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(54) **Top-loading washing machine with draining filter access apparatus**

Mantelbeschickbare Waschmaschine mit Ablassfilter-Zugriff-Vorrichtung

Machine à laver à chargement par le haut avec appareil d'accès au filtre de vidange

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Description

[0001] The invention concerns a top-loading rotating drum washing machine comprising a draining filter access apparatus.

[0002] It is known to have, on the washing machine water outlet circuit irrespective of its 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 by passing between the drum and the tub.

[0003] 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 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.

[0004] On some machines as described in GB 1197919 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 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 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 machine, who most often does not have suitable tools, hence there is a serious risk of defective reassembly.

[0005] The English patent GB 725 123 shows a laundry machine comprising a cylindrical clothes receiving drum having axially extending lifters with generally angular cross-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 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.

[0006] 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.

[0007] 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 and without risk of further incidents.

[0008] 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.

[0009] 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:

- 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,
- 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.

[0010] The figures represent a draining filter access apparatus on a top-loading washing 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 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 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.

[0011] 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 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**.

[0012] 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 articulation axis of the lid **12**.

[0013] One will also notice, by comparing figures 4 and 6, that 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 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 filter basket **21** putting back to release the lid **12**, to obtain itself closing by retching

Claims

1. Top-loading vashing machine comprising a rotatable drum (1) with a wall and an access door, a draining filter (21) and a draining filter access appatus (10) enclosed in a drum lifter diametrically opposite to the access door of the drum (1) if, **characterized in that** said draining filter access apparatus (10) 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 realized in the wall of the drum (**1**) and a lid (**12**) articulated towards the body (11) constituting the lifter, said lid (12) being lockable onto the body (**11**) by simple ratchet mechanism (14, 141, 121, 122).

2. Top-loading washing machine 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 stop catch (121) realized in the lid (**12**).
3. Top-loading washing machine according to claim 2, **characterized in that** the stop catch (121) 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 on it.
4. Top-loading washing machine 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

Patentansprüche

1. Toplader-Waschmaschine, die eine rotierbare Trommel (**1**) mit einer Wand und einer Zugriffür, einen Abflussfilter (**21**) und eine Abflussfilterzugriffvorrichtung (**10**) umfasst, die in einem Trommelheber diametral gegenüber der Zugriffür der Trommel (**1**) eingeschlossen ist, **dadurch gekennzeichnet, dass** die Abflussfilterzugriffvorrichtung (**10**) durch einen Körper (**11**) gebildet wird, der die Heberbasis bildet, die mit einer Öffnung (**111**) versehen ist, die an einer Öffnung der selben Form und mit den selben Abmessungen ausgerichtet werden soll, welche in der Wand der Trommel (**1**) ausgebildet ist, und durch einen Deckel (**12**), der mit dem Körper (**11**), der den Hebel bildet, in einer Gelenkverbindung steht, wobei der Deckel (**12**) auf dem Körper (**11**) mittels eines einfachen Verriegelungsmechanismus' (**14**, **141**, **121**, **122**) verriegelt werden kann.
2. Toplader-Waschmaschine gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die Verriegelung des Deckels (**12**) auf dem Körper (**11**) der Vorrichtung (**10**) durch einen flexiblen Sperrhaken (**14**), der mit dem Körper (**11**) verbunden und in dessen Öffnung (**111**) angeordnet ist, und eine Arretierung (**121**) im Deckel (**12**) gebildet wird.

3. Toplader-Waschmaschine gemäß Anspruch 2, **dadurch gekennzeichnet, dass** die im Deckel (12) ausgebildete Arretierung (121) aus der Unterkante eines kleinen Fensters (121) in der Wand eines Hohlraums (122) besteht, der im freien Ende des Deckels (12) ausgebildet und nach oben offen ist, und der ausreichend Raum zur Einführung einer Fingerextremität bietet, um die Lösung des Schnabels (141) des flexiblen Hakens (14) durch einfachen Druck auf denselben zu bewirken. 5 10
4. Toplader-Waschmaschine gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die Öffnung (111) des Körpers (11) von einer Einfassung (112) ausgekleidet ist, deren Form und Außenabmessungen jenen der in der Wand der Trommel (1) gebildeten Öffnung entspricht. 15

Revendications 20

1. Machine à laver à chargement par le dessus, comprenant un tambour tournant (1) avec une paroi et une porte d'accès, un filtre de vidange (21) et un dispositif d'accès au filtre de vidange (10) inclus dans un redan du tambour opposé diamétralement à la porte d'accès du tambour (1), **caractérisée en ce que** ledit dispositif d'accès au filtre de vidange (10) est constitué d'un corps (11), constituant la base du redan, comportant une ouverture (111) destinée à coïncider avec une ouverture de même forme et de mêmes dimensions, réalisée dans la paroi du tambour (1), et d'un couvercle (12) articulé par rapport au corps (11), constituant le sommet du redan, ledit couvercle (12) étant verrouillable sur le corps (11) par simple encliquetage (14, 141, 121, 122). 25 30 35
2. Machine à laver à chargement par le dessus selon la revendication 1, **caractérisée en ce que** l'encliquetage du couvercle (12) sur le corps (11) du dispositif (10) est obtenu par l'intermédiaire d'un crochet de verrouillage flexible (14), solidaire du corps (11), situé dans l'ouverture (111) de celui-ci, et d'un cran d'arrêt (121) réalisé dans le couvercle (12). 40 45
3. Machine à laver à chargement par le dessus selon la revendication 2, **caractérisée en ce que** le cran d'arrêt (121) réalisé dans le couvercle (12) est constitué du bord inférieur d'une petite fenêtre (121) réalisée dans la paroi d'une cavité (122) ouverte sur le dessus, offrant un espace suffisant pour permettre l'introduction de l'extrémité d'un doigt pour effectuer le désengagement du bec (141) du crochet flexible (14) par simple pression sur celui-ci. 50 55
4. Machine à laver à chargement par le dessus selon la revendication 1, **caractérisée en ce que** l'ouverture (111) du corps (11) est bordée d'une collerette

(112), de forme et de dimensions extérieures correspondant à celles de l'ouverture réalisée dans le tambour (1).

FIG.2

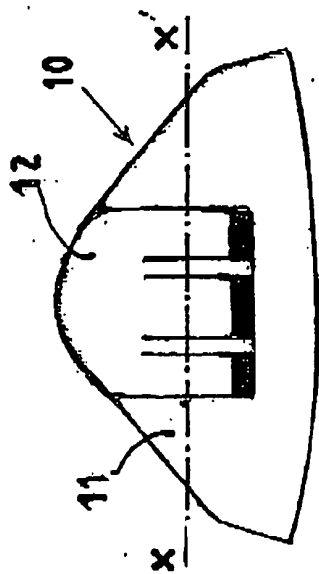


FIG.1

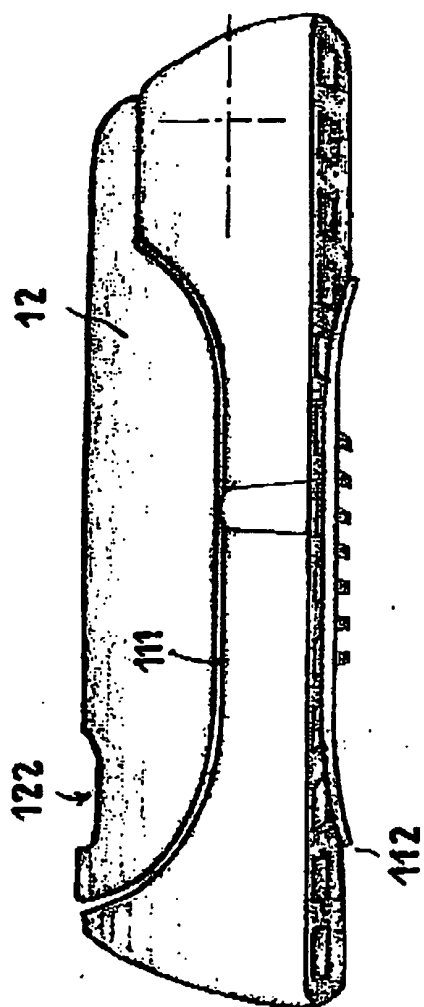


FIG.3

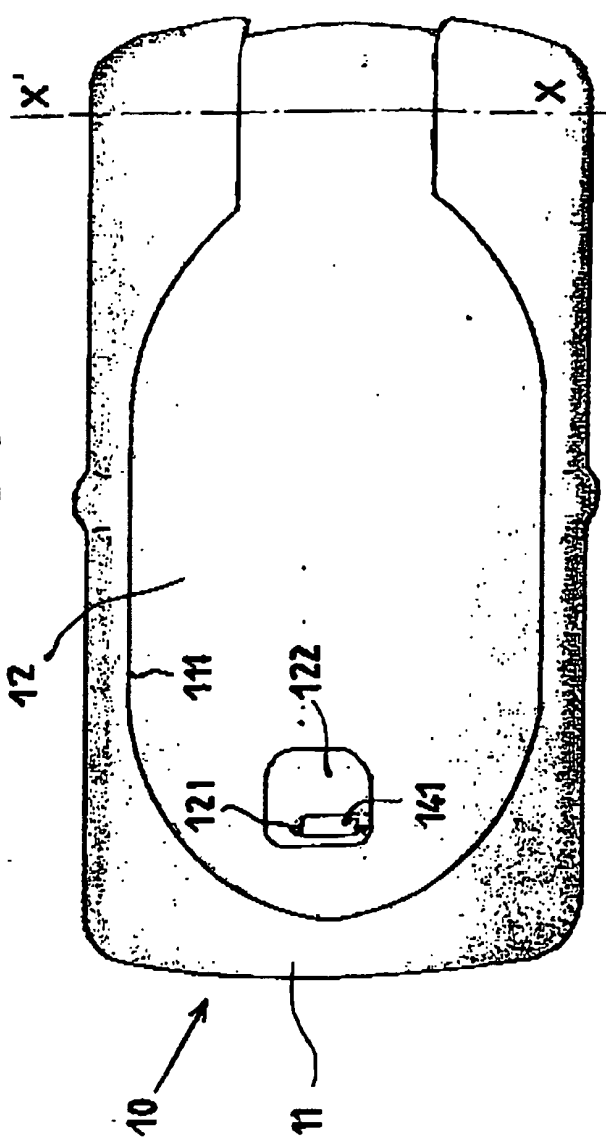


FIG.4

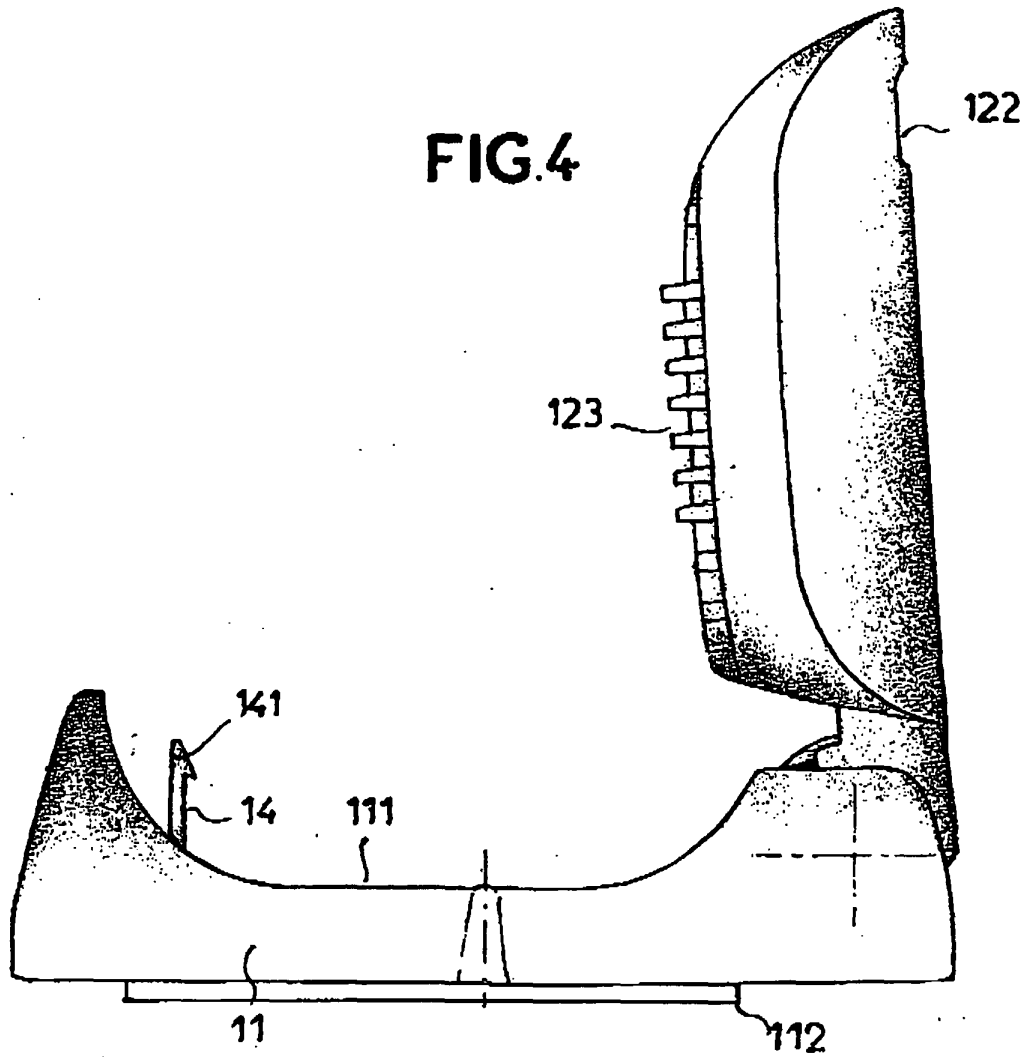


FIG.5

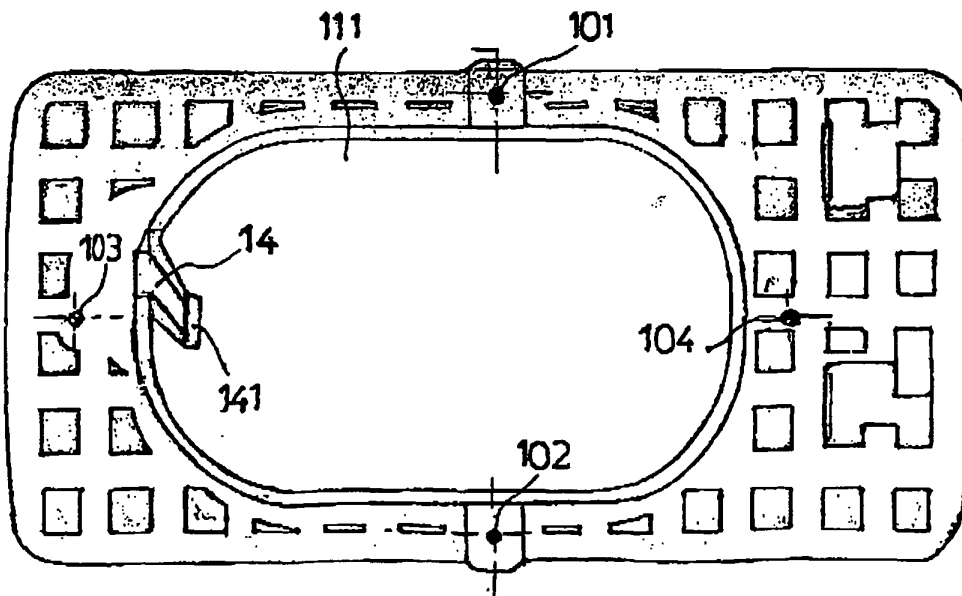


FIG.6

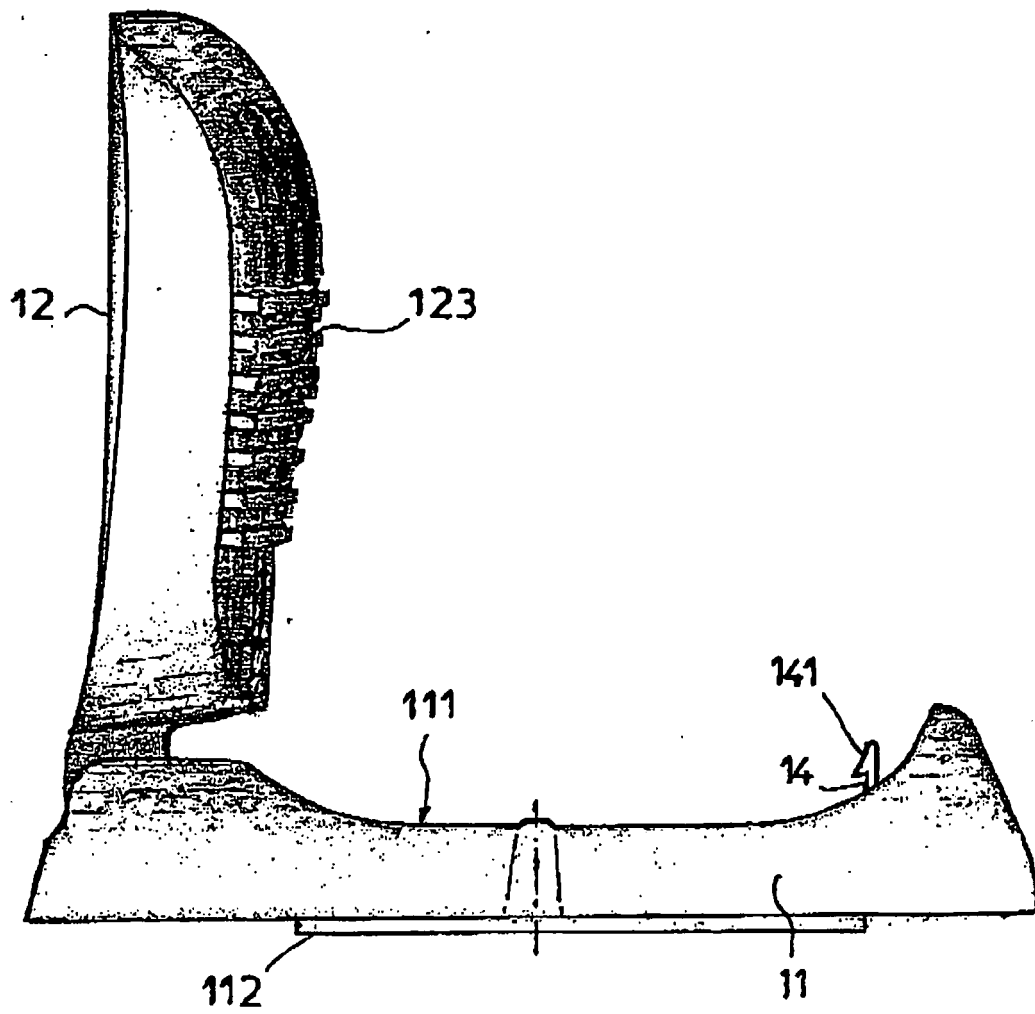
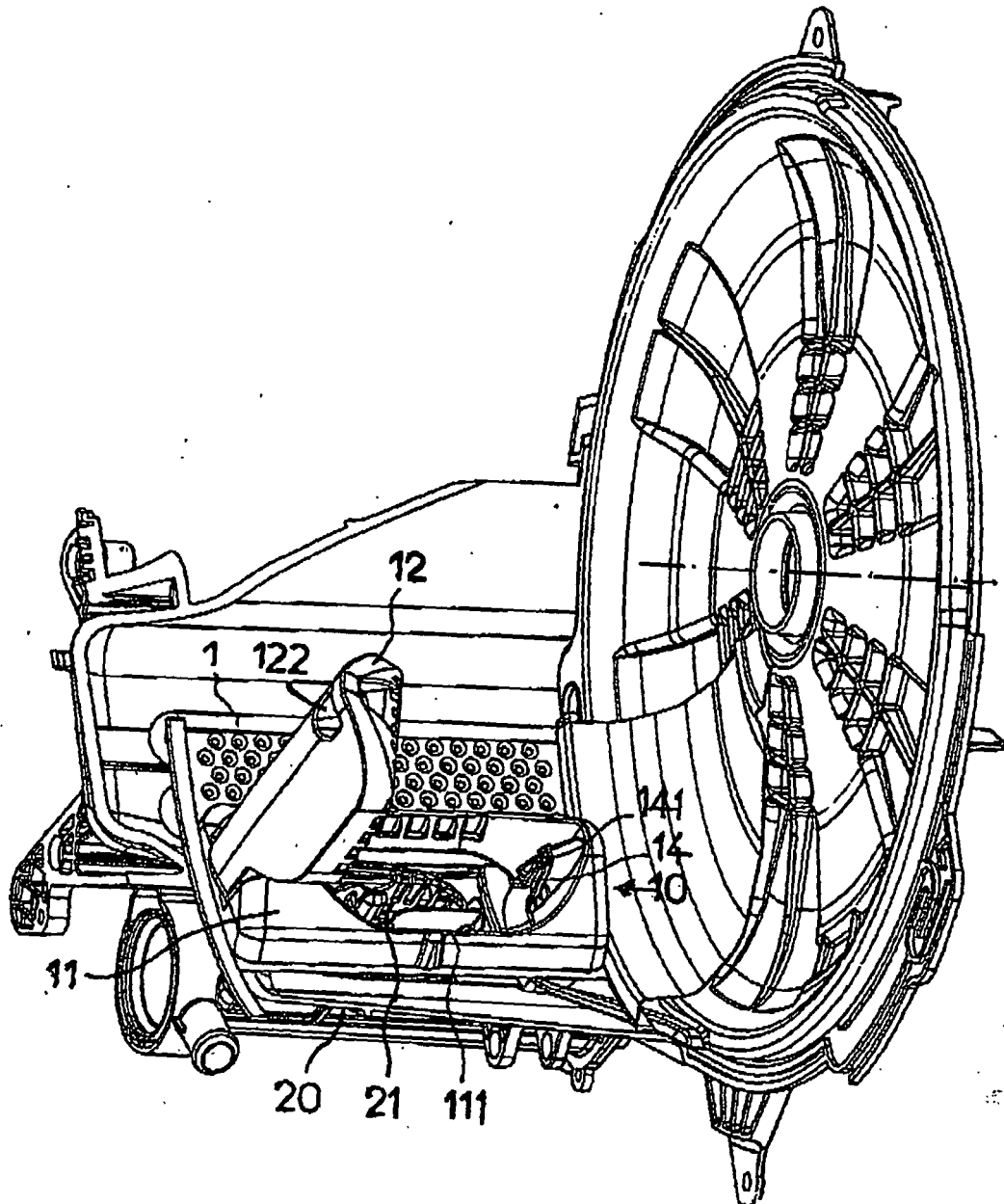


FIG. 7



REFERENCES CITED IN THE DESCRIPTION

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