April 21, 1925. 1,534,431

G. F. WELLS

ELECTRIC WAFFLE IRON

Filed May 10, 1924 3 Sheets-Sheet 1

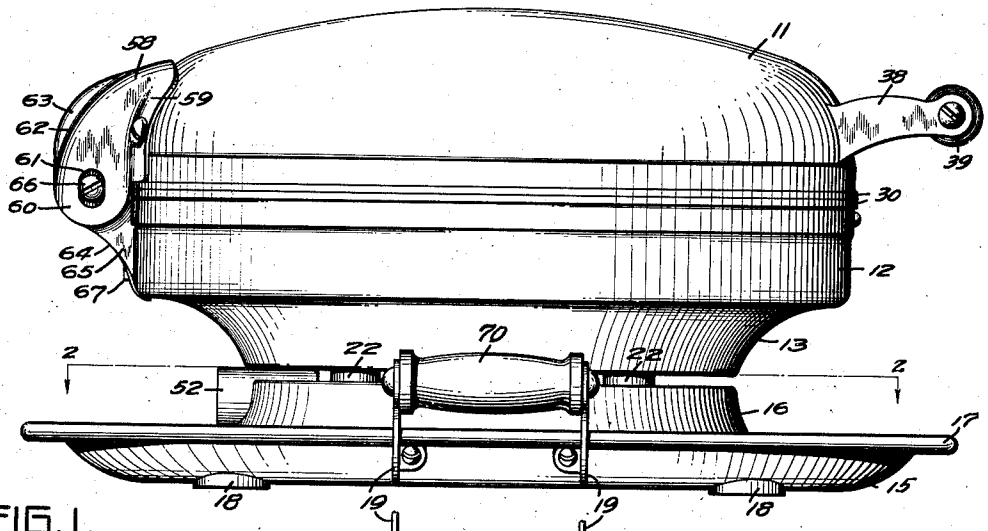
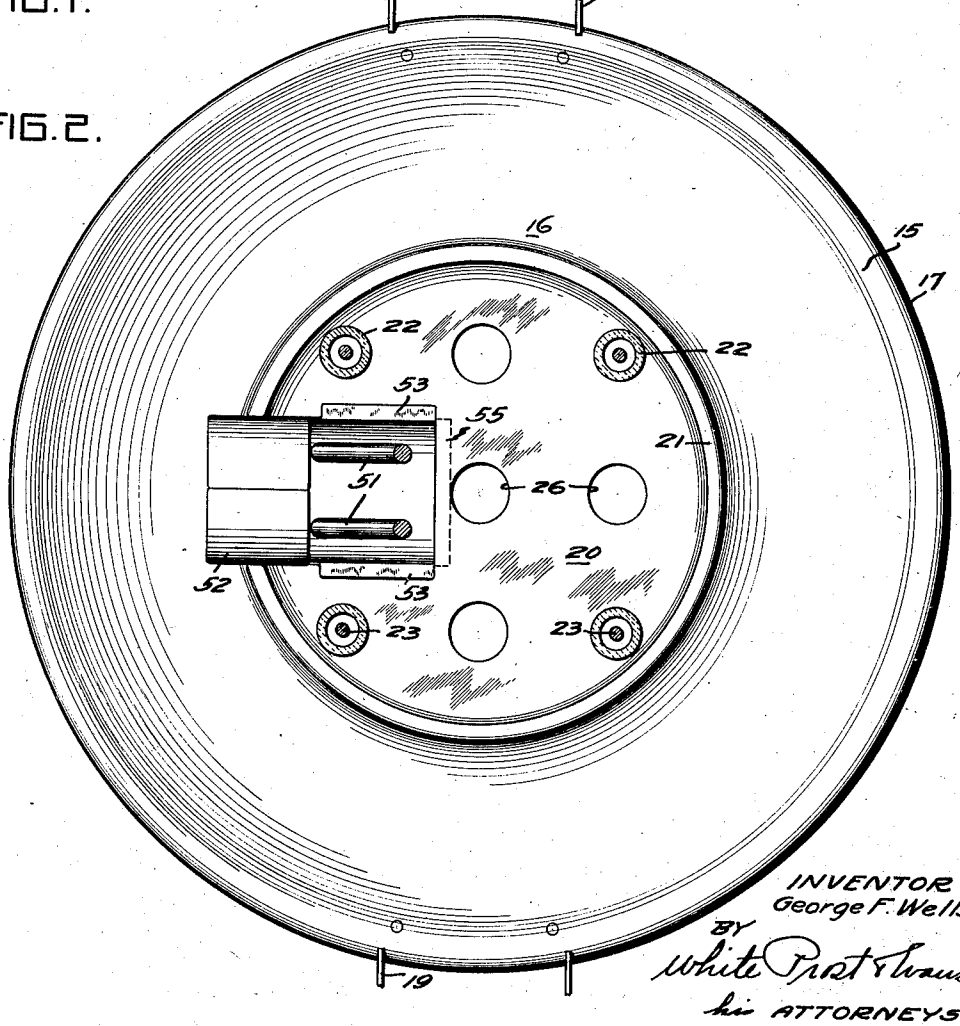


FIG. 1.

FIG. 2.



INVENTOR
George F. Wells
BY
White Prost & Evans
his ATTORNEYS.

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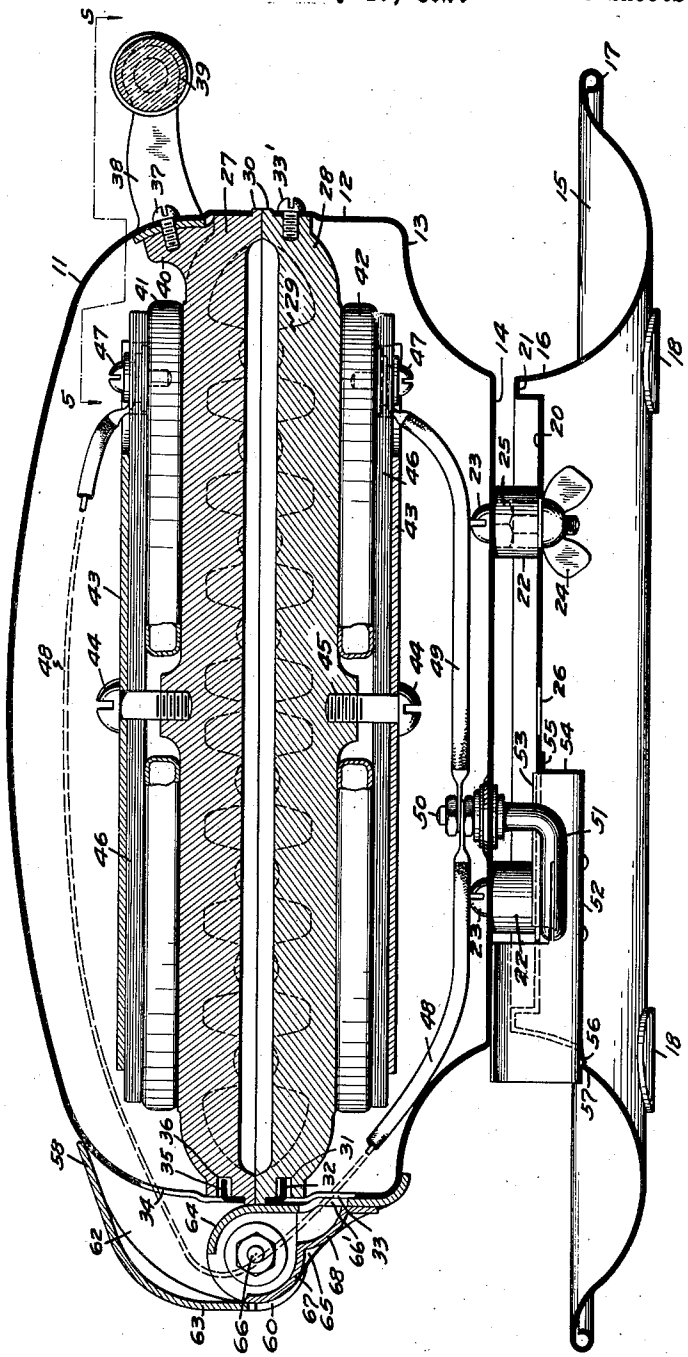


FIG. 3.

INVENTOR
George F. Wells

BY
White Prost & Evans
his ATTORNEYS

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G. F. WELLS

ELECTRIC WAFFLE IRON

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FIG. 4.

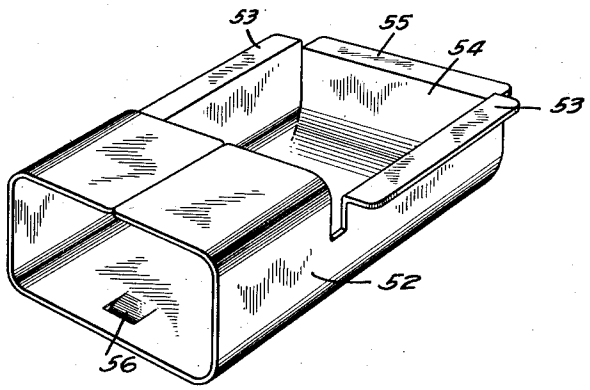


FIG. 5.

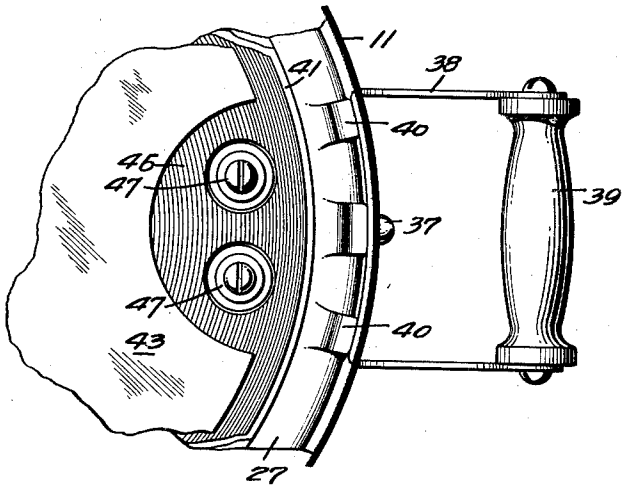
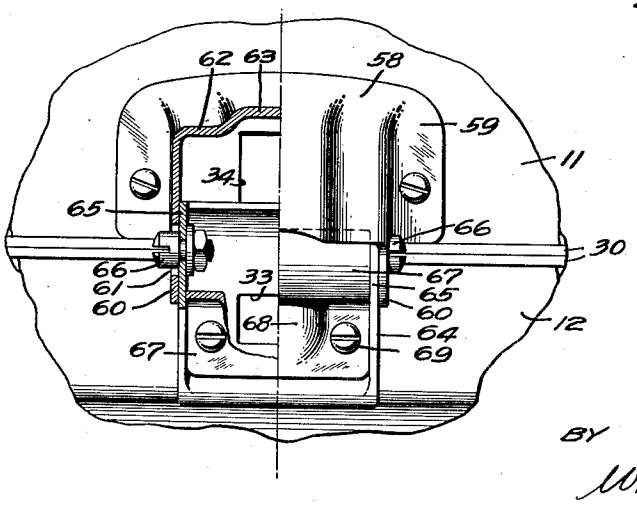


FIG. 6.



INVENTOR
George F. Wells
BY
White Prost & Evans.
his ATTORNEYS.

Patented Apr. 21, 1925. 1,534,431

UNITED STATES PATENT OFFICE.

GEORGE F. WELLS, OF SAN FRANCISCO, CALIFORNIA.

ELECTRIC WAFFLE IRON.

Application filed May 10, 1924. Serial No. 712,419.

To all whom it may concern:

Be it known that I, GEORGE F. WELLS, a citizen of the United States, and a resident of the city and county of San Francisco, in the State of California, have invented a new and useful Electric Waffle Iron, of which the following is a specification.

This invention relates to an electrically operated cooking utensil, and more particularly to an electrical waffle iron.

It is one of the objects of my invention to improve the construction and operation of such waffle irons, whereby it is possible to operate them in an efficient manner.

It is another object of my invention to make it possible to clean the iron thoroughly, by the provision of a heat insulating support that may readily be removed.

It is another object of my invention to provide for heat insulation for the iron efficiently and inexpensively.

It is still another object of my invention to simplify the means for holding the waffle molds in place.

Another object is the provision of an improved type of hinge for connecting the two molds together, and for concealing the electrical connections leading to the heating elements.

My invention possesses other advantageous features, some of which with the foregoing, will be set forth at length in the following description, where I shall outline in full that form of the invention which I have selected for illustration in the drawings accompanying and forming part of the present specification. Although I have shown in the drawings but one embodiment of my invention, I do not desire to be limited thereto, since the invention as expressed in the claims may be embodied in other forms also.

Referring to the drawings:

Figure 1 is a side elevation of a waffle iron embodying my invention;

Fig. 2 is a sectional view taken along plane 2—2 of Fig. 1, with the lifting handles partly shown;

Fig. 3 is an enlarged sectional view of a complete iron such as shown in Fig. 1;

Fig. 4 is a perspective view of the guide for the connection plug, used with the iron illustrated in Fig. 1;

Fig. 5 is a fragmentary sectional view, taken along plane 5—5 of Fig. 3, and illustrating the manner in which the upper mold and the handle are fastened in place on the upper hinged waffle iron section; and

Fig. 6 is a view, partly in section and partly broken away, of the hinge connecting the two sections.

In the present instance, I show a waffle iron that has hollow circular hinged top and bottom members 11 and 12, preferably made from sheet metal and formed to have pleasing contours; for example, by making the top member 11 domed, and the lower member 12 with an inwardly projecting concave surface 13, leading to a flat circular surface 14. Within these two members are disposed the waffle molds and the electrical heating elements, all of which will be described hereinafter.

The entire device is supported on a circular base 15 that is made from sheet metal. This base has an upwardly projecting concaved surface 16 that, for the sake of appearance, is made to form substantially a continuation of the surface 13. It also forms a beaded flange or rim 17, defining an annular groove in the base 15, disposed below the edges of the members 11 and 12, to catch whatever material may find its way out between the waffle molds. This flange also assists in keeping the base 15 cool, since it exposes a large cooling surface, having the effect substantially of a cooling fin. There may be provided several felt feet 18 or the like, for permitting the base 15 to rest upon any appropriate place without danger of marring the surface of table tops or the like. Furthermore, a pair of handles 70 may be fastened at diametrically opposite points of the base, as by the aid of straps 19, whereby the waffle iron may be readily carried by hand from place to place.

One of the features of my invention resides in the fact that an air space separates the base 15 from the lower member 12, so that little, if any heat is conducted to the base. In this way, the heat generated by the heating elements is utilized efficiently, and the base 15 remains cool, permitting ready handling. In order to provide this air space, a disk-like member 20 forming a depressed surface (Figs. 2 and 3) is arranged near the top of the base 15, as by appropriate stamping of the material to produce the bead 21. A plurality of insulating spacers 22 are inserted between the surface 20 and the bottom surface 14 of member 12. These are preferably in the

form of short fibre tubes or the like, through which appropriate fastening devices may pass for holding the member 12 rigidly in place. For example, the screws 23 may be passed through these tubes, as well as the bottom of member 12 and the disk 20. Wing nuts 24 provide a convenient means for fastening the screws 23, and yet permit removal of the base 15 whenever it is desired to clean or polish the waffle iron thoroughly. For the sake of convenience it is advisable to arrange matters in such a way that the screws 23 are tight in the member 12, as by the use of nuts 25, and the tubes 22 fit tightly over these nuts, so that they also are substantially a part of the lower member 12.

The disk 20 not only serves to support the waffle iron members 11 and 12, but also acts as a shield to prevent material radiation of heat from the bottom surface 14. However, I find it advisable to provide a few apertures 26 to permit air to circulate through the base 15 and around the lower member 12. This circulation is also assisted by the provision of the feet 18, that raise base 15 above the table top to permit entry of air.

The shell members 11 and 12 each house a waffle mold 27 and 28, which, as indicated most clearly in Fig. 3, is provided with the usual bosses or projections 29. Furthermore, each mold has a lip or flange 30 on which the edges of the shell members 11 and 12 engage. The manner in which I fasten these molds into the members 11 and 12 is extremely simple and economical. For example, the lower mold 28 has a slot 31 at the rear, into which fits a projection 32 stamped out of the member 12 and at the edge of an aperture 33 (Figs. 3 and 6). This aperture serves to permit the passage of electrical connections through the hinge, which will be later described. At the front end of the mold 28, a screw 33′, passing through member 12, is tapped into the mold. In this way a single fastening means is sufficient to hold the mold 28 in place. For facilitating the insertion of the mold 28 into the member 12, the slot 31 is purposely made wide so that a considerable angular play is permitted between the mold 28 and the projection 32.

The mode of fastening the upper mold 27 into the member 11 is entirely analogous to that already described in connection with the lower mold 28. In this instance an aperture 34 is provided at the rear of member 11 through which the electrical connections may pass. The lower edge of this aperture is formed by a projection 35 similar to projection 32, and extending into a wide groove 36 in the mold 27. At the front of mold 27, however, the screw 37 is used not merely to hold the mold in place, but also to attach a handle structure 38 to member 11. For this purpose, the handle proper 39 is supported between the two legs of the U-shaped structure 38, as shown most clearly in Fig. 5. These legs pass through appropriately formed slots in the member 11. The handle is held in place by the aid of the three bosses 40 formed integrally on the upper surface of mold 27. The center one of these bosses accommodates the screw 37 which fastens the mold 27 as well as the handle structure in place.

Each of the molds 27 and 28 has a heating element 41 and 42, which is of any desired construction. These elements are held closely against the rear side of the molds, as by the aid of a clamping ring 43 of metal, and a screw 44 that engages a tapped aperture 45 in a boss formed centrally of the mold. The heating elements each have a central aperture that is designed to fit over this boss. For securing proper insulation, a layer 46 of asbestos or the like may be interposed between the heating element and the clamping ring 43. Each of the elements is also provided with a pair of terminal posts 47 that are left uncovered by the plate 43, to permit electrical connections to be readily made.

These connections are so arranged that they are not only hidden from view, but are protected against the deteriorating influences of grease, water, excess batter, or other forms of foreign matter. For this purpose the connections 48 to the upper section pass through the apertures 33 and 34, as indicated in Fig. 3; and that portion which extends outside members 11 and 12 is concealed by the hinge construction which will be later described. These connections, as well as connections 49 for the lower mold element 42, lead to a pair of binding posts 50 fastened in the bottom of member 11 and insulated therefrom in any appropriate manner. These binding posts are connected to a pair of prongs 51 that have a horizontal projection outside the member 12 for cooperating with any convenient form of contact plug. In this manner connections from an external source can be effected.

In order to guide this plug so that the insertion of prongs 51 therein may be facilitated, it is customary to provide a tubular guide member. In the present instance the plug guide 52 is so arranged that its assembly with the other parts is very quickly and simply accomplished and without the aid of separate fastening devices. The guide construction is best disclosed in Fig. 4, and its manner of assembly, in Figs. 2 and 3. It is arranged to be held against removal by its location beneath the member 12, and on base 15, these two parts serving to lock the guide in place when they are assembled. It is evident that this guide has at least a portion

of it located in the air space between the base 15 and the bottom 14 of member 12. The front portion of the guide forms a substantially continuous cylindrical tube, while the rear part is cut away at the top in order to permit passage of the prongs 51 into the guide. At each side of this cut away portion there is a lap or flange 53 that is intended to contact with the top surface 20 of the base 15. The guide 52 also has a rear wall 54 which may limit the movement of the plug into the guide. At the top of this wall there is another lap or projection 55 which engages the top 20 on its bottom surface. This top 20 is furthermore cut away to form a slot permitting the guide 52 to extend downwardly below this top, as clearly shown in Fig. 3. The mode of assembly of the guide 52 with the base 15 is now evident. The projection 55 is first passed down below the top 20 while the entire guide is held in a tipped up position toward the left. Then the guide can be pushed as far as possible to the right and depressed to the position shown, bringing flanges 53 down on top of the cover portion 20.

The fit between the guide and this part of the base is purposely made snug so that the guide is quite firmly gripped along its sides by the edges of the cut away portion of the cover 20. But in order to ensure still further against removal by a horizontal pull, I preferably provide a small projection 56 on the bottom of the guide 52, as by proper stamping. This projection is arranged to be sprung behind the edge 57 of the curved surface 16, where the guide 52 rests thereon. The guide and the base being made from resilient material, this mode of assembly is entirely practicable. After the guide 52 is thus assembled with the base 15, the waffle iron hinged members 11 and 12 may be placed on top of the base and fastened thereon.

There remains to be described, the hinge construction that unites the two halves of the waffle iron. As shown most clearly in Fig. 1, the top member 11 carries a lug supporting member 58 which is hollow and fastened to the member 11 by the aid of the side flanges 59. Adjacent these flanges are the side members forming the hinge lugs 60. These hinge lugs extend downwardly and are placed about opposite the plane of contact between the parts 11 and 12, and are provided with elongated apertures 61 to permit vertical play of the member 11 with respect to member 12. The connections 48 pass between the lugs 60, as is clearly shown in Fig. 3. There is formed integrally with the lugs, a wall 62 that acts as one of two overlapping parts for concealing these connections. In order to provide sufficient room for the connections, this wall 62 may if desired be formed with a bulging portion 63 placed about opposite the aperture 34.

The lower member 12 carries a cooperating hinge member 64 that has at each side, hinge lugs 65 which fit between the lugs 60. The hinge pins are formed by the heads of screws 66 which are fastened to the lugs 65 and engage in the apertures 61. That portion of hinge member 64 which is fastened to the mold member 12, and connects the lugs 65, is curved upwardly between these lugs, as indicated in Fig. 3; and an aperture 66′ is also provided therein, registering with aperture 33 to permit the passage of connections 48 through these apertures and back of the upwardly curved portion of member 64. This upwardly curved portion thus conceals these connections when the iron is opened, the rear edge of the upper mold 27 moving over this curved portion.

In order to conceal the connections completely, I provide an extra separable piece 67 which fits between the lugs 65 and is arranged to underlie the member 62 when the mold is open. This piece 67 has a tubular top portion which is concentric with the axis of the pins 66, forms with the rear of the hinge member 64, an interrupted cylinder, as clearly indicated in Fig. 3; the space between these two parts permits the connections 48 to pass through. In order to give sufficient room for these connections, a bulge 68 placed centrally of the member 67 may be provided. At each side of this bulging portion, screws 69 or other fastening means may be used to hold the piece 67 in place.

Making piece 67 separable, instead of integral with the member 64, as has been done heretofore, facilitates the manufacture considerably, since all of the parts are capable of being stamped out by comparatively simple dies. Furthermore, the bulging portion 68 serves as a stop against which the lower edge of hinge member 63 abuts when the iron is completely open.

I claim:

1. In an electrical cooking utensil, a metallic supporting base having depending side portions serving as rests for the base, a metallic member in which the cooking is to be performed, a heating element for said member, and means for supporting the metallic member on the base in such manner that there is substantially an uninterrupted air space between them.

2. An electrical cooking utensil having a metallic supporting base with integral depending side portions serving as rests, a metallic member in which the cooking is to be performed, and a heating element for said member, characterized by the fact that the fastening means are provided between the base and the member which also serves to space them apart, so as to leave substantially an uninterrupted air space between them.

3. In an electrical cooking utensil, a metallic supporting base having a top surface of substantial extent and depending side portions serving as rests, a metallic member in which the cooking is to be performed, and having a bottom surface of substantial extent, a heating element for said member, and means for supporting the member on the base, including spacers interposed between the top surface of the base and the bottom surface of the member, and leaving substantially an uninterrupted air space between them.

4. In an electrical cooking utensil, a metallic supporting base having depending side portions serving as rests, a metallic member in which the cooking is to be performed, and means for spacing the member from the base so as to leave a substantially uninterrupted air space between the top of said base and the bottom of the member, said top being a substantially continuous surface that shields against radiation of heat from the bottom of the member.

5. In an electrical cooking utensil, a supporting base formed of thin metal and having a top in which there are one or more apertures communicating with the interior of the base, said base being open at the bottom, a metallic member placed over said top and spaced therefrom to leave an air space between it and the top of the base, and a heating element carried within said member whereby a cooking operation may be performed in said member.

6. In an electrical cooking utensil, a metallic member in which the cooking is to be accomplished, a heating element in said member, a base supporting said member, and a guide for a connection plug clamped between the base and the member.

7. In an electrical cooking utensil, a metallic member in which the cooking is to be accomplished, a heating element in said member, a separable base supporting said member, and a guide for a connection plug carried by the base and located between the member and the base.

8. In an electrical cooking utensil, a base for the utensil having a top cover upon which the utensil is supported, and a plug guide carried on said base, said cover being cut away to present a slot for permitting at least a portion of said guide to extend below the top, and the edges of the slot firmly gripping the guide, said guide also having projections at the sides for contacting with said cover.

9. In an electrical cooking utensil, a base for the utensil having a top cover upon which the utensil is supported, and a plug guide carried on said base, said cover being cut away to present a slot for permitting at least a portion of said guide to extend below the top, and the edges of the slot firmly gripping the guide, said guide having a pair of projections, one on each side for contacting with one side of the cover, and a projection at the rear for contacting with the other side of the cover.

10. In an electrical cooking utensil, a base for the utensil having a top cover upon which the utensil is supported, and a plug guide carried on said base, said guide having a rear portion arranged to contact with the bottom of a slot cut in the cover to accommodate the guide, and said guide being provided with a snap lock engagement with the base to prevent its withdrawal from the slot.

11. In an electrical waffle iron, a waffle mold, a hollow member in which the mold is located, and a heating element in the member arranged to impart heat to the mold, and means for holding the mold in the member, comprising a slot and projection engagement between the edges of the mold and the member, and a screw fastening means passing through the edges at a point remote from the slot and projection engagement and tightening the edges together.

12. In an electrical waffle iron, a waffle mold, a hollow member in which the mold is located, a heating element in the member for imparting heat to the mold, said member having an aperture for permitting connections to be made to the element, one of the edges of the aperture being turned to provide a projection entering into a slot formed in the edge of the mold, and a fastening screw passing through the hollow member into the edge of the mold at a point remote from that where the slot is located.

13. In an electrical waffle iron, a waffle mold, a hollow member in which the mold is located, a heating element in the member for imparting heat to the mold, a handle structure projecting from the member, and a single means for fastening the handle structure and the mold to the hollow member.

14. In an electrical waffle iron, a waffle mold, a hollow member accommodating the mold and telescoping over its edge, a handle construction including a pair of arms passing through the member from the inside to the outside, as well as a connecting strap between the arms and contacting with the inner surface of the member, and a fastening device passing through the member and the strap and engaging the edge of the mold, whereby said device holds the mold and the handle construction firmly to said member.

15. In an electrically heated utensil, a pair of cooperating members, a heating element for each of said members, a pair of spaced hinge lugs carried by each of said

members, and pivotally connected, whereby the two members may be rotated relatively to each other, electrical connections between the members passing through the space located between the hinge lugs on each member, a wall extending between the hinge lugs on one member and formed integrally with the lugs to conceal the space between them, and a separable piece fastened between the lugs of the other member and arranged to overlap the said wall as the members are moved relatively to each other.

In testimony whereof, I have hereunto set my hand.

GEORGE F. WELLS.