Aug. 23, 1966 R. E. CASCIANI 3,267,930

OVEN DOOR WITH PANEL INSERTS

Filed Sept. 29, 1964 2 Sheets-Sheet 1

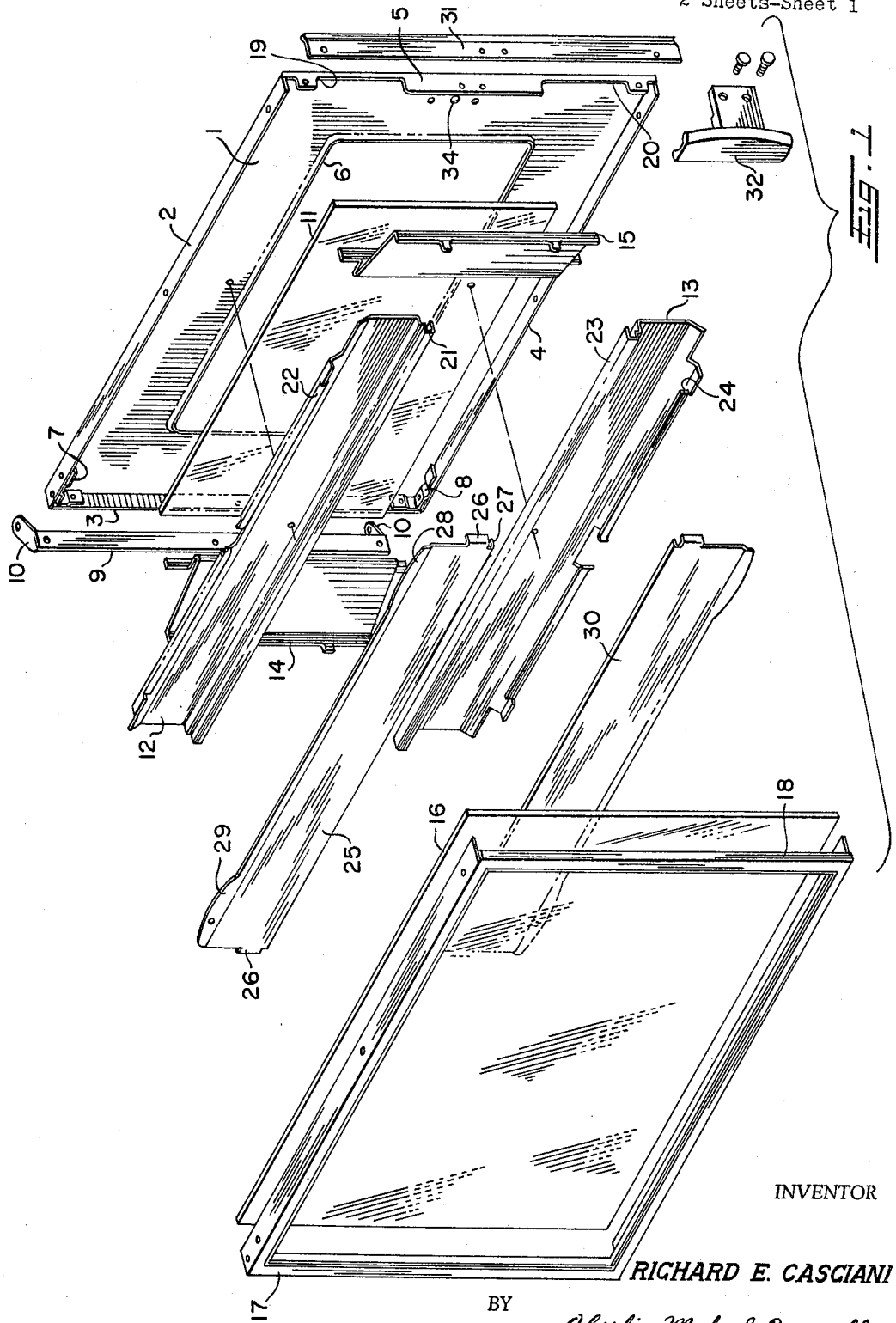



FIG. 1

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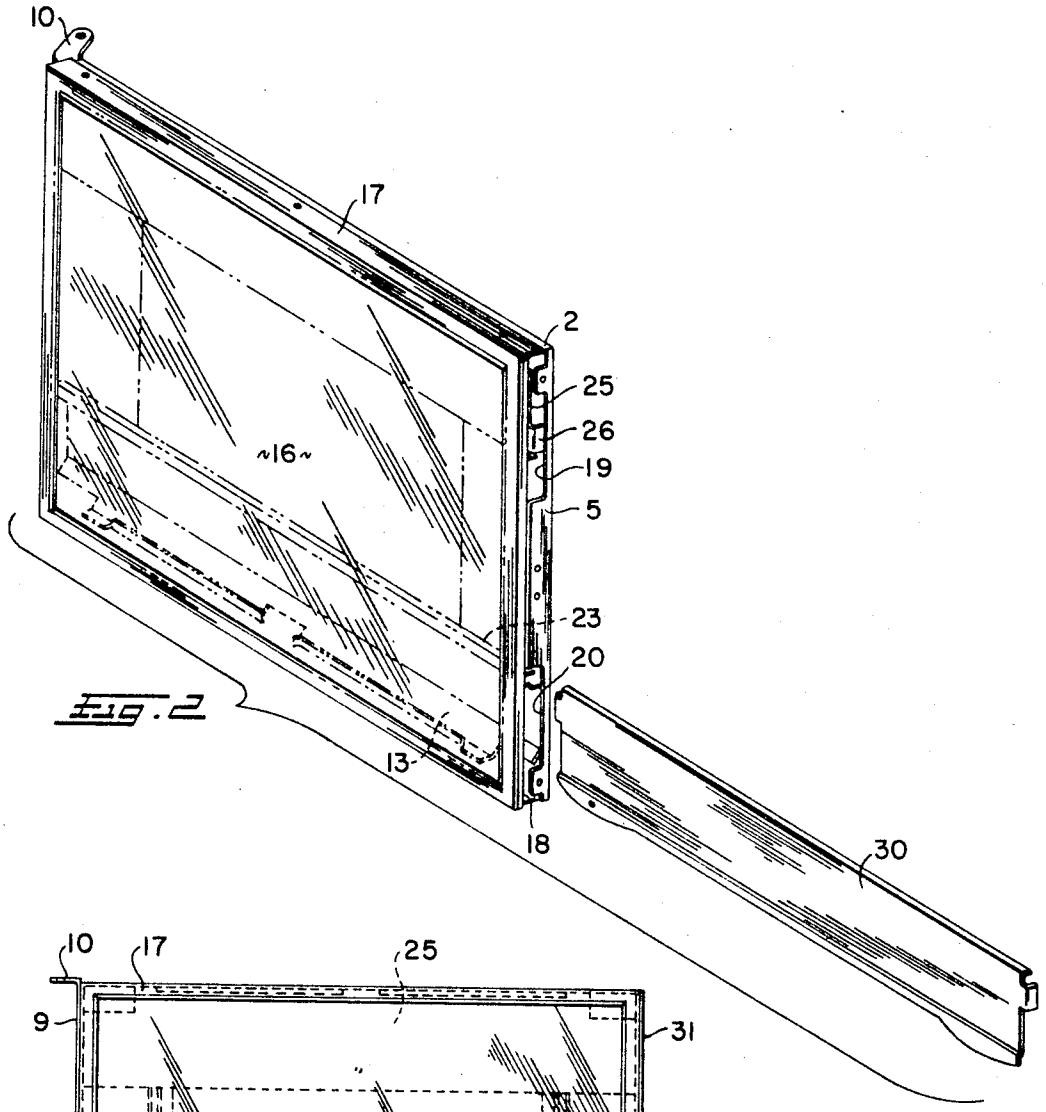



Fig. 2

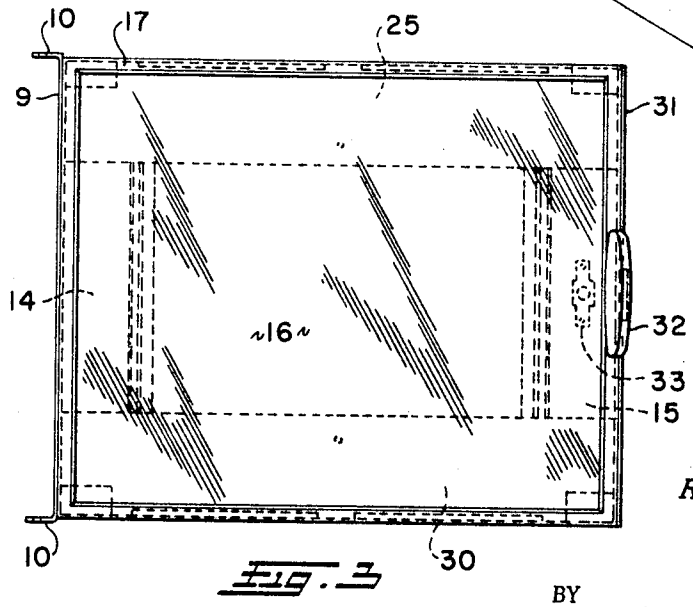



Fig. 3

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# OVEN DOOR WITH PANEL INSERTS

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This invention relates to an oven door of a construction which includes removable panel inserts.

It is a primary object of the invention to provide a mechanically complete door assembly for a cooking oven and the like adapted to receive selected inserts of general panel form for decorative purposes.

The fairly recent introduction of color in home appliances, including ranges, has proved quite successful in adding to the appeal of such products, and considerable attention has been given to the production of range models, for example, in a variety of colors to suit the taste of a particular customer and to accommodate in an attractive manner such a unit in an overall plan of design for a kitchen in the home. In free-standing ranges, the designer has a number of opportunities for such color addition in view of the several assemblies ordinarily included and susceptible of different treatment even within the same range, this style of range having distinct control areas, cook tops, and one or more oven assemblies. In a built-in oven, on the other hand, the possibility of enhancing the appearance of the unit by decoration is relatively limited, only the control panel and oven door closure assembly being exposed. The oven door construction of the present invention, although not limited thereto, is intended particularly to provide an area for decoration in the door of a built-in oven in view of this last noted limitation in the conventional units of such type.

It is another object of the invention to provide an oven door suited for easy addition of panel inserts without need for special tools or skills. A supply of panel inserts of different colors can be made available and, by reason of the ease of incorporation of the same, it is possible for a dealer to either insert initially or replace already incorporated panels to change the color in accordance with the wishes of the purchaser and the choice, moreover, is nor irrevocable, since a change of the inserts to produce a change in the color scheme can actually be made at any time.

An oven door having glass panes for viewing the interior of the oven with the door closed is preferred as constituting the type or class of door to which the invention relates in this further particularized sense, and the latter provides for internal incorporation of the panel inserts in an otherwise fully completed door, with the inserts being observable through the glass at least at the front of the door.

Other objects and advantages of the present invention will become apparent as the following description proceeds.

To the accomplishment of the foregoing and related ends, the invention, then, comprises the features hereinafter fully described and particularly pointed out in the claims, the following description and the annexed drawings setting forth in detail certain illustrative embodiments of the invention, these being indicative, however, of but a few of the various ways in which the principle of the invention may be employed.

In said annexed drawings:

FIG. 1 is an exploded view in perspective of an oven door in accordance with the present improvements;

FIG. 2 is a further perspective of the door in almost fully assembled condition; and

FIG. 3 is a front elevation of the completed door.



Referring now to the drawings in detail, the illustrated door comprises a liner **1** having uninterrupted forwardly projecting flanges **2**, **3** and **4**, respectively, at the top edge, the left side as viewed from the front, and the bottom edge. There is a further forwardly projecting flange **5** at the remaining side of the liner, with this flange having certain reliefs therein as and for the reasons discussed hereinafter. This liner **1** is also provided with a rectangular central opening **6** bounded by a relatively small flange also projecting to the front. It will be noted that the opening **6** in the body of the liner **1** is of noticeably reduced size, so that there is a significant frame of the liner material, which will be metal, between this opening and the periphery of the liner.

An angular reinforcing bracket **7** is affixed to the liner at the upper left corner, with its angularly related portions respectively against the inner surfaces of the flanges **2** and **3**. A similar reinforcing bracket **8** is located and secured within the lower left corner of the liner against the flanges **3** and **4**. The liner **1** is the main body component of the door, and mounting thereof is accomplished by a hinge **9** which is of elongated strip form and has top and bottom ears **10** extending angularly inwardly for support on suitable pivot pins or the equivalent. It will be seen that the hinge **9** is co-extensive with and disposed against the outer surface of the liner flange **3**, with the former being attached to the latter by means of three screws, not shown, and the top and bottom screws extending into and being supported respectively by the reinforcing brackets **7** and **8** within the liner.

Disposed against the inner surface of the liner, for closure of the opening **6** therein, is an inner glass pane **11**. This pane will be seen to be slightly larger than the liner opening, and it will be understood that a suitable heat seal will preferably be incorporated at the joint of the two components. The glass pane **11** is positioned and held in place by top and bottom horizontal spacers **12** and **13** and by vertical spacers **14** and **15** at the respective sides. The top spacer **12** is fastened, by a screw or other suitable fastening expedient, against the inner surface of the liner **1** and extends over substantially the full horizontal top portion of the body above the opening **6**. The bottom spacer **13** is similarly disposed to cover the horizontal bottom portion of the liner, and the height of these components **12** and **13** is such that they are not visible from the rear of the liner **1** or, in other words, from the inside of the door. The two vertical spacers **14** and **15** forwardly obscure the remaining side portions of the liner **1** and bridge between the top and bottom horizontal spacers **12** and **13**. For a reason which will become apparent, the front surfaces of the spacers **14** and **15** are provided with a decorative finish, such as by chrome plating.

An outer glass pane **16** is placed against the assembly of spacers, and the door is completed by the addition of a front frame **17**. This frame **17** is quite narrow and has rearwardly extending flanges at the top, bottom and left side, again as viewed from the front, to engage over and be secured by screw fasteners and the like to the corresponding flanges **2**, **3** and **4** of the door liner **1**. The glass **16** enclosed by the frame **17** is substantially full door size, that is, almost the entire front of the door is provided by this glass and frame assembly, with the two sealed in an appropriate manner by gasketing or the like. This outer pane is also positioned by the spacers **12**, **13**, **14** and **15**, with the latter having some spring action and being slightly compressed to help maintain them in place.

At the right side, the frame **17** has only a relatively short rearward flange **18** and, as shown most clearly in FIG. 2, this flange **18** does not obscure the reliefs provided in the liner flange **5**. The latter are of such location and configuration as to provide slots **19** and **20** generally

coincident with the ends of the top and bottom horizontal spacers **12** and **13**, with the door in this condition otherwise being closed.

With reference to FIGS. 2 and 3, it will be apparent that all four spacers are visible through the front glass pane **16**, with the vertical spacers **14** and **15** however having a decorative finish as earlier noted.

The top spacer **12** is of such cross-sectional shape as to have a continuous forwardly projecting bottom ledge **21** and an opposed top channel **22** which is open inwardly or downwardly within the door. The bottom horizontal spacer **13** is similarly formed, whereby it too has a forwardly projecting ledge **23** and opposed channel **24**, with these portions in corresponding positioning as the same parts of the top spacer.

A panel insert **25** is removably supported by and slidable along the top spacer **12** about the ledge **21** and the channel **22**, over the top edges of spacers **14** and **15** and with the insert having ears **26** inturned at its ends, a small inturned bottom flange **27**, and enlarged end portions **28** and **29** forming outwardly curving projections at the ends of the upper edge of the insert. Another such panel insert **30** of corresponding formation is supported in like manner in the bottom horizontal spacer **13** about the ledge **23** and between the bottom edges of the vertical spacers and the bottom spacer channel **24**. As will be apparent, the top and bottom spacers and respectively associated panel inserts are relatively reversed for the indicated correspondence thereof in the door.

As will be most readily apparent from FIG. 2, these panel inserts can be placed in and removed from their respectively associated horizontal spacers through the right side of the assembled door at the openings **19** and **20**. Each panel insert is thus inserted by feeding the same lengthwise through the particular side opening thus provided for the purpose and sliding movement along the interior spacer until fully inserted. The noted ears at the ends of the inserts facilitate this sliding movement and retraction for removal, while the enlarged ends of the inserts, such as the sections **28** and **29** for the insert **25**, are of such relatively greater width as to provide an interference between the insert and its supporting spacer. This interference insures holding of the insert in place, but is not, of course, of such degree as to make it difficult to slide the inserts in and out.

The door, after insertion of the two selected panel inserts at top and bottom, is completed by adding a trim strip **31** against the right side, with this strip being attached by screw fasteners and covering the openings **19** and **20** through which the panel inserts are added to or removed from the assembly. A handle **32**, of any desired design, is in the illustrated embodiment attached at the right side overlying the mounted trim strip **31**. In this door, an internal latch is employed, but this is of standard available form and is shown only by the dashed outline **33** in FIG. 3. For further illustration, this catch can be one having opposed spring loaded rollers to pass and engage over a projecting spear fixed to the frame of the oven with which the door is used, with the hole **34** shown in the liner **1** accommodating such entry of the fixed latch member.

It will also be appreciated that the illustrated door construction is symmetrical and the hinging is such that the door can be mounted either for hinging adjacent the left side as illustrated or, by simply turning the door end for end, for swinging about an axis adjacent the right side. The reversibility is facilitated by incorporation of the door catch within the door itself as disclosed, since the cooperable member on the opposed oven frame is in the nature of a simple stud easily located at either side.



The completed door thus presents to the view of an observer at the front an internal border behind the front pane of glass made up of the side or vertical spacers **14** and **15** and the inserts **25** and **30**. The latter will be provided with a decorative finish and there will preferably be a stock of such inserts of different color made available for selective use in the door. The varying colors can be provided by enamel finishes or any coatings which will be stable at the temperatures encountered in the operation of the oven with which the door may be associated. It is, accordingly, possible to make up a substantial number of doors of the disclosed construction which, although mechanically the same, can provide widely varying appearances through color selection of inserts in the manner set forth.

In this embodiment, the panel inserts effectively are utilized for front appearance and the support structure formed in part by the spacers **12** and **13** is hidden from the rear by reason of the relatively smaller glass area of the door liner. The same consideration applies to the side spacers **14** and **15**, these also only requiring to be finished at one side, viz., the front, and it is preferred that these be relatively neutral in the color sense so as not to detract from or present any problems of compatibility with the color desired for the panel inserts.

Other modes of applying the principles of the invention may be employed, change being made as regards the details described, provided the features stated in any of the following claims or the equivalent of such be employed.

I, therefore, particularly point out and distinctly claim as my invention:

**1.** An oven door comprising an inner door liner having an opening therein, an outer frame likewise defining an opening, said inner door liner and outer frame having inturned flanges and being assembled with said flanges spacing the liner and frame apart and serving also to form a substantially fully closed peripheral wall, an inner glass pane disposed within said peripheral wall and interiorly against said liner, an outer glass pane also within the peripheral wall disposed interiorly against the outer frame, spacers between the inner and outer glass panes in engagement therewith maintaining said panes in spaced relation, a separately formed decorative panel insert, the peripheral wall being provided with a limited opening for passage of said panel insert to the interior of the thus assembled door between the inner and outer glass panes, and panel guide and support means adjacent the limited opening of the wall for slidably receiving the panel insert as inserted through the opening and supporting the insert behind a minor unobscured portion of the outer glass pane, whereby the decorative panel insert can be observed from the front of the door without precluding viewing therethrough.

**2.** An oven door as set forth in claim **1** including readily detachable trim means covering the opening in the peripheral wall of the door provided for passage of the panel insert.

**3.** An oven door as set forth in claim **2** wherein the outer frame opening is larger than the inner liner opening, and the inner liner has a body portion which conceals the back of the panel insert within the door.

**References Cited by the Examiner**

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KENNETH W. SPRAGUE, *Primary Examiner.*