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(54) **An oven with a door cooling system**

(57) The present invention refers to an oven with a door (1) cooling system comprising at least two panels of glass, namely an external glass (2) provided on the exterior of the oven, facing the user, and an internal glass (3) provided in the interior of the oven, said door (1) being tightly pressed against the front wall (4) of the oven when closed. The essence of the invention is represented by the fact that the front wall (4) of the oven is formed in the

area above the upper side (5) of the door (1) with a plurality of ventilating apertures (10, 11, 12) and that the door (1) is formed with ventilating apertures (13, 14) extending into the spacing between said two panels of glass (2, 3) of the door (1). Here, the cooling air stream flows from the interior of the oven through the ventilating apertures (10, 11, 12) and further through the ventilating apertures (13, 14) into the spacing between said two panels of glass (2, 3) of the door (1) to the surroundings.

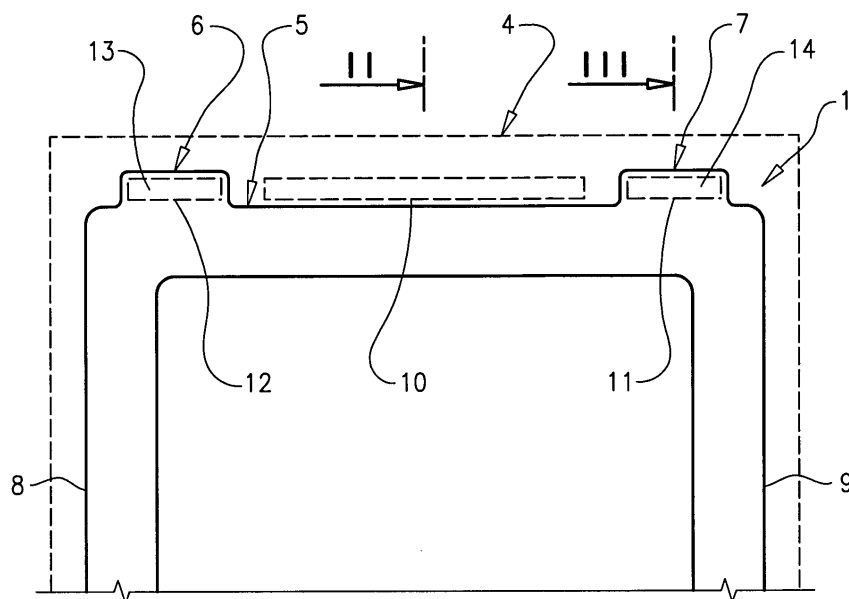


Fig. 1

Description

[0001] The present invention refers to the field of household appliances, in particular in the field of ovens and within this field to the cooling of the oven door.

[0002] An oven is disclosed in the publication of the European patent No. EP 1 382 913 A1 comprising a body closed by a door, and a first and second air channel. Here, the first channel extends at least in sections above both the oven and the door, and there it reaches the interior where the first air stream is directed that has been created by a fan. The second channel extends over the interior of the front door glass and ends in the first channel, thus directing an upwardly flowing second air stream being sucked out to the surroundings by the first air stream. The first inclined plane is provided on the oven door rising from the direction of the oven towards the exterior and all the way to the entrance of the second channel into the first channel. Said inclined plane narrows the first channel at the highest point thereof and exceeds the height of the front glass of the oven door.

[0003] A drawback of said known solution is that a stream of a clean cooling air and a stream of air mixed with gases and vapours that are being sucked out of the oven mix together.

[0004] It is the object of the present invention to create an oven where the drawbacks relating to the cooling of the oven door will be remedied.

[0005] The object as set above is solved in a manner that the front wall of the oven is formed in the area above the upper side of the door with a plurality of ventilating apertures through which flows both the stream of cooling air and the stream of air that is mixed with the gases and vapours from the oven. The oven door is formed in the area of the upper side thereof and over the entire width thereof with at least one bulge being raised above said upper side.

[0006] It is provided for, according to the invention, that each said bulge is formed on the side facing the front wall of the oven with a ventilating aperture extending into the spacing between the two panels of glass in the oven door. The central ventilating aperture of said plurality of ventilating apertures is arranged in the area between said bulges of the oven door, whereas each lateral ventilating aperture of said plurality of ventilating apertures is arranged in the front of each bulge on the door. Each said ventilating aperture formed in each bulge is aligned with each lateral ventilating aperture in the front wall of the door.

[0007] The invention will be more readily understood on reading the following description with reference to the accompanying drawing where

- Fig. 1 shows the door of an oven according to the invention, viewed from the interior of the oven,
 Fig. 2 shows the cross-section of the oven door according to the invention along the line II-II,
 Fig. 3 shows the cross-section of the oven door ac-

cording to the invention along the line III-III.

[0008] An oven according to the invention comprises a door 1 with at least two panels of glass namely an external glass 2 provided on the exterior of the oven, facing the user, and an internal glass 3 provided in the interior of the oven, said door 1 being tightly pressed against the front wall 4 of the oven when closed. The door 1 is provided in the area of the upper side 5 and over the entire width thereof with at least one bulge and preferably with two bulges 6, 7 raised above said upper side 5 of the door 1 and arranged in the area of each vertical edge 8, 9 of the door 1. The front wall 4 of the oven is provided in the area above the upper side 5 of the door 1 with a central ventilating aperture 10 and lateral ventilating apertures 11, 12, said central ventilating aperture 10 being located in the area between said bulges 6, 7, whereas each lateral ventilating aperture 11, 12 being located in front of each bulge 6, 7 of the door 1. Each bulge 6, 7 is formed on the side facing the front wall 4 of the oven with a ventilating aperture 13, 14 extending into the spacing between said two panels of glass 2, 3 of the door 1, said each ventilating aperture 13, 14 being aligned with each lateral ventilating aperture 11, 12 in the front wall 4 of the door 1.

[0009] The cooling of the oven door according to the invention is carried out in the following manner. A unit for conveying the cooling air and the sucking of the air mixed with the gases and vapours from the oven, which is not described in detail since it is the subject of another patent application, forces the stream of the air mixed with the gases and vapours from the oven through the central ventilating aperture 10 in the front wall 4 of the oven and into the surroundings. On the other hand, however, said unit for conveying the cooling air and the sucking of the air mixed with the gases and vapours from the oven, forces the cooling air stream through lateral ventilating apertures 11, 12 in the front wall 4 of the oven, where said stream enters the spacing between said two panels of glass 2, 3 of the door 1 through said ventilating apertures 13, 14 formed in the bulges 6, 7 in the upper side 5 of the oven door 1. The cooling air stream flows downwardly along said two panels of glass 2, 3 of the door and exits through an aperture not shown in the lower edge of the door 1 into the surrounding. In this manner, an optimal cooling of the two panels of glass 2, 3 of the oven door 1 is achieved and prevents the user from accidentally burning himself on the hot glass. According to the invention, mixing of the stream of clean cooling air and the stream of the air mixed with gases and vapours being sucked out of the oven, is also prevented.

Claims

1. An oven with a door (1) cooling system comprising at least two panels of glass, namely an external glass (2) provided on the exterior of the oven, facing the

user, and an internal glass (3) provided in the interior of the oven, said door (1) being tightly pressed against the front wall (4) of the oven when closed, **characterized in that** the front wall (4) of the oven is formed in the area above the upper side (5) of the door (1) with a plurality of ventilating apertures (10, 11, 12), that the door (1) is formed in the area of the upper side (5) thereof and over the entire width thereof with at least one bulge (6, 7) being raised above said upper side (5) of the door (1), that each said bulge (6, 7) is provided on the side facing the front wall (4) of the oven with a ventilating aperture (13, 14) extending into the spacing between said two panels of glass (2, 3) of the door (1), and that the central ventilating aperture (10) is located in the area between said bulges (6, 7) and each lateral ventilating aperture (11, 12) is located in front of each bulge (6, 7) of the door (1), said each ventilating aperture (13, 14) is aligned with each lateral ventilating aperture (11, 12) in the front wall (4) of the door (1).

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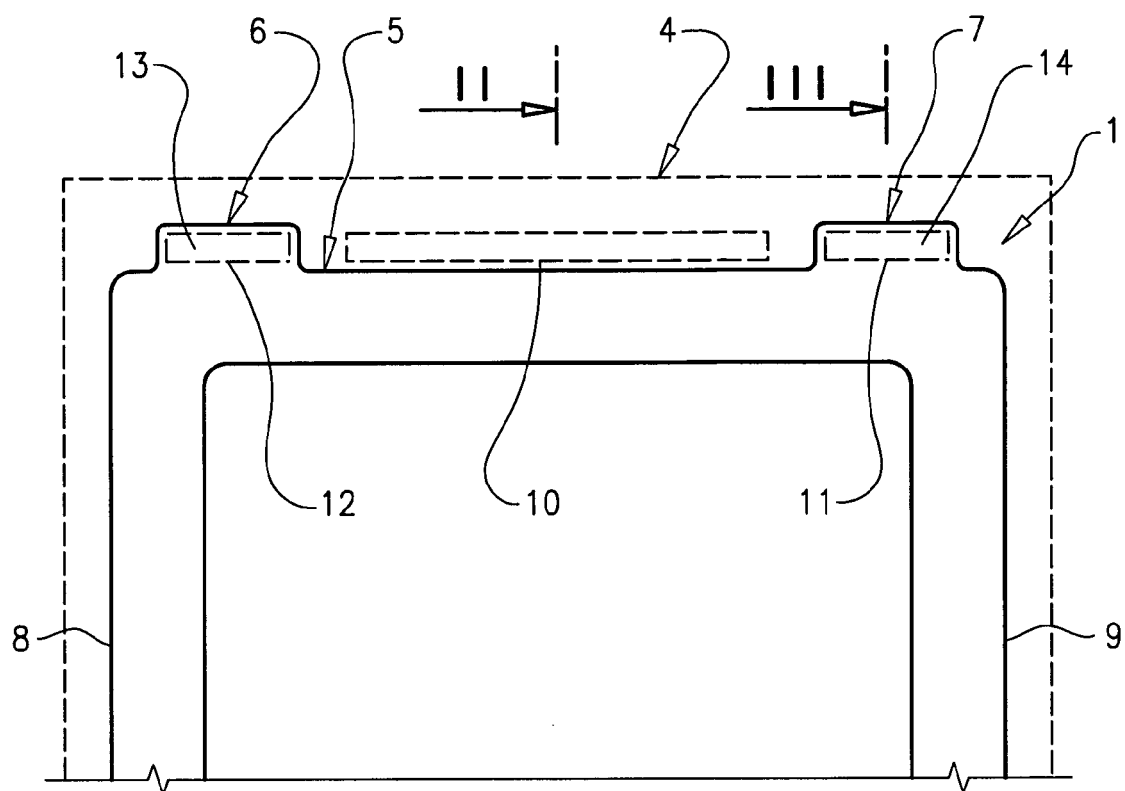


Fig. 1

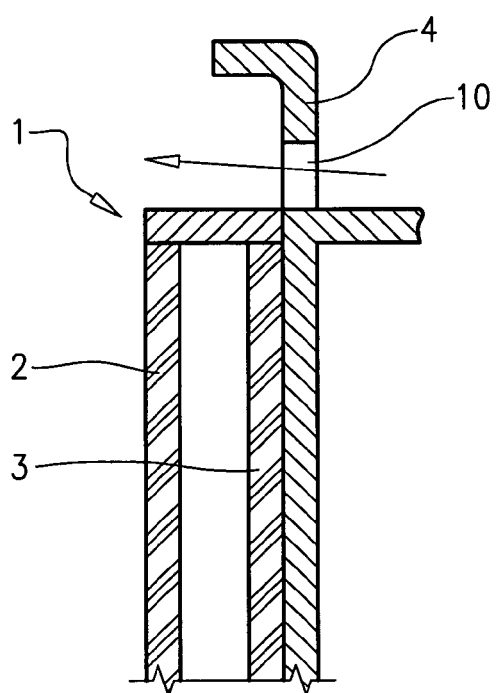


Fig. 2

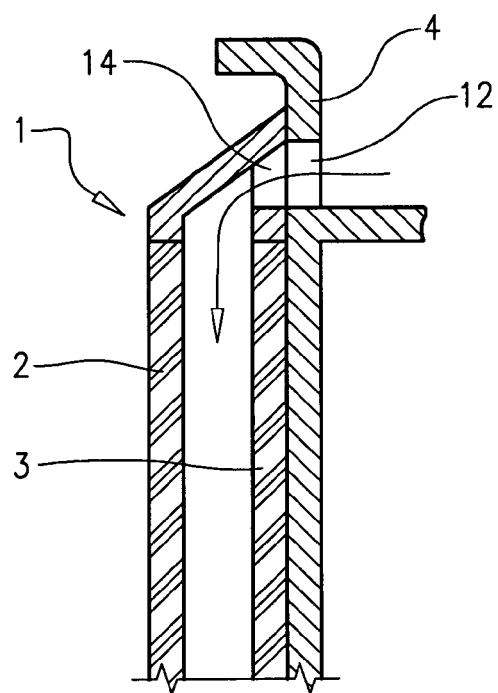


Fig. 3

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 1382913 A1 [0002]