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RANGE OVEN DOOR AND WINDOW CONSTRUCTION

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2 SHEETS—SHEET 1

Fig. 2.

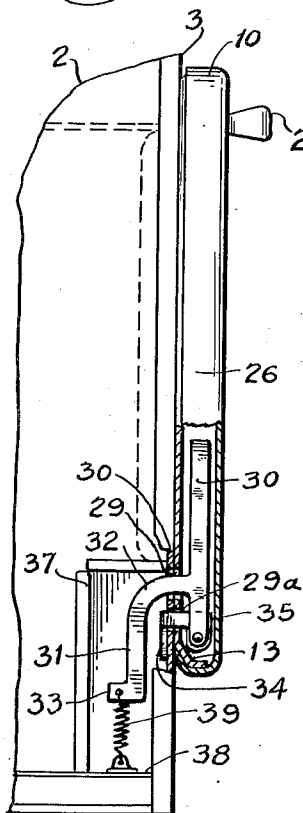


Fig. 1.

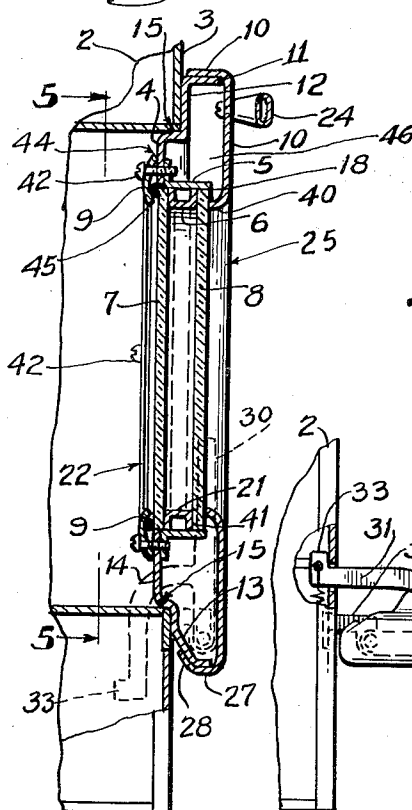


Fig. 3.

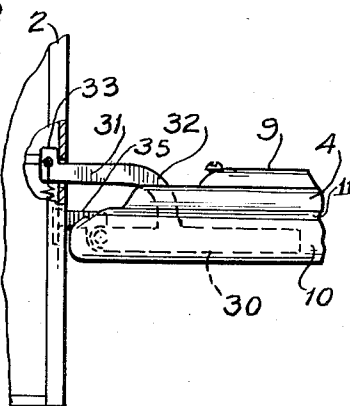
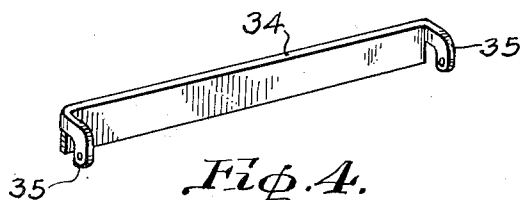


Fig. 4.

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RANGE OVEN DOOR AND WINDOW
CONSTRUCTION

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2 Claims. (Cl. 126—200)

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This invention relates to an oven or grill door construction, particularly designed for use in ranges.

It is a particular feature of my invention to provide a door construction adapted for the mounting of a window to provide a view of the interior of the oven or grill.

It is an object of my invention to provide a glass window in a range oven or grill oven door of such construction that the window is protected against undue strains resulting from expansion of the metallic portions of the oven door.

It is another object of my invention to design an oven or grill door construction which is co-operative with the window to provide an air insulation chamber.

It is a further object of my invention to so mount the glass windows in oven or grill doors of ranges that the windows may be easily replaced in case they become broken.

It is a further object of my invention to design a door and window framing so that it is composed of sheet metal parts which may be stamped, bent, or rolled into the desired shapes.

It is a further object of my invention to design the door of sectional parts which may be readily assembled into a unitary door structure.

These and further objects of my invention will be clear to those skilled in the art from the further description thereof when taken together with the drawings, in which

Fig. 1 is a vertical section, taken on line 1—1 of Fig. 5, of my invention shown mounted for use as a range oven door;

Fig. 2 is a detail in part section showing the method of hinging the door;

Fig. 3 is a further view of the hinge detail showing the door in full open position;

Fig. 4 is a perspective view of the hinge bar;

Fig. 5 is a posterior view of the door showing its position on the oven, said view being taken on line 5—5 of Fig. 1; and

Fig. 6 is an exploded view of the door.

The door is shown as positioned on the front opening of an oven chamber of a range 2, and is formed to fit into the opening and close the opening by abutting the front face 3 of range 2.

The door is constructed of a plurality of units composed of a main frame 4 on which is mounted a window frame 5 in which is mounted spacer 6, window panes 7 and 8, a posterior clamping plate 9, and an anterior clamping cover or frame front 10 which forms the front face of the door.

The main frame 4 having a dished body section is formed from a dished stamping formed with

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a rim 11 and a flange 12 at right angles to the rim which extends across the top and the two sides of the frame 4 at right angles to the rim 11. However, at the base of the frame the rim and flange are connected by a sloping surface 13 which forms an obtuse dihedral angle with rim 11 and flange 12 for purposes to be more fully described below.

The flange 12 is connected by two right angle bends to the posterior surface 14 of the door to form a flange seat 15 on all four sides of the door. The posterior surface of the door is cut out into a rectangular or square opening. The shape thus described may be formed from a single sheet of steel by a stamping or drawing operation or may be assembled from pre-formed parts as desired.

The window frame 5 is mounted on the anterior surface of 14. This frame may be formed by notching an angle at three positions of one side 17 of the angle so spaced that when the angle is bent at right angles, the angle may be bent into a rectangular frame of desired dimensions, as shown in Fig. 6. The frame is mounted on the anterior surface of 14 by spot welding, riveting, or other means in such manner that it frames the opening in 4 with the side 18 of the angle extending at right angles to 14. The spacer 6 is formed by notching the flange 20 in channel member with three right angle notches 19 so spaced that when the base 21 of the channel is bent at right angles at the notches, the spacer is formed. The external periphery of the spacer is such as to permit it to slide between the flanges 18. The width of the flanges 18 is sufficient to receive the separator and two panes of glass. The ends of the channel may be joined either by a strap or by welding.

The clamping plate 9 is formed from a stamping from a sheet of metal in which the opening 22 has been cut. The opening is of the same size as the opening of the flanges 18. The cross section of the plate 9 is curved in a degree and manner to be further described below. Suitable bores for passage of screws or bolts are also provided at 23 at spaced intervals around the plate.

The front cover 10 carries a handle 24 and an opening 25. The cover 10 is complementary to the frame 4 and carries a rim 26 which will fit over the rim 11 and extend over the top and sides of cover 10. The bottom of the cover carries a rim formed of two sections 27 and 28 forming a dihedral angle and parallel, respectively, to the rim 11 and surface 13 at the bottom of the frame 4.

At the lower or base portion of the back 14 two slots 29 and 29a are provided on each side of the frame 5 and extending longitudinally in the sides of the main frame 4.

The door is hung on hangers 30 formed of a bar section and a latch bar 31 connected together by an arcuate section 32 formed of a 90° arc. The latch bar 31 carries a hook 33. Hanger bar 34 carries ears 35 and is mounted on the front face 3 of the oven below the lower rim of the oven opening with the ears 35 passing through the opening 29a when the door is hung on the range. The bar 30 may be hinged to the ears 35 and passed through the opening 29 when the hook 33 is passed through opening formed at each side of the oven opening near the base thereof. A box 37 is built on the posterior surface of the range face 3 to box in the latch bar 31 and the hook 33 is spring-connected to the base 38 of the box by spring 39.

To assemble the door I may proceed in the following manner. The cover 10 is fitted over the frame 4 by hooking 27 and 28 over 11 and 13. The rim 26 may then be slid over the rim 11, fitting snugly by a friction fit.

The glass pane 8 may then be fitted in. The curved lip 40 of the front panel which frames the opening 25, having sufficient arcuate curvature, forms an inward rim against which the window may fit spaced from the posterior face of 10. The glass thus abuts and rides on the edge of the metal at 41 and is framed thereby. The glass abuts on all four sides against the flange 18 which is of sufficient width to encompass the edge of the glass 8. The spacer 6 is then placed between the flanges 18 and the glass 7 then is fitted against the spacer 6 with its posterior surface substantially coplanar with the posterior surface 14.

The clamping plate may then be put in place by means of screws 42. Prior to setting the clamping plate in position an asbestos rope gasket is placed along the edges of the glass 7 so as to cover the crack between the glass and the contiguous edges of 14. The arc of the clamping plate 9 is so formed that while the edge 44 may bear against 14, its edge 45 is spaced from the glass 7, overlaps its edge, and presses against the gasket 45. The clamping plate 9 thus frames and holds the glass and spacer in secure position with a gasket seal.

I thus provide an insulating air channel 46 which completely surrounds the window and insulates the cover 10 forming the face of the door from the heated back. The windows and spacers 6 are free floating in the frame 5 and undue expansion and strain are not exerted on the glass. It will be observed that the front pane 8 is spaced from the rear window pane 7 by the spacer 6 by means of an air space. The front window pane thus remains cool even when a high temperature is reached in the oven.

The provision of the gasket 45 between the clamping plate and the glass window pane 7 is of primary value in reducing the uneven strains which are imposed on the rear window. By positioning the window in a free floating position and holding the window in position by the gasket 45, which has considerable give or resiliency to distort and conform to the window as heat causes expansion of the metal parts without undue strain on the glass, I obtain a window mounting in which the danger of breaking the glass pane is minimized.

This form of construction also permits of an easy assembly and disassembly for replacement of the window should one break as a result of an accident. The simple removal of the screws 42 permits of the removal of the clamping plate 9 and the window.

One of the most useful features of my invention is the ease with which the window assembly may be disassembled for removal of the windows for cleaning purposes. Windows become fogged and dirty in use. The simple removal of the clamping plate permits of the removal of the windows from their frame for cleaning. The assembly thereof, as explained above, is also as simple.

While I have described a particular embodiment of my invention for the purpose of illustration, it should be understood that various modifications and adaptations thereof may be made within the spirit of the invention as set forth in the appended claims.

I claim:

1. A combined range door and window construction, comprising a main frame member having a dished body section having upstanding flange sections, said body section being formed with a window opening centrally positioned in said dished body section, a window frame member having a right angular cross section, one leg of said window frame member being mounted on the anterior surface of said dished body section contiguous to and framing said window opening, the other leg of said frame member extending at right angles to said anterior surface around said opening, a window spacer having a channel cross section mounted between the sides of said window frame which extends at right angles to said anterior surface, a pair of window panes mounted in said window frame adjacent the posterior and anterior surfaces of said window spacer, a front panel of shape complementary to said main frame member and having upstanding rims adapted to frictionally engage the flange section of said main frame member, said dished body section having an opening complementary to and in registry with said opening of said main frame member, the edges of said opening of said front panel being bent in an arcuate curve in a posterior direction and adapted to seat against the window pane adjacent said front panel, a rear clamping member having an arcuate cross section, formed with an opening complementary to and in registry with the opening of said main frame member, means for mounting said clamping member on the posterior surface of said main frame member, the outer edge of said clamping member bearing on said posterior surface of said main frame member and the inner edge being spaced from said adjacent window pane, and a gasket framing said last-named window pane and positioned between said last-named window pane and the edge of the clamping member.

2. A combined range door and window construction, comprising a main frame member, having a dished body section having upstanding flange sections, said body section being formed with a window opening centrally positioned in said dished body section, a window frame member having a right angular cross section, said window frame member being mounted on the anterior surface of said dished body section contiguous to

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and framing said window opening, the said window frame member having sides of said frame member extending at right angles to said anterior surface around said opening, a window spacer having a channel cross section mounted within the opening of said window frame, a window pane mounted in said window frame and adjacent the posterior surface of said spacer, a window pane mounted in said window frame and adjacent the anterior surface of said spacer, a front panel of shape complementary to said main frame member and having upstanding rims adapted to frictionally engage the flange sections of said main frame member, said frame front having an opening complementary to and in registry with said opening of said main frame member, the edges of said opening of said frame front being bent in an arcuate curve in a posterior direction and adapted to seat against the window pane adjacent said frame front, said main frame member and said frame front forming an air channel surrounding said window panes and spacer, a rear clamping member having an arcuate cross section and formed with an opening complementary to and in registry with the opening of said main frame member, means for mounting said clamping member on the posterior surface of said main frame member, the outer edge of said

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clamping member bearing on said posterior surface of said main frame member and the inner edge being spaced from said adjacent window pane, and a gasket framing said last-named window pane and positioned between said last-named window pane and the edge of the clamping member.

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