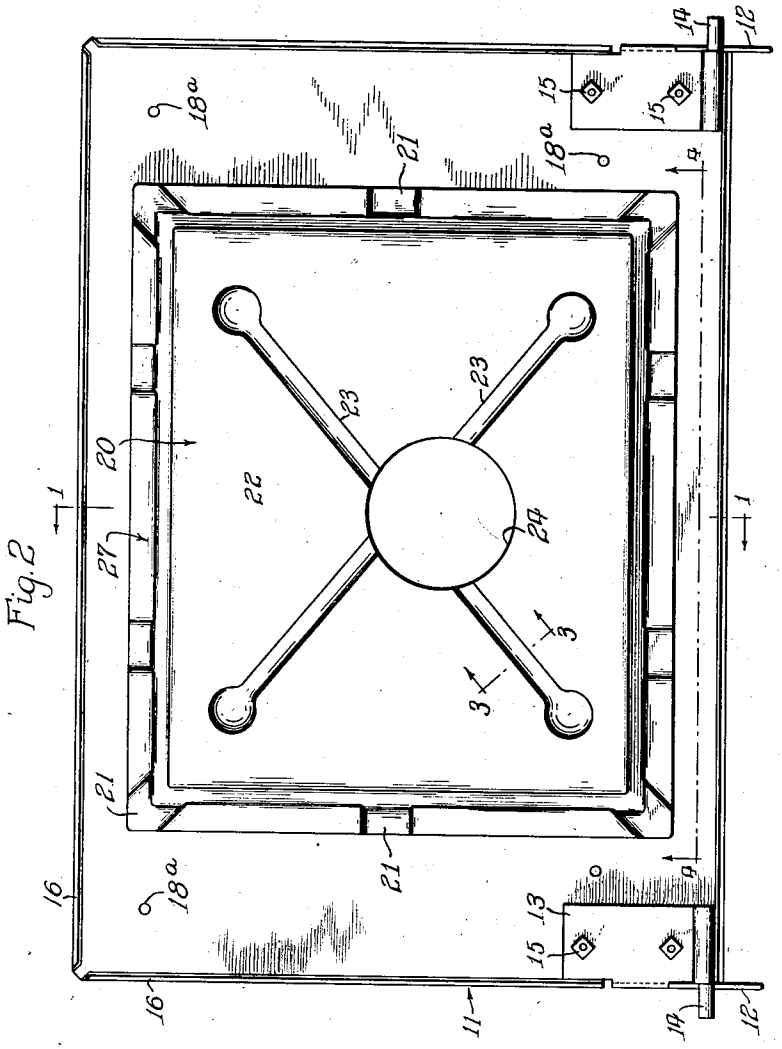
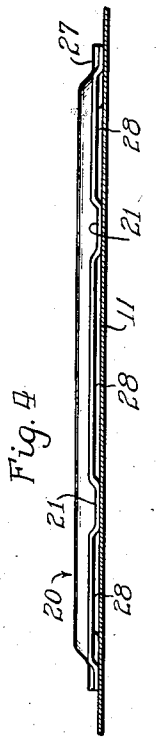
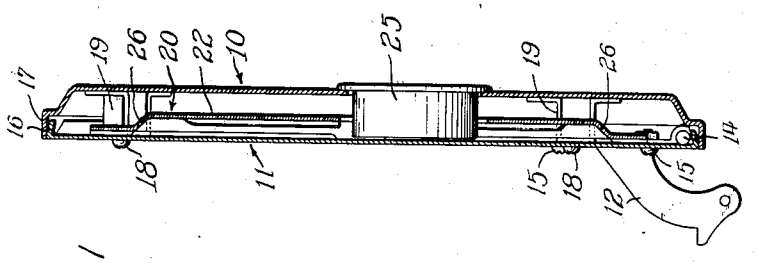
March 19, 1935. G. E. PICKUP 1,995,039

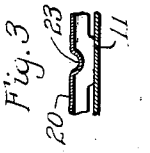
STOVE DOOR

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STOVE DOOR

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9 Claims. (Cl. 126—190)

The invention relates generally to doors for cooking stoves and the like and more particularly it relates to such doors formed from sheet metal.

An important object of the present invention is to provide a stove door formed entirely from sheet metal to produce an extremely rigid yet economical door.

Another object is to provide a stove door having interconnected inner and outer plates with a sheet metal reinforcing member positioned between and concealed by the plates and secured to one of the plates, prior to the enameling of that plate, in such a manner as to insure uniformity in the enameled outside surface of the reinforced plate.

Other objects and advantages will become apparent from the following description taken in connection with the accompanying drawing, in which:

Figure 1 is a vertical sectional view taken through a stove door embodying the features of the invention.

Fig. 2 is an inside elevational view of the liner section of the door.

Figs. 3 and 4 are sectional views of the liner section taken along the lines 3—3 and 4—4 respectively of Fig. 2.

In the form illustrated herein, the invention is embodied in a door having an outer or face panel 10 and an inner or liner panel 11, both formed from sheet steel and secured together in spaced interfitting relation to provide smooth inner and outer surfaces for the door. A counter-balancing arm 12 adapted to be attached to a suitable spring (not shown) and formed integrally with a flat metal anchor member 13, and a hinge trunnion 14 welded to the anchor member 13, are secured to each lower corner of the liner panel 11 by bolts 15 extending through the panel.

About its edges the liner panel 11 is flanged forwardly as at 16 to provide strength, and the liner panel 11 fits within rearwardly extending flanges 17 formed on the face panel 10. The face panel 10 is held in position on the liner panel 11 by bolts 18 extending through apertures 18a in the liner panel from the inner face of the door, and attached to raised sheet metal brackets 19 which are spot welded on the inner surface of the face panel.

In order that the door may be substantially rigid so as to be capable of supporting substantial loads when in its open position, reinforcing means is provided for the liner panel positioned between and concealed by the liner and face panels of the door.

The aforesaid reinforcing means is preferably made from sheet metal and is of such a shape that it may be formed by a relatively simple stamping operation. With this end in view, the reinforcing means preferably comprises a sheet steel plate 20 secured to the inside surface of the liner panel 11. In outline, the reinforcing plate 20 corresponds generally with the shape of the liner panel 11 but is of slightly smaller size so that its edges are spaced from the edges of the liner panel. The reinforcing plate 20 is preferably attached to the liner panel 11 by spot welding as at 21 at a plurality of points spaced about the edge of the plate 20, and the plate 20 has its central section 22 spaced from the liner plate 11 by offsetting the margin of the plate from the plane of the central section 22.

The brackets 19, being connected to the liner panel 11 outwardly of or beyond the edges of the reinforcing plate 20, serve to impart additional reinforcing for the margins of the panel 11 and thus the rigidity of the door assembly is increased. It will also be seen that the spacing of the plate from the liner panel adds to the rigidity of the assembly. Moreover, the central section 22 of the plate 20 is preferably reinforced by four depressed ribs 23 (Figs. 2 and 3) extending diagonally of the plate. An opening 24 is formed near the center of the plate 20 to receive the inner end of an oven control device 25 which also projects inwardly through the face panel 10 of the door.

By offsetting the margin of the reinforcing plate 20 from the central section 22 thereof, angular stiffening flanges 26 (Fig. 1) are formed about the edges of the central section so as to impart rigidity to the reinforcing plate. At the edge of the flange 26 remote from the central section 22, the metal of the plate is bent into a plane parallel to the plane of the central section so as to provide a securing margin 27 on spaced portions of which the spot welds 21 are made.

In the manufacture of the door, the reinforcing plate 20 is spot welded to the liner panel 11 prior to the enameling of the panel. The enamel is preferably applied to the liner panel 11 by dipping the entire assembly, including the reinforcing plate 20, into liquid enamel. The reinforcing plate 20 is therefore constructed so that the liquid enamel will drain from the space between the plate 20 and the liner panel. To this end the securing margin 27, between the points 21,

is offset as shown in Fig. 4 so as to be spaced from the liner panel 11 and form drain openings 28. After the liner has been dipped in the liquid enamel, it is suspended in such a way that the excess enamel may drip therefrom. By reason of the angular relation of the flanges 26, the lower flange slopes toward the drain openings 28 and hence the liquid enamel is effectually drained from the space between the plate 20 and the panel 11 so as to avoid trapped pockets of enamel or uneven application thereof to any of the parts. By avoiding uneven application of the enamel, distortion of the assembly in the baking operation is prevented.

From the foregoing it will be apparent that the invention provides a stove door which may be formed entirely from sheet metal and that the door thus formed may be economically produced. It will also be evident that the sheet metal reinforcing means provided by the present invention renders the assembled door extremely rigid, and that this reinforcing means is of such a character that the door may be enameled by a conventional method without causing distortion of the assembly.

I claim as my invention:

1. In a stove door, the combination of a metal panel and a reinforcing member for said panel comprising a sheet metal plate offset at its edges to provide stiffening flanges extending at an angle from the central section of said plate and having attaching margins on said flanges, said attaching margins being welded to said panel at spaced points, and said margin intermediate said points being offset to space the same from the panel and provide drain openings for the passage of liquid enamel.

2. In a stove door, the combination of a metal panel and sheet metal reinforcing means for said panel spaced from the edges of the panel and including a portion positioned at an angle to the plane of said door and an integral securing portion spot welded at spaced points to said panel, said securing portion being spaced from said panel between certain of said points to permit draining of liquid enamel between said securing portion and said panel.

3. In a stove door, the combination of a sheet metal panel, and a reinforcing member for said panel comprising a sheet metal plate having marginal portions bent to form stiffening flanges extending at an angle to the plane of the plate, and means on said flanges secured to said panel to position said plate in spaced relation to the panel, said flanges being formed to provide openings through which liquid enamel may drain from the space between the plate and the panel.

4. A stove door comprising a first sheet metal panel forming one side of a door, a reinforcing member formed from a sheet metal plate with embossed reinforcing portions in the central portion of the plate, said plate having its edges offset from the plane of its central portion and spot welded to said panel to position said central portion in spaced relation to said panel, and a second sheet metal panel secured to said first panel to conceal said reinforcing member and form the other side of the door.

5. A stove door comprising a face section and a liner section of sheet steel mounted in spaced parallel relationship and rigidly secured together at their edges to reinforce the outer portions of said liner section, and a sheet metal plate substantially smaller than said liner section offset at its edges to form a stiffening flange and secured at its edges to said liner section to reinforce the center portion thereof.

6. A stove door comprising a first sheet metal panel forming one side of a door, a sheet metal plate welded at its edges to said panel for reinforcing the same, said plate being substantially smaller than said panel and having its periphery offset from the central portion thereof to form a stiffening flange, a second metal panel positioned in opposed relation to said first panel to conceal said reinforcing plate and form the other side of said door, and means including interfitting flanges securing said panels together at their edges and stiffening the portion of said first panel outwardly of said reinforcing plate.

7. A stove comprising a first sheet metal panel forming one side of a door, a reinforcing plate for said panel also formed from sheet metal, said plate having its edges offset from the plane of its central portion forming a stiffening flange and welded to said panel to strengthen the same, and a second sheet metal panel secured to said first panel to conceal said reinforcing plate and form the other side of the door.

8. A stove door comprising two spaced parallel sheet metal panels forming the sides of the door, means rigidly fastening said panels together at the edges thereof, hinge means secured on one of said panels for mounting the door on a door frame, and a sheet metal plate having its periphery offset from the central portion to form a stiffening flange, said plate being positioned between said panels and rigidly attached at its edges to the one of said panels to which the hinge means are secured in order to reinforce that panel.

9. A stove door comprising a face section and a liner section of sheet metal, rigid means secured adjacent the edges of said face section and forming abutments to which said liner section is rigidly secured in spaced relation to said face section, and a sheet metal plate substantially smaller than said liner section offset at its edges to form a stiffening flange and secured at its edges to said liner section, said plate being positioned in spaced relation to said face section centrally of the liner section and inwardly of said rigid means to reinforce and rigidify the central portion of the liner section and render the same capable of supporting substantial loads.

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