

April 10, 1951

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2,548,183

REMOVABLE HEAT UNIT FOR TABLE TOP STOVES

Filed Dec. 3, 1945

3 Sheets-Sheet 1

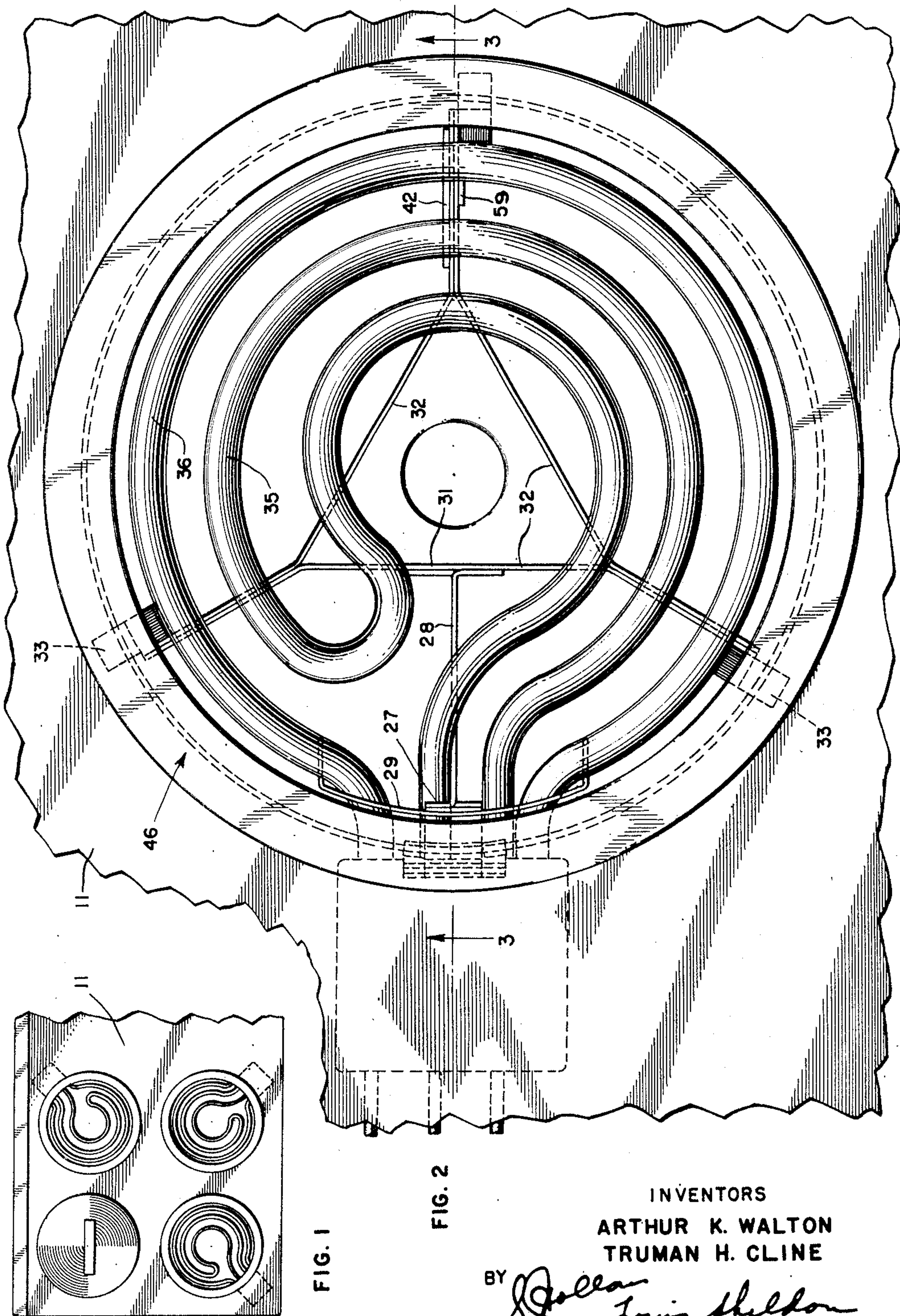


FIG. 1

FIG. 2

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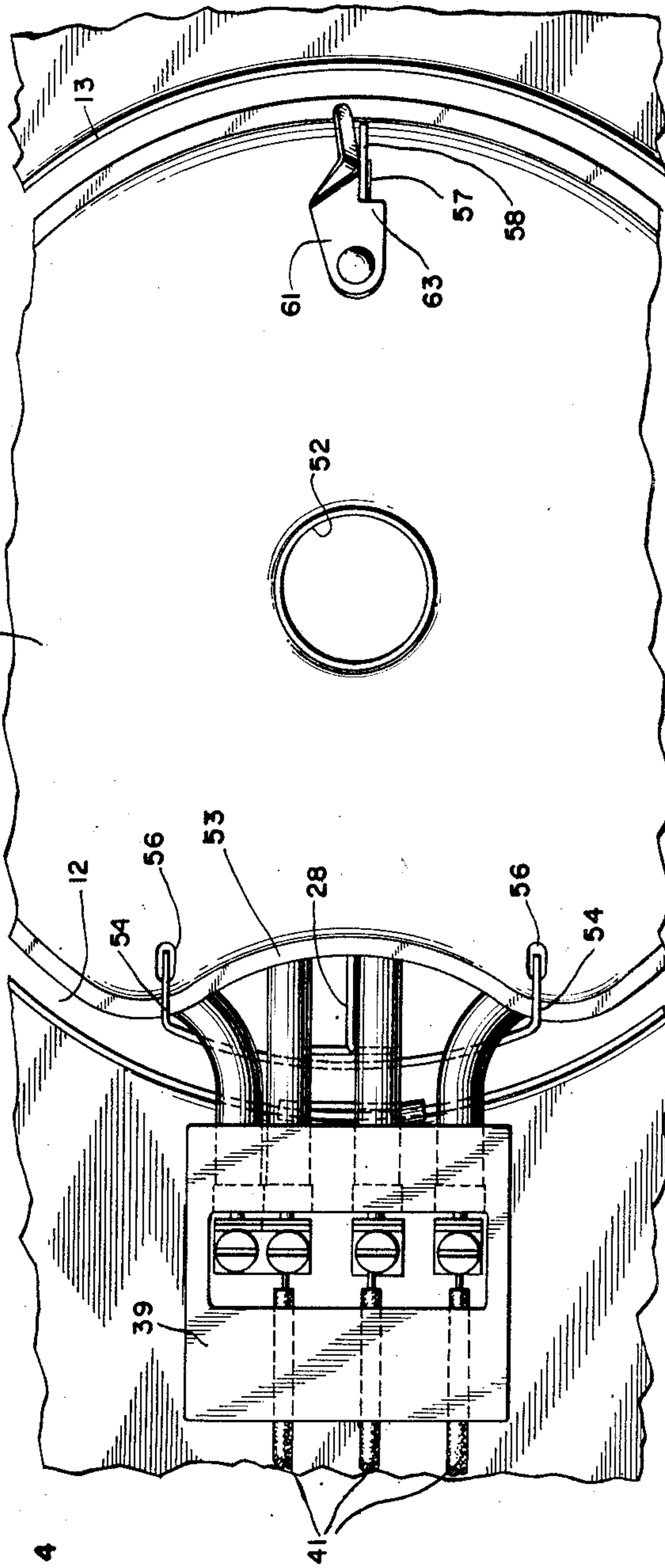
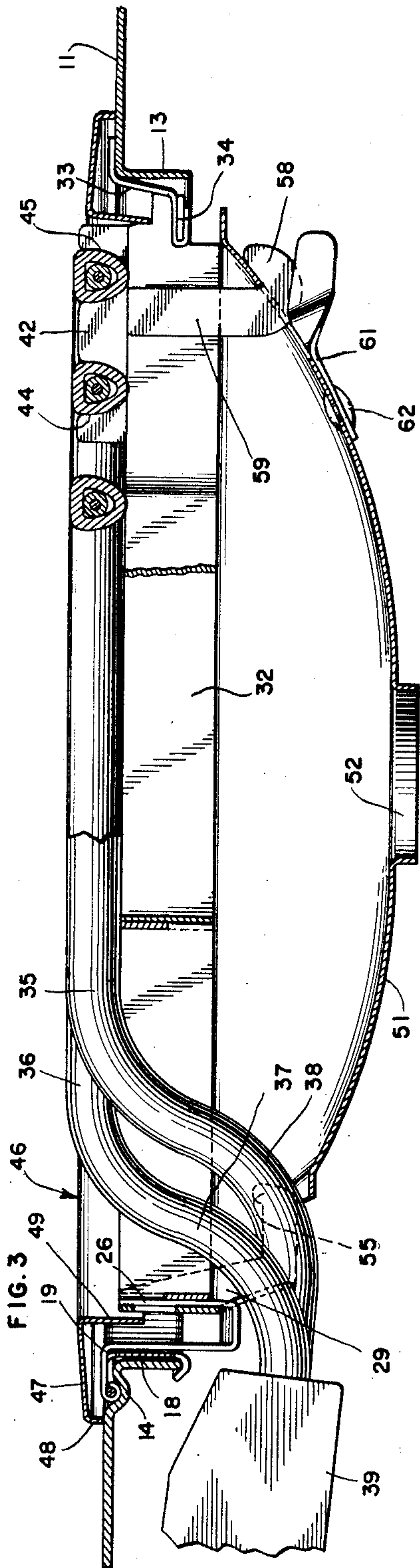
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2,548,183

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Filed Dec. 3, 1945

3 Sheets-Sheet 2



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April 10, 1951

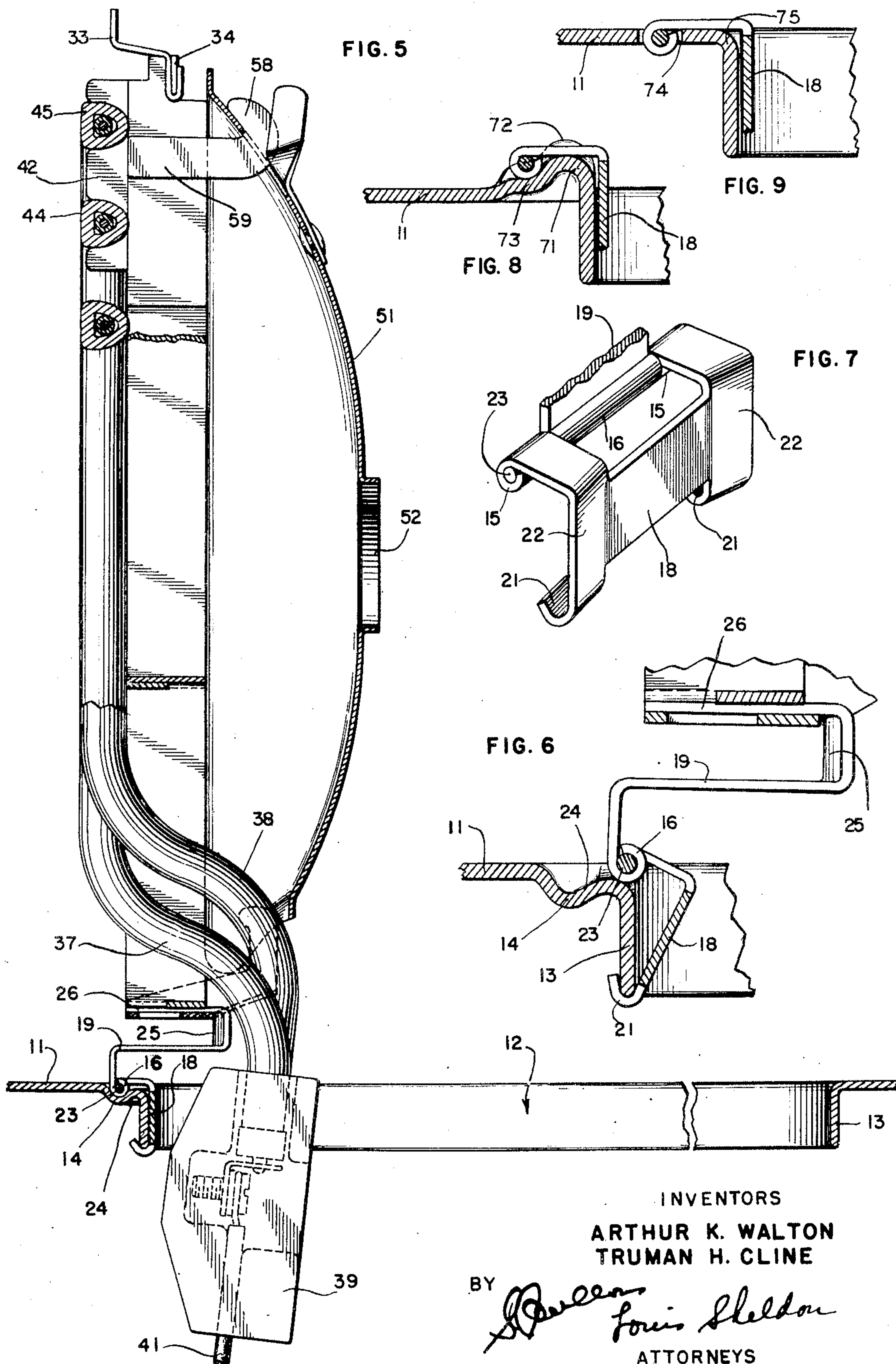
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REMOVABLE HEAT UNIT FOR TABLE TOP STOVES

Filed Dec. 3, 1945

3 Sheets-Sheet 3



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2,548,183

REMOVABLE HEAT UNIT FOR TABLE TOP
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Application December 3, 1945, Serial No. 632,430

8 Claims. (Cl. 219—37)

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The present invention relates to kitchen oven apparatus and is concerned more particularly with electric heating units therefor and improved mechanisms for attaching or securing the same in table top surfaces.

Electric kitchen stoves are provided with a plurality of spaced or grouped surface heating units, which may be used singly or combinedly in the preparation of food and which, as in the case of other kitchen apparatus, must be provided with features of removability in order to afford access for periodic cleaning as well as for replacement purposes in the event of wear or damage.

In the case of electric surface heating units, such contemplation poses particular problems not inherently presented or a part of other types of heating apparatus, for example, gas. The various types of electric heating units require electrical connection with a power source so that removability entails manipulation of power supply cables. Also, because of the safeguards customarily provided, manipulation must take into consideration the disposition of safeguard apparatus. Provisions are also made for preventing spilling or overflowing of foodstuffs from collecting in a hazardous manner or from dropping into inaccessible recesses. These overflow catching devices, being attached to the unit, require to be designed in a manner which will render them equally disposable with the unit during the operation of removal.

Accordingly, a principal object of the present invention is the provision of an electric surface heating unit apparatus which combines with the features of removability and mobility the provision of all conventional advantages, of esthetic as well as commercial attractiveness, and safety cautions.

Further objects of the present invention are such as may be noted during the course of the ensuing detailed specification, as well as those which are illustrated in the annexed drawings that form part of the disclosure hereof.

For a more comprehensive understanding of the structural embodiments which constitute an assembly of certain features of the present invention, reference will now be had to the accompanying drawings and to the following detailed specification in which like reference characters designate corresponding parts throughout and in which:

Fig. 1 is a plan view of a fragment of a kitchen stove table top illustrating an exemplary manner in which heating unit apparatus embodying the present invention may be incorporated;

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Fig. 2 is an enlarged plan view of one of the electric heating units embodying the features of the present invention;

Fig. 3 is a transverse sectional view taken approximately on line 3—3 of Fig. 2;

Fig. 4 is an inverted plan view with parts broken away, showing a nether structure of one of the heating units and featuring the details which pertain to the drip pan construction;

Fig. 5 is a transverse sectional view similar to the illustration in Fig. 3 but showing the heating unit in swung-open position, with the protector ring removed;

Fig. 6 is a fragmentary detailed sectional view through the pivot hinge bracket and allied structure;

Fig. 7 is a detailed perspective view of the hinge spring-on bracket, which affords total removability of the apparatus; and

Figs. 8 and 9 are fragmentary detail sectional views through the pivot and hinge bracket featuring modified forms of deformation and shaping of the table top.

Referring now more particularly to the features of construction, and calling attention to the showing best observed in Figures 2 and 3, the reference character 11 will be noted to designate the table top surface or plate which forms the principal supporting structure for the various units of a kitchen range. This plate is provided with a number of circular openings 12 in correspondence with the number of heating units for which any stove is designed. Each opening 12 is proportioned so as to accommodate the heating unit and its supporting structure and is defined by a downwardly projecting flange 13 of limited and predetermined depth and at a certain tangency to the flange 13 the table top or plate 11 is provided with a deformation of limited extent as designated at 14, Figs. 3 and 5, to receive in partial submergence the hinge elements 15 and 16, see also Fig. 7 of the pair of bracket members, one of which is designated 18 and the other 19.

The bracket 18 may be made of a single piece of sheet metal curved slightly lengthwise thereof, so that the pair of its hooked extremities 21, which are formed with and constitute continuations of its side members 22, may conform to the radii of the circular opening 12. The uppermost terminal extremities of the side members 22 are bent laterally and thence around over to form the hinge elements 15, which house or support the pivot pin 23. Intermediate the elements 15 is a space for accommodating the pivot element 16 of the hinge bracket 19. The hinge bracket 18 is applied to the table top flange 13 in

the manner best illustrated in Fig. 6; that is to say, by engaging its under-bent hook portion 21 around the extremity of flange 13 and springing the hinge elements over the hump curvature 24, which immediately precedes the recess curvature 14 of the table top 11.

As may be observed from the illustration in Fig. 1, the location of the hinge brackets on several surface heaters of a stove is preferably at variance so that these heaters will not conflict with each other when they are swung out into erect position for accessibility as during cleaning.

When the heating unit is disposed in its horizontal position bracket 19 is swung to its extreme clockwise, Fig. 3, position, whereupon the hinge element 19 abuts closely its cooperating hinge element 18 and the long section of hinge element 19 extends downwardly in a vertical direction. Member 19 may be re-enforced with a rib formation as at 25 and preferably affords an arm 26 to which is secured as by welding, Figs. 2 and 3, to the transverse or T-head 27 of a bridging bracket 28 as well as to the curved drip pan supporting bracket 29, one of which elements is placed at one side of the arm 26 and the other at its opposite surface. The bridging bracket 28 is secured as by welding at 31 to one section 32 of a triangular arrangement of bracket elements, which combinedly form a three-legged spider, Fig. 2, that may be assembled from a composition of three similar components secured together by welding or riveting and affording at their respective terminals support to three hanging brackets 33, Figs. 3 and 5. The spider elements 32 are preferably of substantial width and at their extremities have the integral side lugs 34 to which the hanging brackets 33 are secured.

The upper edges of the spider assembly are disposed on a horizontal plane which constitutes lateral support to a system of burner heating elements 35 and 36, in the instant embodiment of the so-called rod type. The terminals of the heating elements 35 and 36 are perfectly arranged so as to be disposed in a horizontal alignment beneath the general location of the pivot bracket as best observed in Figs. 2 and 3. The heating elements 35 and 36 are, moreover, substantially rigid and curving downwardly and outwardly, as best seen in Figs. 3 and 5, and at 37 and 38 extend into and afford support to an insulated terminal block 39. The terminal block 39 receives the heating element rod units in an alignment entering at one of its ends and at its opposite end (see also Fig. 4) there enter three current supply wires 41 in a manner well known in this type of apparatus. In order to prevent the rod units 35 and 36 from being removed from the spider 32, which supports the assembly, an additional bracket member 42 is provided, as best indicated in Figs. 2 and 3, secured as by welding to one leg of the spider extremity and formed so as to embrace the extreme convolutions designated 44 and 45, Fig. 3, in frictionally engaging manner so as to require an extraordinary force when it is to be desired to effect separation thereat.

The several hanging brackets 33, three in the instant embodiment, which are secured to the lug elements 34 of the supporting spider 32, rest their uppermost extremities over the edges which define the several openings 12, and in order to cover the space which intervenes there is provided an annular adaptor ring 46, whose top surface 47 tapers outwardly and downwardly slightly, as best seen in Fig. 3, and is provided

with an outer flange 48, which surrounds and conceals not only the intervening space but the supporting elements 33 and an inner flange 49, which surrounds the outermost convolution 45 of the rod unit 36. This ring member 46 is removed before swinging the heating unit assembly from its position, as illustrated in Fig. 3, to that illustrated in Fig. 5, as when seeking accessibility to the nether regions, usually a space for catching overflow and drippings that pass through the heating unit openings 12.

As a further safeguard and to prevent overflow of hot liquids directly into the catch basin chamber, each heating unit is provided with a drip pan or receptacle 51, intended to function as a primary barrier for dissipating heat but provided, nevertheless, with an opening 52 so that ultimately dischargeable matter may pass into the nethermost space for accumulation. The drip pans 51 are perfectly tailored, as best indicated in Fig. 4, with a cutaway portion as at 53 so as to assure ample clearance and non-interference with the rod unit terminals at the point whereat they enter the junction block 39. The drip pan supporting bracket 29 mentioned above is preferably made of generous width so that its bracket extremities 54 straddle the heating rod terminals to be disposed beneath and enter with their projections 55 into suitable openings 56 formed in the drip pan 51. This affords securement to one end of the drip pan while at its diametrically opposite position there is provided a slot 57 through which may be passed the hooked extremity 58 of a supporting bracket 59, also secured to the spider extremity, as best designated in Figs. 2 and 3. The hook 58 and supporting bracket extremities 55, while ample to afford support to the drip pan 51 as an inert member, may not prevent dislodgement when the unit is swung to and from its alternate positions featured in Figs. 3 and 5. Accordingly, there is provided a pivoted catch 61 riveted as at 62 to the drip pan 51 and designed to present a latching shoulder 53 behind the bracket 58, so that the pan may not be slid laterally to provide clearance for the hooked extremity 58, except upon operation and withdrawal of the catch 61.

Modifications

In Figs. 8 and 9 there are illustrated alternative methods of providing overcentering humps from the springable hinge bracket 18. In Fig. 8 the embossment 71 is struck so as to protrude upwardly beyond the surface 11 instead of as in the preferred form where the embossment 24 is provided at its rear with a depression 14. In order to prevent the hinge bracket 18 from being displaced sidewardly, the embossment 71 is flanked by a pair of higher protrusions 72. The pivotal elements 15 and 16 of the hinge bracket 18 after being sprung over the intermediate embossment 71 rest on a slight plateau section 73. In Fig. 9 the table top 11 is pierced as at 74 so that the hinge bracket 18 after being sprung over the rounded or filleted portion 75 is received within the limited slot 74 and therein held against rotation as well as inadvertent displacement.

While the present invention has been explained and described with reference to a more or less specific embodiment, it is to be understood, nevertheless, that numerous modifications and variations lend themselves to be incorporated thereto without departing from the essential spirit or scope thereof. Accordingly, it is not intended to be limited to the particular details featured in

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the accompanying illustrations nor to the terms of the foregoing specification, except as indicated in the hereunto appended claims.

The invention claimed is:

1. In a kitchen range having a sheet metal table top in which are formed a plurality of openings, perpendicularly struck skirting flanges defining said openings, a tangential portion in said table top adjacent said openings having a recessed depression of predetermined length, a pivotable supporting bracket for heating units housed in said openings comprising a hinge element having a hooked extremity for engaging said perpendicular flange of said openings in said table top, and a springable pivot portion spaced from said hook extremity so as to be sprung over an adjacent high surface of said table top before entering and nesting within said recessed depression of said tangential portion.

2. In a sheet metal table top for kitchen ranges in which are provided a plurality of openings, perpendicularly struck skirting flanges defining said openings, a portion of said table top near each opening having a tangential high surface and an adjacent seating recess, a hinge bracket comprising one hinge element having a hook extremity for engaging the flange of said openings in said table top, and a springable pivot extremity spaced from said hook extremity so as to be sprung over said high surface of said table top before entering and nesting within said seating recess.

3. In combination with a sheet metal table top having an opening defined by a downwardly extending internal skirting flange, a removable hinge bracket for supporting heating units comprising, a springable first hinge element of substantially right-angular formation having a hook at the extremity of one of its component arms to engage said skirting flange anywhere along its circumference and a pintle receiving hinge formation at the extremity of the other one of its component arms, a second hinge element pivoted on the pintle of said hinge formation and including a portion extending in overlying relationship to said first mentioned hinge element and a portion doubling back and secured at its extremity to a heating element support structure for affording pivotable displacement to said structure about its hinge pintle axis, and so as to afford removability from said table top through the springable characteristic of said first hinge element.

4. In combination with a sheet metal range top having a plurality of circular openings and a circular flange defining each opening and having surface recesses spaced from a tangency of each of said openings, an angular hinge member made of springable material having hook-engaging means to cooperate with said flange and hinge ears to be partially submerged in said recesses, a cooperating hinge member overlying said first mentioned hinge member and having secured at its extremity a supporting member for a heating unit for the purpose of affording pivotal displacement to said heating unit and for being springably removable by the unseating of said first mentioned hinge member from its recess.

5. In a kitchen range having a sheet metal range top with flanged openings for housing heat units and a surface recess adjacent each opening spaced from and tangent to said openings, a hinge member of right-angular formation made of springable material having hook-engaging means to cooperate with said flanged openings and hinge ears adapted to fit into said recesses, a co-

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operating hinge member overlying said first mentioned hinge member and carrying a heat unit for the purpose of affording pivotal displacement to said heat unit about said hinge member's common pivot and for being springably removable by the unseating of said first mentioned hinge member from said recess and flanged opening.

6. In a kitchen range, the combination including a table top having a plurality of heat unit openings, each defined by a skirting flange, a portion of said top near each opening having a surface recess tangent to its respective opening, a hinge member comprised of two cooperating pivotable arms similarly bent so that each consists of a right-angular member adjacently disposed to the other of said arms, the inner one of said arms being of springable material and having a hooked extremity for engaging the defining flange adjacent its recess and for presenting its pivot hinge portion within said recess after overpassing a high portion in said table top intervening the heat unit opening and its recess, a principal heat unit supporting frame secured to the outer one of said arms and including drip pan supporting projections, a drip pan for engaging said projection, and catch means associated with said drip pan to prevent inadvertent displacement during pivotal movement of said hinge member.

7. In combination with a sheet metal table top for kitchen ranges or the like in which are provided one or more circular openings, perpendicularly struck skirting flanges defining said openings, a portion of said table top tangential to said openings having an elevated embossment flanked by opposite side embossments, a hinge bracket comprising one hinge element having a hooked extremity for engaging the flange of said openings in said table top, and a springable pivot portion spaced from said hooked extremity and adapted to be sprung over said elevated embossment of said table top and to nestle between said opposite side embossments for retention and seating against inadvertent displacement.

8. In combination with a sheet metal table top for kitchen ranges or the like in which are provided one or more openings, perpendicularly struck skirting flanges defining said openings, a portion of said table top near each opening having a hinge receiving notch, a hinge bracket including one hinge element having a hooked extremity for engaging the flange of said openings in said table top and being bent at right angles and springable so that the hinge pivot of said one element may be sprung over and seated within said notch for retention against inadvertent displacement.

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