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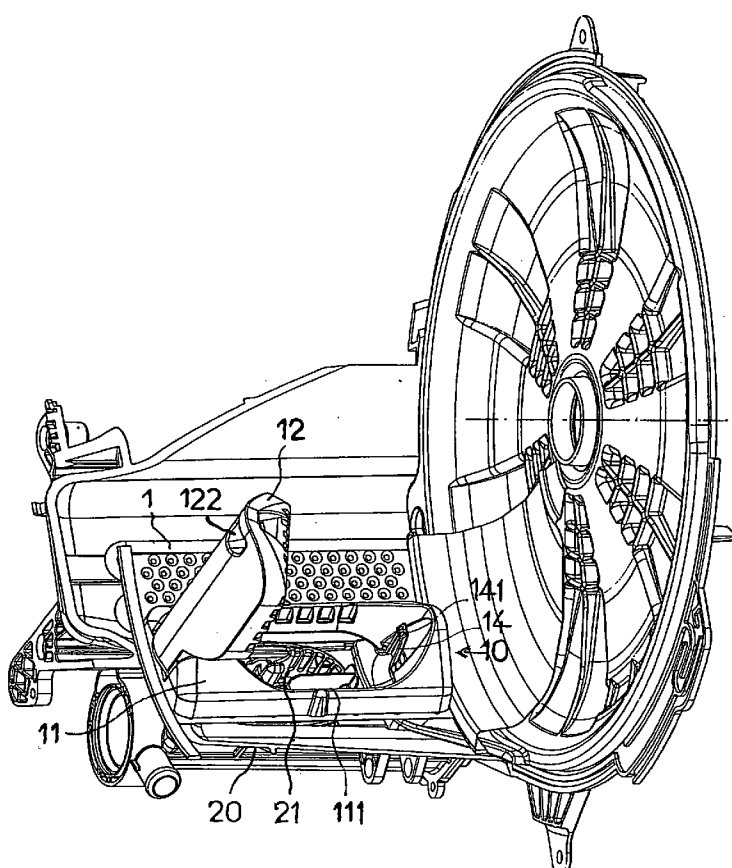
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[Continued on next page]

(54) Title: DRAINING FILTER ACCESS APPARATUS FOR A TOP-LOADING WASHING MACHINE



(57) Abstract: This draining filter access apparatus (10) is enclosed in the drum lifter diametrically opposite to the loading door of it. It is principally constituted by a body (11) constituting the lifter base, having an opening (111) intended to line up with an opening of same shape and same dimensions preliminary realized in the body (11) of the drum (1) and a lid (12) articulated towards the body (11) constituting the lifter locking on the body (11) by simple ratchet mechanism.



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Description**DRAINING FILTER ACCESS APPARATUS FOR A TOP-LOADING WASHING MACHINE**

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The invention concerns a draining filter access apparatus for a top-loading rotating drum washing machine.

It is known to have, on the washing machine water outlet circuit irrespective of its
10 loading method, between the bottom of the tub and the drain pump, a filtering means to retain all undesirable elements likely to damage or block the pump, which manage to pass through the holes located on the periphery of the drum, so as to allow the wash or rinse water to flow freely, or that would have been negligently introduced into the tub with the wash items when loading the drum and that would fall to the bottom of the tub
15 by passing between the drum and the tub.

The most common of these filtering means consists of a cylindrical box laid out along the axis of the drain pump, which is attached to the base of the machine. This box with the filter, connected to the draining well by piping, is accessible through a quick-remove
20 plug that allows the filter to be removed and cleaned, the said plug being hidden by a gate located, depending on the case, on the front or back of the machine frame.

On some machines, the drain pump is attached to the tub in the extension of a draining well where the protection filter is placed. However, contrary to the assembly mentioned
25 above, in order to remove and clean the filter, this assembly requires access through the inside of the drum after placing it in the loading position, so an arm can be penetrated inside. A lifter for the washing drivetrain and the gate mass compensation is then diametrically opposite the drum access opening, virtually plumb with the basket where the filter is mounted. Therefore, it was deemed practical to arrange the access
30 grid to the strainer under a lifter attachment surface, which is hollowed out and consequently open at its ends. But it is understood that to access the access grid to the strainer in order to dismantle and clean the filter, the lifter that hides it has to be removed first, which requires removing the screws that connect the said lifter to the

drum and removing it from the drum, at the risk of forgetting to reinstall it or fastening it improperly, with the risks that this presents in case the machine is reused in these conditions, especially during the spin drying cycle. Moreover, this dismantling and reassembling operation constitutes a difficult operation for the housewife who uses the
5 machine, who most often does not have suitable tools, hence there is a serious risk of defective reassembly.

The English patent GB 725 123 shows a laundry machine comprising a cylindrical clothes receiving drum having axially extending lifters with generally angular cross-
10 section with the apexes directed inward, the headers being embossed to receive and locate the said lifters. The sides and apex of one or more of the lifters are cut away to provide an access opening through the lifter apex to the space between the lifter side walls, an opening being provided in the cylindrical wall located between the sides of the lifter and registering with the lifter opening and a removable cover being provided of
15 generally angular cross section telescoped over the lifter, said cover having sides straddling the side walls of the lifter and the sides and apex of the cover conforming to the sides and apex of the lifter. This removal cover is secured and located on the lifter by screw.

20 We understand that, by this means, it is possible to access with the hand at the base of the tub to take off the matter accumulated in it and to do slide it toward the machine advent in order to effect the withdraw. It is not however a means to access to a draining well equipped of a filter to protect a draining pump, in order to pull out the filter for cleaning contrary the other apparatus of the anterior art evoked above.

25 The purpose of the present invention is to provide a solution for the disadvantage of the draining filter access apparatus affixed directly under bottom of the tub. This invention, as characterized in the claims, solves the problem consisting to create a draining filter access apparatus with which the filter access be executed without taking off nor tools
30 and without risk of further incidents.

The advantages obtained through this invention consist principally in that the access apparatus incorporated with the opposed lifter to the drum access door takes one's seat

directly above the draining filter basket that it leaves entirely and that it allows an easy manual access to the filter basket which can be like this removed and replaced easily. Moreover, this apparatus makes moreover directly incorporated to the washing machine at the time of its making.

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Other characteristics and advantages will appear in the following description of a method of making the apparatus according to the invention, given as a non-limiting example with regard to the appended drawings where:

- 10 - figure 1 shows a front view of the closed apparatus,
- figure 2 shows a right side view of the closed apparatus,
- figure 3 shows a top view of the closed apparatus,
- figure 4 shows a front view of the apparatus in an open position,
- figure 5 shows a below view of the apparatus in an open position,
- 15 - figure 6 shows a back view of the apparatus in an open position,
- figure 7 shows a partial view, in perspective, of a washing machine drum equipped with an apparatus according to the invention in open position.

The figures represent a draining filter access apparatus on a top-loading washing
20 machine, integrated in one of the lifters equipping the washing machine drum **1**, diametrically opposite to the drum **1** access door ; the said apparatus **10** including a body **11** equipped with an opening **111** normally closed by a lid **12** reproducing the exterior shape of a lifter interlocked to the body **11** by two studs aligned according to an axis **XX'**. The lid **12** being closed and normally stopped with a ratchet mechanism
25 obtained via a flexible locking hook **14**, interdependent with the body **11**, located at the end of the opening **111** opposite to the articulation of the lid **12**, whose beak **141** ratchets on the lower edge of a small window **121**, forming a stop catch, made in the wall of a cavity **122** created in the free end of the lid **12** and open on the top to allow the said lid **12** to be released by removing the beak **141** of the flexible hook **14** under the
30 action of a finger, accompanied by an action with the hand intended to bring the lid **12** to the opening stop corresponding more or less to its vertical position.

The opening **111** of the body **11** is lined at its base by a collar **112** to be fitted into a passageway of a corresponding shape and dimensions made in the drum **1**, against the wall of which the apparatus **10** is attached by four screws entering the openings **101** to **104** provided for this purpose in the base of the body **11**, as it is the case for the other
5 lifters. Subject to a certain angular discrepancy of approximately 15° of the drum **1** towards its normal resting position, towards the back of the machine, the opening **111** of the access apparatus **10** lines up with the sump **20** of the draining circuit, where a basket **21** containing the filter one wants to clean is placed. Therefore, one just has to remove this basket **21** by passing it through the opening **111** of the access apparatus
10 **10**.

In examining now, in more detail, figures 1 to 7, one notices : on figures 1, 3 and 7, the access cavity **122** to the beak **141** of the locking hook **14** engaged on the edge of the small window **121**, showing on figures 3 to 7, and on figure 2, the XX' position of the
15 articulation axis of the lid **12**.

One will also notice, by comparing figures 4 and 6, that a certain incline of approximately 15° , towards the top and back, has been given to the inside front **123** of the lid **12** to facilitate passing a hand, as well as removing and reinstalling the filter
20 basket **21**, which therefore can be done without tools and without any other operation other than releasing and opening the lid **12** of the body **11**, by simply pressing with one's finger on the beak **141** of the locking hook **14** of the lid **12** accompanied by a slight tension from the hand to obtain the complete release of the opening **111** of the body **11** from the apparatus **10** by hinging of the said lid **12**, then, after cleaning and
25 filter basket **21** putting back to release the lid **12**, to obtain itself closing by ratching.

The apparatus according to the invention is principally destined to equip the top loading washing machine but nothing to set itself in other laundering domains there the same problems exist under reserves of minors adaptations obvious for a man skilled
30 in the art.

Claims

1. Draining filter access apparatus for a top-loading rotating drum washing machine, enclosed in the drum lifter diametrically opposite to the loading door of it, characterized in that it is principally constituted by a body (11) constituting the lifter base, having an opening (111) intended to line up with an opening of same shape and same dimensions preliminary realized in the body (11) of the drum (1) and a lid (12) articulated towards the body (11) constituting the lifter locking on the body (11) by simple ratchet mechanism.
2. Access apparatus according to claim 1, characterized in that the ratchet of the lid (12) on the body (11) of apparatus (10) is obtained by a flexible locking hook (14) interlocked to the body (11) situated in its opening (111) and a stop catch realized in the lid (12).
3. Access apparatus according to claim 2, characterized in that the stop catch realized in the lid (12) is constituted of the lower edge of a small window (121) realized in the wall of a cavity (122) created in the free end of the lid (12) and open on the top, offering a sufficient space to permit the insertion of a finger extremity to obtain the release of the flexible hook (14) beak (141) by simple pressure on it.
4. Access apparatus according to claim 1, characterized in that the opening (111) of the body (11) is lined by a collar (112) with shape and exterior dimensions corresponding to these of the opening realized in the drum (1) wall.
5. Access apparatus according to claim 1, characterized in that the inside front (123) of the lid (12) is raised of approximately 15° towards the back.

FIG.2

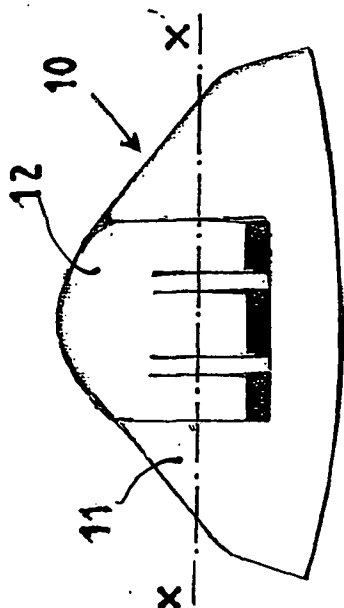


FIG.1

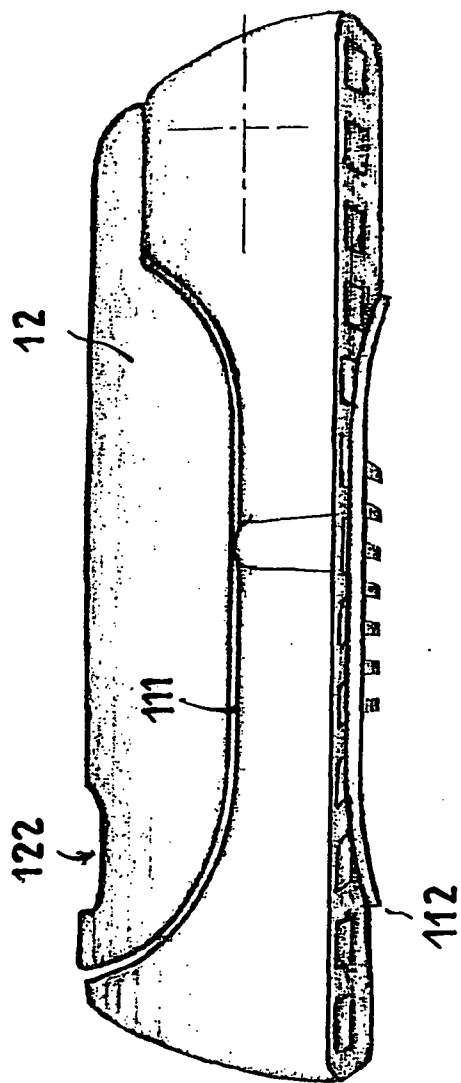
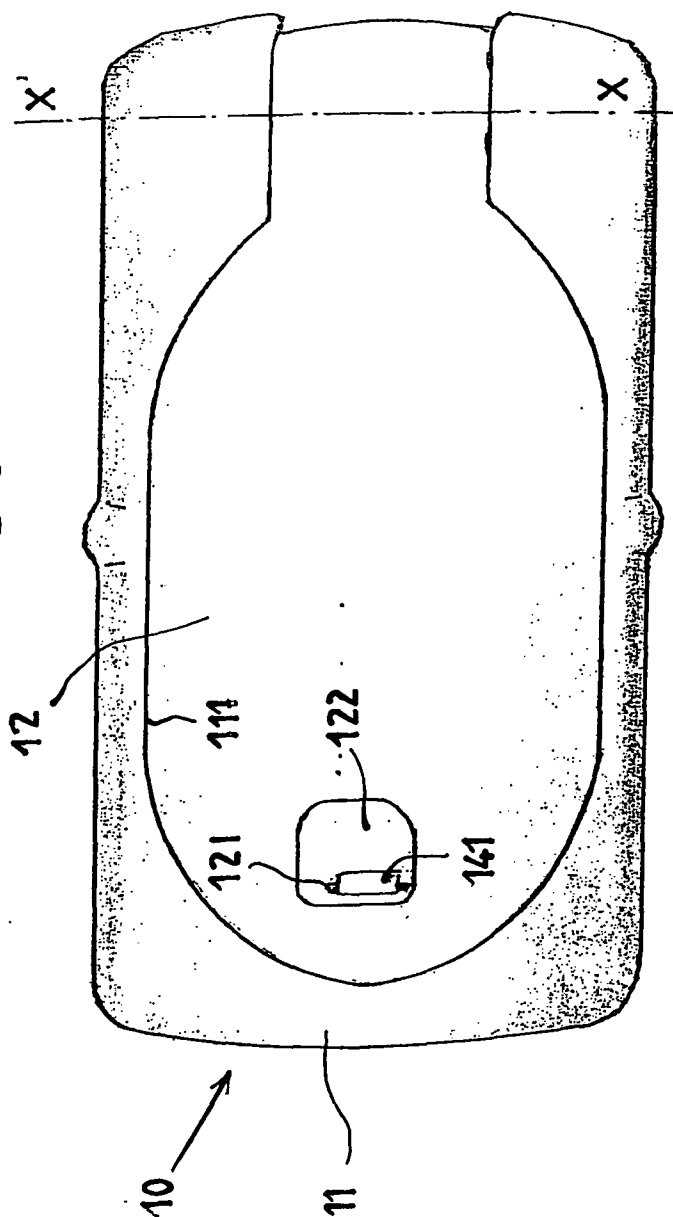


FIG.3



2/4

FIG. 4

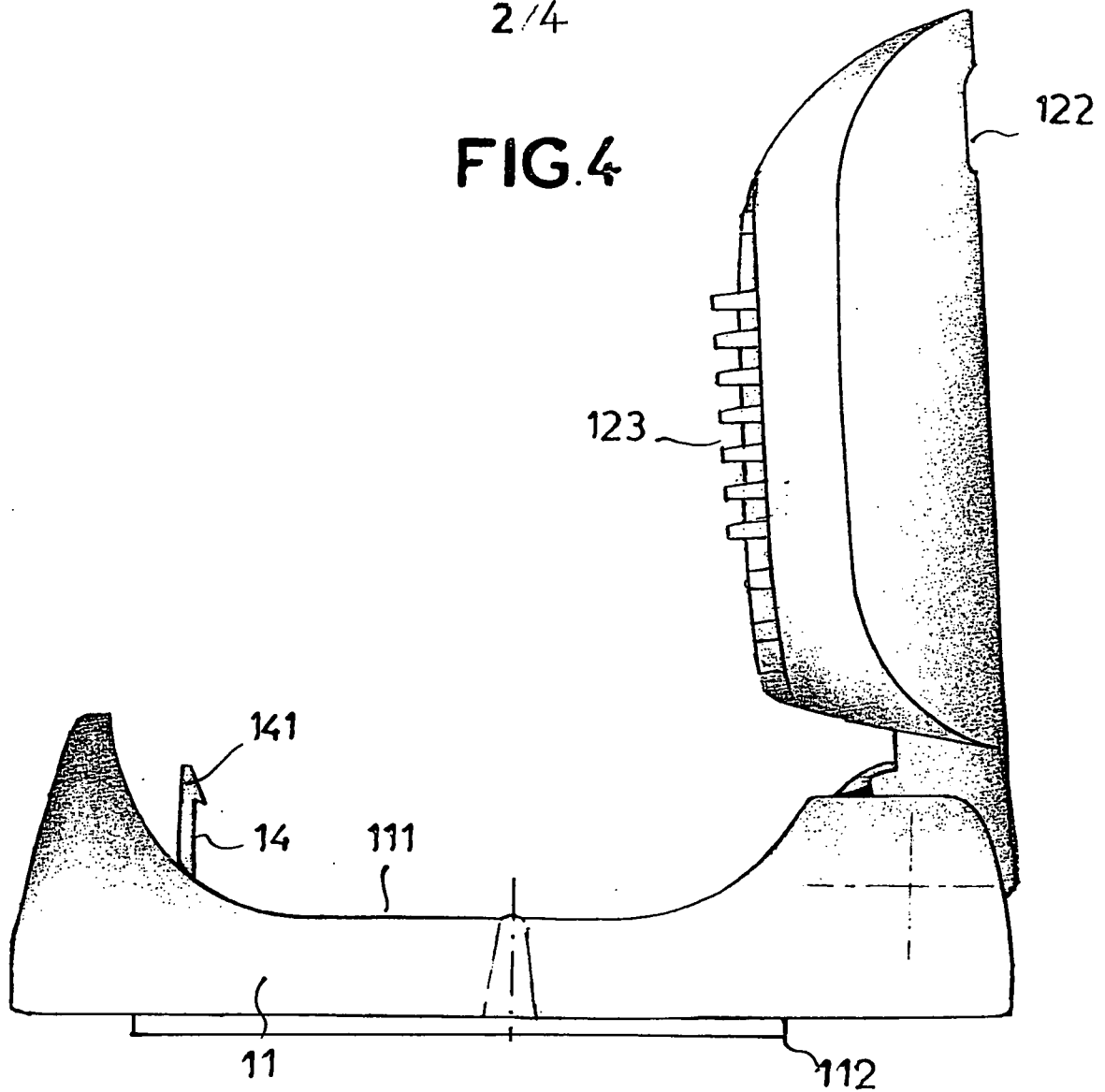
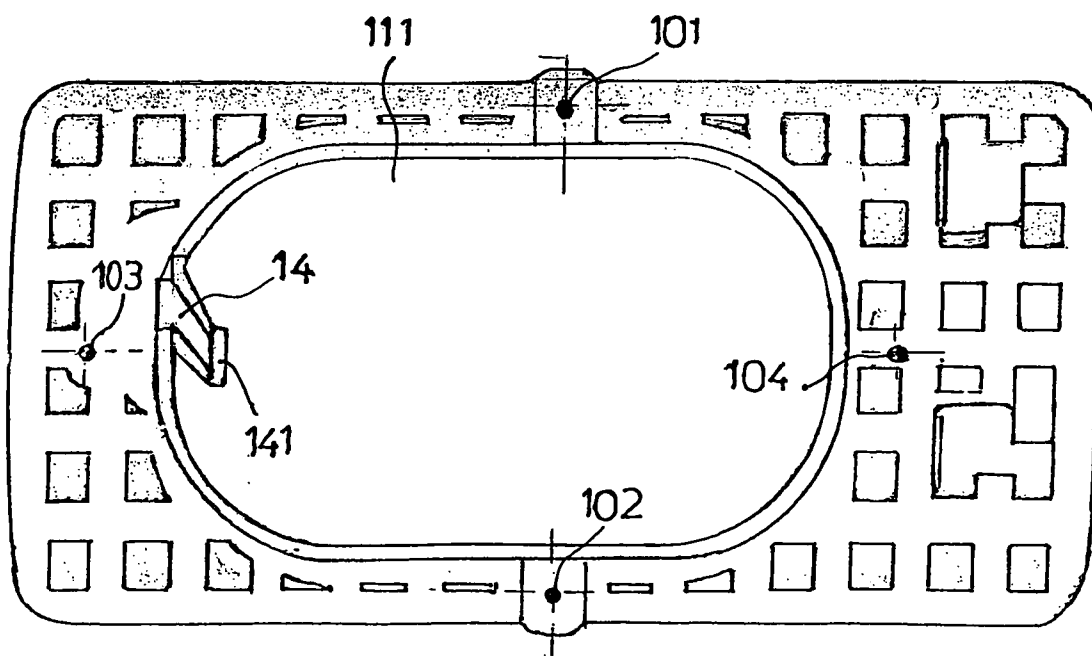
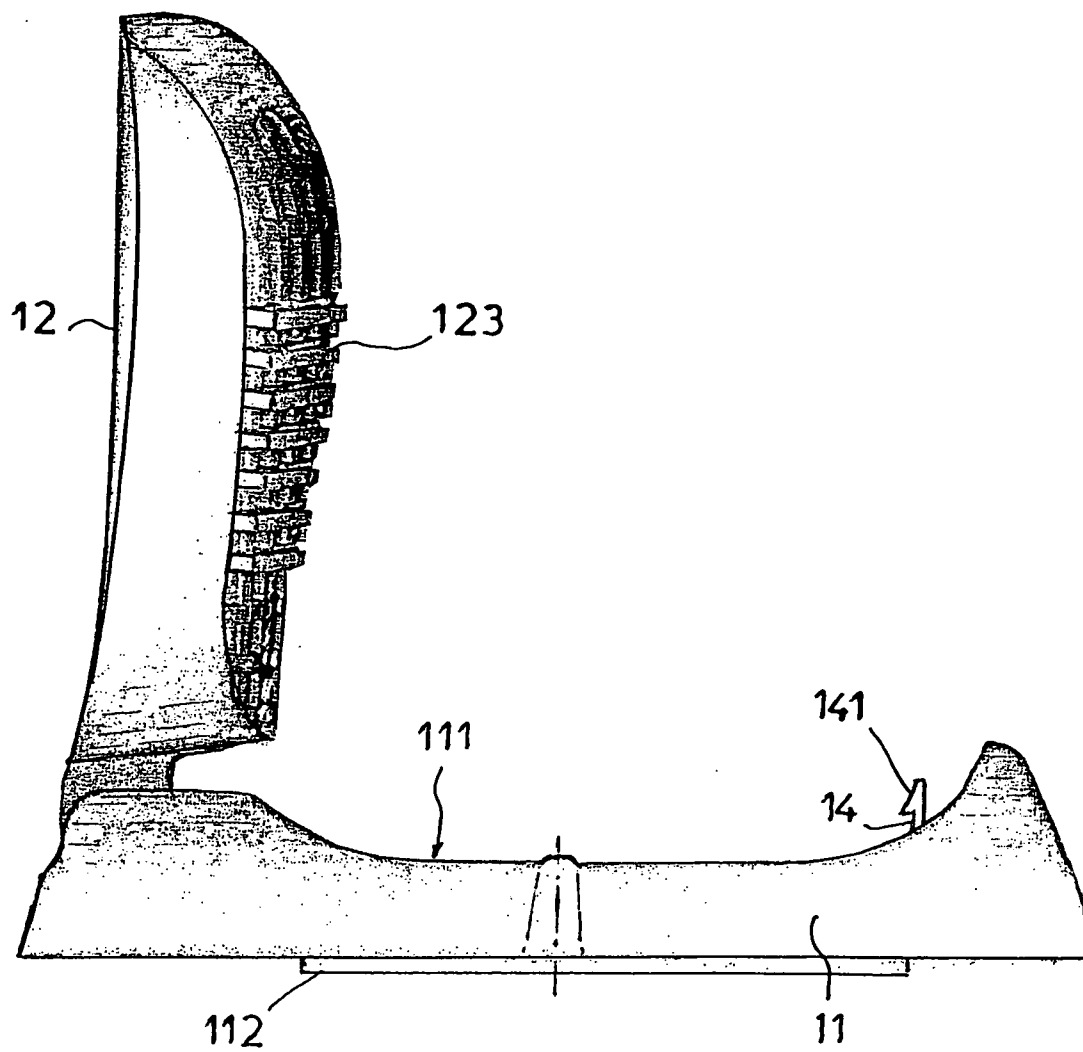


FIG. 5



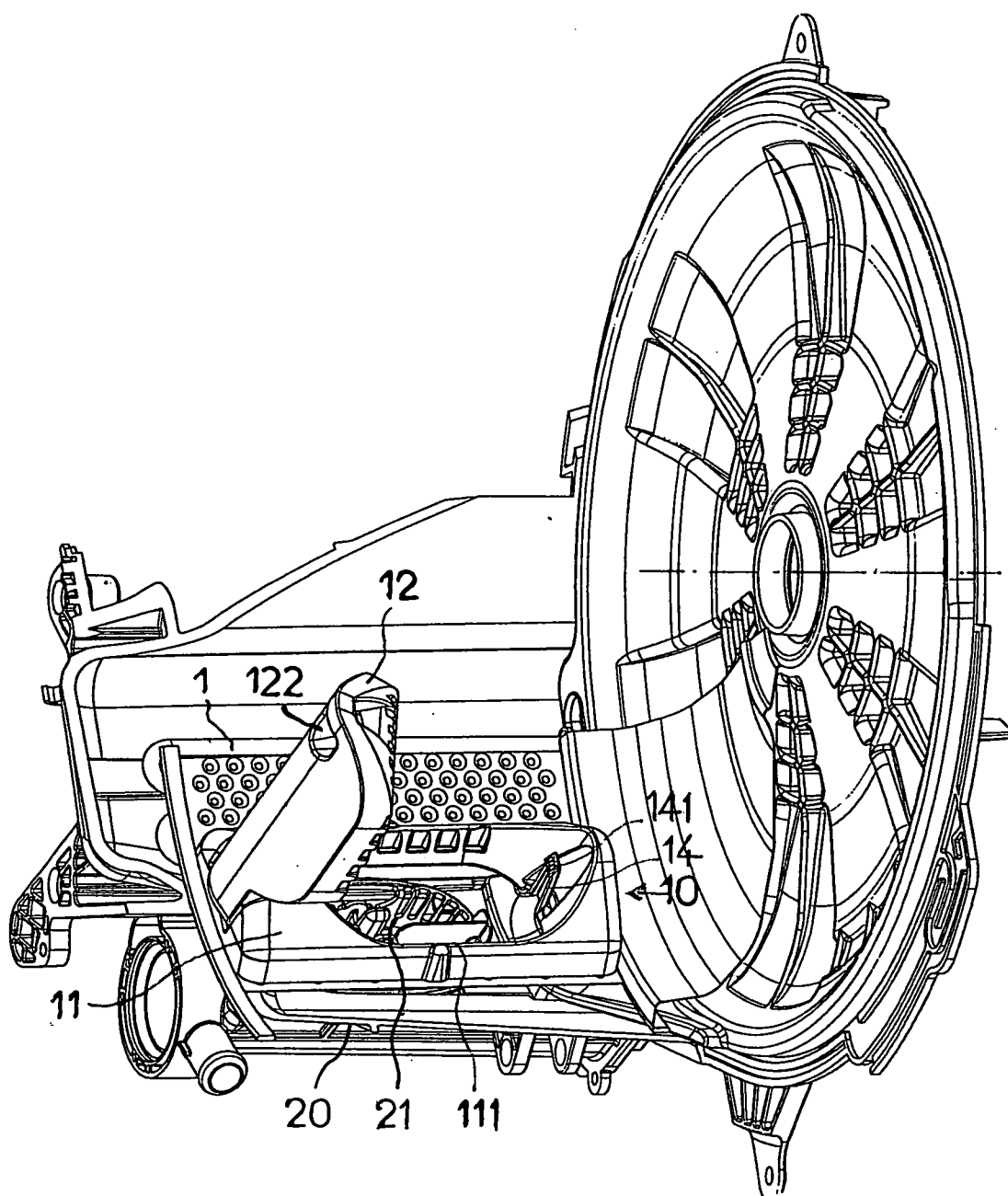
3/4

FIG.6



4/4

FIG. 7



INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
D06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 1 197 919 A (CANDY SPA [IT]) 8 July 1970 (1970-07-08) the whole document	1
A	GB 725 123 A (LOVELL MFG CO) 2 March 1955 (1955-03-02) cited in the application page 2, lines 8-30; figures	1,4
A	JP 2004 089339 A (TOKYO SHIBAURA ELECTRIC CO) 25 March 2004 (2004-03-25) abstract; figures	1-4
A	JP 59 077893 A (MATSUSHITA ELECTRIC IND CO LTD) 4 May 1984 (1984-05-04) figures	1,2
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 07 275591 A (HITACHI LTD) 24 October 1995 (1995-10-24) abstract; figures -----	1-4
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Information on patent family members

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