

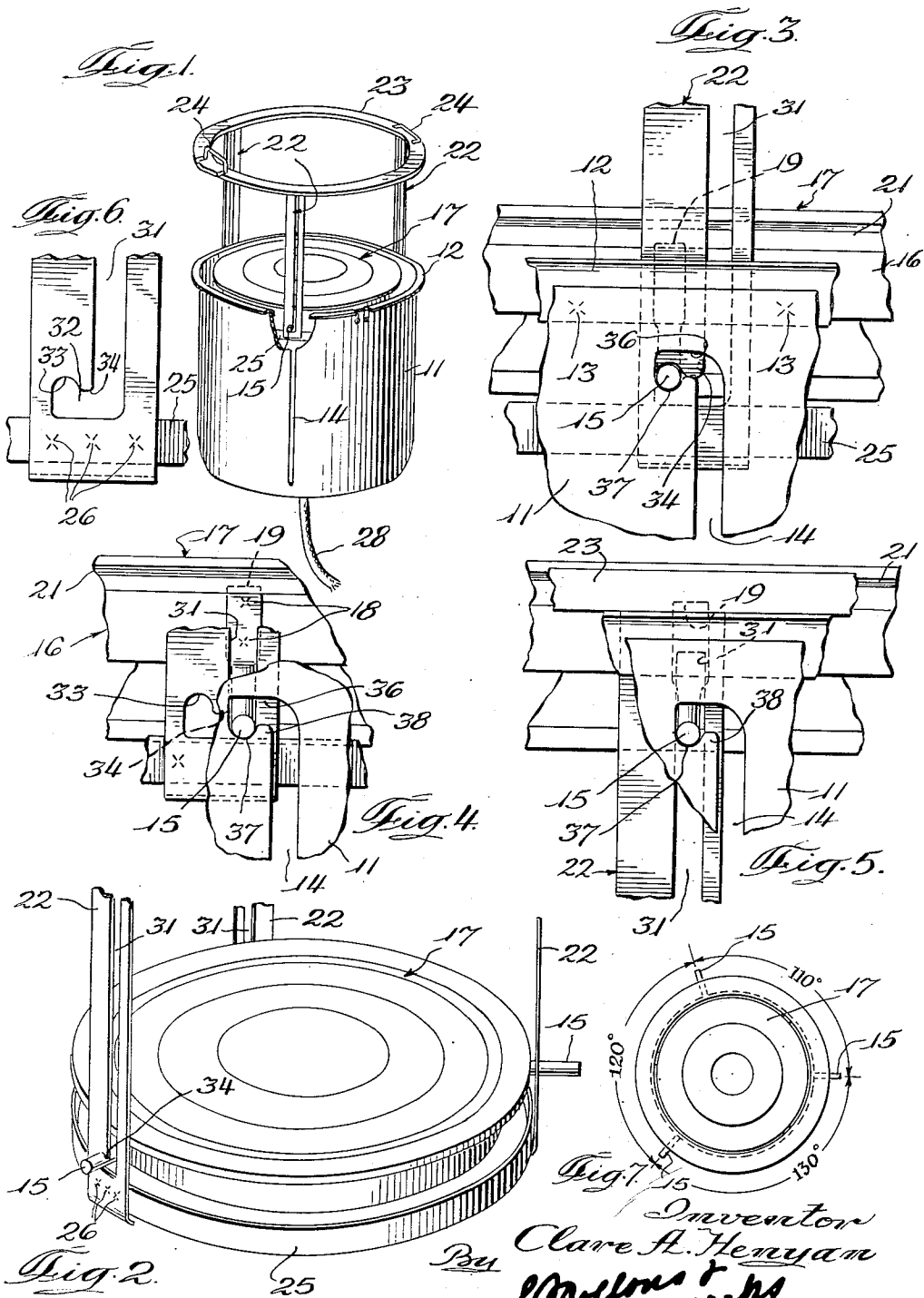
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NONTILT DEEP WELL APPARATUS

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NONTILT DEEP WELL APPARATUS

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3 Claims. (Cl. 219—37)

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The present invention relates to oven cooking apparatus and is concerned more particularly with an improved type of subsurface or deep well heating fixture.

In mechanisms of the general class to which this invention relates, there is presented a fundamental problem of manipulating heating plate units so that they may be supported at various and adjustable levels under conditions of secure and positive regulation, taking into account that at times the heating apparatus may be too hot to be handled directly and taking into account, also, that because of the submergence of the apparatus and resultant inaccessibility to observation, proper placement and security of adjustment are oftentimes a matter of chance.

A principal object of this invention, therefore, is to provide a deep well cooking and heating apparatus in which the adjustable level heating unit is positively and securely engaged during adjustment and manipulation and following variable level placement is assured of positive balanced support.

Another object of the present invention is to provide an adjustable level heating plate which is supported upon a plurality of radiating securement members under conditions of nested radial support so as not to be susceptible of overbalancing even when subjected to off-center loads.

For a more comprehensive understanding of the invention, reference will now be had to the particular details of construction illustrated in the accompanying drawings and to the following detailed description in which like reference characters designate corresponding parts throughout; and in which,

Fig. 1 is a diminutive perspective view of a deep well cooking fixture with parts broken away to reveal interior features;

Fig. 2 is an enlarged fragmentary perspective view of an adjustable level heating plate and a portion of its radial element supporting fixtures;

Fig. 3 is an enlarged fragmentary side elevation of the supporting fixtures and regulating mechanism;

Fig. 4 is an enlarged detailed elevational view of the same apparatus featured in Fig. 3 during an intermediate condition of adjustment;

Fig. 5 is a view similar to Figs. 3 and 4 showing a further condition of adjustment;

Fig. 6 is a fragmentary elevational view of a portion of a supporting element; and

Fig. 7 is a diminutive plan view of the heating element featuring the angular disposition of its radial supporting spiders and arms.

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This invention is an improvement upon the class of apparatus which is illustrated in copending applications serially numbered 611,526, now Patent #2,497,258, and 686,010, now Patent #2,485,698, filed August 20, 1945, and July 24, 1946, respectively.

In the accompanying drawings, the reference numeral 11 designates generally an outermost jacket of cylindrical conformation fabricated of sheet metal and provided with a circular supporting lip 12 spot welded as at 13 at various points at the upper peripheral edge of the jacket 11 so as to effect integration between the two members. Conventionally, the top table surface of a domestic cooking range is provided with a circular opening into which the jacket 11 may enter and descend its full length to be supported by the flange ring 12. Thus, the jacket 11 constitutes a protective enclosure for shielding the well against dust infiltration as well as to provide support by means of the vertical slots 14, preferably three in number, to a series of radially extending arms 15, Fig. 7, which form part of a spider assembly generally designated 16.

In the instant embodiment, the spider assembly 16 is comprised of a ring member which supports the burner proper 17 and has secured to it as by welding 18, the upstanding portions 19 of which the arms 15 are an integral part. A flange 21 of the spider ring 16 is diminished so as to nestle snugly yet slidably within the confines of the well jacket 11 permitting sufficient space therebetween and radially thereabout, nevertheless, so that there may be received the three vertical elements 22 of a manipulator, as best indicated in Fig. 1.

The manipulator is a welded assembly which includes a top ring 23 flanked by the fold over gripping handles 24 and to which are secured the three vertical elements 22, preferably as by spot welding, and a lowermost skirting ring 25, Fig. 2, to which are secured the lower extremities of the elements 22 as at 26 by spot welding.

In order to assure that the spider projections or arms 15 be placed in proper axial and radial alignment, the elements 22 as well as the arms 15 are radially spaced in a significant nonequal angular spacing so that the distances between them differ, as, for example, in the order of 110, 120 and 130 degrees, assuring of particular placement during assembly and during field readjustment. This arrangement is deemed desirable in order that the electrical connections between the heating plate and the source within the oven conform with original plans and designs in order

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to prevent twisting and maladjustment of the cable 23. The same plan of radial spacing is also imparted in the location of the guide and support grooves 14 of the jacket member 11.

Each manipulator element 22 is a firm metallic strap having a longitudinal slot 31 which terminates at its lower end with a lateral extension 32 having a nesting curvature 33 into which the related arm 12 may recede so that the adjacent projection 34 may afford purchase during the act of rotating the spider arms when the heating plate 17 is positioned into its upper or at an intermediate level of the well jacket 11, such as is illustrated in Figs. 3, 4 and 5.

In the chosen embodiment of illustration, the jacket 11 is indicated as having but one series of upper level supporting slots 36 each of which is located at the uppermost extremity of its related vertical slot 14. By referring to the copending applications, it will be understood that a plurality of such series of slots 36 may be provided at different levels for affording a range of placements for the heating plate 17. Each such sidewardly extending slot 36 is shaped with downwardly curved nesting-recesses 37, Figs. 4 and 5, so that the adjacent upstanding lug 38 will constitute a barrier against rotation of the heating plate 17 and consequent displacement of a related arm 15 through inadvertence. Thereafter, when the manipulator is disengaged from the several arms 15 and is permitted to settle into its submerged inactive position, the heating plate 17 will be securely maintained at its placed level even though objects of frictional engagement, when seated on the surface of the plate 17, tend to impart a radial shifting thereto or under conditions when small weighty objects are placed on the plate 17 in off-center or overbalancing position.

When the plate 17 is permitted to descend to its lowermost level, no special provision need be made to thus secure it against inadvertent overbalancing or tilting, as above described. Hence, the lowermost extremities of the slots 14 may terminate with simple filleted curvatures. When other intermediate level slots 36 are preferred, they will, of course, resemble in profile those of the uppermost level which have been detailedly illustrated in Figs. 3, 4 and 5.

During operation the attendant may move the heating plate 17, even though its surface temperature is too high to permit direct personal contact, by means of the manipulator, Fig. 1, which will be raised by engagement of the two handles 24 until there is encountered the several arms 15 at the previous placed level. By counterclockwise rotation these arms 15 will be shifted into the sidewardly extending projections 32 of the manipulator elements 22, and by being lifted and thence rotated further in a counterclockwise direction, the spider arms 15 will be raised out of the recesses 37 over the hump projections 38 to be lifted or lowered to the next level of adjustment. The placement of the heater at a new level is performed by a reversal of the afore-described sequence of operations after which the manipulator may again be restored to its inactive position. This operation may even be carried on while an object under cooking or heating is resting on the surface heater 17.

While the present invention has been explained and described with reference to a specific contemplation of embodiment, it will be understood, nevertheless, that numerous modifications and

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variations are susceptible of incorporation without departing from the essential spirit or scope thereof. It is, accordingly, not intended to be limited by the details of the accompanying drawings nor by the particular language employed in the foregoing description except as indicated in the hereunto appended claims.

The invention claimed is:

1. A mechanism for regulating the level of an electric heating plate comprising, a plate supporting spider having three radially extending support rods, a cylindrical well jacketing having vertical slots radially spaced in correspondence with the radial spacing of said rods, said slots having sets of sidewardly extending notches at predetermined levels each similarly profiled to present a nesting curvature to support a related one of said rods and intervening said nesting curvature and its vertical slot having an upstanding hump projection, and a manipulator comprising a surface ring from which hang downwardly three vertically slotted elements between said plate and said jacketing through which said support rods protrude, the slots in said elements terminating at their lower extremities with side notches and hump projections which are profiled in vertically inverse outline to those of said jacketing slot notches.

2. A mechanism for regulating a vertically movable electric heating plate comprising, a plate supporting fixture having radially extending support rods, a cylindrical well jacketing having vertical slots spaced in correspondence with said rods in which are formed perpendicularly extending notches at predetermined levels each profiled to present a curvature to support a related one of said rods, and a manipulator comprising a ring from which hang downwardly three vertically slotted elements for engaging said support rods, the slots in said elements terminating at their lower extremities with notches profiled in vertically inverse outline to those of said jacketing slot notches.

3. A deep well cooking apparatus for electric ranges comprising a cylindrical jacket having circumferentially spaced vertical slots, a heating plate having radially extending arms with extremities extending through said slots for vertical movement therein, a manipulator comprising a ring from which depend a number of vertically slotted elements adapted to fit between said heating plate and said jacket, said jacket and said depending elements each having in their vertical slots sidewardly extending notches but the notches of said jacket being of inverse profile to those of said depending elements, the notches of said depending elements defining nesting curvatures and barrier lugs intervening between the nesting curvatures and their related slots whereby said heating plate arm extremities may be retained in said curvatures and be prevented from sliding into said slots inadvertently.

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