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(54) Dishwasher with a door provided with a cutlery rack

(57) A dishwasher with increased loading capacity for items to be washed, particularly with regard to cutlery.

The dishwasher to which the present invention relates is of the type comprising a parallelepipedal washing chamber (4) accessible from the front through a door (2) pivotable about a horizontal articulation axis (3) disposed in the vicinity of the bottom of the chamber, the dishwasher comprising a plurality of crockery compartments (5, 6) slidable horizontally like drawers in the chamber (4) on respective sliding guides (7, 8) carried by the internal vertical side walls (9, 10) of the chamber. The machine also has a container (14) with grid-like walls for housing cutlery in general, the container (14) being carried by the face (11) of the door (2) which faces the interior of the washing chamber (4) when the door is closed.

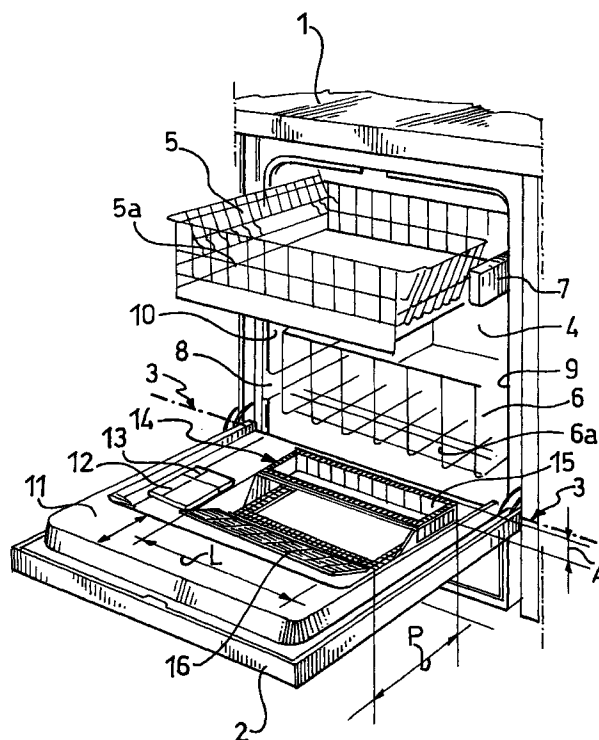


FIG.1

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Description

[0001] The present invention relates to a dishwasher with increased loading capacity for the items to be washed, particularly with regard to cutlery.

[0002] The dishwasher to which the present invention relates is of the type comprising a parallelepipedal washing chamber accessible from the front through a door pivotable about a horizontal articulation axis disposed in the vicinity of the bottom of the chamber, the dishwasher also comprising a plurality of crockery compartments slidable horizontally like drawers in the chamber on respective sliding guides carried by the internal vertical side walls of the chamber.

[0003] In dishwashers of the type indicated above, the cutlery is generally housed for washing in a vertical position in baskets with walls and bases which are perforated to allow the water to pass through them. These baskets are placed in one of the crockery compartments of the machine, usually in the lower one, and can be removed manually.

[0004] The number of baskets varies according to the amount of cutlery to be washed.

[0005] Although, on the one hand, these baskets are convenient to use since they can easily be removed from the machine manually, on the other hand, they cause a series of problems.

[0006] First of all, when they are placed in the crockery compartment, they reduce the crockery space which is reduced to a greater extent the more cutlery there is to be washed and hence the greater the number of baskets used.

[0007] Moreover, when the baskets are not used during a washing operation, they take up space whether they are kept outside the dishwasher or are left inside where they occupy space which could more appropriately be used for crockery.

[0008] The object of the present invention is to provide a dishwasher having a cutlery container which does not interfere with the space intended for the loading of the crockery but which nevertheless permits the use of conventional cutlery baskets if it is considered necessary.

[0009] The object is achieved by the dishwasher the characteristics of which are given in appended Claim 1.

[0010] The invention will now be described in greater detail with reference to some preferred embodiments thereof, illustrated in the appended drawings provided purely by way of non-limiting example, in which:

Figure 1 is a schematic, perspective view of a dishwasher with the door in the open position and with a cutlery container formed in accordance with a first embodiment of the invention,

Figure 2 shows, in partial vertical section, a dishwasher with the door in the closed position and with a cutlery container formed in accordance with a second embodiment,

Figure 3 is a schematic side view of the dishwasher

of Figure 1, with the door partially open,

Figure 4 is a schematic view of a dishwasher with the door in the open position, and with a cutlery container formed in accordance with the embodiment of Figure 2, with the lid open.

[0011] With reference to the above-mentioned drawings and, in particular, to Figure 1, the dishwasher 1 has a front door 2 pivotable about a horizontal axis 3 by means of conventional hinges, not shown in detail.

[0012] The machine 1 has a washing chamber 4 inside which there are crockery compartments 5 and 6 slidable like drawers on conventional guides 7 and 8 carried by the vertical side walls 9 and 10 of the chamber 4.

[0013] In addition to the conventional compartments 12 and 13 for detergent and rinse aid, the internal face 11 of the door 2 has a container, generally indicated 14, for holding cutlery.

[0014] In the embodiment shown in Figure 1, the container 14 is formed as a basket anchored firmly to the face 11 of the door 2 and comprises a perforated end 15, the depth A of which is no greater than the distance X between the face 11 of the door 2, when it is closed, and the front walls 5a and 6a of the compartments 5 and 6 when they are fully inserted in the chamber 4.

[0015] The width L of the container 14 may take up the entire free width of the face 11 up to the region of the detergent and rinse-aid compartments 12 and 13.

[0016] The width L, like the length P, is in any case no less than the length of an item of table cutlery.

[0017] At the opposite end to the end 15, the container 14 has a pivotable lid 16 for preventing the cutlery from coming out of the container after the cutlery has been inserted manually and the door 2 has been closed for washing cycles to be performed.

[0018] The formation of the container 14 as a perforated basket allows the washing water to penetrate between the items of cutlery.

[0019] The cutlery can also be loaded into the container 14 through the end opposite the end wall 15 with the door 2 in an inclined or semi-open position, as shown in Figure 3.

[0020] With reference to Figure 2, the cutlery container is indicated 140 and is connected to the internal face 11 of the door 2 by mechanical snap couplings constituted by recesses 141 formed in the face 11 of the door 2 and by pins 142 fixed to the container 140.

[0021] In this embodiment, the depth A of the end wall 150 is also no greater than the distance X between the front walls 5a and 6a of the drawer-like compartments 5 and 6 and the face 11 of the door 2 although, in the intermediate portion of the container 140 corresponding to the vertical space between the compartments 5 and 6, the depth of the container 140 may exceed this distance, extending up to a distance Y such as to enable it to house the rounded portions of spoons, even those larger than conventional spoons, for example, so-called

serving spoons.

[0022] The cutlery is loaded into the container 140, after the lid 240 has been raised, with the door 2 in an inclined position, as shown in Figure 3, or fully open, as shown in Figure 1.

[0023] Alternatively, the container 140 may be completely removed from the door 2 to enable the cutlery also to be loaded at a distance from the dishwasher.

[0024] With reference to Figure 4, it can be seen that the cutlery container 140 with perforated or grid-like walls has a lid 240 hinged on an axis 241 extending along the edge 242 of a base 243 which in turn is anchored to the face 11 of the door 2.

[0025] In this embodiment, the lid 240 of the container 140 can adopt a position for the loading of the cutlery, shown in Figure 4, in which it is arranged perpendicular to the face 11 of the door 2 and a washing position in which, after pivoting about the axis 241, it lies on the container parallel to the face 11 of the door 2.

[0026] The lid 240 has a convex central portion 244 for receiving and housing the rounded portions even of large serving spoons.

[0027] It is clear from the foregoing that the dishwasher according to the invention can house and hence wash a large amount of cutlery, for example, a complete service, without affecting the space in the chamber conventionally intended for crockery, although the possibility of the additional use of conventional baskets to be placed in the crockery compartments is not excluded.

[0028] Naturally, the grid-like configurations of the cutlery containers may vary according to requirements, for example, to facilitate the positioning of items of cutlery individually or in groups or to permit adequate and efficient circulation of the washing water, without thereby departing from the scope of the invention.

Claims

1. A dishwasher of the type comprising a parallelepipedal washing chamber (4) accessible from the front through a door (2) pivotable about a horizontal articulation axis (3) disposed in the vicinity of the bottom of the chamber, the dishwasher also comprising a plurality of crockery compartments (5, 6) slidable horizontally like drawers in the chamber (4) on respective sliding guides (7, 8) carried by the internal vertical side walls (9, 10) of the chamber, characterized in that the face (11) of the door (2) facing the interior of the chamber (4) is provided with a container (14, 140) for housing cutlery.
2. A dishwasher according to Claim 1, characterized in that the cutlery container (14, 140) carried by the door (2) is in the form of a basket with perforated walls.
3. A dishwasher according to Claims 1 and 2, characterized in that the end wall (15) of the cutlery container (14, 140) carried by the door (2) extends in a direction perpendicular to the face (11) of the door 20 for a distance (A) no greater than the distance (X) between the front walls (5a, 6a) of the crockery compartments (5, 6) when they are in the inserted position in the chamber (4) and the internal face (11) of the door (2).
4. A dishwasher according to Claims 1 to 3, characterized in that the central region of the cutlery container (14, 140) carried by the door (2) extends in a direction perpendicular to the face (11) of the door (2) for a distance (Y) greater than the distance (X) between the front walls (5a, 6a) of the crockery compartments (5, 6) when they are in the inserted position in the chamber (4) and the internal face (11) of the door (2), so as to be able to house the rounded portions of spoons.
5. A dishwasher according to Claims 1 to 4, characterized in that the cutlery container (14, 140) carried by the door (2) extends in directions parallel to the face (11) of the door, at least for distances (P, L) no shorter than the length of an item of table cutlery.
6. A dishwasher according to Claims 1 to 5, characterized in that the cutlery container (14) has a folding lid (16) on its open end opposite the end (15).
7. A dishwasher according to Claims 1 to 6, characterized in that the cutlery container (14) is fixed firmly to the internal face (11) of the door (2) for closing the chamber (4).
8. A dishwasher according to Claims 1 to 6, characterized in that the cutlery container (140) is fixed removably to the internal face (11) of the door (2).
9. A dishwasher according to Claims 1 to 6, characterized in that the cutlery container (140) has a lid (240) articulated by one of its edges (242) to the internal face (11) of the door (2) by means of a hinge the axis of rotation (241) of which extends parallel to the face (11) of the door so that the lid adopts an open position for the loading of the cutlery, in which it is perpendicular to the face (11) of the door, and a closed position for washing, in which it is parallel to the face (11).
10. A dishwasher according to Claim 9, characterized in that the lid (240) has a central convex portion (244) for housing the rounded portions of large serving spoons.

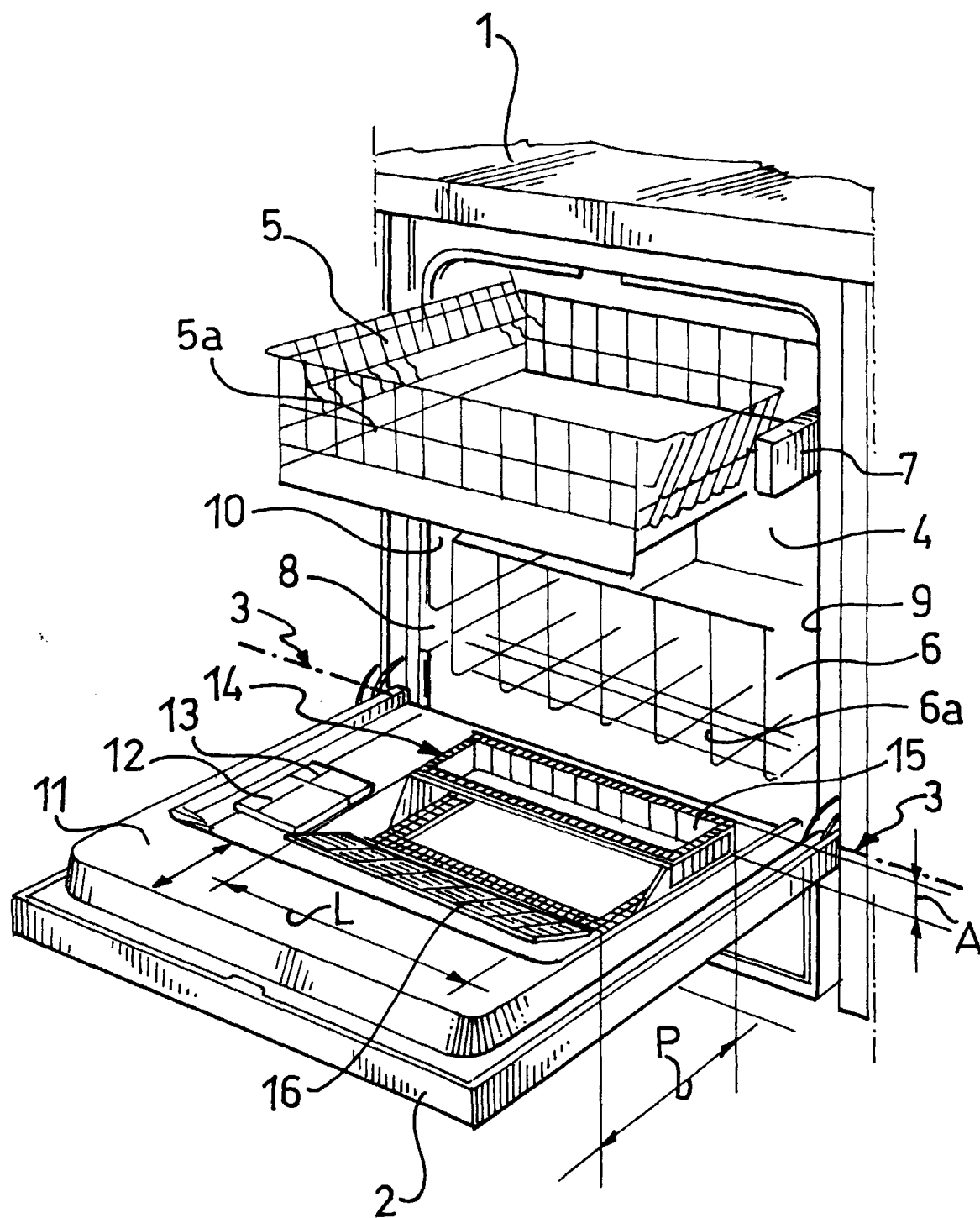
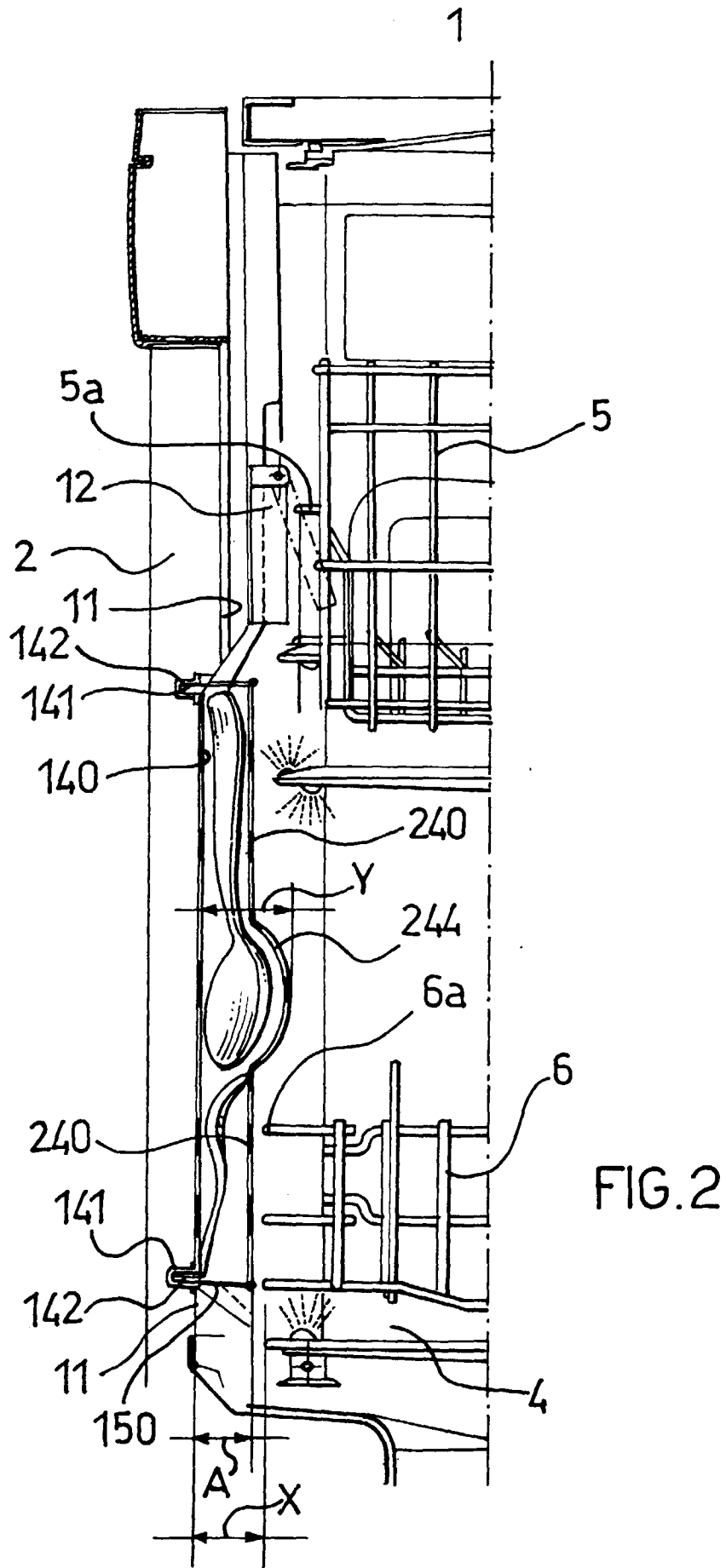


FIG.1



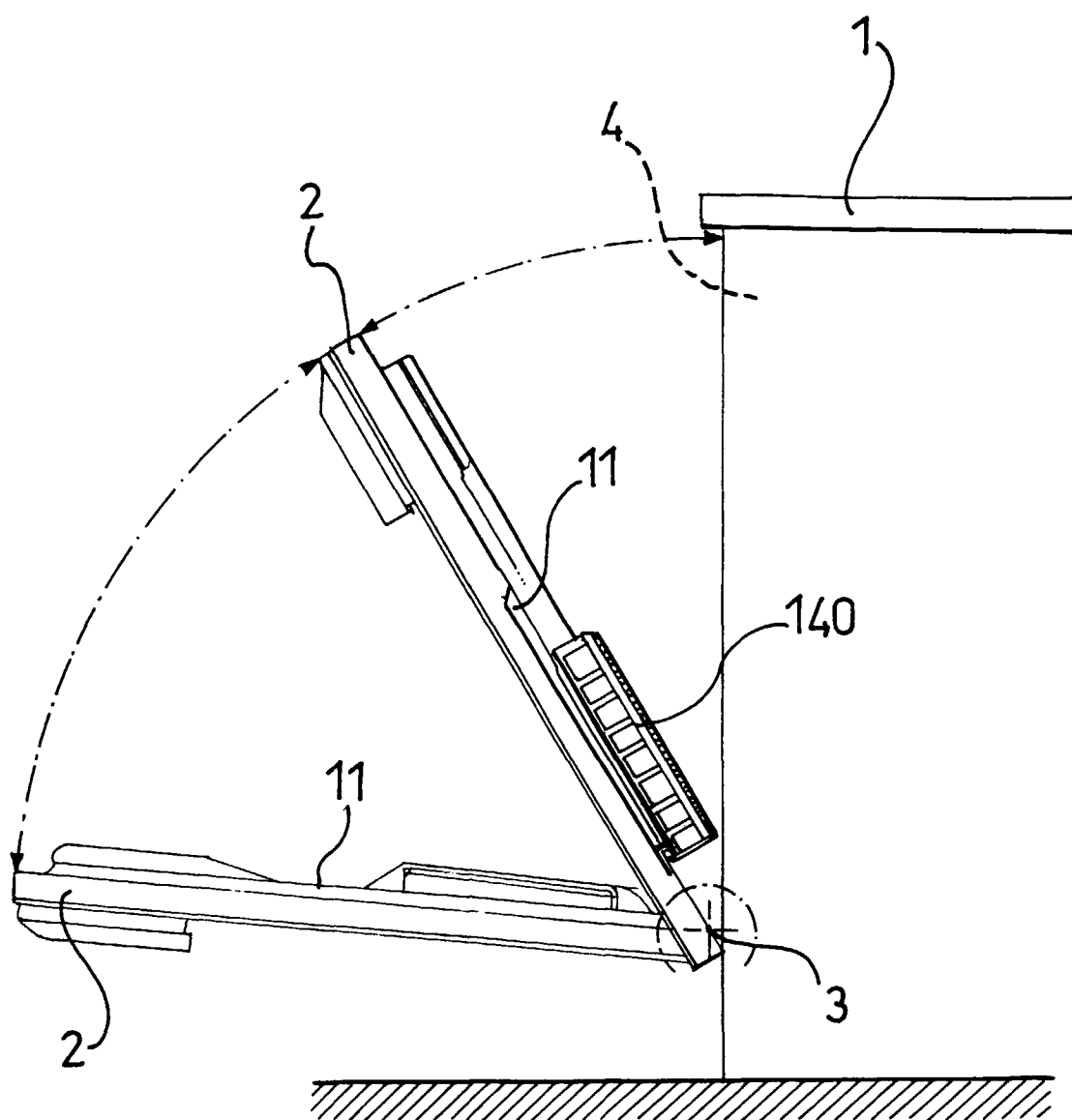


FIG.3

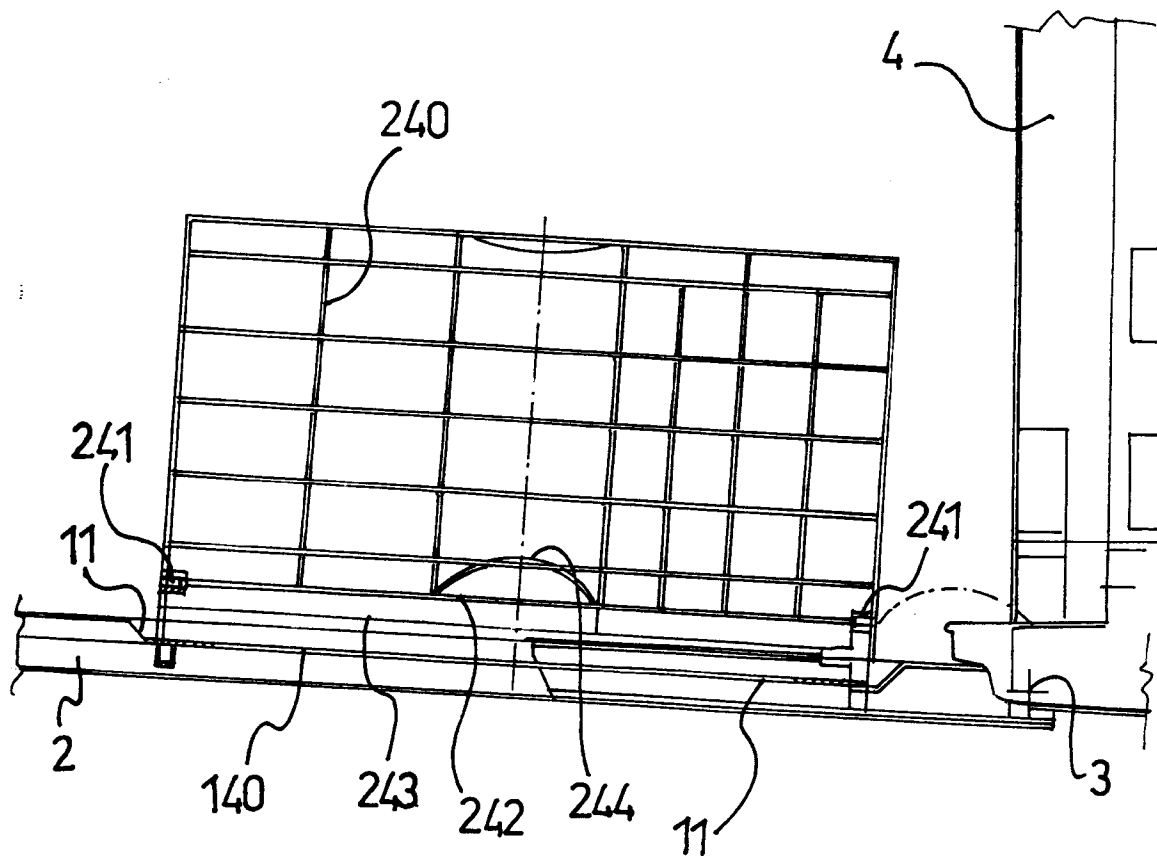


FIG.4



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EUROPEAN SEARCH REPORT

Application Number
EP 98 83 0272

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	US 3 665 943 A (LAMPMAN WILLIAM T ET AL) 30 May 1972	1-3,8	A47L15/50
A	* column 1, line 32 - column 3, line 16; figures 1-3 *	4-6,9-11	
X	US 3 732 876 A (BRAGA A ET AL) 15 May 1973	1,2,8	
A	* column 1, line 43 - column 4, line 33; figures 1-3 *	3-5	
The present search report has been drawn up for all claims			<p>TECHNICAL FIELDS SEARCHED (Int.Cl.6)</p> <p>A47L</p>
Place of search MUNICH		Date of completion of the search 18 September 1998	Examiner Laue, F
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p>			

EPO FORM 1503 03/82 (P4/01)

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

EP 98 83 0272

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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18-09-1998

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US 3665943	A	30-05-1972	FR 2037217 A	31-12-1970
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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82