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PLUG-IN SURFACE UNIT

Filed Aug. 24, 1964

2 Sheets-Sheet 1

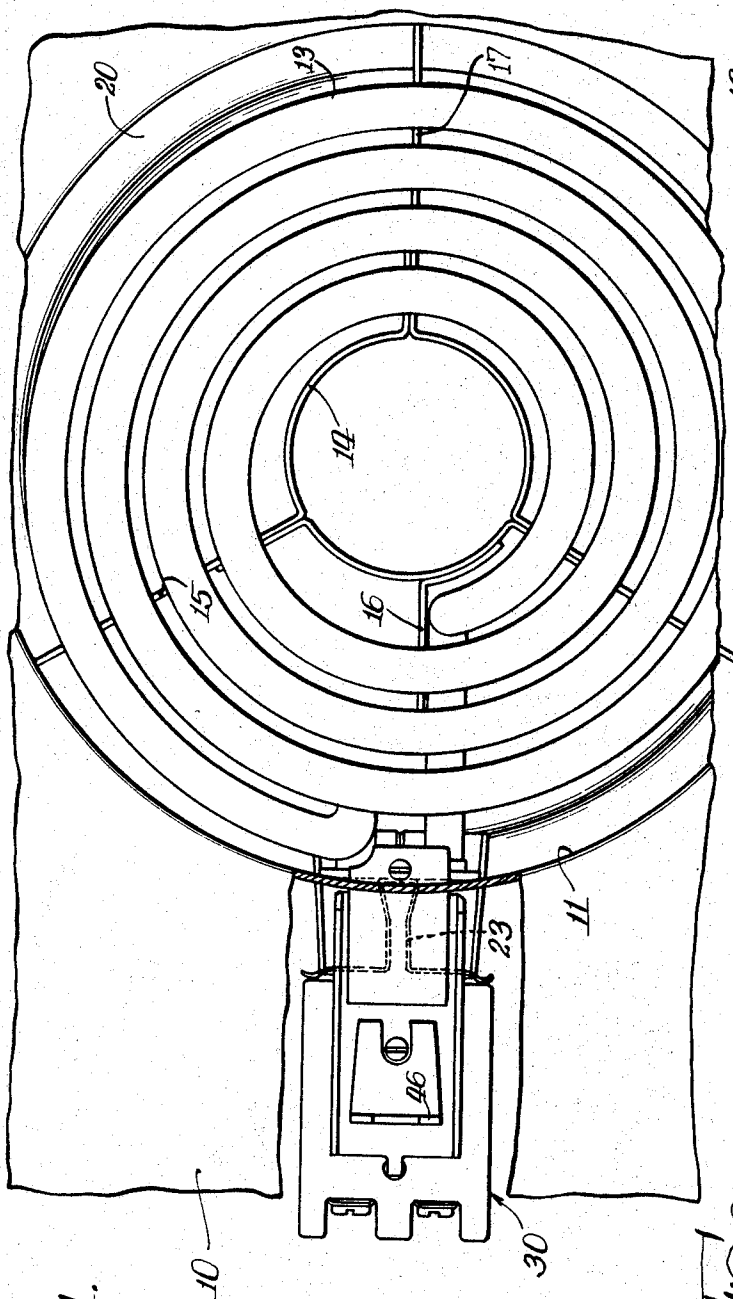


Fig. 1.

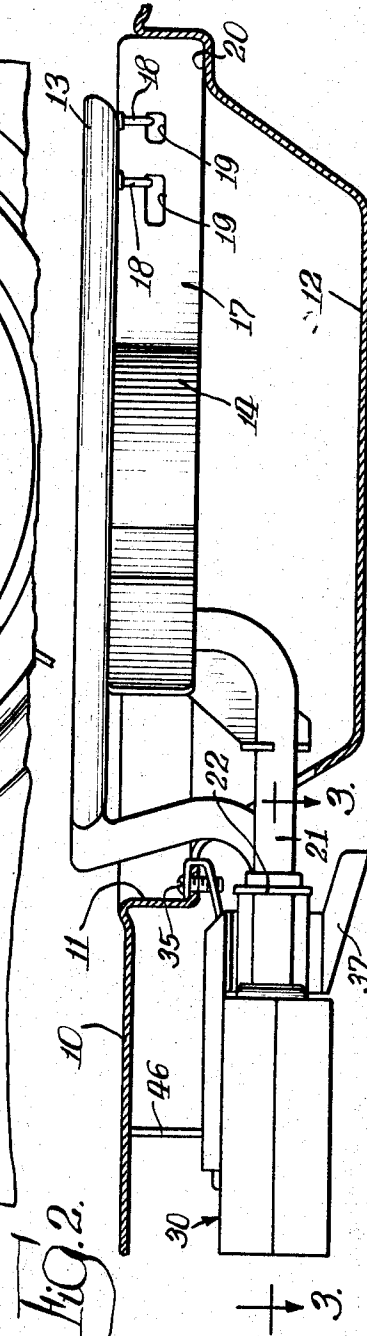


Fig. 2.

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Fig. 4.

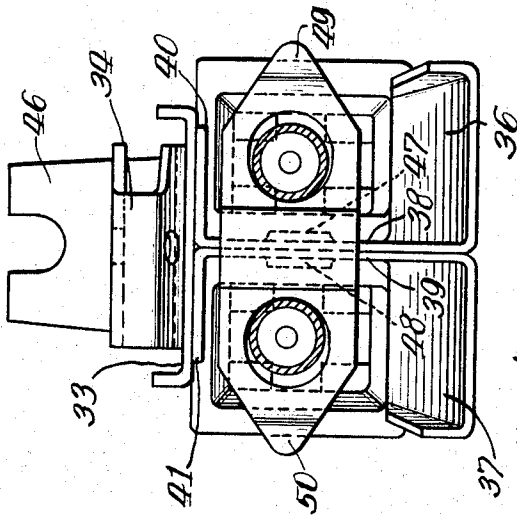


Fig. 6.

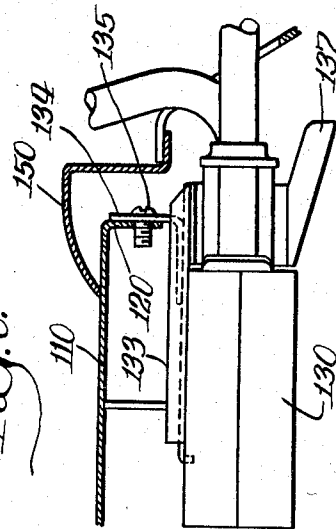


Fig. 3.

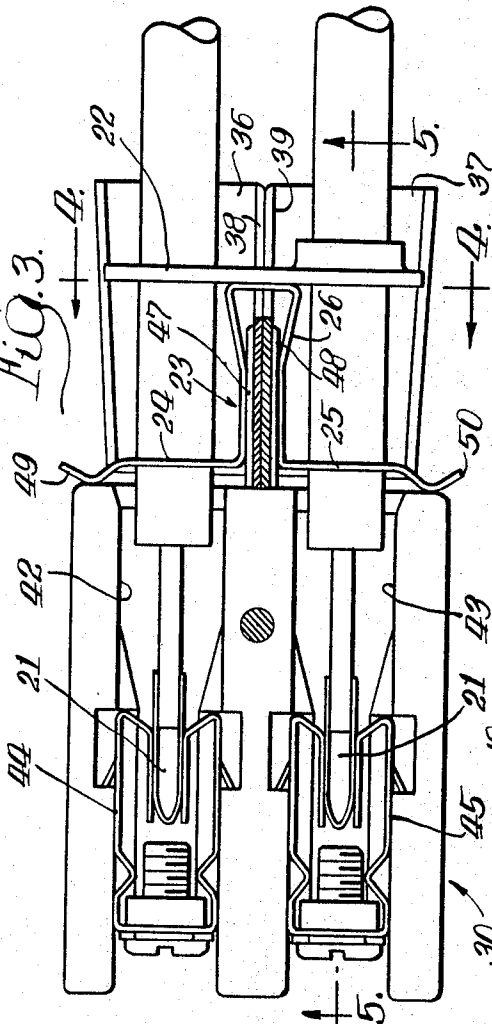
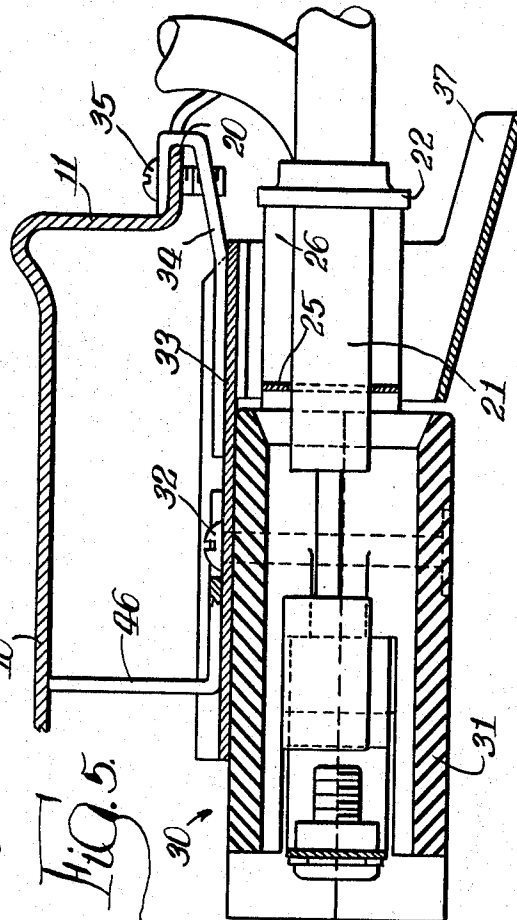


Fig. 5.



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PLUG-IN SURFACE UNIT

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2 Claims. (Cl. 219—451)

This invention relates to an electrical surface unit for use in a cook top and more particularly to a new and novel surface unit of the plug-in type.

It is the general object of the present invention to produce a new and improved electrical surface unit of the character described.

It has been more or less common practice in the past to utilize in electric range cook tops, sheathed electric heating elements of the plug-in type. The fact that such a unit may easily be removed facilitates cleaning beneath the coil and reduces the time and effort required to maintain the range in proper and clean condition. The advantages of a heating coil which can be unplugged and thus removed from the cook top opening over a unit which can be merely pivoted to one side, has long been recognized, but difficulties have been experienced with the plug-in type in assuring that the unit can be easily and correctly replaced by the housewife and that proper grounding of the coil is effected.

It will be readily apparent to those skilled in the art that the design of the present plug-in unit is such as to facilitate the insertion of the terminals of the coil into the proper apertures or openings provided in a terminal block so as to establish electrical contact between a source of power and the coil, and at the same time assuring that a proper ground is established for the coil. Additionally, the construction of the unit of this invention is such as to permit the openings in the fixed terminal block to be beneath the cook top and hence shielded at least partially from fluids caused by spillage or otherwise, and yet the arrangement is such that the "out of sight" location of the terminal block does not render the insertion of the coil terminals difficult or awkward.

Other and further advantages of the present invention will be readily apparent from the following description and drawings, in which:

FIG. 1 is a top plan view of a portion of a cook top including a coil designed in accordance with the present invention;

FIG. 2 is a vertical sectional view of the apparatus shown in FIG. 1;

FIG. 3 is a sectional view taken along line 3—3 of FIG. 2;

FIG. 4 is a sectional view taken along line 4—4 of FIG. 3;

FIG. 5 is a sectional view taken along line 5—5 of FIG. 3; and

FIG. 6 is a view like FIG. 5 of a slightly modified form of the invention.

While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail one embodiment of the invention together with a modification thereof, with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the invention to the embodiment illustrated. The scope of the invention will be pointed out in the appended claims.

Referring now to FIGS. 1 and 2 of the drawings, there is shown a cook top 10 having a circular aperture 11 therein surrounding a dished reflector pan 12. Positioned in the cook top aperture 11 is a sheathed electrical heating coil 13 secured to and supported by a spider having a central circular portion 14 and three legs 15, 16 and 17. Suitable fasteners such as indicated at 18 engage the

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coil on the one hand and the edges of slots 19 in the spider legs on the other hand, firmly to secure the coil to the spider. The outer extremities of the legs 16, 17 rest on a lip 20 formed around the edges of the aperture 11.

The coil 13 is provided with two terminals 21 which extend radially outwardly therefrom, with the terminals carrying a grease guard in the form of a plate 22 adjacent the ends thereof. A spring clip 23 is provided with a pair of arms 24 and 25, each of which is provided with an opening through which the terminals 21 extend, and each of which is integrally connected to a central U-shaped portion 26, bearing at the base of the U against the grease guard 22 and secured thereto by welding or otherwise.

The terminals 21 are arranged to be inserted into a suitable opening provided in a terminal block 30 arranged to be mounted beneath the cook top 10 for this purpose.

The terminal block comprises a generally rectangular element 31 of ceramic or other insulating material, to which is secured by means of a fastener 32, a bracket 33 having an end portion 34 adapted to be secured by means of a bolt 35 to a portion of the lip 20 surrounding the aperture. A pair of channel members 36 and 37 are each provided with integral web portions 38 and 39 upstanding therefrom and terminating in flat portions 40 and 41 extending parallel to the guide channels 36 and 37 and at right angles to the webs. Portions 40 and 41 are in turn secured to the underside of bracket 33 in any suitable manner. The guide channels, webs, and flat portions, as well as the bracket 33, are made of metal and hence are electrically conducting and by virtue of attachment to the cook top 10 through the medium of attaching screw 35, a suitable ground between the guide channels and the web is established.

The terminal block is provided with a pair of openings 42 and 43 terminating in electrical contacts 44 and 45 adapted to be connected to a suitable source of electrical power.

It will be noted from an examination of FIG. 5 that the guide shoes 36 and 37 extend outwardly of the aperture 11 toward the center thereof so as to be visible from a position directly thereabove. Thus, the housewife can readily see the guide shoes and by placing the terminals 21 therein can, by merely exerting a radially outward pressure, cause the terminals 21 to slide along the guide shoes into the openings 42, 43, and hence into electrical contact with the contacts 44, 45. This ease of insertion is assured even though the terminal block 30 itself is positioned well radially outwardly from the center of the aperture 11 so as to be beneath the cook top and protected thereby although simultaneously hidden from view directly above the aperture.

To assure the permanence and security of the mounting terminal block 30 beneath the cook top, the bracket 33 may be provided with an integral upstanding spacer plate 46 adapted to contact the lower surface of the cook top 10, and thus provide a second point of support against pivoting of the terminal block.

The modification shown in FIG. 6 is similar in many respects to the design just described and includes a terminal block 130 provided with a bracket 133 to which a mounting clip 134 is secured. The mounting clip 134 differs from the clip 34 in that it is arranged in a vertical position adapted to be secured by means of the screw device 135 to a vertical portion 120 of the aperture. Guides 137 similar to the guides 37 are provided and the cook top 110 is provided adjacent the aperture with a ring 150.

From the foregoing it can be seen that the housewife is no longer required to "blindly" try to insert the terminals into the proper openings of the terminal block but, rather, such terminals are guided into the opening by the

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channel-shaped guide shoes 36, 37. Additionally, an adequate ground is assured by virtue of the spring clip 23 resiliently engaging the vertical web portions 38 and 39 upstanding from the guide shoes. As an additional safeguard assuring an adequate ground, the web portions may be provided with embosses 47 and 48 located at the point of contact of the spring clip and at the same time engagement of the spring clip with the web portions serves further to centralize the terminals during their insertion into the terminal block. When fully inserted, the outer ends 49 and 50 of the legs 24, 25 of the spring clip engage the terminal block and the spring pressure thus created may be utilized to cause positive engagement between the outer end of the spider leg 17 opposite thereto with the adjacent side of the aperture 11, thus serving more securely to retain the heating coil in position on the cook top.

I claim:

1. In combination with an electric surface unit coil having a pair of terminals, apparatus of the character described comprising: a terminal block having a pair of openings therein, a bracket secured to the terminal block and adapted to engage the edge of a circular aperture in a cook top to hold the terminal block in position beneath said cook top with said openings facing but being inwardly spaced from the edge of said aperture, a pair of channel members each having an integral web of conducting material, means for securing said webs in abutting relationship to said bracket to position the channels to engage and guide said terminals into said openings, and a spring member having a pair of holes therein through which the ends of said coil extend, said spring member having an intermediate U-shaped portion between said holes and posi-

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tioned to engage opposite sides of said web in electrical contact as the terminals enter said openings.

2. In combination with an electric surface unit coil having a pair of terminals, apparatus of the character described comprising: a terminal block having a pair of openings therein, a bracket secured to the terminal block and adapted to engage the edge of a circular aperture in a cook top to hold the terminal block in position beneath said cook top with said openings facing but being inwardly spaced from the edge of said aperture, a pair of channel members each having an integral web of conducting material, means for securing said webs in abutting relationship to said bracket to position the channels to engage and guide said terminals into said openings, a grease guard in the form of a plate secured to the ends of the coil adjacent said terminals, and a spring member having a pair of holes therein through which the ends of said coil extend, said spring member having an intermediate U-shaped portion between said holes and positioned to engage opposite sides of said web in electrical contact as the terminals enter said openings.

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