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Amended claims in accordance with Rule 137(2)
EPC.

(54) **Cooking appliance**

(57) The invention relates to a cooking appliance (1), comprising a frame structure (2) with two side walls (3, 4) and a front wall or front element (5), wherein the front wall (5) connects the two side walls (3, 4), and further comprising a cooking hob (6) which is arranged on the upper side of the frame structure (2). To make it possible to change the arrangement, the invention is characterized in that the cooking hob (6) is connected with the frame structure (2) via two connecting elements (7, 8), wherein each connecting element (7, 8) is connected with one of the side walls (3, 4) and with the cooking hob (6).

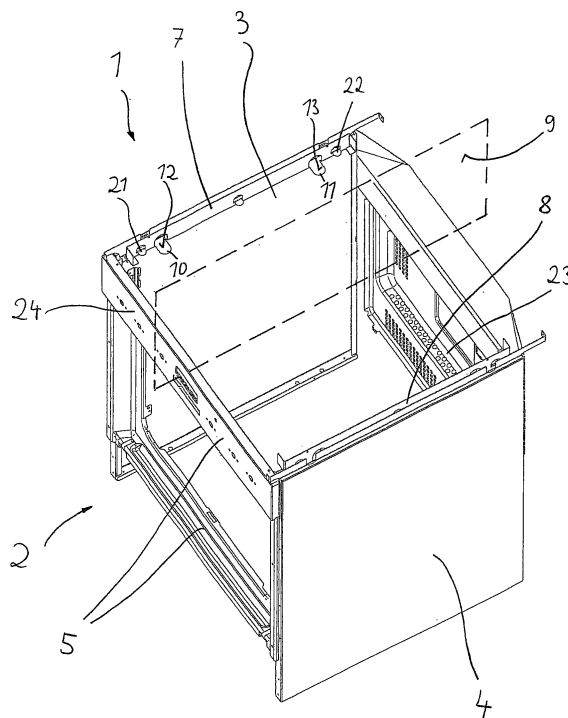


FIG 1

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Description

[0001] The invention relates to a cooking appliance, comprising a frame structure with two side walls and a front wall, wherein the front wall connects the two side walls, and further comprising a cooking hob which is arranged on the upper side of the frame structure.

[0002] Cooking appliances of this kind are well known in the art. They are often free-standing, i. e. not mounted into a kitchen equipment. The design of such a cooking appliance is as follows: The cooking hob and the ceramic stove top are connected together by means of an adhesive. During assembly the heating elements are inserted into or located on the arrangement and the wiring is placed. Finally, the cooking hob element is placed and the whole arrangement is fixed by means of screws.

[0003] The cooking hob (which is selected with respect to the size of the cooking appliance and with respect to the desires of the user) is chosen and then permanently fixed with the frame structure. Consequently, it is a disadvantage of such a design that the size and the selection of the different hot plates cannot be changed later on, at least not without a significant expenditure. To the contrary, the cooking hob with its hot plates is designed only once, and a change is quite difficult. To change the design, a new, second cooking hob element is necessary.

[0004] Therefore, it is an object of the invention to improve the design of a cooking appliance of the type mentioned above to make it possible to easily and quickly change the arrangement of the different hot plates and the cooking hob if there is a desire to doing so.

[0005] The solution of this object according to the invention is characterized in that the cooking hob is connected with the frame structure via two connecting elements, wherein each connecting element is connected with one of the side walls and with the cooking hob.

[0006] The two connecting elements can be formed and arranged symmetrically to a middle or center plane extending vertically between the side walls.

[0007] Each connecting element can have a lamellar shape, from which at least two holding elements for the cooking hob extend. The holding elements can form a bearing area which is arranged horizontally.

[0008] Furthermore, the connecting element can be fixed to the side wall by connecting means. Normally, the connecting means are screws.

[0009] The connecting elements are preferably made of sheet metal.

[0010] A number of hot plates can be arranged on the cooking hob. At least one hot plate can be an induction heating element; also, at least one hot plate can be a resistance heating element.

[0011] A ceramic stove top can be arranged on top of the cooking hob. The ceramic stove top and the connecting element can have a corresponding male and female portion to hold the ceramic stove top in position in the mounted state relatively to the connecting element.

[0012] Normally, the frame element has also a rear

wall.

[0013] At least a part of the front wall can be formed by a panel element.

[0014] The connection elements on the left and the right side of the frame structure thus connect the side walls with the cooking hob and are the centrally arranged part between the housing (side walls, front wall, rear wall) and the cooking hob. The connection elements fulfill different functions:

[0015] They hold the cooking hob in a definite height. They bear the cooking hob which is arranged as the last part during the assembly process.

[0016] The cooking hob can be fed in the front area sur the connection elements and is then pushed to the rear side where it is connected by means of screws with the frame structure. In the front region the cooking hob can have the mentioned female portion to ensure a form-fitted connection with the connection element.

[0017] By this design it is ensured that the cooking hob is pushed with a defined force against the ceramic stove top, so that the gap between the lower surface of the ceramic stove top and the upper surface of the cooking hob is in a magnitude that a residual heat sensor has a distance from the ceramic stove top below 0.5 mm; this is necessary for a reliable operation of the sensor. The residual heat sensors are arranged on the cooking hob near the hot plates. The hot plates are pressed by spring means against the ceramic stove top.

[0018] Consequently, it becomes quite easy to change the arrangement of the cooking hob with respect to the size and kind of the hot plates. E. g. a resistance heating element can easily be substituted by an induction heating element.

[0019] It is possible to supply a plurality of different cooking hobs with different designs concerning the kind and size of the hot plates. By the suggested concept it becomes easy to change the cooking hob and thus to adapt the free-standing cooking appliance according the desires of the user.

[0020] This was not possible with cooking appliances of the prior art. Here, it was not easy to change later on the design of the cooking hob.

[0021] In the drawings an embodiment of the invention is depicted.

FIG 1 shows a frame structure of a cooking appliance in perspective view,

FIG 2 shows the frame structure according FIG 1 with a cooking hob on its top,

FIG 3 shows the whole cooking appliance with a ceramic stove top,

FIG 4 shows a side view of a side wall of the cooking appliance with a connecting element for connecting a cooking hob (not depicted),

- FIG 5 shows the arrangement according to FIG 4 with a cooking hob,
- FIG 6 shows the arrangement according to FIG 4 with a ceramic stove top during mounting in a first stage of the assembly process,
- FIG 7 shows the same arrangement as FIG 6 in a later state of the assembly process and
- FIG 8 shows the arrangement according to FIG 6 after the end of the assembly process but with cooking hob.

[0022] In FIG 1 till FIG 3 a cooking appliance 1 is shown in different states of assembly. The cooking appliance 1 has a frame structure 2 which makes it possible, to use the cooking appliance as a stand-alone solution, i. e. as a free-standing appliance. The frame structure 2 has two side walls 3, 4 and a front wall or front element 5. A part of the front element 5 can be formed by a panel element 24. Furthermore, the frame structure 2 has a rear wall 23. Consequently, the frame structure 2 guarantees a strong housing of the appliance.

[0023] A cooking hob 6 is placed on the top of the frame structure 2 as can be seen in FIG 2. On the cooking hob 6 a ceramic stove top 18 is mounted - as can be seen in FIG 3 - to complete the cooking appliance. As can be further seen in FIG 2, the cooking hob 6 is equipped with a plurality of hot plates 14, 15, 16, 17, which can be of any suitable type. Resistance heating elements can be used as hot plates as well as induction heating elements.

[0024] The important feature of the present invention is that the cooking hob 6 is connected with the frame structure 2 by two connecting elements 7 and 8, wherein each connecting element 7, 8 is connected with one of the side walls 3, 4 and with the cooking hob 6.

[0025] As can be seen two connecting elements 7, 8 are fixed with the respective side walls 3 and 4, wherein the connecting elements 7, 8 are arranged symmetrically to a middle plane 9 schematically depicted in FIG 1.

[0026] In FIG 4 one of the connecting elements 7 is depicted. The connecting element 7 extends substantially along the whole width of the side wall 3. It consists of a sheet metal part which is punched and canted to form a plurality of holding elements 10, 11, 21, 22, which have horizontally extending bearing areas 12 and 13. By the holding elements it is possible to define a stop for the cooking hob 6 which is borne by the holding elements.

[0027] In FIG 5 a side view is shown with mounted cooking hob 6, which is detachably connected by means of screws with the connecting element 7 which in turn is detachably connected by means of screws with the side wall 3. On the cooking hob 6 hot plates 14, 15 are mounted. In FIG 5 the assembly is finished with the exception of the ceramic stove top which is still missing.

[0028] The assembly of the ceramic stove top 18 is shown in three different steps in FIG 6, FIG 7, and FIG 8.

[0029] The connecting element 7 at one side and the ceramic stove top 18 on the other side have corresponding forms to establish a form-fitted connection between the connecting elements 7, 8 and the ceramic stove top 18. In FIG 6 a male portion 19 is shown as well as a corresponding female portion 20. During assembly the male portion 19 is fed into the female portion 20 of the ceramic stove top 18. As can be seen by comparing FIG 6, FIG 7, and FIG 8 the ceramic stove top 18 is pivoted to reach the final mounted position, shown in FIG 8. While the left side of the ceramic stove top 18 in FIG 6, FIG 7, FIG 8 is fixed by the elements 19, 20 the ceramic stove top 18 is connected at the right side by means of screws (not shown) to stay in the position shown in FIG 8.

Reference Numerals

[0030]

- | | |
|----|-----------------------------|
| 1 | Cooking appliance |
| 2 | Frame structure |
| 3 | Side wall |
| 4 | Side wall |
| 5 | Front wall / front element |
| 6 | Cooking hob |
| 7 | Connecting element |
| 8 | Connecting element |
| 9 | Middle plane / center plane |
| 10 | Holding element |
| 11 | Holding element |
| 12 | Bearing area |
| 13 | Bearing area |
| 14 | Hot plate |
| 15 | Hot plate |
| 16 | Hot plate |
| 17 | Hot plate |
| 18 | Ceramic stove top |
| 19 | Male portion |
| 20 | Female portion |
| 21 | Holding element |
| 22 | Holding element |
| 23 | Rear wall |
| 24 | Panel element |

Claims

1. Cooking appliance (1), comprising a frame structure (2) with two side walls (3, 4) and a front wall or front element (5), wherein the front wall (5) connects the two side walls (3, 4), and further comprising a cooking hob (6) which is arranged on the upper side of the frame structure (2),
characterized in that
the cooking hob (6) is connected with the frame structure (2) via two connecting elements (7, 8), wherein each connecting element (7, 8) is connected with one of the side walls (3, 4) and with the cooking hob

- (6).
2. Cooking appliance according to claim 1, **characterized in that** the two connecting elements (7, 8) are formed and arranged symmetrically to a middle plane (9) extending vertically between the side walls (3, 4).
 3. Cooking appliance according to claim 1 or 2, **characterized in that** each connecting element (7, 8) has a lamellar shape, from which at least two holding elements (10, 11, 21, 22) for the cooking hob (6) extend.
 4. Cooking appliance according to claim 3, **characterized in that** the holding elements (10, 11, 21, 22) form a bearing area (12, 13) which is arranged horizontally.
 5. Cooking appliance according to at least one of claims 1 to 4, **characterized in that** the connecting element (7, 8) is fixed to the side wall (3, 4) by connecting means.
 6. Cooking appliance according to claim 5, **characterized in that** the connecting means are screws.
 7. Cooking appliance according to at least one of claims 1 to 6, **characterized in that** the connecting elements (7, 8) are made of sheet metal.
 8. Cooking appliance according to at least one of claims 1 to 7, **characterized in that** a number of hot plates (14, 15, 16, 17) are arranged on the cooking hob (6).
 9. Cooking appliance according to claim 8, **characterized in that** at least one hot plate (14, 15, 16, 17) is an induction heating element.
 10. Cooking appliance according to claim 8, **characterized in that** at least one hot plate (14, 15, 16, 17) is a resistance heating element.
 11. Cooking appliance according to at least one of claims 1 to 10, **characterized in that** a ceramic stove top (18) is arranged on top of the cooking hob (6).
 12. Cooking appliance according to claim 11, **characterized in that** the ceramic stove top (18) and the connecting element (7, 8) have at least one corresponding male (19) and female (20) portion to hold the ceramic stove top (18) in position in the mounted state relatively to the connecting element (7, 8).
 13. Cooking appliance according to at least one of claims 1 to 12, **characterized in that** the frame element (2) has a rear wall (23).

14. Cooking appliance according to at least one of claims 1 to 13, **characterized in that** at least a part of the front wall (2) is formed by a panel element (24).

Amended claims in accordance with Rule 137(2) EPC.

1. Cooking appliance (1), comprising a frame structure (2) with two side walls (3, 4) and a front wall or front element (5), wherein the front wall (5) connects the two side walls (3, 4), and further comprising a cooking hob (6) which is arranged on the upper side of the frame structure (2), wherein the cooking hob (6) is connected with the frame structure (2) via two connecting elements (7, 8), wherein each connecting element (7, 8) is connected with one of the side walls (3, 4) and with the cooking hob (6), **characterized in that** each connecting element (7, 8) has a lamellar shape, from which at least two holding elements (10, 11, 21, 22) for the cooking hob (6) extend, wherein the holding elements (10, 11, 21, 22) form a bearing area (12, 13) which is arranged horizontally, wherein a ceramic stove top (18) is arranged on top of the cooking hob (6) and wherein the ceramic stove top (18) and the connecting element (7, 8) have at least one corresponding male (19) and female (20) portion to hold the ceramic stove top (18) in position in the mounted state relatively to the connecting element (7, 8).
2. Cooking appliance according to claim 1, **characterized in that** the two connecting elements (7, 8) are formed and arranged symmetrically to a middle plane (9) extending vertically between the side walls (3, 4).
3. Cooking appliance according to claim 1 or 2, **characterized in that** the connecting element (7, 8) is fixed to the side wall (3, 4) by connecting means.
4. Cooking appliance according to claim 3, **characterized in that** the connecting means are screws.
5. Cooking appliance according to at least one of claims 1 to 4, **characterized in that** the connecting elements (7, 8) are made of sheet metal.
6. Cooking appliance according to at least one of claims 1 to 5, **characterized in that** a number of hot plates (14, 15, 16, 17) are arranged on the cooking hob (6).
7. Cooking appliance according to claim 6, **characterized in that** at least one hot plate (14, 15, 16, 17) is an induction heating element.

8. Cooking appliance according to claim 6, **characterized in that** at least one hot plate (14, 15, 16, 17) is a resistance heating element.

9. Cooking appliance according to at least one of claims 1 to 8, **characterized in that** the frame element (2) has a rear wall (23). 5

10. Cooking appliance according to at least one of claims 1 to 9, **characterized in that** at least a part of the front wall (2) is formed by a panel element (24). 10

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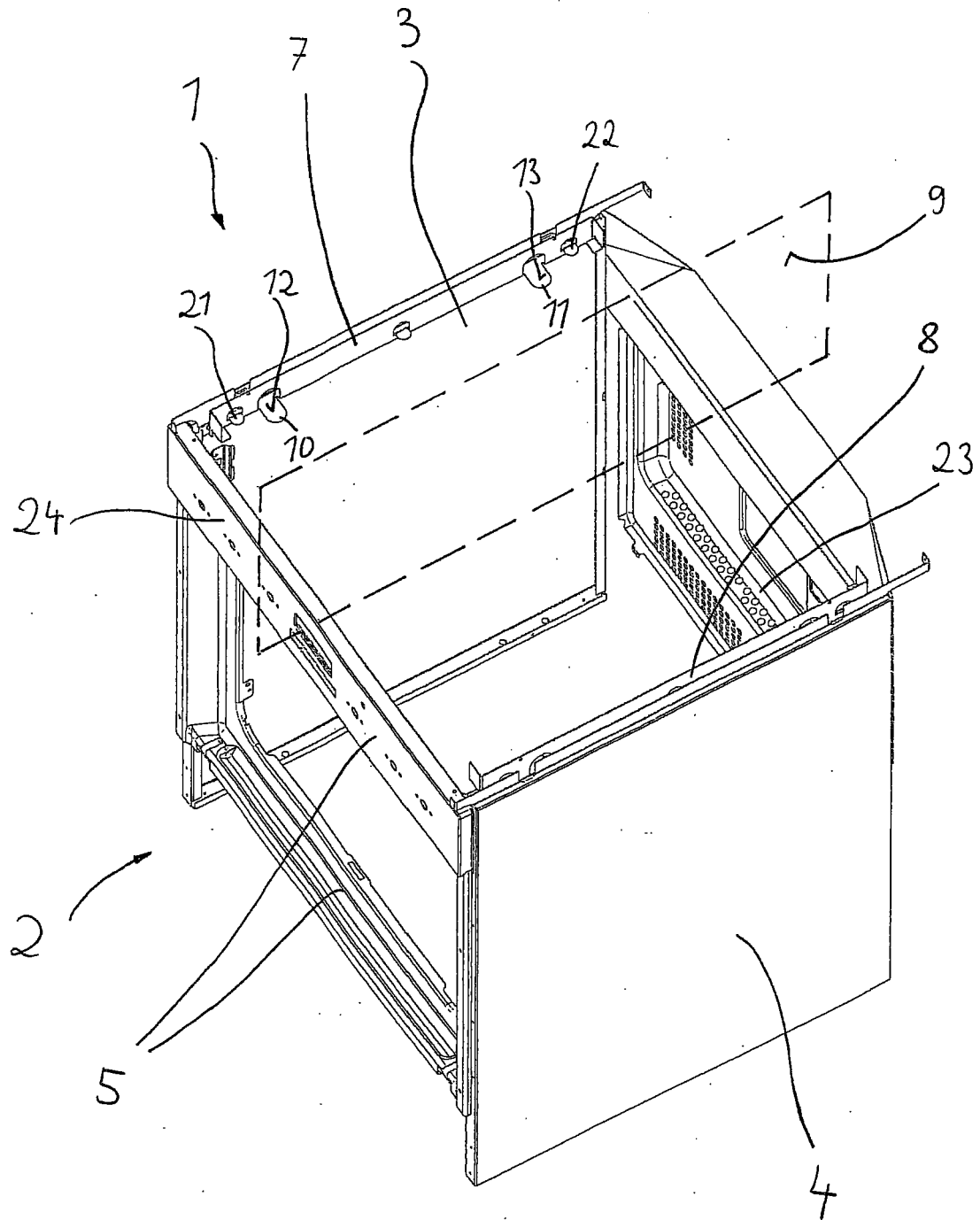


FIG 1

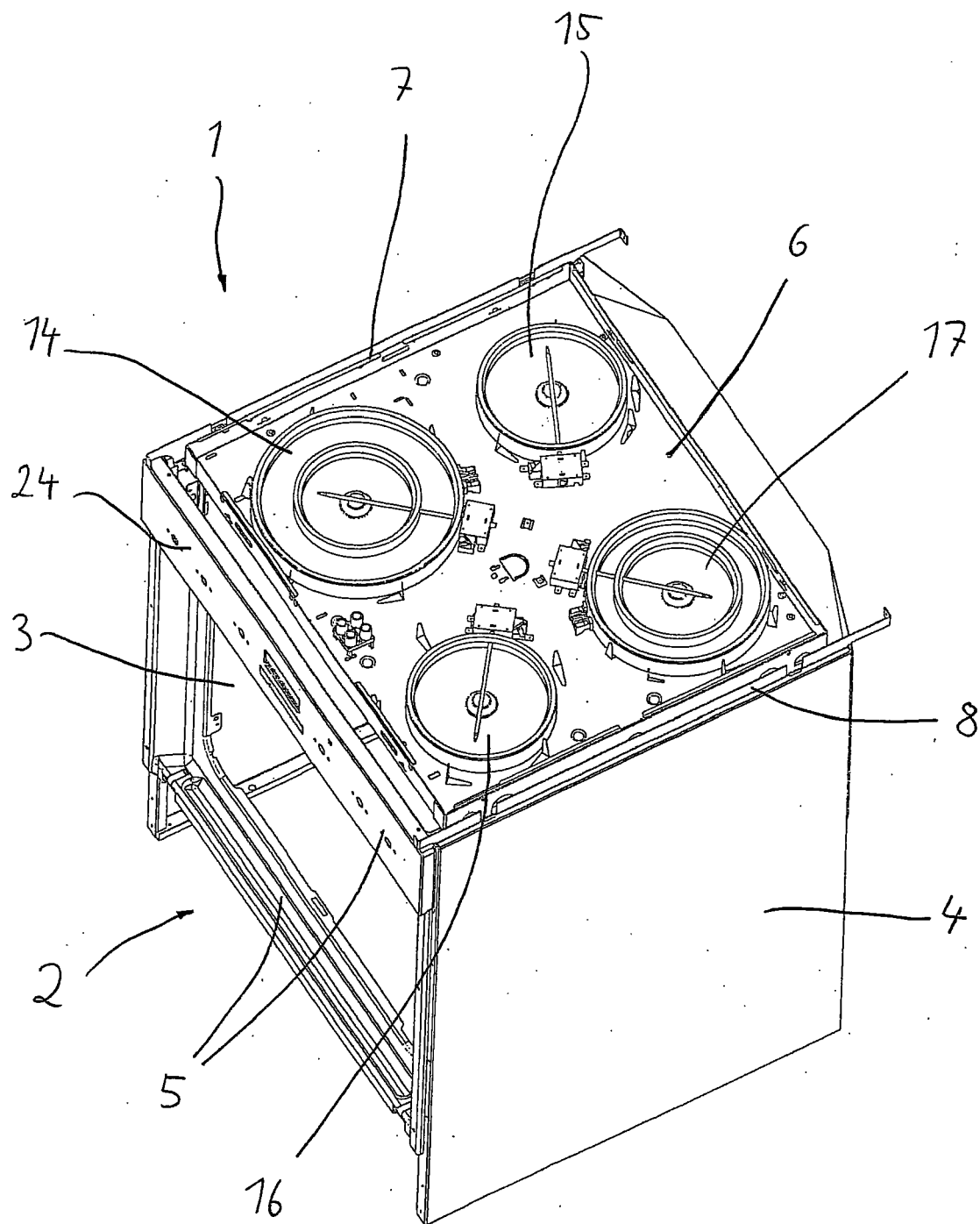


FIG 2

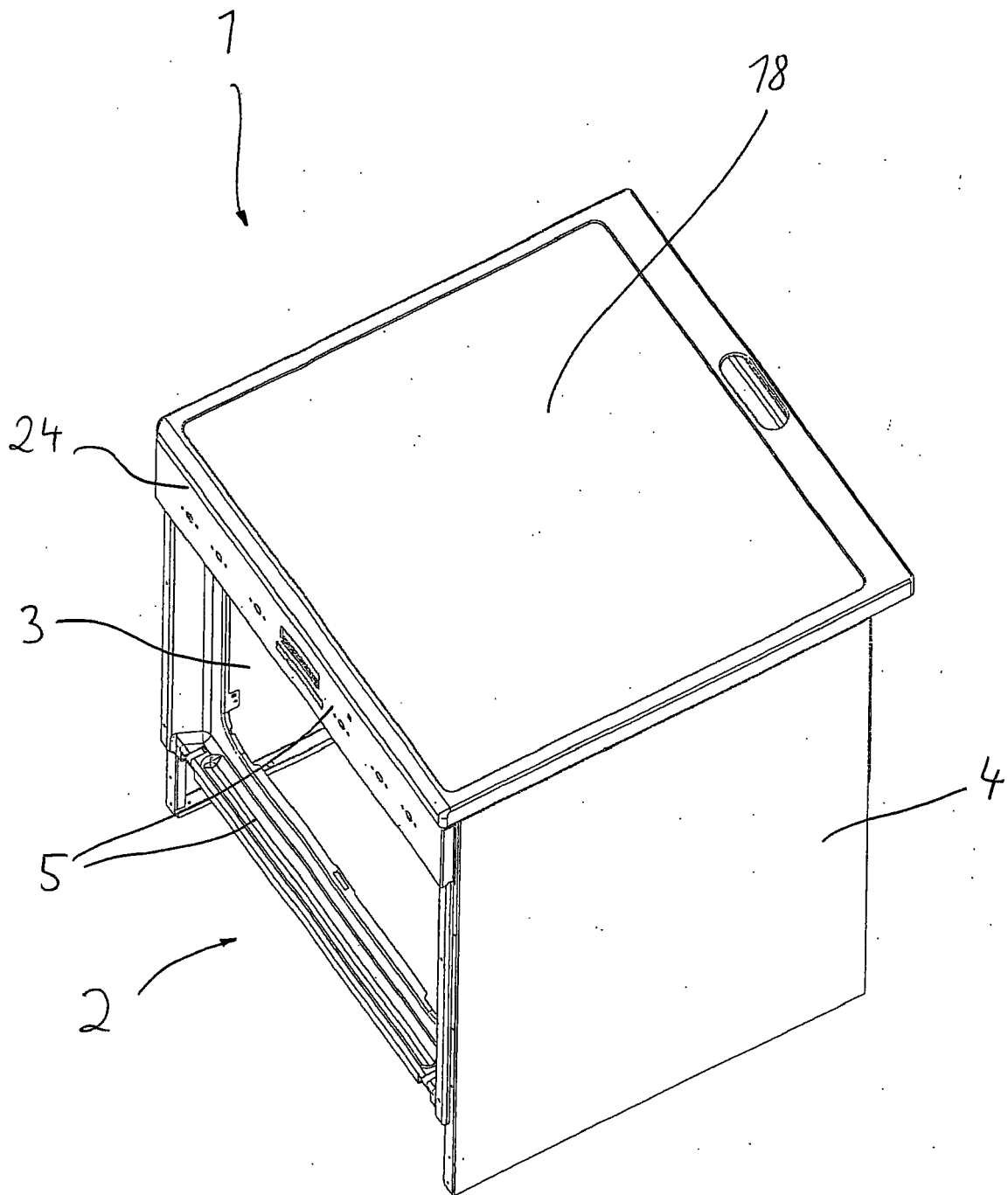


FIG 3

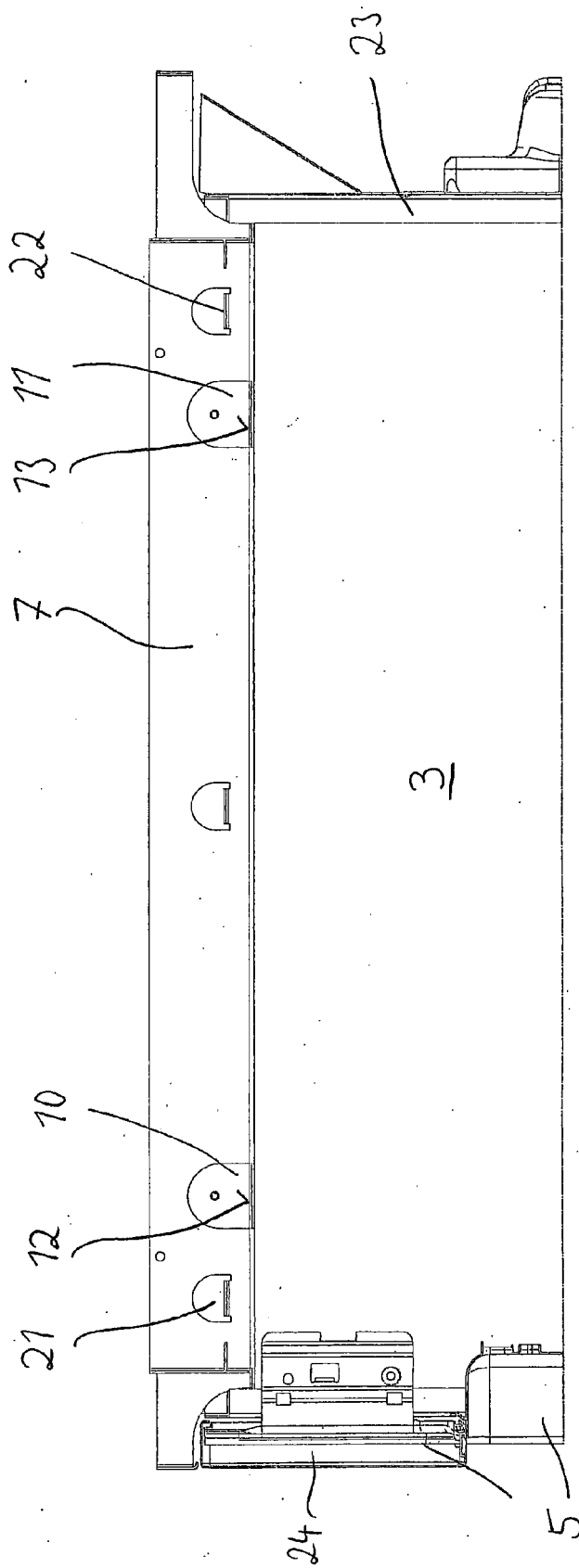


FIG 4

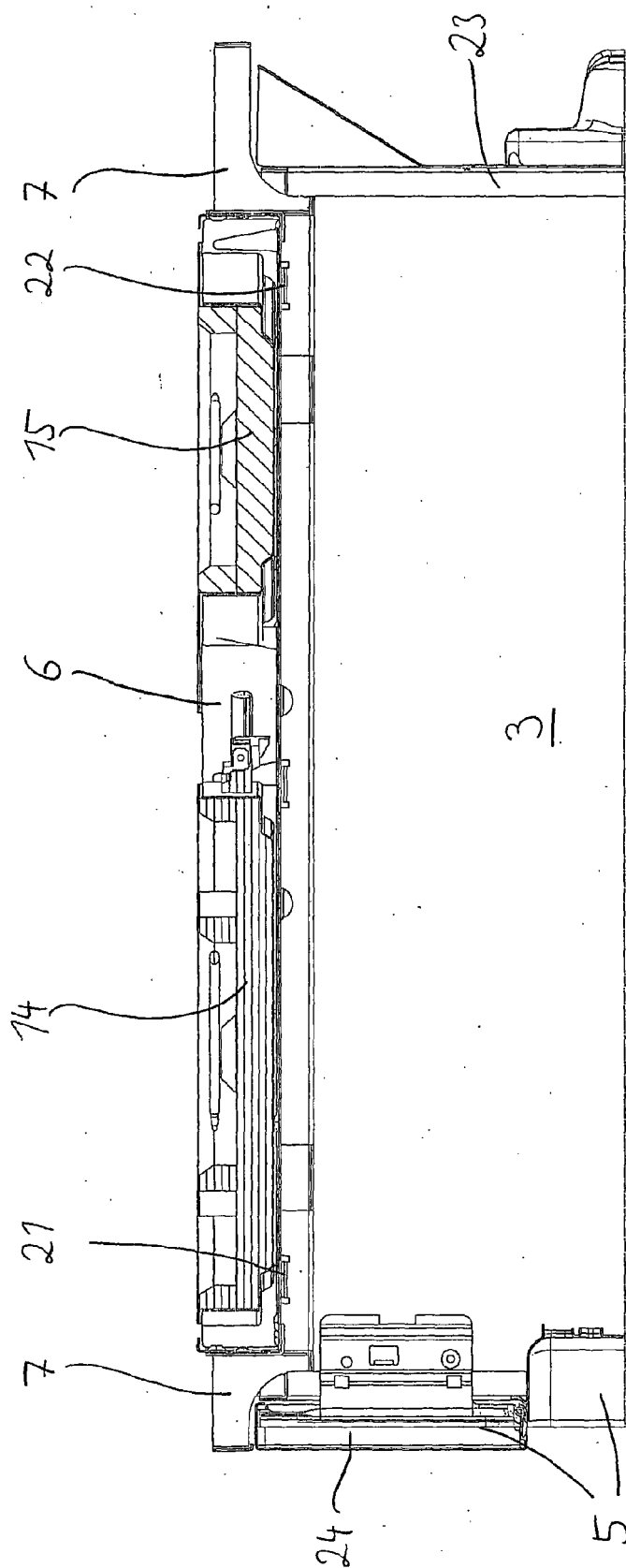


FIG 5

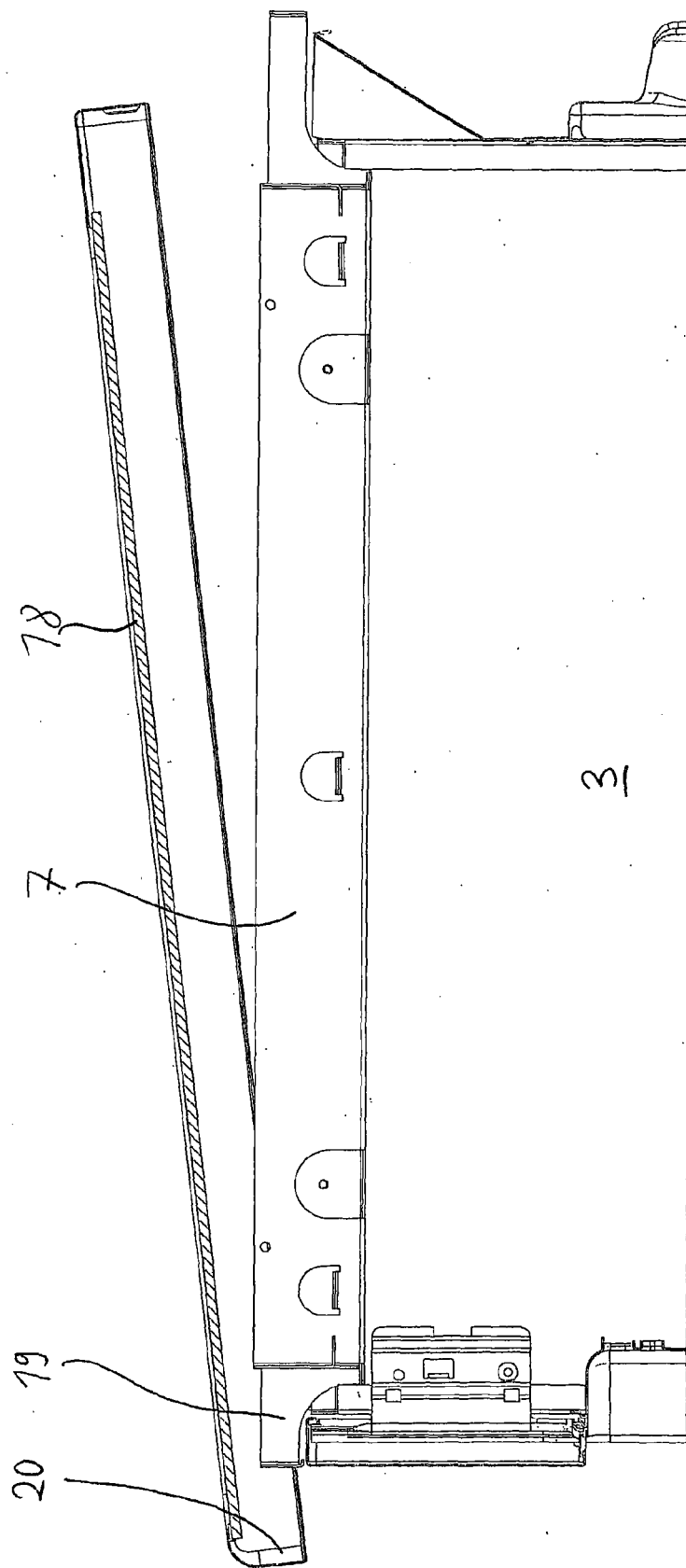


FIG 6

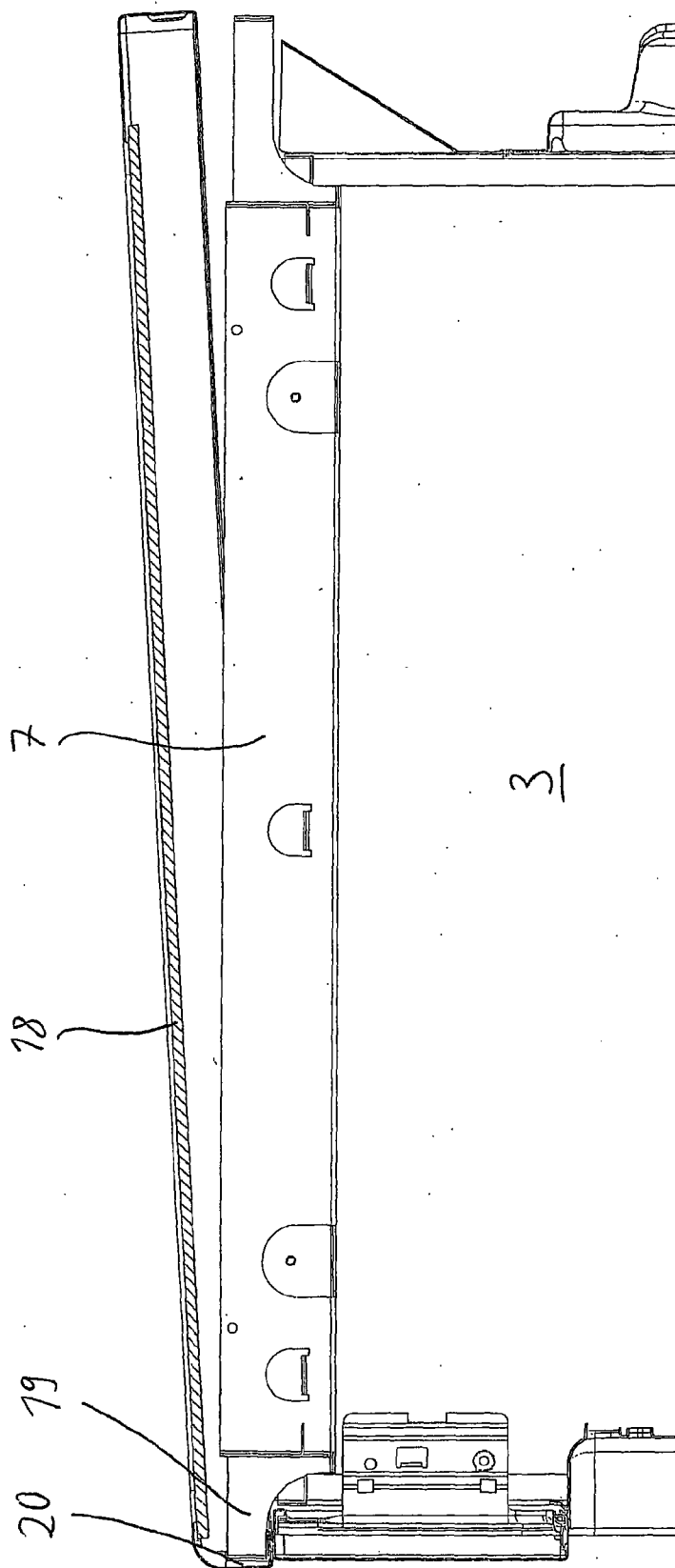


FIG 7

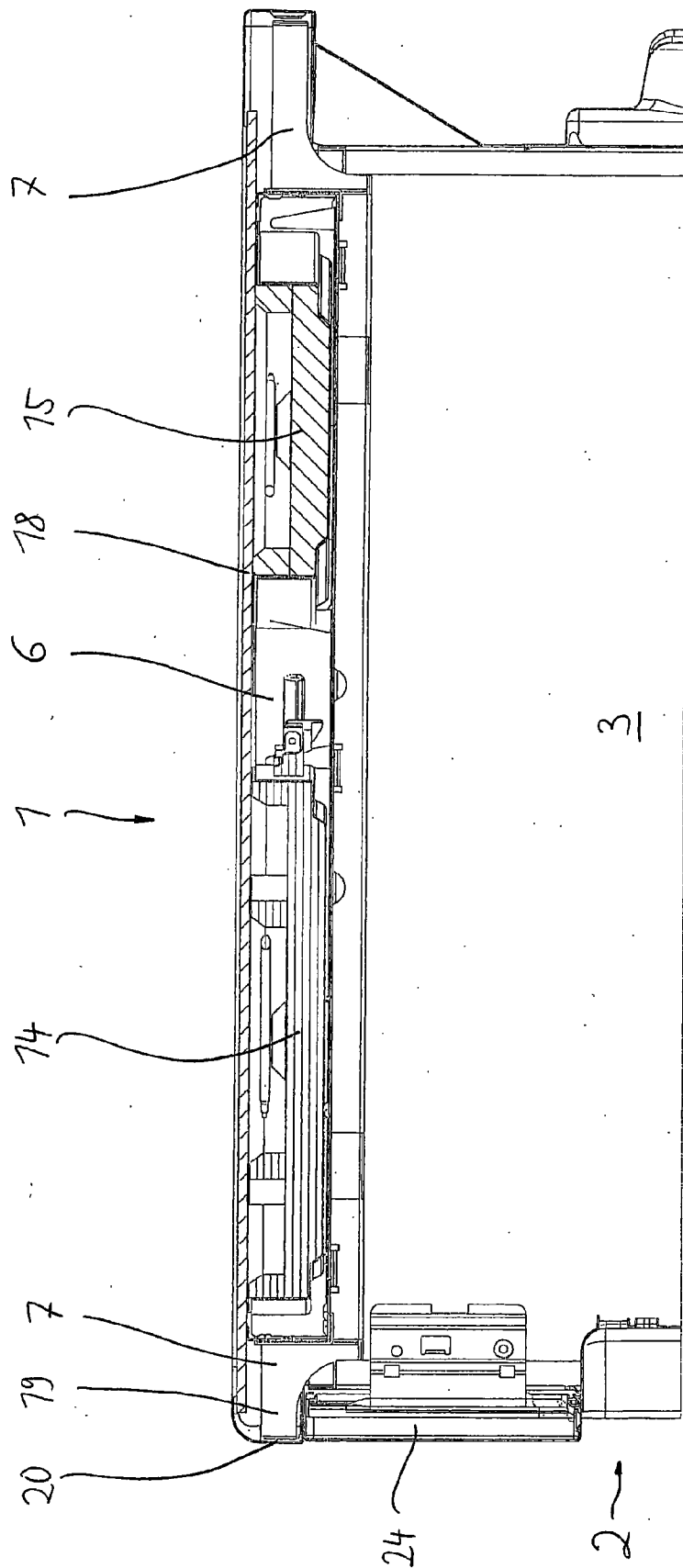


FIG 8



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 07 00 9382

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	GB 2 217 001 A (ELECTROLUX AB [SE]) 18 October 1989 (1989-10-18)	1,2,5-8, 10,13	INV. F24C15/00
Y	* pages 3,5,7, lines 12-15,15-18,5-7; claim 1; figure 1 *	11,12	F24C15/10 F24C15/08
Y	FR 2 709 814 A (CFW [FR]) 17 March 1995 (1995-03-17) * page 2, lines 1,2; figure 1 *	11,12	
X	GB 2 057 674 A (BELLING & CO LTD) 1 April 1981 (1981-04-01) * claim 1; figures 1,3 *	1-4,8,14	
X	GB 938 985 A (CANNON IND LTD) 9 October 1963 (1963-10-09) * pages 1,2, lines 75,76,12-20; figures 1,2 *	1-5,8,14	
			TECHNICAL FIELDS SEARCHED (IPC)
			F24C
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 8 November 2007	Examiner Blot, Pierre-Edouard
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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08-11-2007

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 2217001	A	18-10-1989	NONE	
FR 2709814	A	17-03-1995	NONE	
GB 2057674	A	01-04-1981	NONE	
GB 938985	A	09-10-1963	NONE	