

Feb. 25, 1958

G. E. AMMERMAN

2,824,944

ELECTRIC HEATING APPARATUS

Filed Dec. 9, 1954

4 Sheets-Sheet 1

Fig. 1

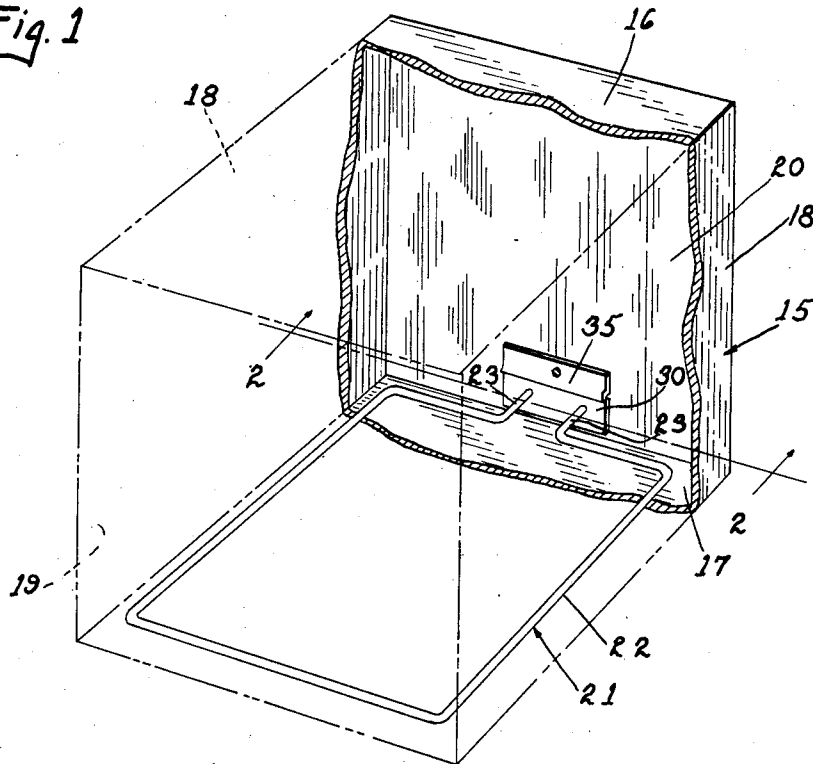
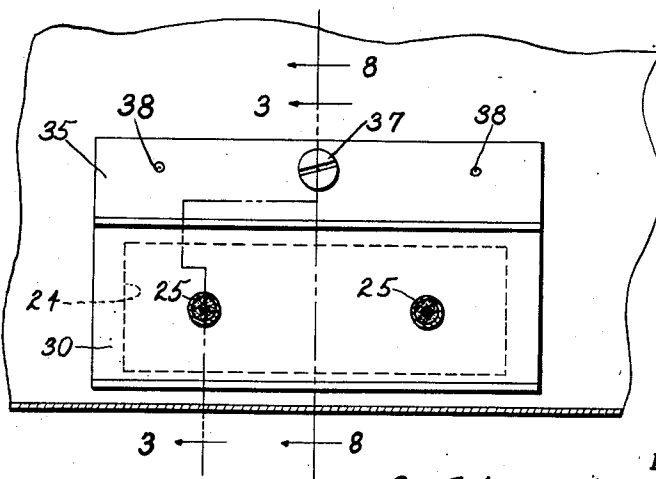


Fig. 2



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Fig. 3

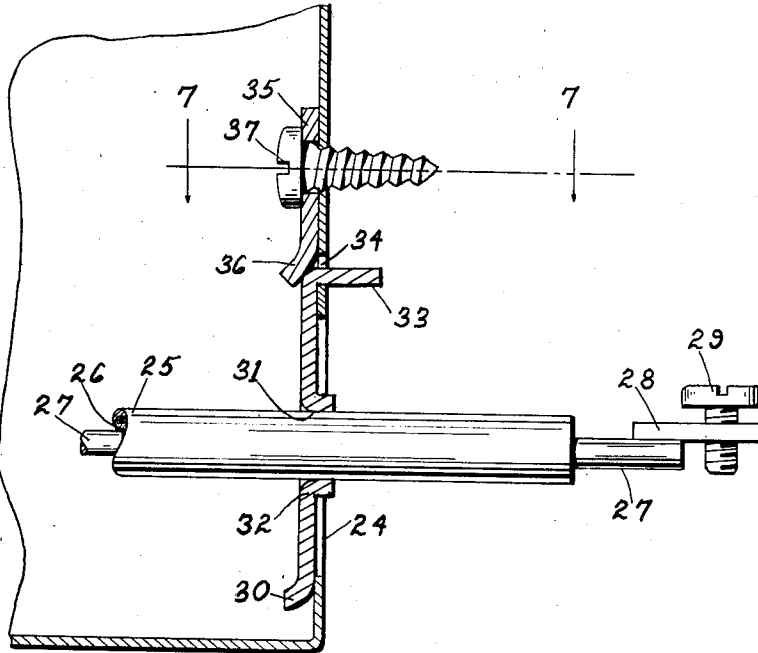


Fig. 4

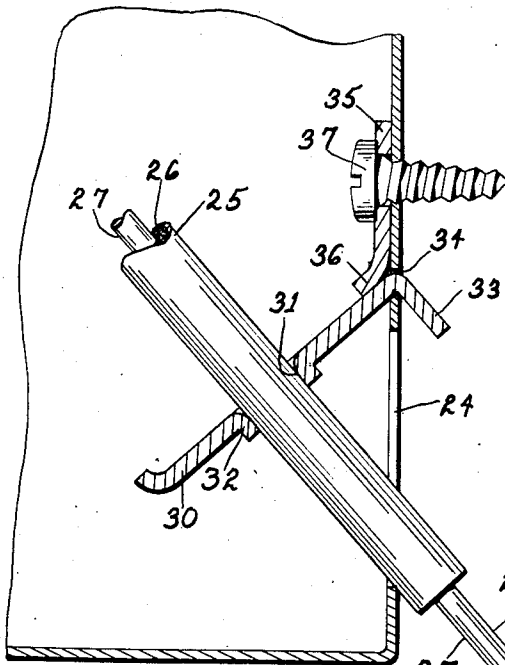
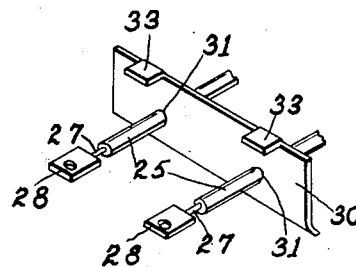


Fig. 5



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Fig. 6

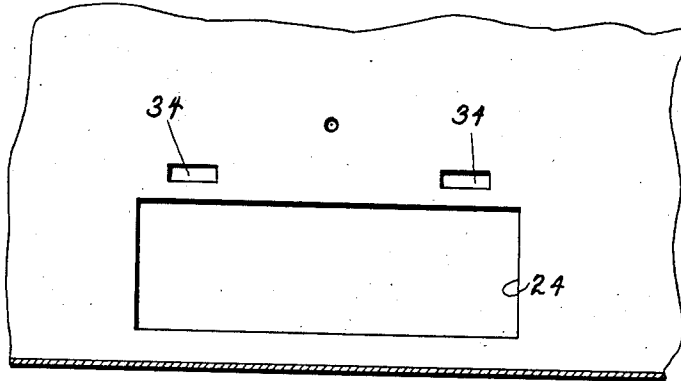


Fig. 7

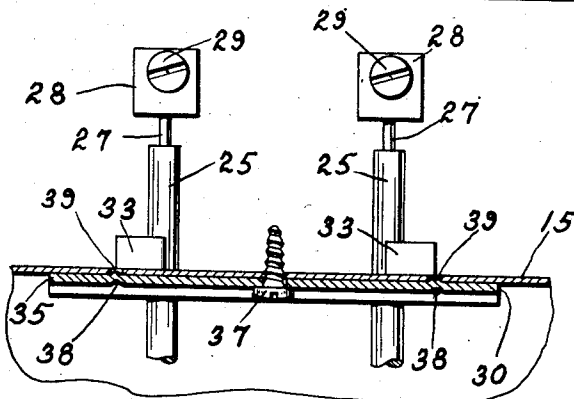
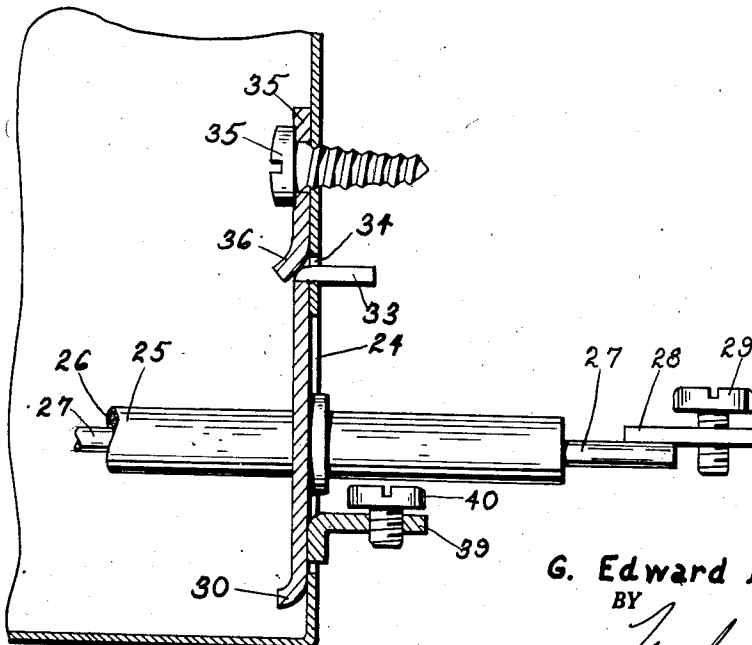


Fig. 8



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Fig. 9

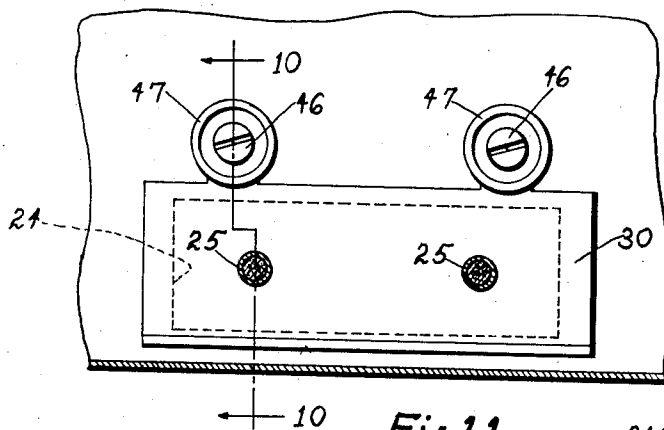


Fig. 10

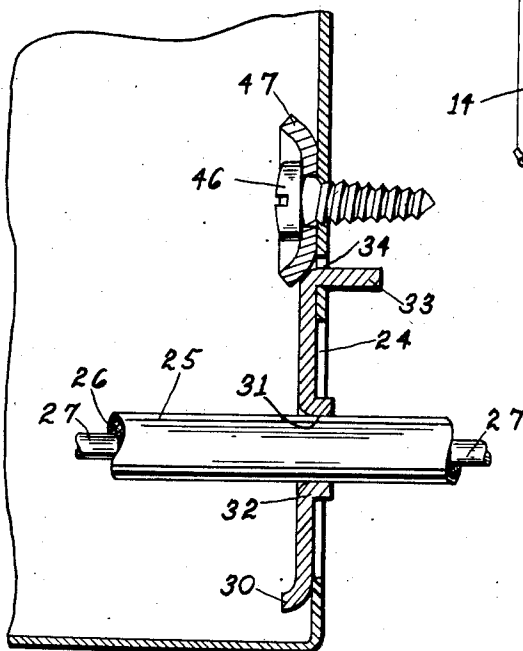
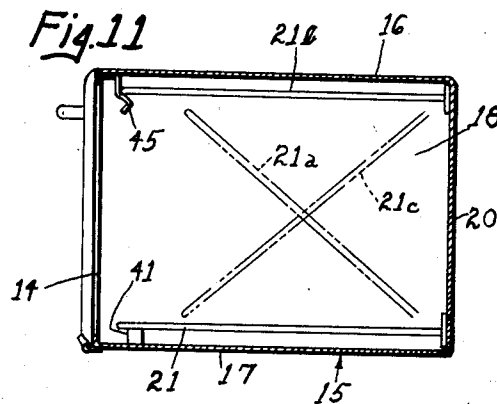


Fig. 11



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2,824,944

ELECTRIC HEATING APPARATUS

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Application December 9, 1954, Serial No. 474,114

24 Claims. (Cl. 219—37)

My invention relates to electric heating apparatus, more particularly to such apparatus for use with an oven, and the principal object of my invention is to provide new and improved apparatus of this character.

Heretofore, oven units, such as for electric ranges, were provided with a baking element and, in some instances, also with a broiler element, the former being positioned near the bottom wall of the oven and the latter being positioned near the top of the oven.

Each of the foregoing heating elements had terminal prongs which plugged in and frictionally fit with female electrical connections carried by respective dielectric blocks supported from the rear wall of the oven.

This prior art construction had many objections, some of which may be specified as follows: (a) the dielectric blocks were relatively expensive and required that electrical connections be made from the rear of the oven; (b) the terminal prongs were difficult to plug in and in some cases the female connections did not tightly receive the male connections, causing undue heating at the terminals; (c) the heating elements were difficult to remove and, accordingly, the house wife disliked cleaning of the elements and the oven; and, (d) in some instances, such as after cleaning or during replacement, the prongs of the elements were not properly inserted within the receptacles provided in the dielectric blocks, causing arcing and consequent undesirable and sometimes dangerous heating at the terminals.

My invention overcomes the foregoing objections to the prior art construction and provides heating elements supported within an oven in such manner that the elements need not be removed from the oven for cleaning purposes. Further, the objectionable sliding electrical connection is eliminated with consequent elimination of arcing dangers. Also, production cost is reduced since the dielectric blocks are no longer needed and connections, both mechanical and electrical, may be made solely by access gained through the door controlled opening of the oven. These and other advantages will be apparent from a reading of the following specification.

In the drawings accompanying this specification and forming a part of this application, there are shown, for purposes of illustration, several forms which my invention may assume, and in these drawings:

Figure 1 is a broken perspective view of an enclosure, such as formed by the oven of an electric range, showing an embodiment of my invention,

Figure 2 is an enlarged fragmentary sectional view corresponding generally to the line 2—2 of Figure 1,

Figure 3 is a fragmentary sectional view corresponding generally to the line 3—3 of Figure 2,

Figure 4 is a view similar to Figure 3 but showing parts in another position,

Figure 5 is a fragmentary perspective view illustrating a part of the construction disclosed in the preceding figures,

Figure 6 is a fragmentary plan view of a portion of the oven wall,

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Figure 7 is a sectional view, drawn to reduced scale, corresponding generally to the line 7—7 of Figure 3,

Figure 8 is an enlarged sectional view corresponding generally to the line 8—8 of Figure 2,

Figure 9 is a view similar to Figure 2 but showing a slightly different embodiment of my invention,

Figure 10 is an enlarged sectional view corresponding generally to the line 10—10 of Figure 9, and

Figure 11 is a generally schematic view showing my invention incorporated in both bake and broiler heating elements.

Referring particularly to Figures 1 through 8, the embodiment therein disclosed is shown in cooperation with an enclosure, such as the oven 15 of an electric range. As in usual construction, the oven comprises top and bottom walls 16 and 17, side walls 18—18, an open front 19 which is closed by a suitable door 14 (see Figure 11), and a rear wall 20 opposite the front opening.

An electric heating element 21 is shown for the purpose of heating the interior of the oven 15 and the element includes an active heating portion 22 disposed within the oven for the purpose of heating the same. The element also has two terminal portions 23 which extend through a relatively large aperture 24 (shown rectangular in Figure 6) in the rear wall 20 of the oven.

The heating element 21 is herein shown as the sheathed type and of well-known construction, and comprises a helical resistance conductor (not shown) which is disposed within a metallic tubular sheath 25 and is embedded in and held in spaced relation with reference to the sheath by a compacted mass 26 formed of suitable heat-conducting, electrically-insulating material, such as highly compacted granular magnesium oxide.

The helical resistance conductor extends largely throughout the active heating portion of the heating element and its opposite ends are connected to terminal pins 27 in any suitable manner, as by threading the end turns of the resistance conductor onto the terminal pins. The inner ends of the terminal pins 27 also are embedded in the mass 26, and are held thereby in spaced relation with reference to the sheath, while the outer ends of the terminal pins project a suitable distance from the respective ends of the sheath, as shown so that external electrical connections can be made. In the present embodiment, connectors 28 are welded to the outer ends of the terminal pins 27, each connector having a threaded opening to receive a headed screw 29. Accordingly, a permanent non-sliding connection with the wires leading from the source of current can be made by tightly clamping each wire to its respective connector 28 by means of the clamping screws 29.

As seen in Figure 1, the active heating portion of the heating element is bent to a rectangular outline and the terminal portions of the element extend laterally from one side of this outline in closely spaced relation. The heating element 21 shown in Figure 1 is in juxtaposition with the lower wall 17 of the oven 15, as is usually the case with baking elements of an oven.

As best seen in Figure 5, a plate member 30 is secured to the terminal portions of the heating element, and in the present embodiment the plate member 30 is provided with a pair of openings 31 spaced to pass the terminal portions of the heating element. Each opening 31 has a surrounding flange 32, and the heating element may be secured to the plate member by compressing or crimping the flange against the sheath of the element, or by welding or brazing, or in any other suitable manner.

The plate member 30 is here also shown of rectangular shape and of a size to overlie and close the opening 24 in the rear wall 20 of the oven. The lower margin of the plate member 30 is curled to impart rigidity and two lugs 33 extend laterally from the upper margin, as best

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seen in Figure 5. The lugs fit into slots 34 provided above the opening 24 and the lugs and slots are so proportioned as to provide for swinging movement of the plate member, and the heating element carried thereby, within the oven 15.

A holding member 35 is provided for holding the plate member against unintentional disassembly and, in the form shown in Figures 1 through 8, the member 35 comprises a metal strip having a curled lower margin 36 adapted to engage the upper margin, and lugs 33, of the plate member 30 with a rolling action. The curled margin 36 overlies the plate member and holds it against disassembly. In the presently disclosed form the member 35 is held in position by a single headed screw 37 which passes through an aperture in the member 35 and is threaded into an aperture in the rear wall 20. The screw 37 may be of the self tapping variety so that the screw opening in the rear wall need not be threaded. To hold the member 35 from swinging about the screw 37, a pair of dimples 38 (see Figure 7) may be struck into the plate member 30, the dimples forming projections which fit into depressions or openings 39 in the rear wall 20 of the oven 15.

From the foregoing, it will be clear that the plate member 30 forms a pivotal mounting for the heating element 21 and that such plate may be easily attached to the element and thereafter forms a rigid part thereof. The heating element, therefore, may be easily assembled in position in the oven and prior to assembly the current conductors may be pulled through the opening 24 and into the oven and such conductors may be securely fastened to respective connector lugs 28 by means of the screws 29. A ground connection, if desired or found necessary, may be secured to an angle bracket 39 welded to the plate 30, the connection being effected by means of a screw 40 which is threaded through the bracket.

The electrical connections, it will be appreciated, may all be made from the front of the stove and within the oven space. After the electrical connections have been made, those parts of the conductor wires which had been pulled into the oven space are stuffed back and through the opening 24 in the rear wall of the oven and the lugs 33 of plate member 30 are inserted into slots 34 in the rear wall 20. The holding member 35 is thereafter fixed in position on the rear wall and the assembly has been completed, it being appreciated that assembly of the plate member 30 and holding member 35 has also been accomplished solely from the front of the oven and through the space within the oven. In heating position, the plate member 30 effectively prevents heat loss from the oven 15 through the opening 24.

Referring particularly to Figure 11, the heating element 21, in normal operation, is in juxtaposed relation with the bottom wall 17 of the oven 15 and is maintained in flat-wise generally parallel relation by the mounting plate 30 and by legs 41 secured to the heating element or extending from the bottom wall 17. The heating element 21 may be readily swung upwardly from the position shown in full lines in Figure 11 to the dot-dash lines 21a, without any material resistance from the conductor wires secured to the heating element.

The holding member 35 may frictionally engage the plate member 23 with sufficient force to hold the heating element in any position to which it is swung. In any respect, however, the heating element may be swung clear of the lower wall 17 of the oven so that this lower wall and the underside of the heating element may be easily cleaned without removing the heating element from the oven and without disturbing the electrical connections. The remaining walls of the oven may also be cleaned more easily by reason of clearance afforded by pivotal mounting of the heating element.

In some cases a heating element may be mounted near the top wall 16 of the oven 15, as shown by full lines at

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21b in Figure 11. The element 21b may be a broiler element and may be in place of or in addition to the element 21. The element 21b may be mounted in manner similar to the mounting of the element 21, for swinging movement downwardly from the top wall 16, as shown by dot-dash lines 21c. If necessary, a spring catch 45 may be carried by the top wall 16 and may be engageable with the heating element 21b to releasably hold it in its upper position. It will be appreciated that my invention is not limited to use with sheath type heating elements, and that open coil elements may be used equally as well.

As before stated, the holding member 35 may be omitted or may take forms other than that disclosed in Figures 1 through 8. For example, and with reference to Figures 9 and 10, one or more screws 46 (two shown in Figure 9) may be used to hold the plate member 30. In the embodiment disclosed, dished washers 47 may be fitted over the respective screws 46 to provide the desired rounded shoulder to bear against the plate member 30 although it will be appreciated that the washers 47 may be omitted and the screw heads formed similar to flat or oval head wood screws wherein the head is generally frusto-conical and therefore provides the desired shoulder.

In some instances the terminal portions 23 of the heating element are spaced a considerable distance apart and it has been found desirable, in such instances, to secure separate plate members, each such as the plate member 30, to respective terminal portions. Preferably, each of the plate members would be modified for this use to provide for securement of only its respective terminal portion. A holding member, similar to the holding member 35, is provided for cooperation with each of the separated plate members and the oven wall, in this particular case, would be formed with a pair of openings properly spaced apart to pass the terminal portions of the heating element. Thus, the advantages of the heating element mounting remain the same as previously outlined, even though each terminal portion is separately supported.

In view of the foregoing it will be apparent to those skilled in the art that I have accomplished at least the principal object of my invention and it will also be apparent to those skilled in the art that the embodiments herein described may be variously changed and modified, without departing from the spirit of the invention, and that the invention is capable of uses and has advantages not herein specifically described, hence it will be appreciated that the herein disclosed embodiments are illustrative only, and that my invention is not limited thereto.

I claim:

1. In electric heating apparatus, the combination comprising an enclosure such as an oven and the like having a defining wall provided with two apertures in adjoining relation, an electric resistance heating element having a heat generating portion disposed in said enclosure and having a terminal portion extending outwardly of said enclosure through one of said apertures, a plate carried by said element and providing a flange which extends transversely of said element and which is adapted to overlie an interior portion of said wall adjacent said one aperture to cover at least a portion thereof, and a transversely extending member carried by said plate and extending through the other of said apertures in said wall and being cooperable with a defining portion thereof to provide a pivot about which said element is shiftable.

2. In electric heating apparatus, the combination comprising an enclosure such as an oven and the like having a defining wall provided with two apertures in adjoining relation, an electric resistance heating element having a heat generating portion disposed in said enclosure and having a terminal portion extending outwardly of said enclosure through one of said apertures, a plate secured to said element and providing a flange which extends

transversely of said element and which is adapted to overlie an interior portion of said wall adjacent said one aperture to cover at least a portion thereof, a tongue-like member carried by said plate in transversely extending relation therewith, said member extending through the other of said apertures in said wall and being co-operable with a defining portion thereof to provide a pivot about which said element is shiftable, and means carried by said wall preventing unintentional withdrawal of said member from its aperture and consequent disassembly of said plate with said wall.

3. In electric heating apparatus, the combination comprising an enclosure such as an oven and the like having a defining wall provided with two apertures in adjoining relation, an electric resistance heating element having a heat generating portion disposed in said enclosure and having a terminal portion extending outwardly of said enclosure through one of said apertures, a plate secured to said element and providing a flange which extends transversely of said element and which is adapted to overlie an interior portion of said wall adjacent said one aperture to cover at least a portion thereof, a tongue-like member formed integrally with a marginal portion of said plate and extending transversely of the latter, said member extending through the other of said apertures in said wall and being co-operable with a defining portion thereof to provide a pivot about which said element is shiftable, and means removably secured to said wall preventing unintentional withdrawal of said member from its aperture and consequent disassembly of said plate with said wall.

4. In electric heating apparatus, the combination comprising an enclosure such as an oven and the like having a defining wall provided with two apertures in adjoining relation, an electric resistance heating element having a heat generating portion disposed in said enclosure and a terminal portion extending outwardly of said enclosure through one of said apertures, a plate secured to the terminal portion of said element and providing a flange which extends transversely of such terminal portion and which is adapted to overlie an interior portion of said wall adjacent said one aperture to cover at least a portion thereof, a tongue-like member formed integrally with a marginal portion of said plate and extending transversely of the latter, said member extending through the other of said apertures in said wall and being co-operable with a defining portion thereof to provide a pivot about which said element is shiftable, and means removably secured to said wall and engageable with said plate at a point adjacent to where said plate joins said member to prevent unintentional withdrawal of said member from its aperture and consequent disassembly of said plate with said wall.

5. In electric heating apparatus, the combination comprising an enclosure such as an oven and the like having a generally upright wall provided with two apertures in vertically spaced-apart adjoining relation, an electric resistance heating element having a heat generating portion disposed in said enclosure substantially parallel with and adjacent to a horizontal wall of the latter, said element also having a terminal portion extending outwardly of said enclosure through one of said apertures, a flange secured to said terminal portion and extending transversely of the latter and adapted to overlie an interior portion of said wall adjacent said one aperture to cover at least a portion thereof, a tongue-like member formed integrally with said flange and extending transversely from a marginal portion thereof, said member extending through the other of said apertures and being co-operable with a defining portion thereof to provide a pivot about which said element is shiftable in a direction away from said horizontal wall for cleaning purposes, and abutment means removably secured to said wall overlying the other of said apertures and engageable with said

flange at a point adjacent to where said flange joins said member to prevent unintentional withdrawal of said member from its aperture and consequent disassembly of said plate with said upright wall.

6. A swingable mount for a sheathed electric heating element having an active heating portion and a circuit connector portion, comprising a supporting wall having a large aperture and two smaller apertures, a plate member connected to and extending transversely of the sheath of said element in spaced relation from said circuit connector portion, said plate member having a pair of laterally projecting tabs fitting within respective ones of said small apertures and being co-operable with the defining marginal surface of such apertures to provide a pivotal connection assembleable from one side of said wall for supporting said element from said wall in position for partial extension through said large aperture with said active heating portion disposed at said one side of said wall and said circuit connector portion disposed at the opposite side of said wall, said large aperture being of sufficient size to permit a predetermined amount of swinging movement of that part of said element which is extended therethrough.

7. For use with an oven having a pair of apertures in its rear wall which are disposed in juxtaposed relation selectively near the top or bottom wall of the oven, a swingable mount for a sheathed electric heating element having an active heating portion and a circuit connector portion, comprising a plate member rigidly secured to and extending transversely of the sheath of said element in spaced relation from said circuit connector portion, said plate member having a laterally projecting portion removably fitting within one of said apertures and assembleable therewith from the oven side of said rear wall, said projecting portion being co-operable with the defining marginal surface of said one aperture to provide a pivotal connection for supporting said element from said rear wall in position for partial extension through the other of said apertures whereby said active heating portion is disposed within the oven to heat the same and said circuit connector portion is disposed outside of said oven and away from the oven heat, said other aperture being of a sufficient size to permit said heating element to be swung from a predetermined heating position adjacent the wall near which said apertures are located to provide access for cleaning, said plate member in predetermined heating position of said element at least partly closing said other aperture to restrict escape of heat from said oven through such aperture.

8. In electric heating apparatus, the combination comprising a wall having two apertures therein, a sheathed electric resistance heating element adapted to be supported by said wall and extending through one of said apertures, said element having a heat generating portion disposed on one side of said wall and having a circuit connector portion disposed on the other side of said wall, flange means carried by and extending radially of said element and overlying said one wall side adjacent said one aperture and at least partially covering the same, and means carried by and extending transversely of a marginal portion of said flange means and extending through said other aperture and co-operable with a defining margin thereof to provide a pivot adjacent said marginal portion about which said element is swingable relative to said wall.

9. In electric heating apparatus, the combination comprising a wall having two apertures therein, a sheathed electric resistance heating element adapted to be supported by said wall and extending through one of said apertures, said element having a heat generating portion disposed on one side of said wall and having a circuit connector portion disposed on the other side of said wall, flange means carried by and extending radially of said element and overlying said one wall side adjacent said one aperture and at least partially covering the same, projecting means carried by and extending transversely of a marginal por-

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tion of said flange means and extending through said other aperture and cooperable with a defining margin thereof to provide a pivot adjacent said marginal portion about which said element is swingable relative to said wall, and means preventing unintentional withdrawal of said projecting means from its aperture and consequently disassembly of said element from said wall.

10. In electric heating apparatus, the combination comprising a wall having two apertures therein, a sheathed electric resistance heating element adapted to be supported by said wall and extending through one of said apertures, said element having a heat generating portion disposed on one side of said wall and having a circuit connector portion disposed on the other side of said wall, flange means carried by and extending radially of said element and overlying said one wall side adjacent said one aperture and at least partially covering the same, projecting means carried by and extending transversely of a marginal portion of said flange means and extending through said other aperture and cooperable with a defining margin thereof to provide a pivot adjacent said marginal portion about which said element is swingable relative to said wall, and means removably secured to said one wall side adjacent said marginal portion of said flange means and engaging the latter to prevent unintentional withdrawal of said projecting means from its aperture and consequent disassembly of said element from said wall.

11. In electric heating apparatus, the combination comprising a wall having a pair of apertures, a sheathed electric resistance heating element adapted to be supported by said wall and extending through one of said apertures, said element having a heat generating portion disposed on one side of said wall and having a circuit connector portion disposed on the other side of said wall, and flange means carried by and extending radially of said element in spaced relation to said circuit connector portion and providing a surface facing said circuit connector portion generally complementary to the one side of said wall adjacent said one aperture, said flange means having a portion extending transversely of said flange means surface and extending through said other aperture and cooperable with a defining margin thereof to pivotally support said flange means on said one wall side to provide for movement of said element relative to said wall, said flange means surface being adjacent said one wall side and said flange means being larger than said aperture to overlie and close the same.

12. In electric heating apparatus, the combination comprising a wall having a pair of apertures, a sheathed electric resistance heating element adapted to be supported by said wall and extending through one of said apertures, said element having a heat generating portion disposed on one side of said wall and having a circuit connector portion disposed on the other side of said wall, flange means carried by and extending radially of said element in spaced relation to said circuit connector portion and providing a surface facing said circuit connector portion generally complementary to the one of said wall adjacent said one aperture, said flange having a portion extending transversely of said flange means surface and extending through said other aperture and cooperable with a defining margin thereof to pivotally support said flange means on said one wall side to provide for movement of said element relative to said wall, said flange means surface being adjacent said one wall side and said flange means being larger than said aperture to overlie and close the same, and means secured to said one wall side and engaging said flange means to prevent unintentional withdrawal of said flange means portion from its aperture and consequent disassembly of said element from said wall.

13. An assembly for swingably mounting a looped electric heating element to an apertured inner wall of an oven, comprising a sheet-metal plate having spaced openings to pass the two legs of the heating element and flanges margining the openings and pressed about adjoining

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ing portions of respective legs, whereby said plate and heating element are firmly connected for unitary movement with the active heating portion of said heating element extending from one side of said plate and the terminal portion of said legs extending from the opposite side of said plate, means connecting said plate to said oven wall in position wherein said leg terminal portions extend through the aperture in said oven wall and exteriorly of the oven space for electrical connection to a source of electrical energy, and means including tab means extending angularly from said plate, providing a pivotal axis when associated with said apertured oven wall which is generally parallel to an adjoining oven wall, said plate and heating element being swingable about said pivotal axis whereby the active heating portion of said heating element may be moved interiorly of the oven space in a direction toward and away from said adjoining oven wall.

14. The construction according to claim 13 wherein the tab means is structurally integral with said plate and extends from a marginal portion thereof.

15. The construction according to claim 13 wherein the means providing the pivotal axis includes a pair of spaced tabs integral with and extending from a marginal portion of said plate.

16. An assembly for swingably mounting a looped electric heating element to an apertured inner wall of an oven, comprising a first plate having spaced openings to pass the two legs of the heating element, said first plate and said heating element being firmly connected for unitary movement with the active heating portion of said heating element extending from one side of said plate and the terminal portion of said legs extending from the opposite side of said plate, a second plate holding said first plate in position relative to said oven wall wherein said leg terminal portions extend through the wall aperture and exteriorly of the oven space for electrical connection to a source of electrical energy, and means, including a hinge portion extending from said first plate, providing a pivotal axis when associated with said apertured oven wall which is generally parallel to an adjoining oven wall, said first plate and said heating element being swingable about said pivotal axis whereby the active heating portion of said heating element may be moved interiorly of the oven space in a direction toward and away from said adjoining oven wall.

17. The construction according to claim 16 wherein portions of said first and second plates are disposed for abutting overlying relation.

18. The construction according to claim 16 wherein the means providing the pivotal axis includes a pair of spaced tabs integral with and extending from a marginal portion of said first plate, spaced portions of said second plate being respectively cooperable with said tabs for the holding purpose mentioned.

19. In electric heating apparatus, the combination comprising an apertured wall, a sheathed electric heating element extending through the wall aperture, a generally flat plate member apertured to pass said element and having a structurally integral annular portion extending from one side of said member and axially of said element and said annular portion being deformed radially inwardly about said element to secure said member thereto with the latter extending radially thereof and in one position said plate member covering at least a portion of the wall aperture, and pivot means in part provided by said plate member for securing the latter to said wall for pivotal movement in a flatwise direction to provide for pivotal movement of said element relative to said wall.

20. In electric heating apparatus, the combination comprising an apertured wall, a sheathed electric heating element extending through the wall aperture, a generally flat plate member apertured to pass said element and having a structurally integral annular portion extending from one side of said member and axially of said ele-

ment and said annular portion being deformed radially inwardly about said element to secure said member thereto with the latter extending radially thereof and in one position said plate member covering at least a portion of the wall aperture, and means carried by said plate member and extending transversely thereof and in part providing a pivot by which said plate member is secured to said wall for pivotal movement in a flatwise direction to provide for pivotal movement of said element relative to said wall.

21. In electric heating apparatus, the combination comprising an apertured wall, a sheathed electric heating element extending through the wall aperture, a generally flat plate member secured to and extending radially of said element and in one position covering at least a portion of the wall aperture, and means projecting from said plate member and cooperating with means on said wall to provide a hinge joint therebetween whose axis extends longitudinally of said wall and about which said plate member is pivotable in a flatwise direction to provide for swinging movement of said element about said hinge and relative to said wall.

22. In electric heating apparatus, the combination comprising an apertured wall, a sheathed electric heating element extending through the wall aperture, a generally flat plate member secured to and extending radially of said element and in one position covering at least a portion of the wall aperture, and means projecting from a marginal portion of said plate member and cooperating with means on said wall to provide a hinge joint therebetween whose axis extends longitudinally of said wall and about which said plate member is pivotable in a flatwise direction to provide for swinging movement of said element about said hinge and relative to said wall.

23. In electric heating apparatus, the combination comprising an apertured wall, a sheathed electric heating ele-

ment extending through the wall aperture, a generally flat plate member secured to and extending radially of said element and in one position covering at least a portion of the wall aperture, and means projecting from said plate member and cooperating with means on said wall to provide a hinge joint therebetween whose axis is off-set radially of said element and which extends longitudinally of said wall and transversely of said element and about which said plate member is pivotable in a flatwise direction to provide for swinging movement of said element about said hinge and relative to said wall.

24. An electric heating assembly for removable connection to an apertured wall of an oven, comprising a generally flat plate member, means carried by and extending transversely of said plate member and in part providing hinge means by which said plate member is pivotally secured to said apertured wall for flatwise swinging movement to a position overlying said wall and at least partially closing the wall aperture, and a sheathed electric heating element secured to said plate member for swinging movement therewith and for extension through said wall aperture.

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