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(54) A domestic oven with a contiuous front panel

(57) A domestic oven (1) with a continuous front panel (6), in which the door (3) which closes the front of the oven extends upwardly to the top (9) of the body of the oven and covers a control panel, the devices (12, 13) of which are accessible, even when the door is closed, through convenient apertures therein.

In addition to satisfying aesthetic considerations, the extension of the door panel to cover the entire front of the oven enables a monitoring window of considerable dimensions to be provided in the door, thus facilitating monitoring of the cooking process from outside.

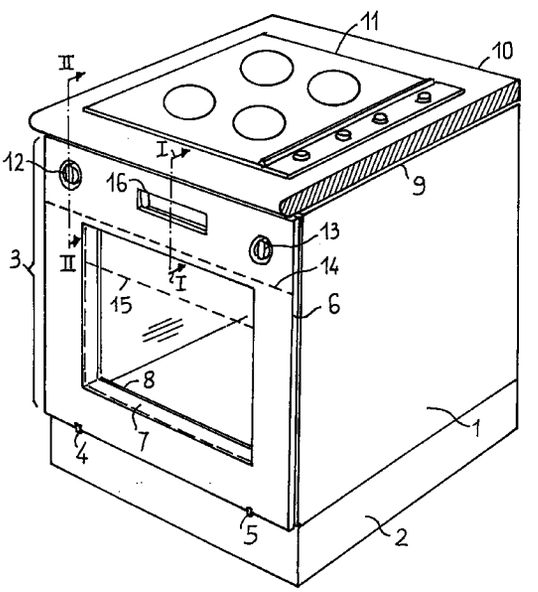

FIG.1

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Description

The present invention relates to a domestic oven with a continuous front panel.

Electric, gas or combination ovens are known, either of the type for fitting into a modular unit or of the free-standing type, in which the front loading aperture is closed by an openable door releasably hinged to the body of the oven and of a composite metal/glass structure forming a transparent window to allow the monitoring of the cooking process without the need to open the door.

Above the door is a control panel or display which is fixed to the body of the oven and houses the devices for controlling the oven, generally a mechanical timer and a switch or tap associated with a thermostatic regulator element.

The door has a handle for opening it, fixed to the metal structure of the door which forms a support frame for an inner glass panel (removable for cleaning) and a continuous outer panel of screen-printed glass which extends over the entirety of the door.

The handle is generally positioned near or above the transparent window in the door and, in many cases, projects substantially both so that it can be gripped correctly and to ensure that it is well insulated from the heat and thus comfortable to the touch.

This position does not, however, allow full and easy viewing into the oven unless the angle of viewing between the user and the door is greatly increased or the user bends down, assuming a highly uncomfortable position, in order to check how the food is cooking. In practice, experience reveals that the monitoring window is rarely used, the user frequently preferring to open the door to obtain a better view but at the expense of considerable heat loss, which lowers the temperature of the oven and in some cases may interfere with the cooking process.

It is therefore desirable to have a domestic oven, possibly combined with a hob to form a cooker, which does not have this limitation and offers a good view of the inside of the oven, particularly from above, without the need to open the door.

This requirement is satisfied by the domestic oven with a continuous front panel constituting the subject of the present invention, in which the oven door extends upwardly to the top of the body of the oven, covering the control panel, the devices thereof being made accessible through convenient apertures in the door itself even when the door is closed.

According to a further aspect of the invention, the control devices are, to advantage, provided with operating knobs either of the push-pull or bistable type, normally arranged flush with the outer surface of the door so that they are operable when the door is open but which can also be made to project through their respective apertures by a push-button action so that any desired control and adjustment operation can easily be carried out with the door closed.

This push-button action, which allows control and adjustment operations to be carried out with the door closed, also gives intrinsic protection against improper handling of the controls.

According to yet another aspect of the invention, the oven door handle is, to advantage, constituted by an elongate slot-like aperture near the upper edge of the door and facing a corresponding recess in the control panel thereby leaving the surface of the door entirely free for the provision of a larger monitoring window, thus reducing the aforesaid problems regarding the opening of the oven door.

The oven-door structure thus formed is not only especially ergonomic, it also satisfies aesthetic requirements for elegance and simplicity of design which ensures that it will fit well with modular units since, when the oven door is closed, the front of the oven is formed by a single flat, continuous panel with no raised surfaces.

The characteristics and advantages of the invention will become clearer from the description which follows and from the appended drawings, in which:

Figure 1 is a general perspective view of a preferred embodiment of a domestic oven with a continuous front panel according to the present invention;

Figure 2 is a section, taken on the line I-I of Figure 1 showing a detail of the front door panel and of the control panel beneath;

Figure 3 is a section, taken on the line II-II of Figure 1 showing a detail of the front door panel and of the control panel beneath; and

Figure 4 is a general perspective view of a variant of a domestic oven with a continuous front panel of the invention fitted on a shelf or bracket.

With reference to Figure 1, a domestic oven according to the invention comprises a body 1 of rectangular box shape supported on a base 2 and closed at the front by an oven panel or door 3, hinged at the bottom (by hinges 4, 5) to the body 1 so as to be releasable.

The oven door 3 is constituted in known manner by an outer glass panel 6 and a metal inner support frame 7 which supports a removable inner glass window 8 separated from the outer panel by a heat-insulating cavity.

The oven door 3 differs from those in known domestic ovens in that it extends up to the top 9 of the body of the oven which generally bears a continuous work surface 10, shown in section, of a modular kitchen unit. A gas or electric hob 11, in itself entirely conventional, may be fitted into the work surface 10 or may form part of the oven itself and be fixed to the body 1.

The oven door 3 thus covers the front control panel of the oven where the knobs 12, 13 are arranged for controlling a timer and a thermostatic regulator respectively, and possibly other devices (oven light, grill, spit).

It is an advantage if the control knobs 12, 13, housed in the thickness of the oven door are operable

when the oven door is open but are also accessible through apertures in the oven door so they can be operated even when the door is closed.

To this end, the knobs are of the bi-stable or push-pull type so that, if pressure is exerted on them, they slide axially along their axes of rotation and project a convenient distance, of the order of 15-20mm, from the outer surface of the door 3 so that they can be gripped and turned even when the oven door is closed.

The extension of the door 3 to the top of the oven 1 enables a monitoring window to be provided in the door 3 which also extends upwardly, as illustrated, thereby giving an easy view of the inner chamber of the oven.

For a quick comparison with the prior art, the broken line 14 indicates the upper edge of the door of a conventional domestic oven while the broken line 15 represents the upper edge of the monitoring window, again in a conventional oven.

It is clear from this comparison that an oven such as that forming the subject of the invention provides better visibility and is more ergonomic, as well as being more aesthetically pleasing.

In fact, the front of the oven forms a single, homogeneous unit, without the break constituted by the gap between the door and the control panel.

It is advantageous, but not essential, for the handle of the door 3 to be integral with the front glass panel 6, it being formed as an elongate aperture 16 therein, located so as to face a convenient recess in the control panel which is sufficiently wide and deep for the fingers of a hand to be able to grasp the upper or lower edge of the aperture 16, thus ensuring that the handling position is away from the hottest region.

Figure 2 shows a section through part of the body 1 and part of the overlying oven door 3 in order better to illustrate the structure thereof.

As stated earlier, the door is constituted by an outer glass panel 6 fixed by glue and/or engagement in a frame to a metal inner frame 7 suitably shaped to correspond with the oven opening so as to form a support for a resilient seal 17 and for a glass inner panel 8.

A heat insulating cavity is formed between the outer panel 6 and the frame 7 or the inner panel 8 which can be partly filled with thermally-insulating material but with a window left free for the monitoring of the cooking chamber 19.

This latter is defined by an internal wall 20 of the oven, the outer face of which is covered with thermally-insulating material 21 and which extends upwardly to support a front control panel 22 which faces the upper portion of the door 3.

At the site of the handle-aperture, the control panel is bent inwardly to form a housing 24 which enables the handle to be gripped easily.

Figure 3 shows a detailed section of part of the door 3 which faces a control device, for example a thermostated switch 25, mounted in the control panel.

The switch 25, which is conventional in itself, is mounted on the body of the oven, either directly on the inner wall 20 which is appropriately shaped or by means of support brackets, and has a control shaft 26 extending perpendicular to the front of the oven.

An annular member 27 which forms a cavity is keyed to the shaft and has a peripheral indicator dial 28 coplanar with the control panel 22 and a knob 29, of the bistable push-button type, partially housed in the cavity of the annular member 27, the knob projecting suitably from the control panel and passing freely through an aperture in the outer panel 6 and the inner frame 7 of the door 3 so that its head is coplanar with the outer surface of the door 3 when this is closed.

The aperture in the outer glass panel 6 which houses the knob 29 has a suitable plastic or metal seal 30, around its periphery.

It is clear that, when the door is open, the knob 29 can be manipulated easily thanks to the cavity formed by the annular member which is large enough to receive the fingers of a user and give a comfortable and secure grip on the knob to allow the control device 25 to be set in a required condition identified by the correspondence of one of several indicators on the dial 28 with a fixed reference index 31 on the control panel.

In order to carry out the same operation when the door is closed, one need only press the knob 29, causing it to snap into a position shown by the broken line 32 in which it projects a greater axial extent.

In this position, the knob can be manipulated even when the door is closed and the angular position of the dial 28 relative to a fixed reference index 33, printed on the glass panel 6, can be read through the glass.

It is clear that, for this purpose, an annular portion (or at least a section of an annulus) of the glass of the outer panel is left free of printing around the knob 29 and in this position the inner frame 7 of the door is suitably cut away.

The above description relates only to a preferred embodiment of the invention and numerous variations may be made thereto.

For example, in the case of a combined oven-hob cooker, the various controls for the hotplates can be arranged on the front panel along with the oven controls.

In addition, it is not essential for the control panel to be positioned above the access opening to the oven with the door hinged at the bottom.

For example, as illustrated in Figure 4, in the case of an oven 40 designed to be installed on a shelf or bracket in a raised position, the control panel 41 can be positioned below the access aperture 42 and this may be closed by a door 43 which also extends over the control panel and is hinged at the top and pivots upwardly to open.

In this case, the lower edge 44 of the front panel of the door, which extends to the lower edge 45 of the oven body or just beyond it, can constitute a grip which enables the door to be opened or closed without the need to provide a handle-aperture in the panel.

For this purpose, to improve the grip, the lower front

edge 45 of the body of the oven may be formed with a recess 46 to facilitate the grip, this recess being covered by the front door panel when the door is closed. Alternatively, the lower edge 44 of the front door panel may project conveniently beneath the lower front edge 45 of the oven body.

This concept can also be applied in the case of an oven which is fitted into a conventional unit beneath a work surface or a hob.

Claims

1. A domestic oven of the type in which a front aperture is closed by a door panel (3) with a monitoring window (6,8) in front of the oven and the control devices (12, 13) of the oven are arranged on a front control panel (22), characterised in that
   the door panel (3) extends over the front of the oven so that, in its closed position, it also covers the control panel, apertures being provided in the door panel (3) to enable the control devices (12, 13) to be operated even when the door panel (3) is closed.

2. A domestic oven according to Claim 1 in which the control devices (12, 13) each comprise an operating knob (29) which can assume first and second axial positions, in the first position the head of the knob being coplanar with the outer surface of the door panel (3) in its closed position and, in the second position, the head of the knob (29) projecting from the outer surface of the door panel (3) so as to enable the knob to be manipulated even when the door panel is closed.

3. A domestic oven according to either Claim 1 or Claim 2, including an elongate aperture (16) in the door panel (3) facing a corresponding recess (24) in the control panel (22) so as to form a handgrip for opening the door panel.

4. A domestic oven according to either Claim 2 or Claim 3 in which the control devices (12, 13) include an annular indicator member which is fixed axially and operated by rotation of the knob (29).

5. A domestic oven according to Claim 4 in which the annular indicator member (27, 28) forms a cavity which partially houses the knob (29) in order to facilitate the user's grip on the knob even when it is in its first axial position.

6. A domestic oven according either to Claim 4 or Claim 5, in which the annular indicator member (27, 28) is housed in a recess in the surface of the front control panel (22) and has a peripheral indicator dial (28) which is coplanar with the surface of this front control panel (22).

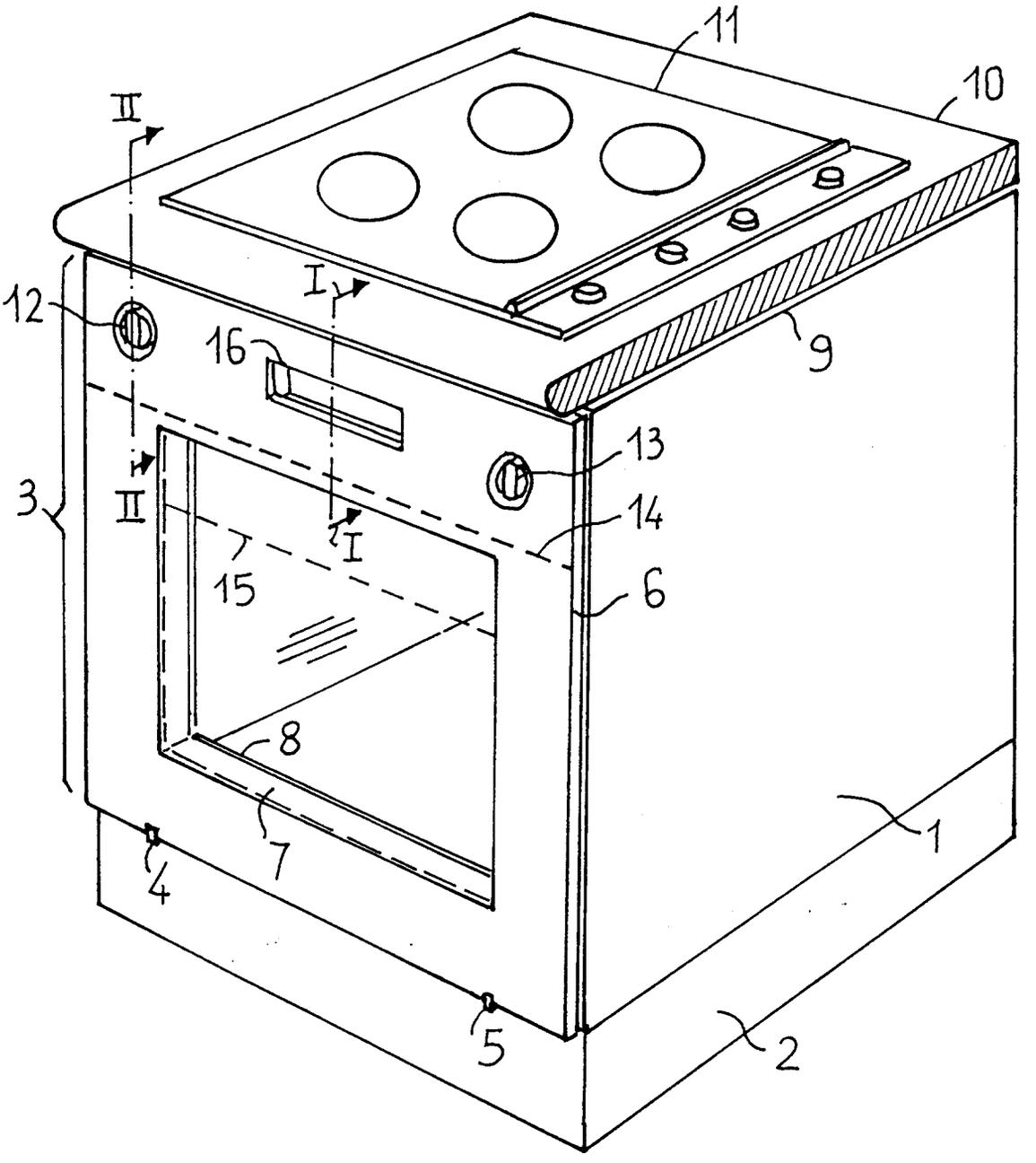

FIG.1

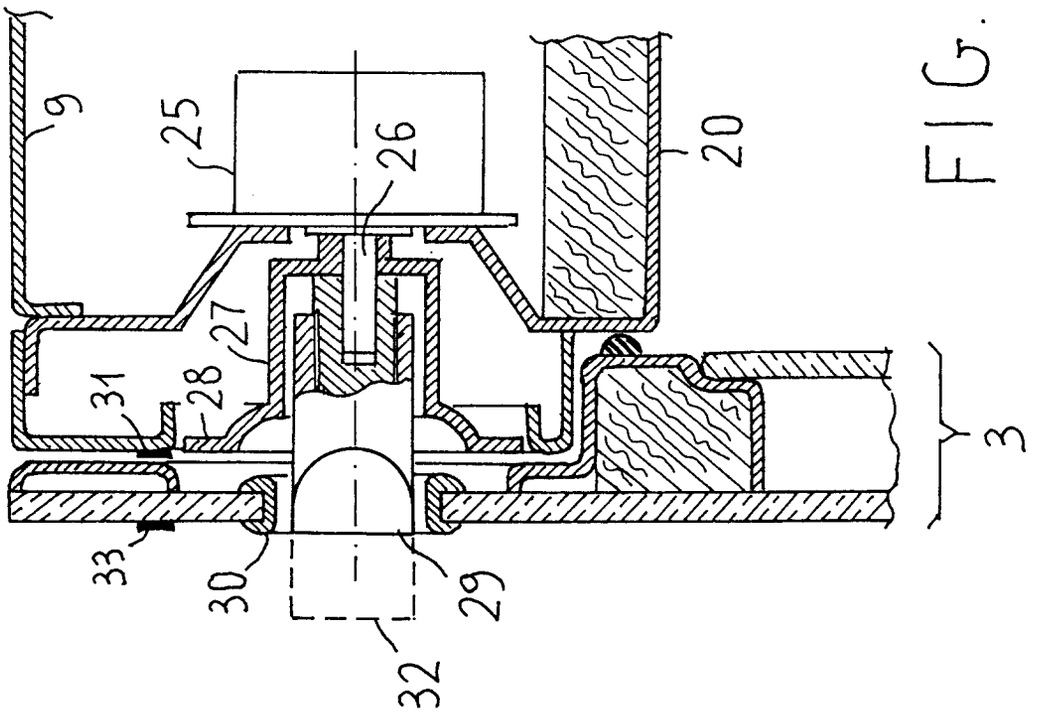

FIG. 3

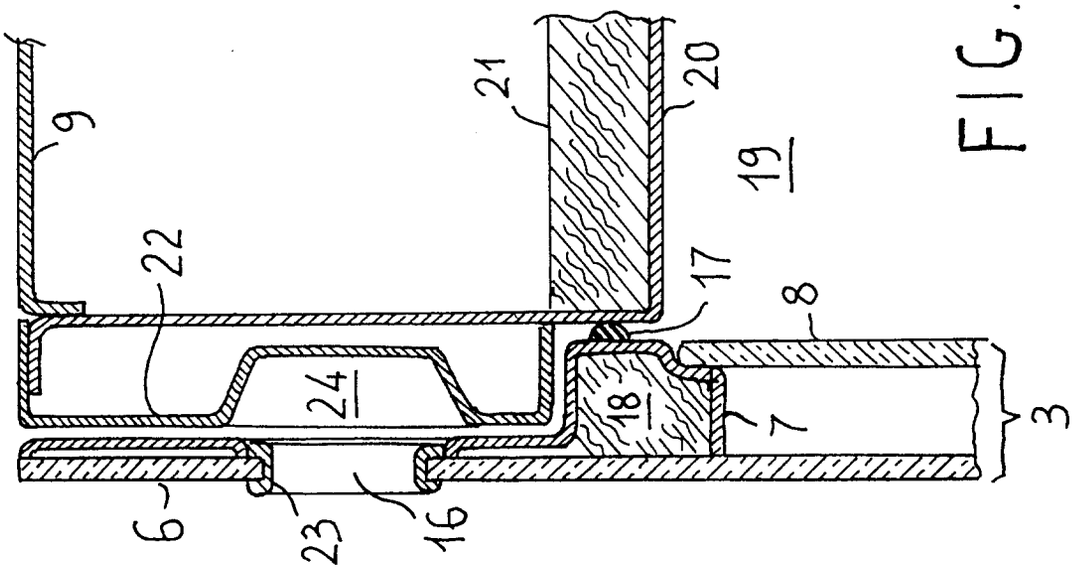

FIG. 2

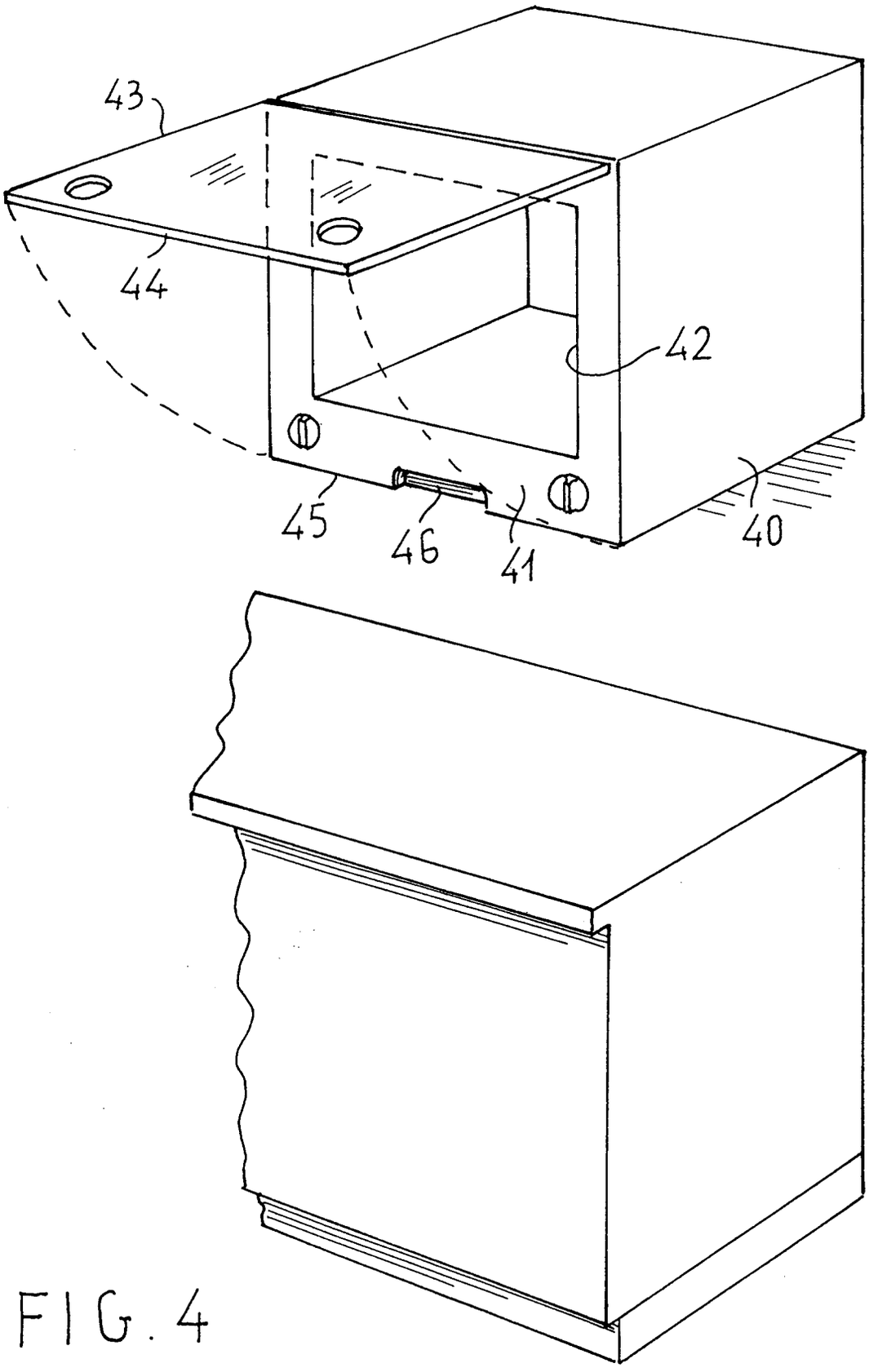

FIG. 4