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(54) **Door adapted to close a cooking chamber of a domestic oven**

(57) Door adapted to close a cooking chamber of a domestic oven, the door (1) comprising an external panel (2), a support (3) fixed to the external panel (2), an internal panel (4) fixed to the support (3), at least one intermediate panel (5,6) arranged between the external panel (2) and the internal panel (4), and means (10) for positioning at least one intermediate panel (5,6) in the housing (7) of the support (3), the positioning means (10) including at least two positioning elements (10') that are fixed respectively to opposite ends of at least the intermediate panel (5,6). The support (3) comprises at least two recesses (11) arranged on opposite ends of the support (3) in connection with the housing (7), in each one of which is housed the corresponding positioning element (10').

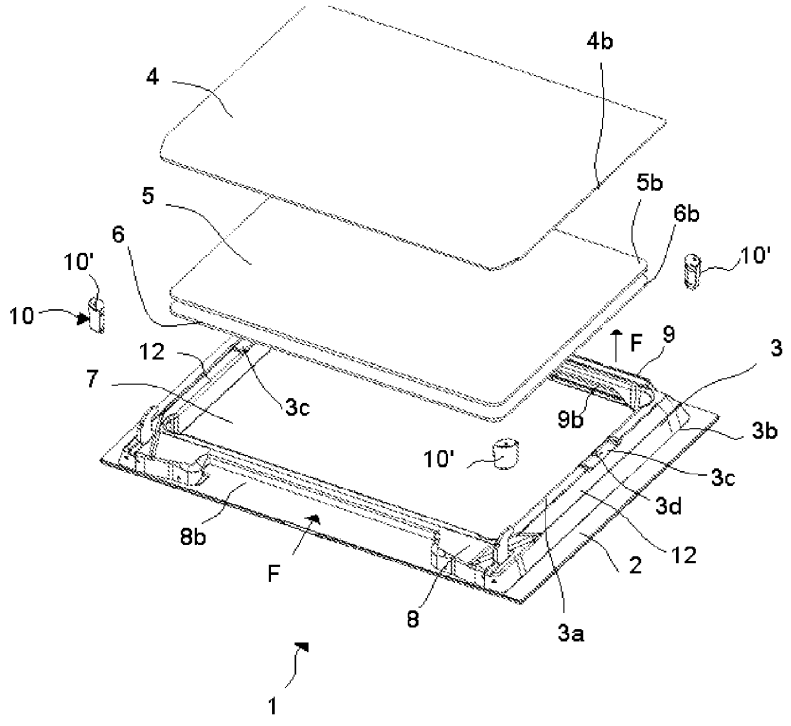

FIG. 2

EP 2 354 670 A2

Description

TECHNICAL FIELD

[0001] This invention relates to a door adapted to close a cooking chamber of a domestic oven, in particular a pyrolytic domestic oven.

PRIOR ART

[0002] There are known doors adapted to close the cooking cavity of a domestic oven that comprises an external panel, an internal panel that close the cooking cavity, and intermediate panels arranged between the external and internal panel, housed in a support that is firmly fixed to the internal panel and on which is fixed said external panel.

[0003] In document EP 1783433 A1 it is described a door that as well as comprising the aforementioned elements includes positioning means that position the intermediate panels in the housing of the support, said positioning means being easily detachable in relation to the support and the intermediate panels.

[0004] One problem associated with this type of door is the loss of heat of the oven that is caused through the different panels and which results in an unwanted increase in temperature in the external panel of the door, this being due to the increase in temperature of the external panel, mainly to the circulation of air between the different cavities created between the panels comprised in the door.

BRIEF DISCLOSURE OF THE INVENTION

[0005] The object of this invention is to provide a door adapted to close a cooking chamber of a domestic oven according to the claims.

[0006] The door according to the invention comprises an external panel, a support fixed to the external panel, an internal panel housed in the support, intermediate panels arranged between the external panel and the internal panel, and means for positioning the intermediate panels in the housing of the support, the positioning means including at least two positioning elements that are fixed respectively to opposite ends of the intermediate panels.

[0007] The support comprises at least two recesses arranged on opposite ends of the support, each recess being connected to the housing, with the corresponding positioning member being housed in each recess. As a result, a minimum gap is obtained between the support and the periphery of the intermediate panels, thereby reducing the exchange of air between the different cavities created between the different panels comprised in the door, as a result of which the heat loss in the oven is reduced and a temperature in the bottom external panel obtained.

[0008] A door is thus obtained that is easy and quick to attach and detach, the integrating elements of which may be replaced independently, and which also reduces the heat loss of the oven.

[0009] These and other advantages and characteristics of the invention will be made evident in the light of the drawings and the detailed description thereof.

DESCRIPTION OF THE DRAWINGS

[0010]

Figure 1 shows a perspective view of a door according to the invention.

Figure 2 shows an exploded view of the door shown in Figure 1.

Figure 3 shows a sectional view of the door shown in Figure 1.

Figure 4 shows a perspective view of the door shown in Figure 1 without an external panel.

Figure 5 shows a detailed view of the support of the door shown in Figure 1.

Figure 6 shows a view in perspective of positioning means comprised in the door shown in Figure 1.

Figure 7 shows a detail of positioning means comprised in the door shown in Figure 1.

DETAILED DISCLOSURE OF THE INVENTION

[0011] In figures 1 and 2 a door 1 according to the invention is shown, adapted to close a cooking chamber of a domestic oven not shown, in particular a pyrolytic domestic oven, which comprises an external panel 2, a support 3 fixed to the external panel 2, an internal panel 4 fixed to the support 3 and which is arranged facing the cooking chamber when the door 1 of the oven is closed, and intermediate panels 5,6 arranged between the external panel 2 and the internal panel 4.

[0012] The intermediate panels 5,6 comprise, in a preferred embodiment shown in the figures, two panels, arranged substantially parallel to each other. In other embodiments not shown in the figures, said intermediate panels 5,6 may comprise more or less panels.

[0013] In addition, the external panel 2, the internal panel 4, and the intermediate panels 5,6 are panels made of glass, which enable the user to see the inside of the oven when the door 1 is closed.

[0014] The support 3 has a substantially rectangular shape and is made, preferably, of a single piece. The support 3 comprises a substantially rectangular housing 7, shown in Figure 2, in which the intermediate panels 5,6 are housed. The housing 7 passes through the support 3, and is delimited by a top section 9, a bottom section

8, and lateral sections 11.

[0015] The support 3 has a bottom base 3b through which it is fixed attached to the external panel 2 and a top base 3a on which is supported the internal panel 4. The support 3 also comprises a notch 3c in the opposing lateral sections 11 of the support 3, on the top base 3a of said lateral sections 11, each notch 3c including a hole 3d, arranged substantially centred. In each hole 3d is inserted a respective projection 4b of the external panel 4, shown in in the exploded figure 2, the respective hole 3d cooperating with the respective projection 4b to fix the external panel 4 to the support 3.

[0016] Additionally, the door 1 comprises means 10 for positioning the intermediate panels 5,6 in the housing 7 of the support 3. The positioning means 10 comprise positioning elements 10', each one of which is arranged fixed to rounded ends 5b,6b of the intermediate panels 5,6, each one of the positioning elements 10' being housed in a corresponding recess 11 comprised in the support 3.

[0017] The recess 11, shown in detail in Figures 5 and 7, is comprised in a corner of the support 3, in other words, the support 3 comprises in each corner connecting the lateral sections 11 to the top section 9 and the respective bottom section 8 the corresponding recess 11, said recess 11 being open and connected to the housing 7. Each recess 11 comprises a support surface 11 a substantially parallel to the external panel 2, and a substantially curved lateral surface 11 b.

[0018] Furthermore, the positioning elements 10' are made of an elastomer material, preferably silicon, which can withstand high temperatures, in the region of 250°C, the elastomer material being sufficiently hard to withstand the compression to which said positioning elements 10' are subjected.

[0019] Each positioning element 10' comprises a bottom surface 10b that is supported on the support surface 11a of the corresponding recess 11, a top surface 10a upon which is supported the internal panel 4, and a substantially curved lateral surface 10d adapted to the lateral surface 11 b of the corresponding recess 11. As a result, the perimeter gap A that exists between the intermediate panels 5,6 and the support 3 is reduced. As this gap A is reduced, the circulation of air between the different cavities created inside the door 1, shown in Figure 2, is reduced, a first cavity 20 being delimited by the external panel 2 and the intermediate panel 6 arranged facing the external panel 2, a second cavity 21 delimited by the intermediate panels 5,6 and, finally, a third cavity 22 delimited by the intermediate panel 5 arranged facing the external panel 2 and the internal panel 4. As a result, as the circulation of air between the cavities 20,21,22 is reduced, heat losses are minimized and temperature of the external panel 2 is minimized.

[0020] To enable ventilation of the first cavity 20 to take place, the bottom section 8 includes an opening 8b that allows the circulation of air from the bottom part of the door 1 to the top part of the door 1 according to a direction F. The air thus enters from the opening 8b of the support 3, circulating through the first cavity 20, and exits through windows 9b included in the top section 9.

[0021] In addition, each positioning element 10a includes grooves 10c,10e in which the corners 5b, 6b of the intermediate panels 5,6 respectively are tightly inserted, said grooves 10c,10e being arranged substantially parallel to each other. The grooves 10c,10d define, inside the positioning element 10a, cavities adapted to the shape of the corners 5b,6b of the intermediate panels 5,6.

[0022] Each positioning element 10' is detachably fixed to the corresponding intermediate panel 5,6, in other words, a user may rapidly attach the positioning elements 10' to each corner of the corresponding intermediate panels 5,6, and may also detach them rapidly and manually, without needing to use any specific tools. As a result, a door 1 is obtained, the elements of which are easy to attach and detach, and in which the elements may be replaced independently. When each positioning element 10' has been inserted in the ends 5a,6a of the corresponding intermediate panels 5,6, the unit is positioned inside the housing 7, the bottom surface 10b of each positioning element 10' being supported on the support surface 11 b of the corresponding recess 11. Finally, the internal panel 4 is fixed to the support 3 in a simple manner thanks to the notches 3c included in the support 3, which allow the user to handle the external panel 2 easily.

[0023] Although in the embodiment described the intermediate panels 5,6 are arranged substantially parallel to each other, in other embodiments said panels may not be arranged in a parallel manner.

Claims

1. Door adapted to close a cooking chamber of a domestic oven, the door (1) comprising an external panel (2), a support (3) fixed to the external panel (2), an internal panel (4) fixed to the support (3), at least one intermediate panel (5,6) arranged between the external panel (2) and the internal panel (4), and positioning means (10) for at least one intermediate panel (5,6) in the housing (7) of the support (3), the positioning means (10) including at least two positioning elements (10') that are fixed respectively to opposite ends of at least the intermediate panel (5,6), **characterised in that** the support (3) comprises at least two recesses (11) arranged on opposite ends of the support (3) in connection with the housing (7), in each one of which is housed the corresponding positioning element (10').

2. Door according to the preceding claim, wherein each recess (11) is delimited by a substantially curved lateral surface (11b), and each positioning element (10') has a substantially curved lateral surface (10d),

adapted to the curved surface (11 b) of the corresponding recess (11).

3. Door according to any of the preceding claims, wherein each positioning element (10') is detachably fixed to at least one intermediate panel (5,6).

4. Door according to any of the preceding claims, wherein each positioning element (10') includes at least one opening (10c,10e) in which the corresponding intermediate panel (5,6) is tightly inserted.

5. Door according to the preceding claim, wherein it comprises at least two intermediate panels (5,6), each positioning element (10') including at least two openings (10c,10e) in which the intermediate panels (5,6) are tightly inserted, the openings (10c,10e) being arranged substantially parallel to each other.

6. Door according to any of the preceding claims, wherein the positioning elements (10a) are made of an elastomer material.

7. Door according to any of the preceding claims, wherein the support (4) is made of a single piece.

8. Domestic oven **characterised in that** it comprises a door (1) according to any of the preceding claims.

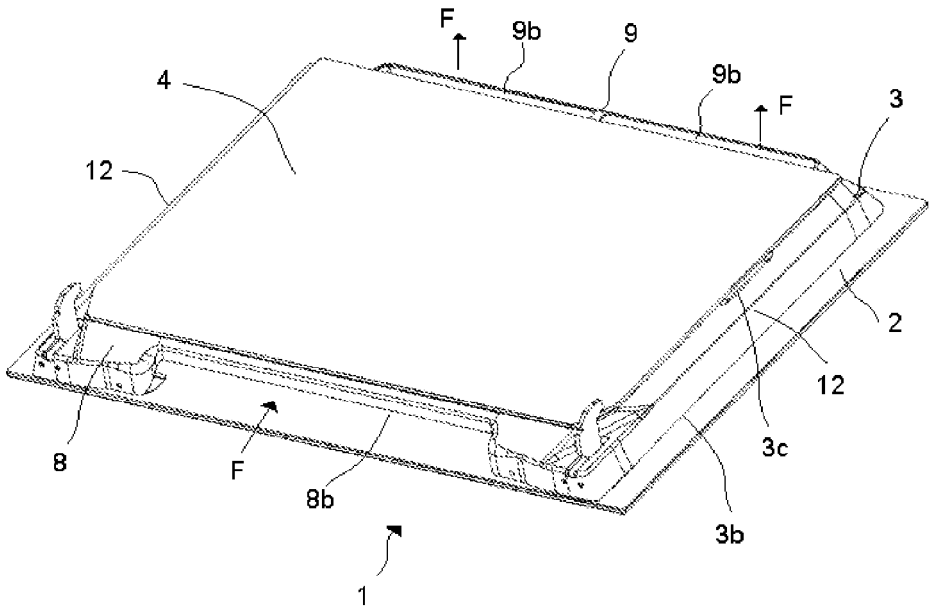
F
9b
9
9b
F
3
4
12
2
12
3c
8
F
8b
3b
1

FIG. 1

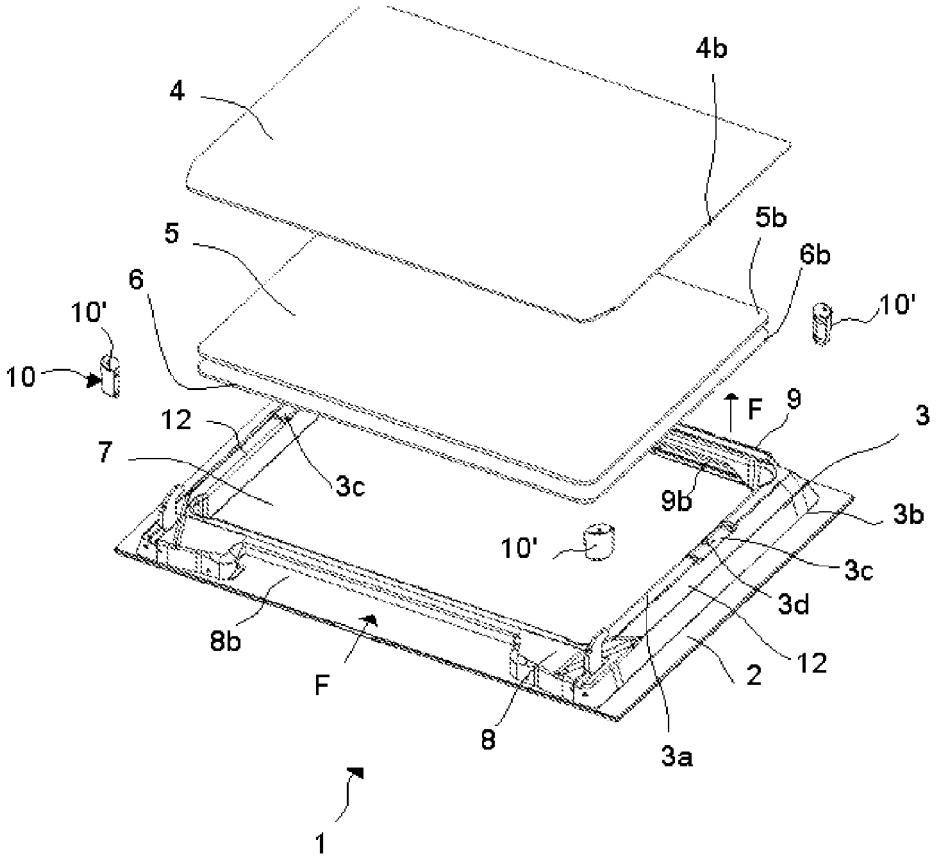
4b
4
5b
5
6b
6
10'
10'
10
F
9
3
12
7
3c
9b
3b
10'
3c
3d
12
8b
F
2
8
3a
1

FIG. 2

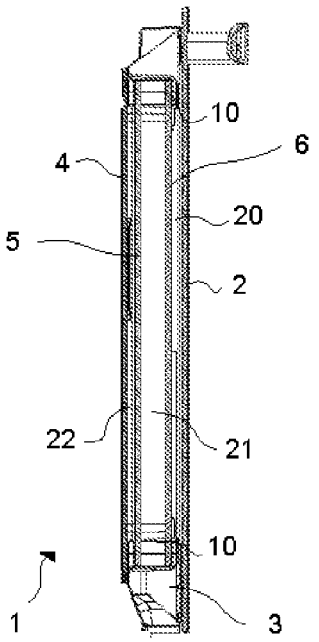
10
6
4
20
5
2
22
21
10
1
3

FIG. 3

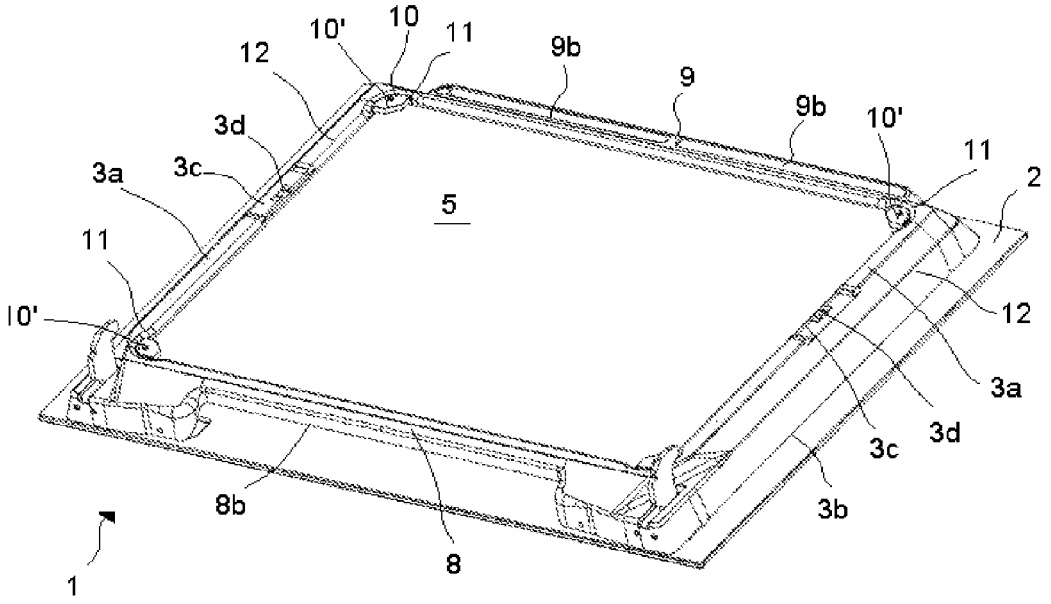
10'
10
11
9b
9
9b
10'
11
2
12
3d
3a
3c
5
11
10'
12
3a
3d
3c
3b
8b
8
1

FIG. 4

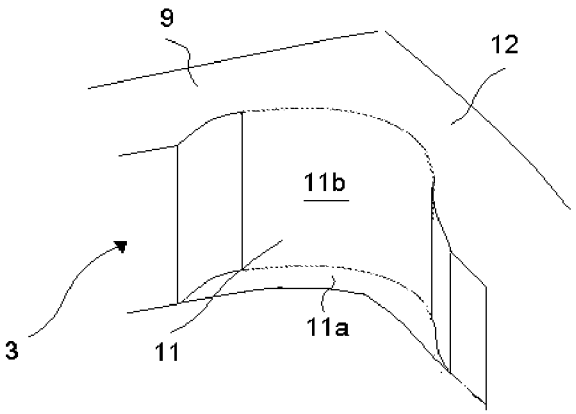

FIG. 5

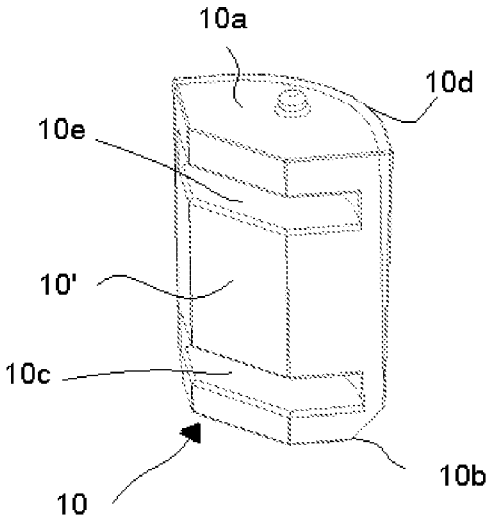

FIG. 6

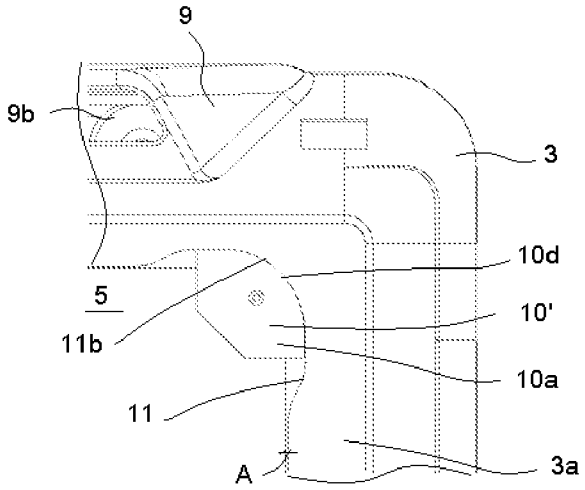

FIG. 7

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 1783433 A1 **[0003]**