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OVEN DOOR GLASS LIFTING MEANS

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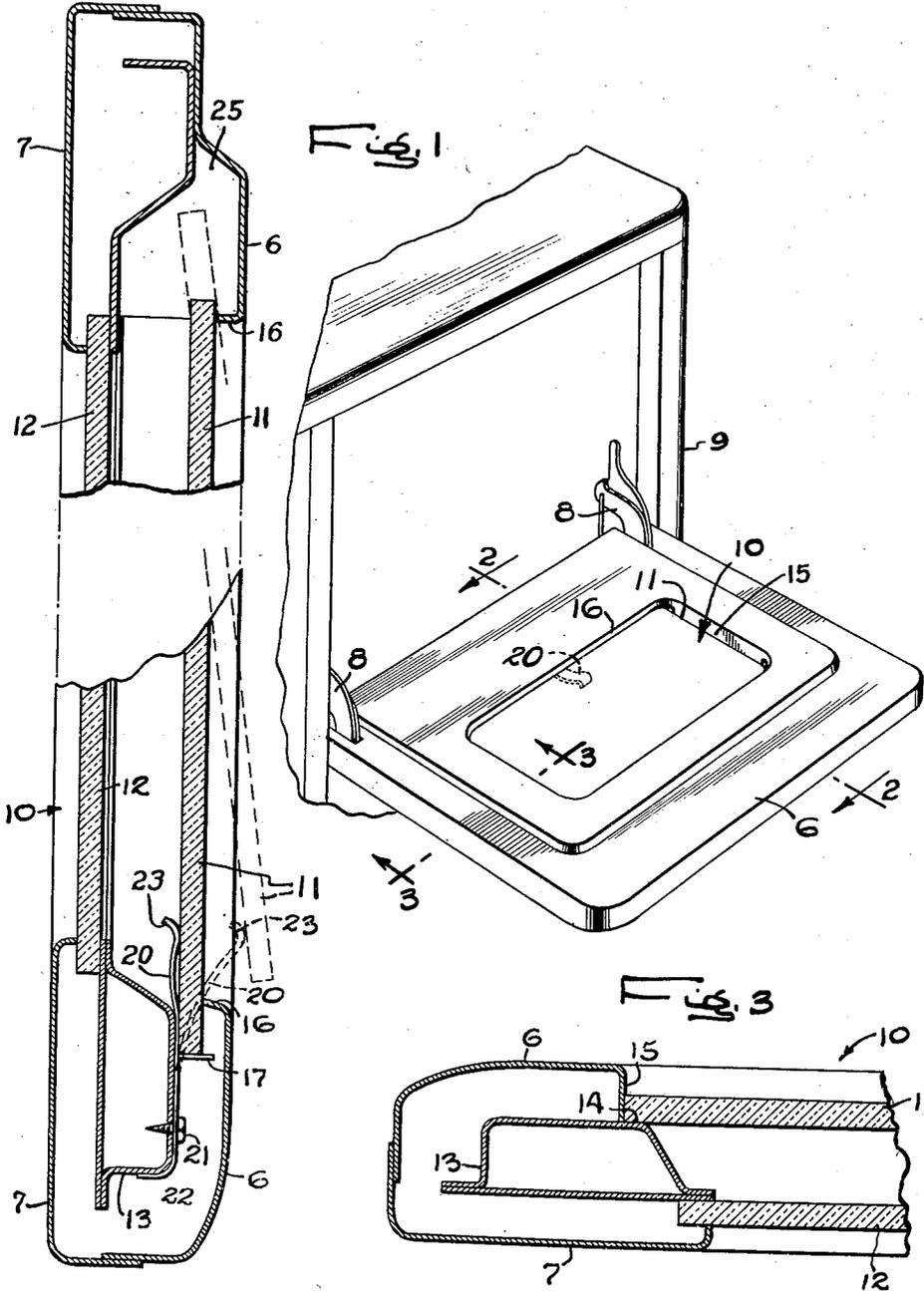


Fig. 2

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OVEN DOOR GLASS LIFTING MEANS

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The invention relates to cookstove oven doors of the type having windows fitted with dual glass panels, and more particularly to doors in which one of the panels is mounted for easy removal so that the inner faces of the panels may be cleaned.

One object of the invention is to provide improved means for tilting the removable panel into a position in which it may be conveniently gripped for withdrawal from the door.

Another object is to provide a panel tilting means of the above general character which is operative normally to restrain the removable panel against vibration, thus eliminating any rattling of the same when the door is opened and closed.

Other objects and advantages of the invention will become apparent from the following detailed description of the preferred embodiment illustrated in the accompanying drawing, in which:

Figure 1 is a fragmentary perspective view of a stove equipped with an oven door embodying the features of the invention, the door being shown in open position.

Fig. 2 is a fragmentary sectional view of the door taken in a plane substantially on the line 2—2 of Fig. 1.

Fig. 3 is a fragmentary sectional view of the door taken in a plane substantially on line 3—3 of Fig. 1.

While the invention is susceptible of various modifications and alternative constructions, I have shown in the drawings and will herein describe in detail the preferred embodiment, but it is to be understood that I do not thereby intend to limit the invention to the specific form disclosed, but intend to cover all modifications and alternative constructions falling within the spirit and scope of the invention as expressed in the appended claims.

While the invention is applicable generally to oven doors having removable glass panels, it is particularly adaptable for use with doors of the type disclosed in the Hillebrand Patent No. 2,394,176, issued February 5, 1946. For purposes of illustration, the invention has been shown as embodied in such a door. As shown in Figs. 2 and 3, the exemplary door comprises a pair of flanged sheet metal panels 6 and 7 assembled in nesting relation to define respectively the inner and outer faces of the door. Hinge members 8 are provided at opposite sides of the door for pivotally supporting it on the frame 9 of a stove.

The door panels 6 and 7 are formed with aligned openings defining a generally rectangular window 10 through which the interior of the oven may be viewed when the door is closed. To reduce heat losses, the window 10 is double glazed, that is, it is closed by inner and outer glass panels 11 and 12 supported adjacent the openings in the door panels 6 and 7. A sheet metal stiffening member

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13 secured to one of the door panels imparts rigidity to the door structure and cooperates with the door panels to form a frame for supporting the glass panels 11 and 12.

In the particular door illustrated, the outer glass panel 12 is fixedly mounted in the door, while the inner panel 11 is mounted in a manner permitting easy removal for cleaning. To this end the member 13 is shaped to provide ledges 14 at opposite sides of the window opening for engagement with the side edges of the inner panel 11. The window opening in the inner panel 6 is of substantially the same width as the glass panel 11 and is bordered by inturned flanges 15 which serve to restrain the panel 11 against lateral movements while permitting it to slide along the ledges 14 and to tilt relative to the plane of the window opening as indicated in Fig. 2.

At the other two sides of the window opening, in this instance the upper and lower edges of the opening, the panel 6 is flanged inwardly to form transversely disposed abutments 16 suitably spaced from the ledges 14 so that the glass panel 11 may slide thereunder. Lugs 17 struck out from the member 13 form support means for the glass panel when the door is in an upright or closed position and are located so as to position the lower marginal edge portion of the panel 11 for engagement with the lower abutment 16. The panel 11 is dimensioned so that its upper marginal edge portion is similarly engaged under the corresponding abutment at the upper edge of the window opening and is thus retained in the frame provided in the door. The panel 6 and the member 13 of the illustrated embodiment of the present invention define a recess 25 at the upper edge of glass panel 11 for the reception of the upper edge portion of the panel as it is assembled or disassembled from the door. This construction is similar to that of the aforementioned Hillebrand patent. To remove the panel 11, the door is swung to the open or horizontal position shown in Fig. 1 to render the panel accessible. The panel may then be shifted edgewise toward the top of the door and into the recess 25 until the lower edge clears the abutment 16. When the lower edge of the panel is free, it may be lifted sufficiently to permit the panel to be withdrawn from under the abutment at the top of the window opening.

In accordance with the invention, simple yet effective means is provided for lifting or tilting the panel 11 upon the freeing of its lower edge from the abutment 16 so that it may be grasped with the fingers for removal from the door. The panel lifting means comprises a spring 20 mounted on the door in a position to coact with the inner face of the panel 11 and tensioned to urge the panel outwardly or toward the abutment 16 at the bottom of the window opening. With the panels

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in normal position as shown in solid lines in Fig. 2, the panel is held firmly against the abutment, thus effectually preventing vibration or rattling of the panel in the door. The spring 20 is arranged to maintain contact with the panel as it is shifted edgewise and, as the lower edge clears the abutment 16, it acts to raise or tilt the panel to the position shown in broken lines in Fig. 2. In this position, the panel may be conveniently grasped by the fingers for withdrawal from the frame.

In the preferred form shown, the spring 20 comprises an elongated thin flat spring or leaf spring of steel or other suitable material. It may be secured to an appropriate part of the door structure, such as the stiffening member 13, by suitable fastening means, herein shown as a self-tapping screw 21. When so mounted the lower end portion 22 of the spring is bent over to contact with the lower edge of the member 13 and thus maintain the spring in an upright position.

The spring 20 is tensioned of course so that its free end tends to swing inwardly of the plane of the door, that is, in an upward direction when the door is in the open position as shown in Fig. 1. Preferably the free end of the spring is formed with a curled panel engaging portion 23 (Fig. 2) and is dimensioned lengthwise so that the point of engagement with the panel is located substantially above the abutment 13.

When the panel 11 is to be replaced in the door it is inserted therein in the position shown in broken lines in Fig. 2. With the door horizontal, the panel is pressed down against the forces of the spring 20 into the position shown in solid lines in the drawing. While in the latter position, the panel may be shifted edgewise to enter its lower edge below the abutment 13 and to seat against the supporting lugs 17.

I claim as my invention:

1. In an oven door having a window opening, means providing inwardly facing ledges along the sides of the window opening, abutment means extending along the lower edge of the window opening in spaced relation to said ledges, a glass panel supported on said ledges with its lower edge disposed below said abutment means, said panel being shiftable on said ledges to a position in which said lower edge is clear of said abutment means, and an elongated leaf spring supported at one end on the door and having its other end projecting into the window opening to engage said panel, said spring being operative when the panel is shifted clear of said abutment means to tilt it into a position in which it may be conveniently grasped for removal from the door, said spring being operable when said panel is in its normal position to hold it in firm engagement with said abutment means to prevent vibration or rattling when the door is opened or closed.

2. In an oven door having a generally rectangular window opening, means providing ledges along two sides of the window opening, abutment means extending along the other two sides of the window opening in spaced relation to said ledges, a glass panel having two opposite edges supported on said ledges with two other opposite edges disposed below said abutment means, said panel being shiftable on said ledges to a position in which one edge is clear of the adjacent abutment means, and spring means carried by said door engageable with said panel for holding it in firm seating engagement with said abutment means, said spring means being operative when the panel is shifted clear of one of said abutment means to raise

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the corresponding end of the panel into a position to be conveniently grasped for removal from the door.

3. In an oven door having a generally rectangular window opening, means providing ledges along two opposite sides of the window opening, abutment means extending along the other two sides of the window opening and spaced from said ledges, a glass panel having two opposite sides supported on said ledges and having two other opposite marginal edge portions engaged under said abutments to retain the panel in engagement with said ledges, said panel being shiftable edgewise along said ledges to a position in which one of said marginal edge portions is clear of the adjacent abutment means, and spring means mounted on the door and coacting with one face of said panel to lift the cleared edge portion thereof out of the plane of the door into a position in which it may be conveniently grasped for removal from the door.

4. In an oven door having a generally rectangular window opening, abutment means extending along two sides of the window opening, a glass panel having two marginal edge portions engaged under said abutment means, spring means carried by said door and engageable with said glass panel at a position between said abutment means, said spring holding said panel in firm seating engagement with said abutment means, panel means on said door forming a recess, said glass panel being shiftable edgewise along said abutment means into said recess to a position in which one of said marginal edge portions is clear of the adjacent abutment means, said spring means being operative to move said cleared edge portion into a position to be conveniently grasped for removal from the door.

5. In an oven door having a generally rectangular window opening, abutment means extending along two opposite sides of the window opening, a glass panel having two opposite marginal edge portions engaged under said abutment means, support means carried by said door and spaced from said abutment means for limiting edgewise movement of said glass panel in at least one direction, spring means anchored to said door and engageable with said glass panel at a position between said abutment means for holding said panel in firm seating engagement with said abutment means, panel means on said door forming a recess adjacent the edge of said glass panel opposite said support means, said glass panel being shiftable edgewise along said abutment means into said recess to a position where one of said marginal edge portions is clear of the adjacent abutment means, said spring means coacting with said glass panel to move the cleared edge portion thereof out of the plane of the door into a position in which it may be conveniently grasped for removal from the door.

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