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(54) Cooking oven

(57) The invention relates to a cooking oven (1), having a cavity (2) which is closable by a door (3), wherein a fan element (4) is arranged in or adjacent to the cavity (2) by which air can be blown through the cavity (2) and wherein a fan cover (5) is arranged between the cavity (2) and the fan element (4). To facilitate the cleaning of the fan cover the invention is characterized in that the fan cover (5) consists of at least two parts (5',5''), wherein a first part (5') of the fan cover (5) is detachably arranged at or on a second part (5'') of the fan cover (5).

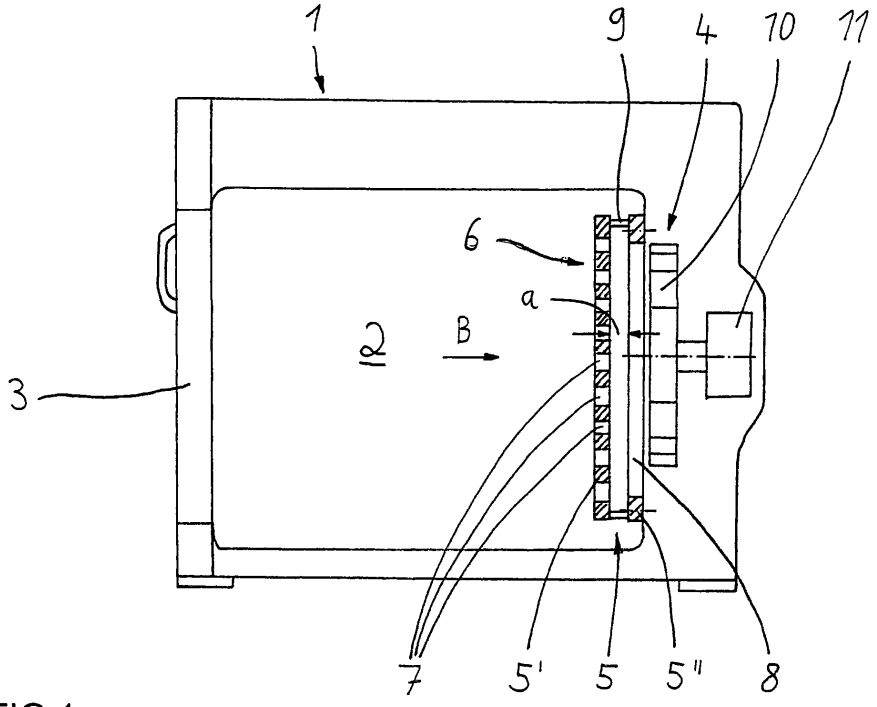

FIG 1

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Description

[0001] The invention relates to a cooking oven, having a cavity which is closable by a door, wherein a fan element is arranged in or adjacent to the cavity by which air can be blown through the cavity and wherein a fan cover is arranged between the cavity and the fan element.

[0002] A cooking oven according to this kind is well known in the art. Reference is made to DE 699 19 268 T2, DE 695 17 949 T2, DE 692 14 960 T2 or EP 1 515 591 A1, where cooking ovens are disclosed which are equipped with a fan element to guide hot air through the cavity.

[0003] The fan element is arranged e. g. at the rear side of the cavity. To protect the fan wheel of the fan element a fan cover is employed. To allow air flowing through the fan cover the cover is equipped with a plurality of slits or holes through which air can flow.

[0004] Not only a simple sheet metal can function as the fan cover. US 5,121,737 employs a plurality of sheet metal plates to form the fan cover. The same applies for the oven shown in EP 1 467 154 A2.

[0005] In DE 103 14 213 A1 an oven is disclosed which has a fan cover consisting of two plates from sheet metal which are firmly arranged in the cavity of the oven.

[0006] Especially when cooking food with a high content of fat it is a disadvantage that the inner wall of the cavity gets covered during the time of use with fat. This is also the case with regard to the fan cover.

[0007] Therefore, it is an object of the invention to design a cooking oven of the above mentioned kind so that it becomes easier to keep the cavity clean even if fat food is cooked in it.

[0008] The solution of this object according to the invention is characterized in that the fan cover consists of at least two parts, wherein one part of the fan cover is detachably arranged at or on another part of the fan cover.

[0009] Preferably, the fan cover is made as a two-part element, wherein one part of the fan cover is detachably arranged at or on the other part of the fan cover, wherein the other part is firmly connected to the oven or to a wall of the cavity.

[0010] The surrounding edges of the at least two parts of the fan cover have preferably substantially the same size. A further preferred embodiment of the invention suggests that the fan cover covers substantially the whole rear side of the cavity.

[0011] The first part of the fan cover is preferably designed to obtain a positive aesthetical appearance. Specifically, the first part of the fan cover can have a plurality of openings. Those openings can be equally distributed along the entire surface of the part.

[0012] A preferred embodiment of the first part of the fan cover has openings with a circular shape. Those openings (bores) can all have the same diameter.

[0013] An alternative design suggests that the openings have a rectangular shape.

[0014] The second part of the fan cover, which is hidden by the first part during normal use of the oven is designed to obtain an optimized function with respect to fluid-mechanical aspects.

[0015] Consequently, a preferred embodiment suggests that the other (second) part of the fan cover has a central opening. This opening can have a circular shape. Furthermore, the diameter of the opening can be substantial equal to the outer diameter of the fan element and the fan wheel respectively.

[0016] For an optimized function of the system, a preferred solution suggests that the two parts of the fan cover are kept at a predetermined distance when being mounted.

[0017] The parts of the fan cover can be detachably connected by means of at least one resilient element. More specifically, the connection means can be a clip connection, by which the parts are detachably connected.

[0018] A further preferred embodiment employs parts of the fan cover which are made from sheet metal.

[0019] In this case the production method of the part of the fan cover is well known and allows a cheap production of the different parts. The plurality of openings in the first part as well as the big central opening in the second part can be produced by punching. By this process it becomes easily possible to machine quickly the plurality of holes into a sheet metal plate.

[0020] By the suggested design it becomes possible to easily keep the fan cover clean. The first part of the fan cover can be detached from the second part of the fan cover which is firmly connected within the cavity. The first part is exposed to the inner of the cavity and this takes the major part of dirt and fat during the use of the oven. The detached first part of the fan cover can then be cleaned separately and outside the oven, e. g. it can be put into a dishwasher.

[0021] Another aspect is that is becomes possible to design the visual appearance of the fan cover just by designing the first part of the fan cover. This part can be equipped with a plurality of slits or holes having a positive aesthetical appearance.

[0022] The second part of the fan cover can be designed only according to the function of the fan cover as the second part will be hidden by the first part during use of the oven.

[0023] In the drawings an embodiment of the invention is depicted.

FIG 1 shows schematically a side view of a cooking oven with a cavity in cross section, wherein a fan element with a fan cover is arranged in the rear part of the cavity of the oven,

FIG 2 shows a first part of the fan cover, viewed in direction B according to FIG 1, and

FIG 3 shows a second part of the fan cover, viewed

in direction B according to FIG 1.

[0024] Referring now to FIG 1 a cooking oven 1 is depicted which has a cavity 2. The cavity 2 is closable by a door 3 in a well known manner. In the rear area of the cavity 2, more specifically at the rear side 6 of the cavity 2 a fan element 4 is arranged. The fan element 4 has a fan wheel 10 which is driven by an electrical engine 11 in a well known manner.

[0025] To protect the fan element 4 and specifically the fan wheel 10 from dirt and fat during the use of the oven 1 a fan cover 5 is arranged between the cavity 2 and the fan element 4.

[0026] The fan cover 5 is designed as a two-part element, i. e. the cover 5 has a first part 5' and a second part 5". Both parts (the first part 5' is shown in FIG 2, the second part 5" is shown in FIG 3) have substantial a plate-like form and a rectangular basic shape. The size of both parts 5', 5" is substantially the same. Both parts 5', 5" cover substantially completely the rear side 6 of the cavity 2.

[0027] The second part 5" of the fan cover 5 is firmly connected to the oven and the cavity 2 respectively, e. g. it is attached by means of screws. In distinction to this the first part 5' of the fan cover 5 is detachably connected to the second part 5''. In the depicted embodiment a clip connection 9 is employed (shown only schematically). By this type of connection the first part 5' can easily be pushed on the second part 5'' for mounting the fan cover 5 or can be pulled from the second part 5'' for disassembling of the fan cover 5.

[0028] The clip connection between the parts 5' and 5" also makes sure that both plate-like parts 5', 5" are arranged parallel relatively to another with a distance a between them (see FIG 1).

[0029] The second part 5'' of the fan cover 5 is designed only with respect to the fluid-mechanical function of the fan cover 5, i. e. the design with respect to the aesthetical appearance is irrelevant. In distinction to this the first part 5' is designed so that a positive aesthetical appearance is given.

[0030] This can be seen in FIG 2 and FIG 3. While the second part 5" of the fan cover 5 has a central opening 8 with a diameter substantially equal to the outer diameter of the fan wheel 10, the first part 5' is coming up with a plurality of openings 7 which are equally distributed across the whole surface of the first part 5' (only a number of openings 7 are shown in FIG 3).

[0031] According to the suggested design of a fan cover is can be made sure that the air flow of hot air discharged by the fan element 4 through the cavity 2 is optimized with respect of the fluid-mechanical aspects (achieved by the design of the second part 5'').

[0032] On the other side the aesthetical appearance of the fan cover 5 is also optimized by designing the first part 5' in a desired way.

[0033] Thus, optimized cooking or baking results (evenness, browning) can be obtained with a positive aesthetical appearance of the inner of the cavity.

[0034] Also the cleaning of the inner of the cavity is facilitated due to the fact that the first part 5' of the fan cover 5 can easily been taken out of the cavity.

[0035] The inventional concept is primarily used for domestic cookers but is not limited to this application. It can be used in all cooking ovens.

Reference Numerals

[0036]

1	Cooking oven
2	Cavity
3	Door
4	Fan element
5	Fan cover
5'	First part of the fan cover
5''	Second part of the fan cover
6	Rear side
7	Opening
8	Central opening
9	Clip Connection
10	Fan wheel
11	Engine
a	Distance

Claims

1. Cooking oven (1), having a cavity (2) which is closable by a door (3), wherein a fan element (4) is arranged in or adjacent to the cavity (2) by which air can be blown through the cavity (2) and wherein a fan cover (5) is arranged between the cavity (2) and the fan element (4),
characterized in that
the fan cover (5) consists of at least two parts (5', 5''), wherein one part (5') of the fan cover (5) is detachably arranged at or on another part (5'') of the fan cover (5).

2. Cooking oven according to claim 1, **characterized in that** the fan cover (5) is made as a two-part element (5', 5''), wherein one part (5') of the fan cover (5) is detachably arranged at or on the other part (5'') of the fan cover, wherein the other part (5'') is firmly connected to the oven or to a wall of the cavity (2).

3. Cooking oven according to claim 1 or 2, **characterized in that** the surrounding edges of the at least two parts (5', 5'') of the fan cover (5) have substantially the same size.

4. Cooking oven according to at least one of claims 1 till 3, **characterized in that** the fan cover (5) covers substantially the whole rear side (6) of the cavity (2).

5. Cooking oven according to at least one of claims 1 till 4, **characterized in that** one part (5') of the fan cover (5) has a plurality of openings (7).

6. Cooking oven according to claim 5, **characterized in that** the openings (7) are equally distributed along the entire surface of the part (5').

7. Cooking oven according to claim 5 or 6, **characterized in that** the openings (7) have a circular shape.

8. Cooking oven according to claim 7, **characterized in that** all openings (7) have the same diameter.

9. Cooking oven according to claim 5 or 6, **characterized in that** the openings (7) have a rectangular shape.

10. Cooking oven according to at least one of claims 1 till 9, **characterized in that** in another part (5'') of the fan cover (5) a central opening (8) is arranged.

11. Cooking oven according to claim 10, **characterized in that** the opening (8) has a circular shape.

12. Cooking oven according to claim 11, **characterized in that** the diameter of the opening (8) is substantial equal to the outer diameter of the fan element (4).

13. Cooking oven according to at least one of claims 1 till 12, **characterized in that** the two parts (5', 5'') of the fan cover (5) are kept at a predetermined distance (a) when being mounted.

14. Cooking oven according to at least one of claims 1 till 13, **characterized in that** the parts (5', 5") of the fan cover (5) can be detachably connected by means of at least one resilient element.

15. Cooking oven according to claim 14, **characterized in that** the connection means are a clip connection (9).

16. Cooking oven according to at least one of claims 1 till 15, **characterized in that** the parts (5', 5'') of the fan cover (5) consist of sheet metal.

FIG 1

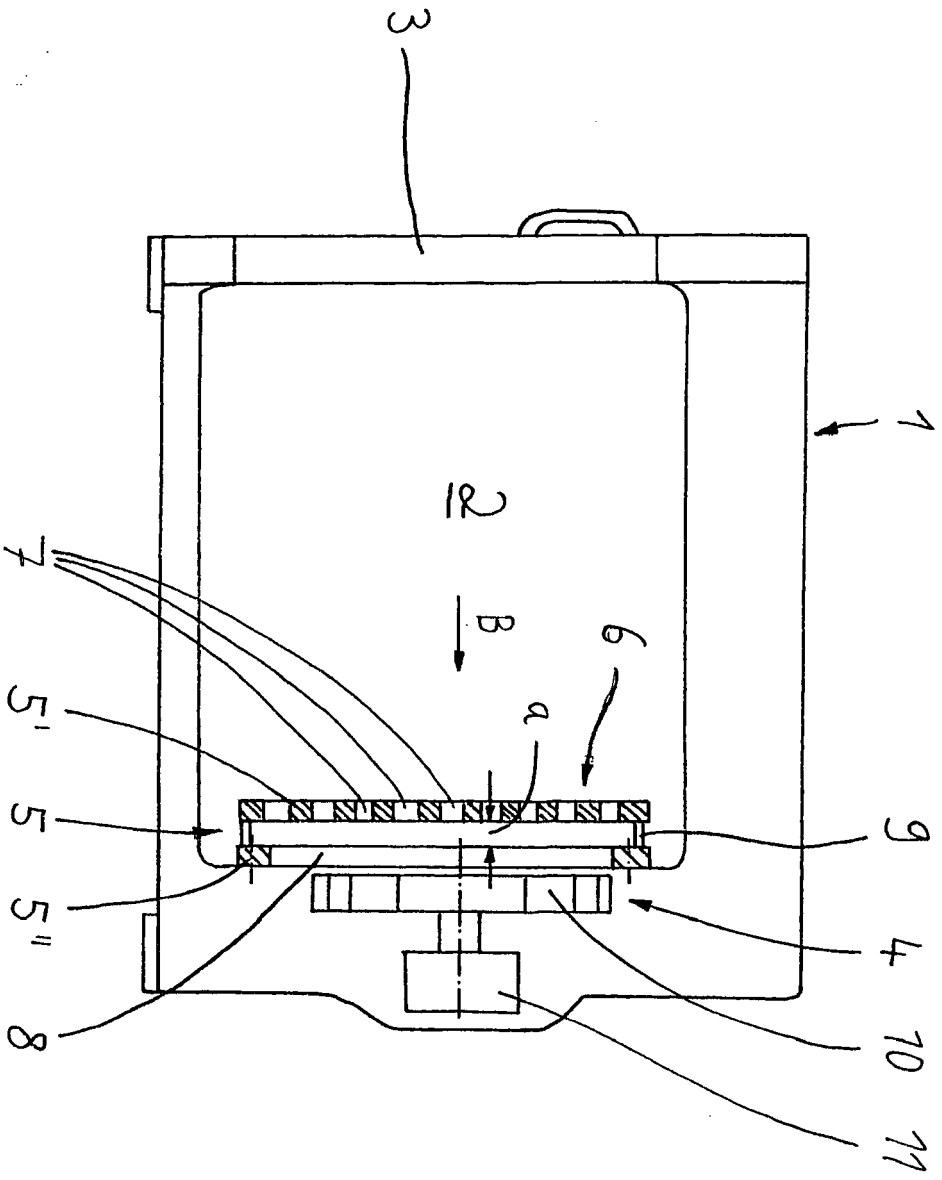


FIG 2

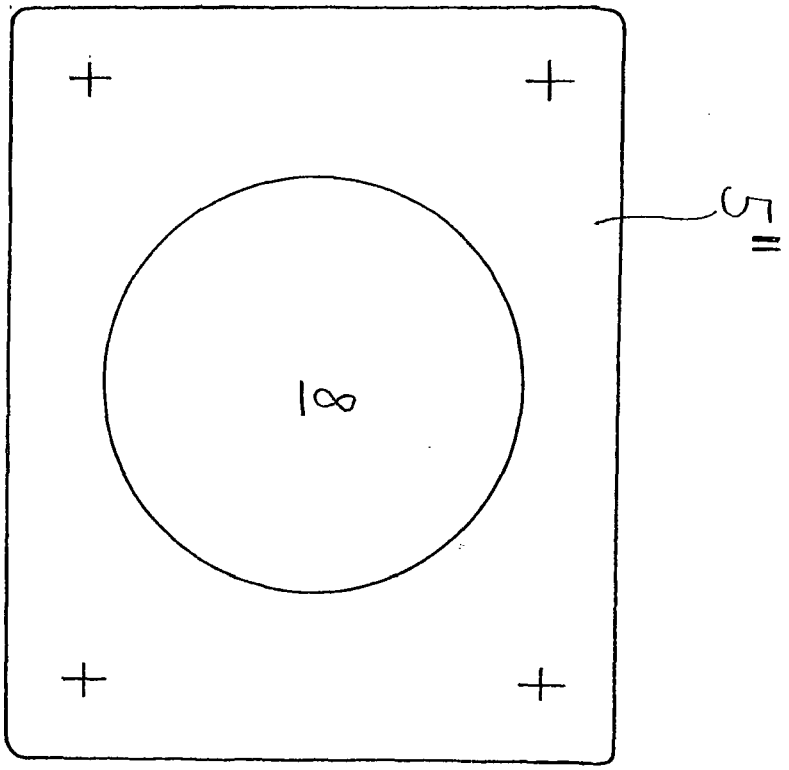
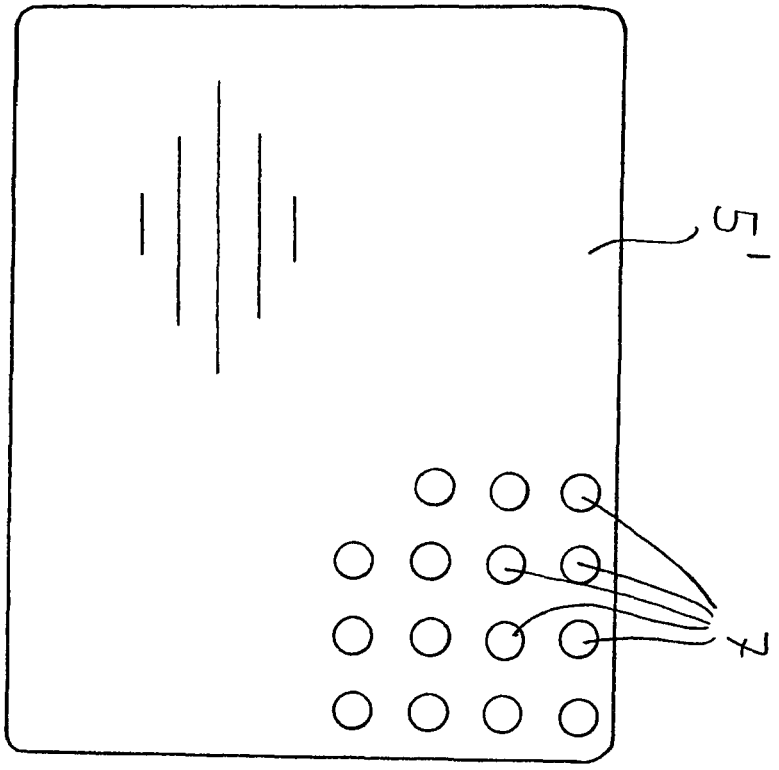


FIG 3



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EUROPEAN SEARCH REPORT

Application Number
EP 07 01 3058

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TECHNICAL FIELDS SEARCHED (IPC)

F24C
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	4 April 2008	von Mittelstaedt, A

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