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(54) **MACHINE FOR WASHING AND DRYING FLOORS**

(57) A machine for washing and drying floors, which comprises a base structure (2) which can move over the floor and supports at least one brush (3) and means for dispensing a washing fluid; to the rear of the brush along the advancement direction of the base structure over the floor, there are means for picking up the dirty liquid from the floor which are connected to a collection tank (5), which is mounted detachably on the base structure (2) and is provided with a containment body (5a) which is

provided with an access opening (6) which can be closed by way of a lid (7); the containment body (5a) is provided with at least one grip handle (8), which is connected so that it can rotate about an oscillation axis (8a) to the containment body (5a); means (9) for the detachable locking of the lid (7) to said containment body (5a) in the closed condition are associated with the grip handle (8) and are activatable, or deactivatable, by way of a rotation of the grip handle (8) about its oscillation axis (8a).

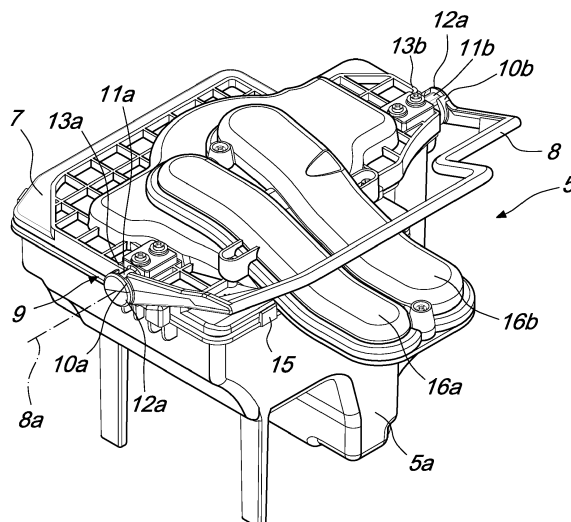


Fig. 5

Description

[0001] The present invention relates to a machine for washing and drying floors.

[0002] Machines for washing and drying floors are known which have a supporting base for at least one brush which rotates and for at least one dispenser of a cleaning liquid.

[0003] To the rear of the brush, according to the direction of advancement of the machine, there is a floor wiper that retains the cleaning liquid and the dirt removed from the floor, in such a way that it can be removed by an aspiration intake, usually associated with the floor wiper, so as to leave the floor dry and clean.

[0004] The dirty liquid picked up by the aspiration intake is collected in a special tank, inside which a partial vacuum is created with respect to the outside pressure, by way of a pump.

[0005] Usually, such dirty liquid collection tank is constituted by a containment body which is provided in an upper region with an access opening which is closed by way of a lid which is simply placed on the containment body.

[0006] The containment body of the collection tank is, usually, accommodated within a housing in which various components of the machine are contained, and it is detachably mounted on the supporting base so that it can be removed by the user, in order to allow the ordinary operations of maintenance and cleaning of the machine.

[0007] In particular, in order to execute the removal of the collection tank from the housing of the machine, the user, after opening the housing, has to use his/her hands to pick up the containment body and lift it upwardly, taking care not to move the lid and not to make the dirty liquid spill out.

[0008] As can be easily intuited, these operations are rather inconvenient to perform and it often happens that the user makes the lid fall off or spills the dirty liquid on the floor.

[0009] The aim of the present invention is to provide a machine for washing and drying floors that enables a convenient removal of the dirty liquid collection tank.

[0010] Another object of the present invention is to provide a machine for washing and drying floors that makes it possible to prevent the spillage of dirty liquid during the operations to remove the collection tank.

[0011] Another object of the present invention is to provide a machine for washing and drying floors that ensures the lid of the dirty liquid collection tank is kept in the locked position.

[0012] Another object of the present invention is to provide a machine for washing and drying floors that is easy and practical in use, as well as simple in construction and low cost.

[0013] This aim and these and other objects which will become better apparent hereinafter are achieved by a machine for washing and drying floors, according to the invention, as defined in appended claim 1.

[0014] Further characteristics and advantages of the invention will become better apparent from the description of a preferred, but not exclusive, embodiment of the machine for washing and drying floors, according to the invention, which is illustrated by way of non-limiting example in the accompanying drawings wherein:

Figure 1 is a perspective view of an example of a machine for washing and drying floors according to the invention;

Figure 2 is a perspective view of the machine in Figure 1 with its housing in the open condition;

Figure 3 is an exploded perspective view of the machine in Figure 1, with a dirty liquid collection tank shown separated from the base structure of the machine;

Figure 4 is a perspective view of the dirty liquid collection tank with a grip handle shown in a first angular position;

Figure 5 is a perspective view of the dirty liquid collection tank with the grip handle in a second angular position;

Figure 6 is another perspective view, but from a different angle, showing the dirty liquid collection tank with the grip handle in the second angular position;

Figure 7 shows an enlarged-scale detail of Figure 6;

Figure 8 is an exploded perspective view of the dirty liquid collection tank in which a lid is shown separated from a containment body.

[0015] With reference to the figures, the machine for washing and drying floors, according to the invention, generally designated with the reference numeral 1, comprises a base structure 2 which can move over the floor and supports at least one brush 3 and means for dispensing a washing fluid, which are not shown.

[0016] To the rear of the brush 3, along the advancement direction of the base structure over the floor, there are means for picking up the dirty liquid from the floor, which comprise for example a floor wiper 4 and an aspiration intake associated with the floor wiper 4.

[0017] More specifically, such means for picking up the dirty liquid from the floor are connected to a tank 5 for collecting the dirty liquid which is mounted detachably on the base structure 2.

[0018] The dirty liquid collection tank 5 has, in particular, a containment body 5a, which is provided in an upper region with an access opening 6, which is closed by way of a lid 7.

[0019] According to the invention, the containment body 5a is provided with at least one grip handle 8 which is connected, so that it can rotate about an oscillation axis 8a, to the containment body, in order to allow an easy grip of the collection tank 5 by the user.

[0020] Also according to the invention, means 9 for detachable locking are associated with the grip handle 8 which make it possible to detachably lock the lid 7 to the containment body 5a in the closed condition and are ac-

tivable, or deactivatable, by way of a rotation of the grip handle 8 about the aforementioned oscillation axis 8a.

[0021] More specifically, the grip handle 8 can be positioned, with respect to the containment body 5a, in at least one first angular position or angular position for locking, which can be seen for example in Figure 4, in which the detachable locking means 9 are able to lock the lid 7 in the closed condition to the containment body 5a, and at least one second angular position or angular position for release, which can be seen for example in Figure 5, in which the lid 7 is free from the locking performed by the detachable locking means 9, in order to thus allow its removal from the containment body 5a.

[0022] Conveniently, the detachable locking means 9 comprise at least one retention portion 10, which is integral with the grip handle 8 and which can be arranged, by bringing the grip handle 8 to an angular position for locking by way of a rotation thereof about the oscillation axis 8a, in a position that interferes with an abutment portion 11 defined on the lid 7, so as to provide the locking of the lid 7 to the containment body 5a in the closed condition.

[0023] As illustrated, the grip handle 8 is conveniently pivoted, at its longitudinal ends 12a and 12b, to two mutually opposite regions 13a and 13b of the container body 5a and the detachable locking means 9 are arranged substantially at at least one of the longitudinal ends 12a, 12b of the grip handle 8.

[0024] More specifically, the detachable locking means 9 comprise, advantageously, at least one respective retention portion 10 at each one of the longitudinal ends 12a and 12b of the grip handle 8, while the lid 7 has, in turn, at least one pair of abutment portions 11 which are arranged mutually opposite and can be engaged by at least one respective retention portion 10.

[0025] According to the embodiment shown, each retention portion 10 is constituted, advantageously, by at least one wall part 10a, which is defined at a respective longitudinal end 12a, 12b of the grip handle 8 and which has a circular arc extension centered on the oscillation axis 8a.

[0026] In particular, each wall part 10a can be superimposed on a respective abutment portion 11, when the grip handle 8 is in the angular position for locking.

[0027] Also as illustrated, the abutment portions 11 can, conveniently, be constituted by teeth 11a and 11b, which protrude laterally from mutually opposite sides of the lid 7, and are capable of passing through interrupting regions 14 of the wall parts 10a, when the grip handle 8 is in a second angular position.

[0028] It should be noted that the containment body 5a can be provided with elements 15 for centering the lid 7, which protrude upwardly from the containment body 5a and are distributed around the edge of the access opening 6 of the containment body.

[0029] Advantageously, duct parts can be integrally defined in the lid and, more specifically, a first duct part 16a, which constitutes at least one portion of a duct that

connects the aspiration intake for picking up the dirty liquid from the floor with the inside of the containment body 5a, and a second duct part 16b, optionally parallel to the first duct part 16a, which provides, at least partially, a duct that connects the inside of the containment body 5a with a suction pump.

[0030] In particular, with the containment body 5a fitted on the base structure 2 and with the lid 7 in the closed condition, the first duct part 16a couples hermetically with a first connection 17a, which is integral with the base structure 2 and connected to the aspiration intake for picking up the dirty liquid, while the second duct portion 16b couples hermetically with a second connection 17b, which is also integral with the base structure 2 but connected to the suction pump.

[0031] It is possible, with the grip handle 8 arranged in the angular position for release, to keep at least one portion 8b of the grip handle 8 which is interposed between its longitudinal ends 12a and 12b conveniently above at least one part of the lid 7 and, more specifically, it is possible to position the grip handle 8 in an angular position for locking, in which such portion 8b of the grip handle 8 is arranged externally to the area of space above the lid 7.

[0032] As shown in particular in Figures 1 and 2, the machine according to the invention can, advantageously, be provided with a housing 2a, which is or can be associated with the base structure 2, inside which the collection tank 5 is arranged.

[0033] Conveniently, the housing 2a can be opened in order to allow the user to access the interior. For example, as shown in Figure 2, the housing 2a can be pivoted to the supporting structure 2 so that it can be arranged in a closed condition, shown in Figure 1, or in an open condition, shown in Figure 2, in which it allows the user to access the collection tank 5 arranged internally.

[0034] For completeness it should be added that the base structure 2 can be, advantageously, provided with a handle 20, in order to facilitate the entrainment thereof over the floor by the user.

[0035] Use of the invention is the following.

[0036] When the user wishes to empty the dirty liquid collection tank 5, he/she proceeds to open the housing 2a so as to be able to access the collection tank 5.

[0037] To retrieve the collection tank 5, the user takes hold of the grip handle 8 and lifts the collection tank 5, decoupling it from the base structure 2.

[0038] During the lifting, the grip handle 8, rotating about its own rotation axis 8a, will be brought to a substantially vertical plane, assuming an angular position with respect to the containment body 5a in which the detachable locking means 9 of the lid 7 are active.

[0039] In this manner, the user can safely carry the collection tank 5 without the risk of spilling the dirty liquid contained in it.

[0040] To empty the collection tank 5, the user first arranges the grip handle 8 in the angular position for re-

lease, so as to bring the interrupting region 14 of the wall parts 10a in alignment with the teeth 11a and 11b, so as to unlock the lid 7, and subsequently the user lifts the lid 7 from the containment body 5a, so as to open the access opening 6 and so be able to pour away the dirty liquid by overturning the containment body 5a.

[0041] Once the containment body 5a has been emptied and cleaned, the user can replace the lid 7 to close the access opening 6 of the containment body 5a and, taking hold of the grip handle 8, the user repositions the collection tank 5 on the base structure 2, arranging it in the corresponding reception area.

[0042] At this point, the user makes sure that the grip handle 8 is arranged in an angular position for locking by way of a rotation thereof about the oscillation axis 8a, so as to have the wall parts 10a in position above the teeth 11 a, 11b and, as a consequence, lock the lid 7 to the containment body 5a, thus preventing the possibility of lifting it from the containment body.

[0043] The user can then return the housing 2a to the closed condition and resume using the machine for washing and drying floors.

[0044] From the foregoing description it can be seen that the invention is capable of fully achieving the set aim in that it enables a practical use of the machine for washing and drying floors by allowing a convenient removal of the dirty liquid collection tank, without the risk of spilling its contents.

[0045] All the characteristics of the invention, indicated above as advantageous, convenient or similar, may also be missing or be substituted by equivalent characteristics.

[0046] The individual characteristics set out in reference to general teachings or to specific embodiments may all be present in other embodiments or may substitute characteristics in such embodiments.

[0047] The invention, thus conceived, is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0048] In practice the materials employed, provided they are compatible with the specific use, and the dimensions and shapes, may be any according to requirements.

[0049] Moreover, all the details may be substituted by other, technically equivalent elements.

[0050] The disclosures in Italian Patent Application No. 102015000035295 (UB2015A002270) from which this application claims priority are incorporated herein by reference.

[0051] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A machine for washing and drying floors, which comprises a base structure (2) which can move over the floor and supports at least one brush (3) and means for dispensing a washing fluid, there being, to the rear of said at least one brush along the advancement direction of said base structure over the floor, means for picking up the dirty liquid from the floor which are connected to a tank (5) for collecting the dirty liquid, which is mounted detachably on said base structure (2) and is provided with a containment body (5a) which is provided with an access opening (6) which can be closed by way of a lid (7), **characterized in that** said containment body (5a) is provided with at least one grip handle (8), which is connected so that it can rotate about an oscillation axis (8a) to said containment body (5a), means (9) for the detachable locking of said lid (7) to said containment body (5a) in the closed condition being associated with said grip handle (8), said detachable locking means (9) being activatable or deactivatable by way of a rotation of said grip handle (8) about said oscillation axis (8a).
2. The machine according to claim 1, **characterized in that** said grip handle (8) has at least one first angular position with respect to said containment body (5a), wherein said detachable locking means (9) are adapted to lock said lid (7) to said containment body (5a) in the closed condition, and at least one second angular position, in which said lid (7) is free from the locking performed by said removable locking means (9).
3. The machine according to one or more of the preceding claims, **characterized in that** said detachable locking means (9) comprise at least one retention portion (10), which is integral with said grip handle (8) and can be arranged, with said grip handle (8) in said at least one first angular position, in a position that interferes with an abutment portion (11) defined on said lid (7), in order to lock said lid (7) to said containment body (5a) in the closed condition.
4. The machine according to one or more of the preceding claims, **characterized in that** said grip handle (8) is pivoted, at its longitudinal ends (12a, 12b), to two mutually opposite regions (13a, 13b) of said container body (5a), said detachable locking means (9) being arranged substantially at at least one of the longitudinal ends (12a, 12b) of said grip handle (8).
5. The machine according to one or more of the preceding claims, **characterized in that** said detachable locking means (9) comprise at least one respective retention portion (10) at each one of the mutually opposite longitudinal ends (12a, 12b) of said grip

handle (8), said lid (7) having at least one pair of abutment portions (11) which are arranged mutually opposite and can be engaged by at least one respective retention portion (10).

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- 6. The machine according to one or more of the preceding claims, **characterized in that** said at least one retention portion (10) comprises at least one wall part (10a) which is defined at a respective longitudinal end (12a, 12b) of said grip handle (8) and has a circular arc extension centered on said oscillation axis (8a), said wall part (10a) being capable of being superimposed on a respective abutment portion (11), with said grip handle (8) in said at least one first angular position.

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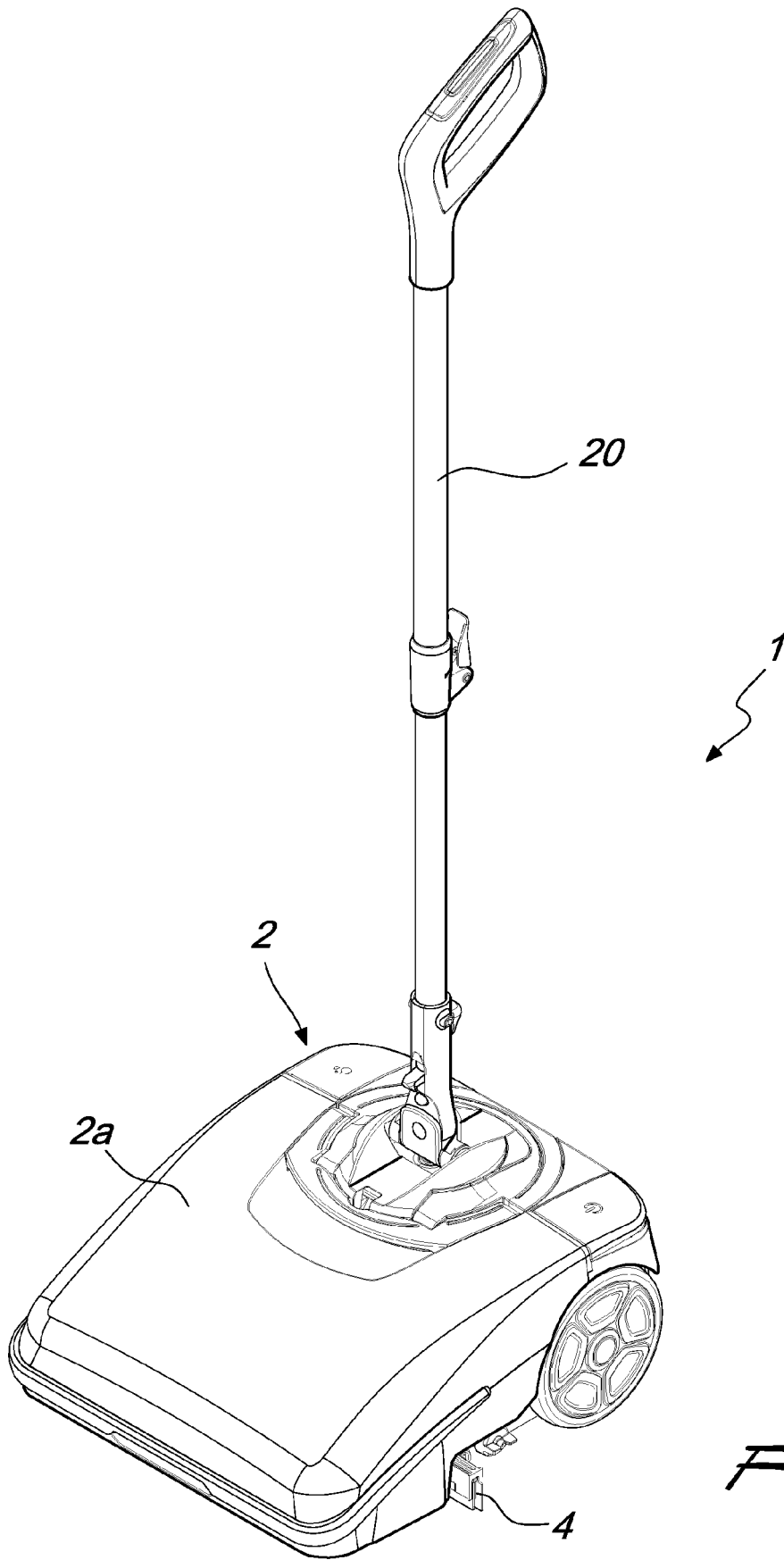
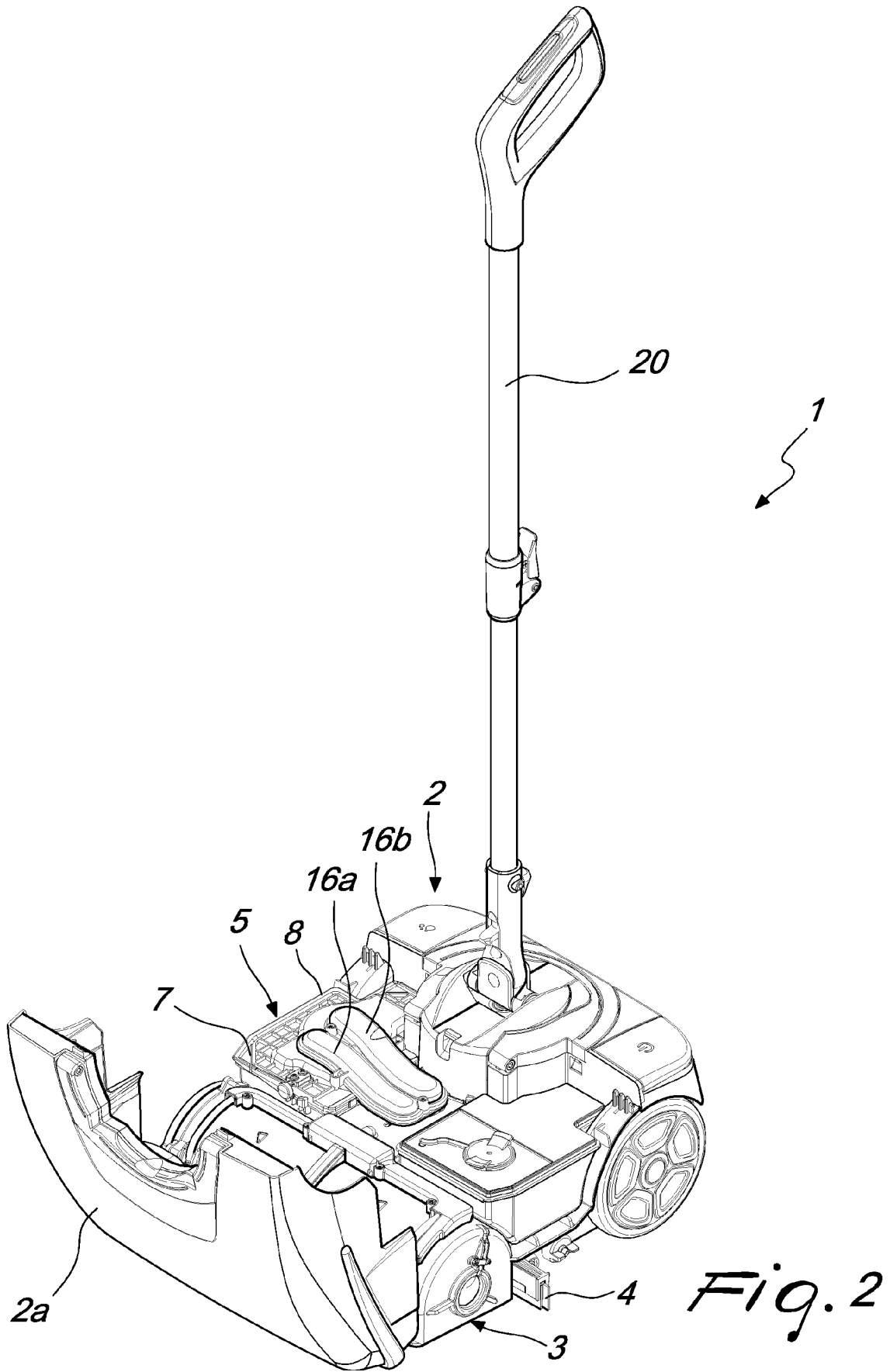


Fig. 1



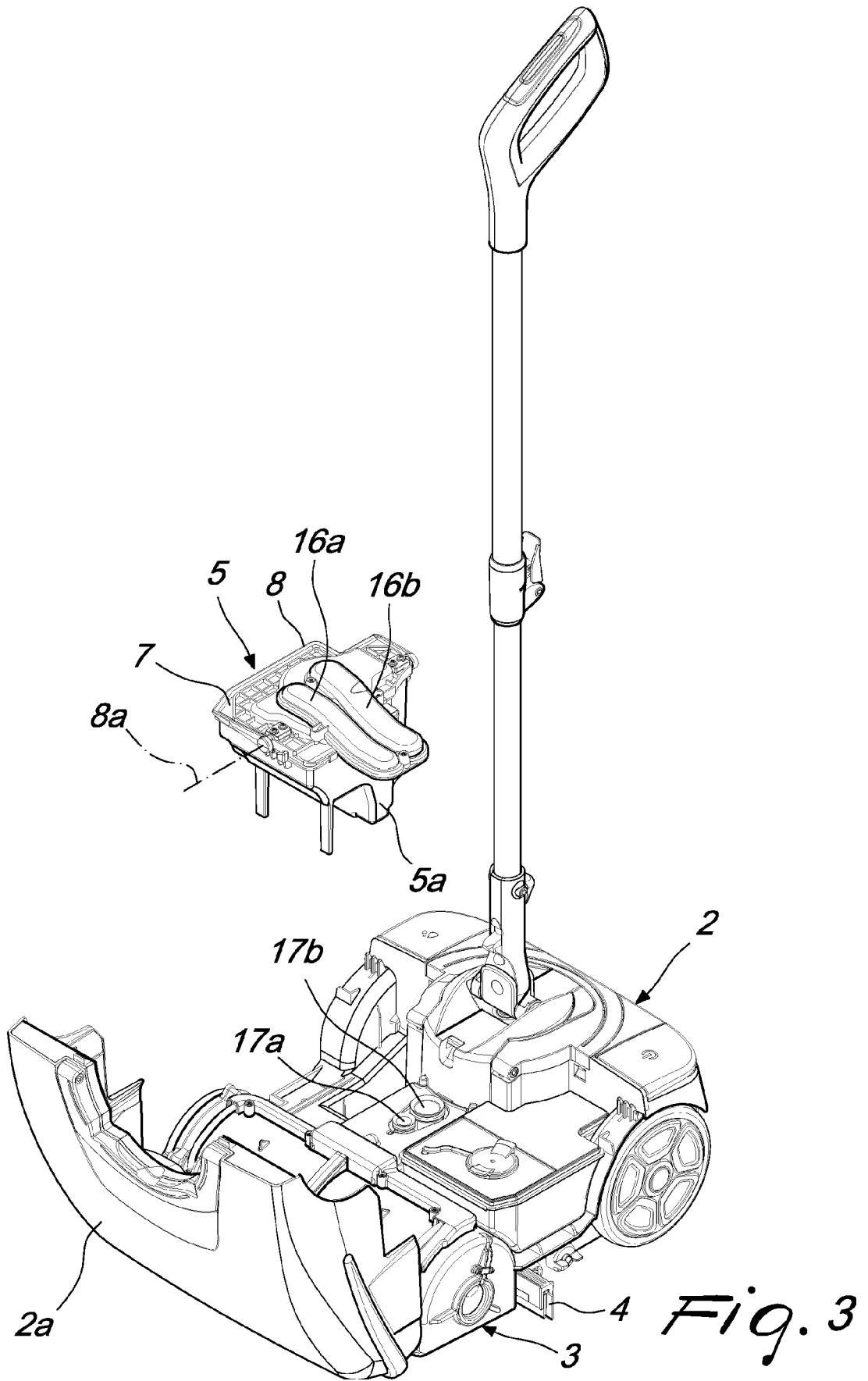


Fig. 3

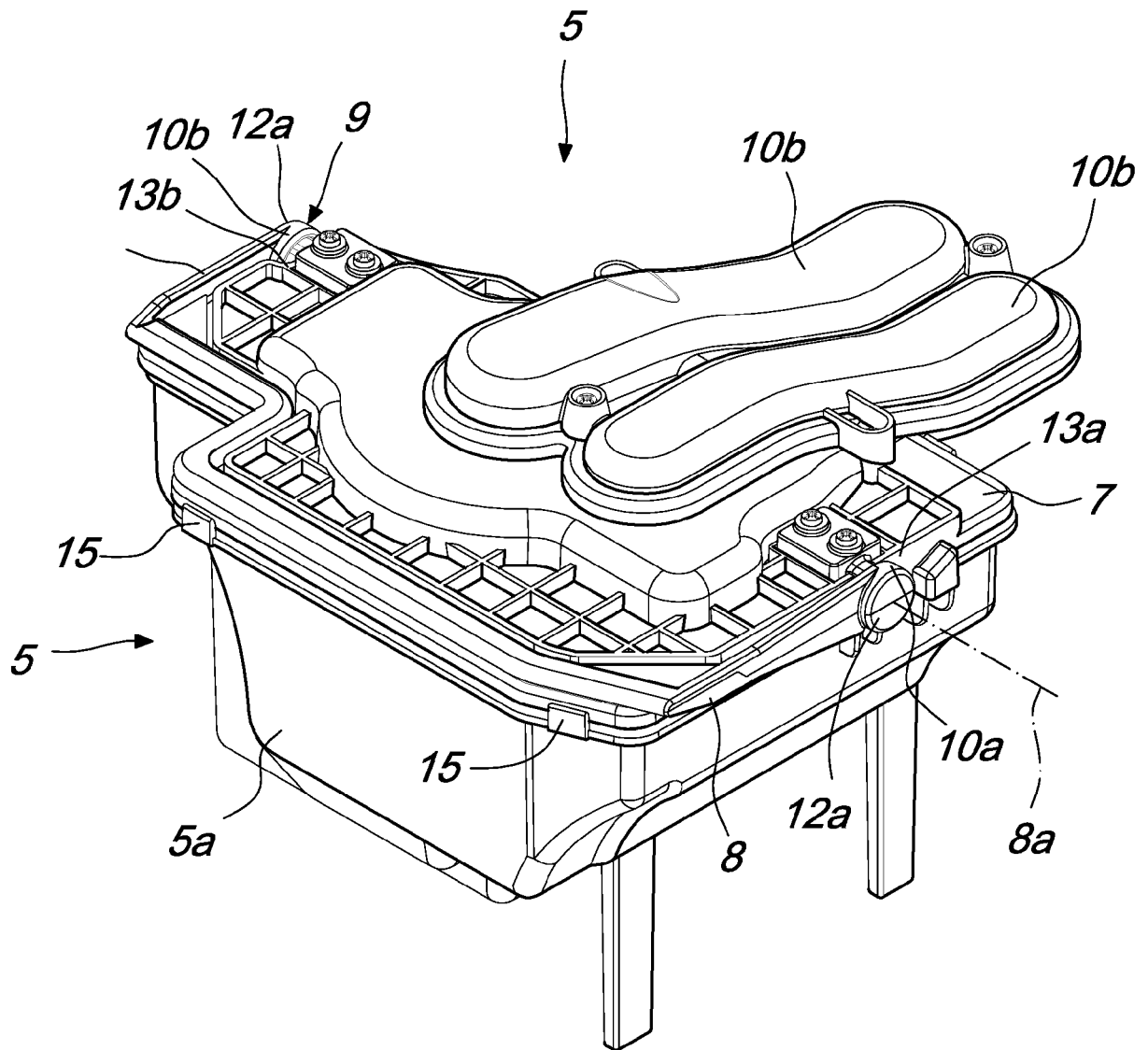


Fig. 4

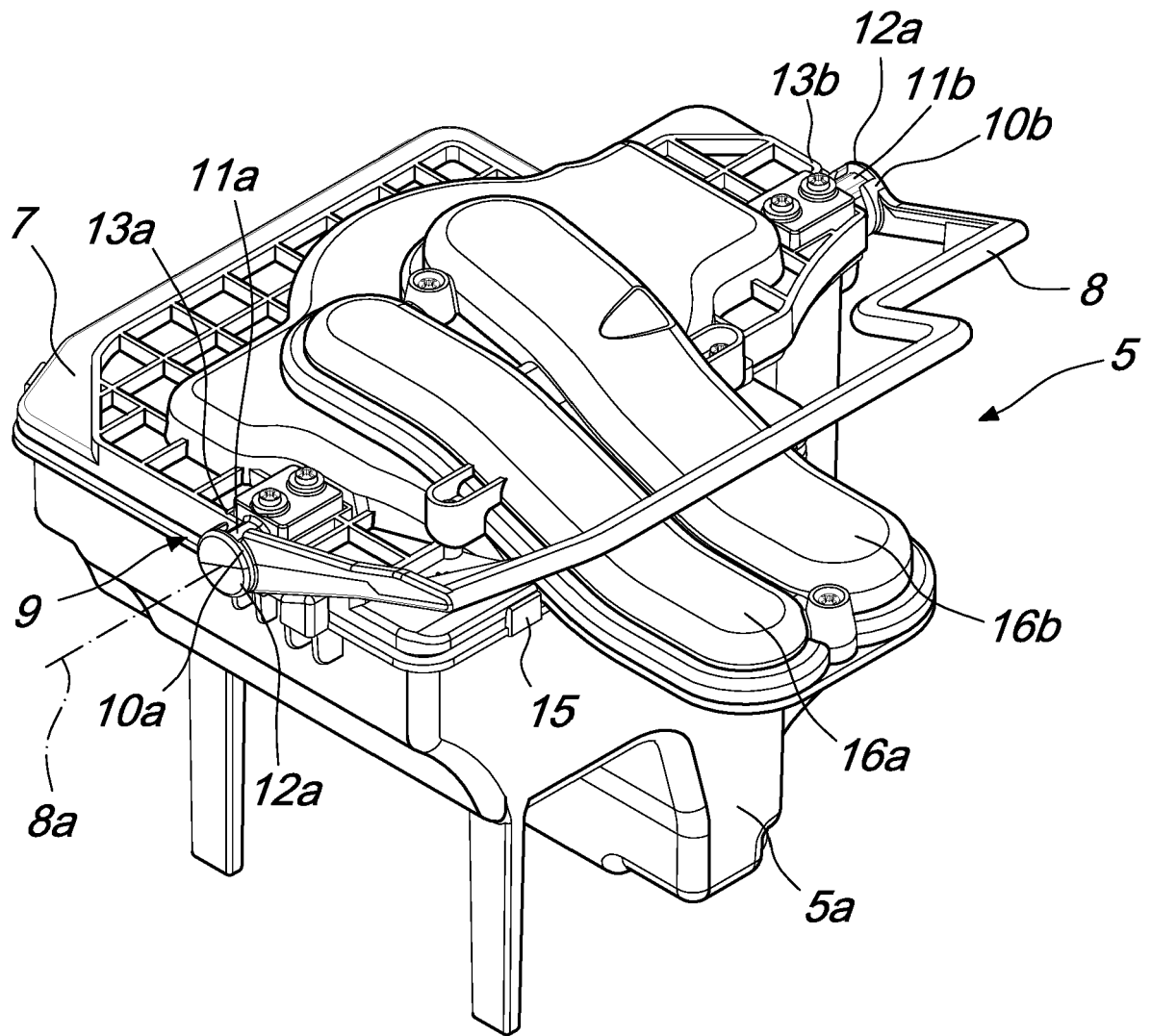


Fig. 5

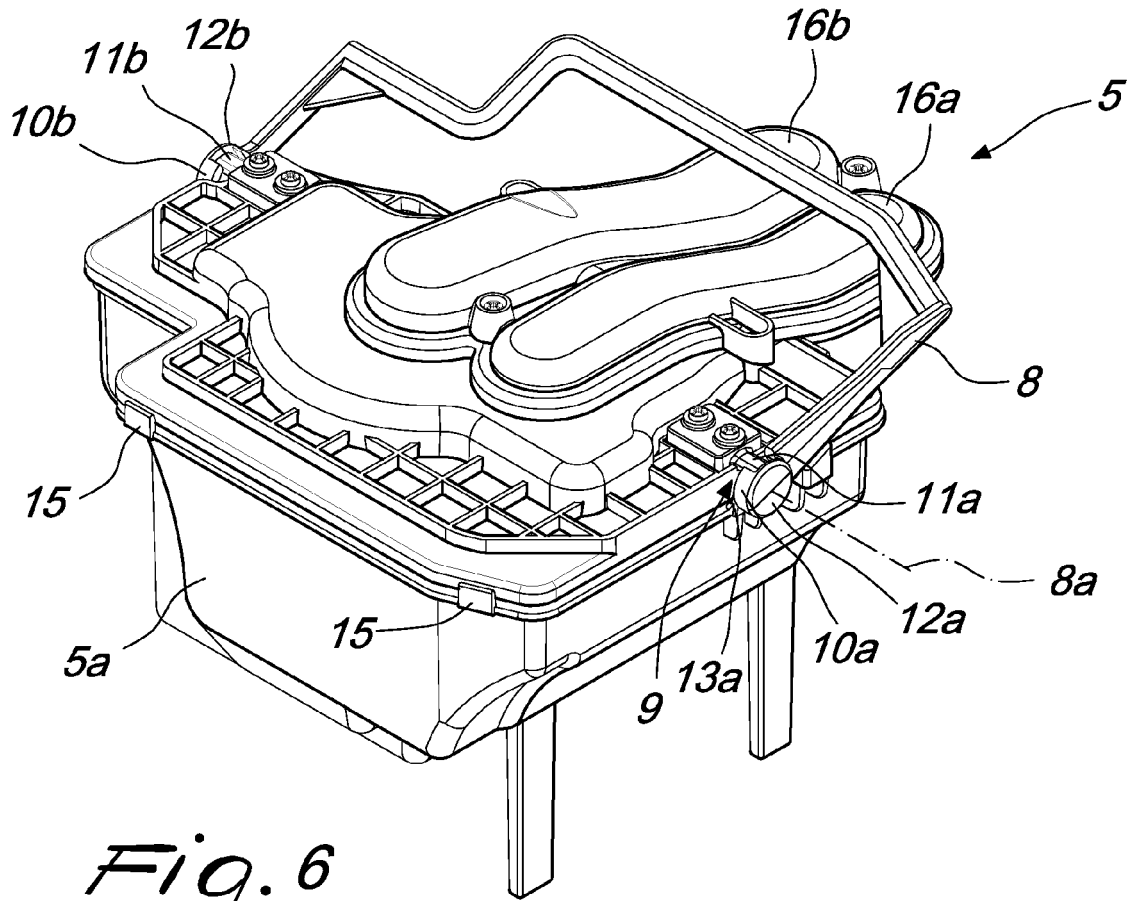


Fig. 6

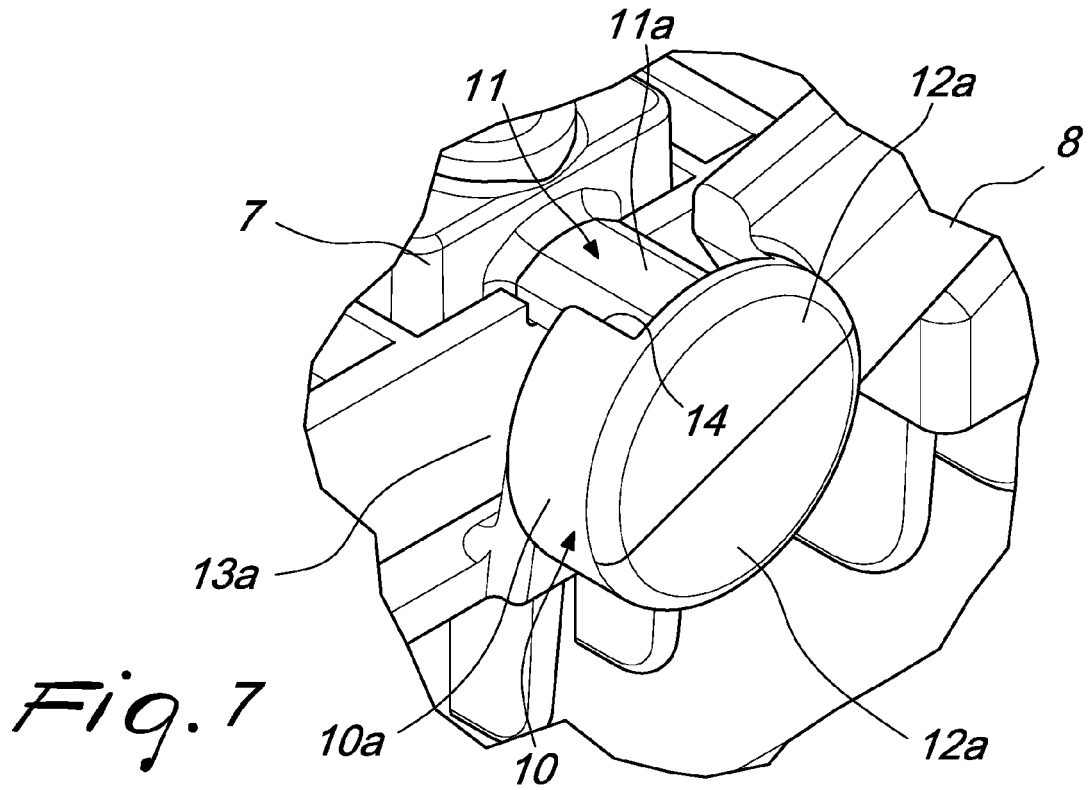


Fig. 7

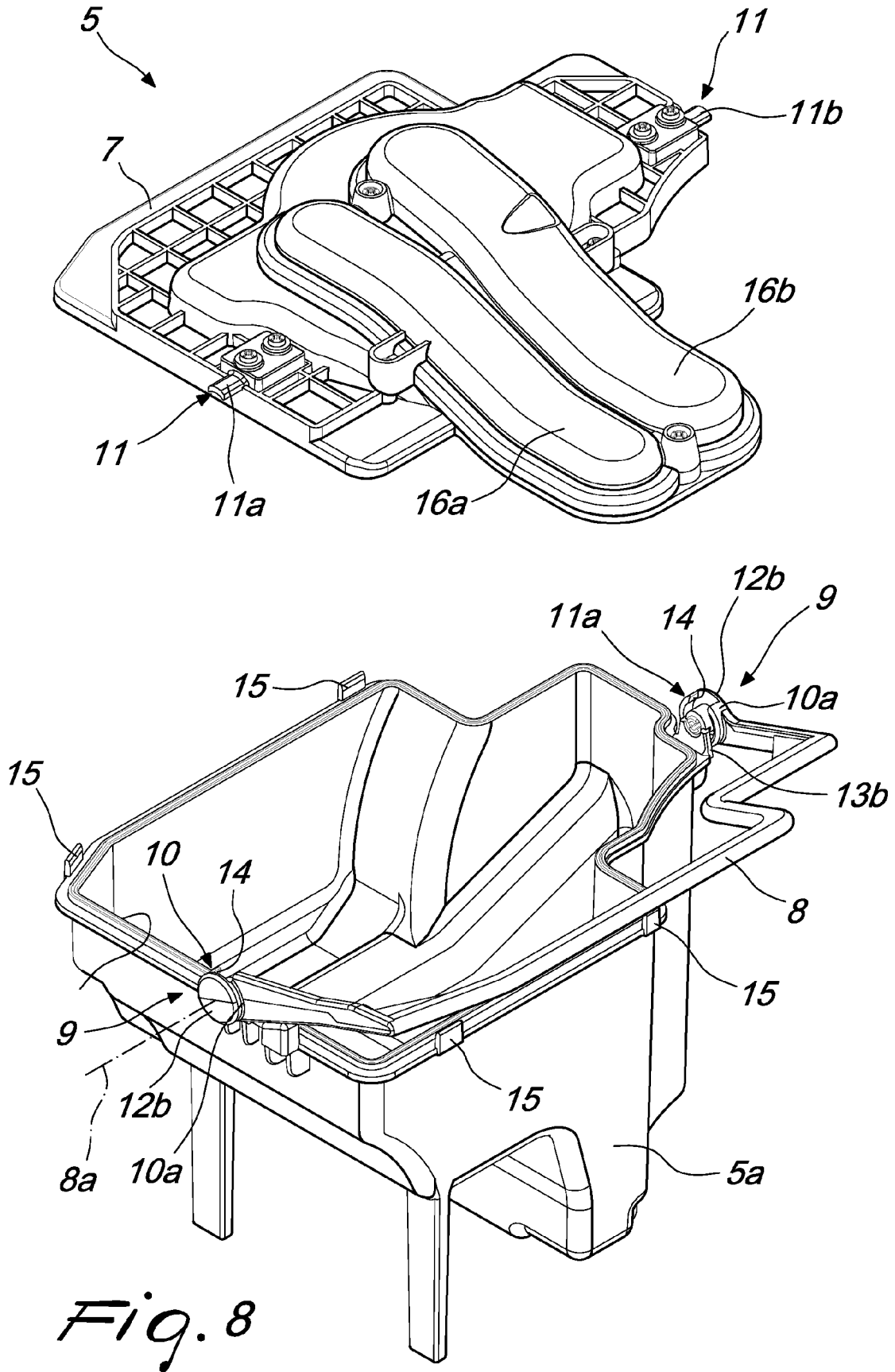


Fig. 8



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Application Number
EP 16 17 9625

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