30 of some suitable material which may act as an insulator for heat and asbestos has been found well adapted for the purpose in this case.

At 31 is a supporting plate which carries the heater element supporting bars and this plate consists of a disk like body having a central opening 32 to permit the stem 27 to pass therethrough. On the lower side of the plate are supporting legs 33 which pass through suitable openings in the asbestos disk 30 and engage the bottom of the member 24 to hold the supporting plate in spaced relation to said bottom. On the upper side of this plate a rib 34 surrounds the opening 32 and this rib preferably forms an octagonal structure. Slots 35 extend inwardly from the periphery of the plate and terminate at the rib in square ends. Intermediate these slots are shorter slots 36 and between these and the slots 36 and 37 terminate in V-shaped ends. The supporting bars in this form of the device are very similar to that in the form first described, each having a base 38 provided with channeled side edges, the channels receiving the edges of the plate at the slots, and an upstanding rib 39. It is to be noted, however that the bases of those supporting bars received in the slots 36 and 37 are shorter than the ribs so that eight of the ribs are long enough to reach the rib 34 and the bases, above the channel also extend to the rib 34, the remaining ribs being short but yet extending inwardly beyond their bases. Each of the ribs is provided with suitable openings 40 for reception of a spirally wound heater element 41.

Mounted on the under side of one of the supporting bar bases are lead-in blocks 42 which project downwardly through suitable openings 43 formed in the bottom of the member 24 and these lead-in blocks are provided with passages or openings 44 for the lead wires from the heater element. These blocks are also provided with binding posts and nuts 45. Both the blocks and the bars are made in this form of electric insulating material, preferably porcelain.

It will be plain from the foregoing that, with the unitary constructions now described, great ease of assembling the bars in the burners is obtained and that breakage of one or more of the bar units may be repaired at very little expense. It will also be obvious that these relatively small units are much cheaper to manufacture than the large porcelain plates commonly used and that the expense due to wastage during manufacture will be reduced to a very small percentage of that experienced with the usual large plates. Furthermore these small independent unit bars are much less liable to crack, on account of unequal expansion when heated, than the large plates.

There has thus been provided a simple and efficient device of the kind described and for the purpose specified.

It is obvious that minor changes may be made in the form and construction of the invention without departing from the material spirit thereof. It is not, therefore, desired to confine the invention to the exact form herein shown and described, but it is desired to include all such as properly come within the scope claimed.

Having thus described the invention, what is claimed as new, is:

1. In a device of the kind described, a supporting plate having slots extending inwardly from its edge, and heating element supporting bars each having a base provided with channels in its side edges to receive the edges of the plate at the side of the slots, said bars being engaged in said slots.

2. In a device of the kind described, a supporting plate having slots extending inwardly from its edge, and heating element supporting bars each having a base provided with channels in its side edges to receive the edges of the plate at the side of the slots, said bars being engaged in said slots, said bars further having longitudinally extending ribs provided with openings wherethrough a heater element may be led.

3. In a device of the kind described, a supporting plate having slots extending inwardly from its edge, heating element supporting bars each having a base provided with channels in its side edges to receive the edges of the plate at the side of the slots, said bars being engaged in said slots, said bars further having longitudinally extending ribs provided with openings wherethrough a heater element may be led, and a heater element reeved through the openings.

4. In a device of the kind described, a supporting plate having slots extending inwardly from its edge, heating element supporting bars each having a base provided with channels in its side edges to receive the edges of the plate at the side of the slots, said bars being engaged in said slots, and means to prevent accidental displacement of said bars from said slots.

5. In a device of the kind described, a supporting plate having slots extending inwardly from its edge, heating element supporting bars each having a base provided with channels in its side edges to receive the edges of the plate at the side of the slots, said bars being engaged in said slots, said bars further having longitudinally extending ribs provided with openings wherethrough a heater element may be led, and

means to prevent accidental displacement of said bars from said slots.

6. In a device of the kind described, a supporting plate having slots extending inwardly from its edge, heating element supporting bars each having a base provided with channels in its side edges to receive the edges of the plate at the side of the slots, said bars being engaged in said slots, said bars further having longitudinally extending ribs provided with openings wherethrough a heater element may be led, a heater element reeved through the openings, and means to prevent accidental displacement of said bars from said slots.

7. In a device of the kind described, a supporting plate having slots extending inwardly from its edge, heating element supporting bars each having a base provided with channels in its side edges to receive the edges of the plate at the side of the slots, said bars being engaged in said slots, and lead-in blocks carried by the base of one of said bars and depending therefrom.

8. In a device of the kind described, a supporting plate having slots extending inwardly from its edge, heating element supporting bars each having a base provided with channels in its side edges to receive the edges of the plate at the side of the slots, said bars being engaged in said slots, lead-in blocks carried by the base of one of said bars and depending therefrom, and a casing surrounding said plate to prevent escape of said bars from said slots and having openings in its bottom wherethrough said lead-in blocks pass.

In testimony whereof I have affixed my signature.

ROBERT H. MacINNES.

Witnesses:
H. G. HENDRY,
V. D. EARLE.