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(54) **Laundry washing and/or drying machine with a multifunction detergent dispenser, and relative operating method**

Haushaltswasch- und/oder Trocknungsmaschine mit Multifunktionswaschmittelspender und entsprechendes Betriebsverfahren

Machine à laver et/ou sécher avec distributeur de détergent multifonction, et procédé de fonctionnement relatif

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Description

[0001] The present invention relates to a laundry washing and/or drying machine with a multifunction detergent dispenser, and to the relative operating method (see WO-A-0220893). More specifically, the present invention relates to a front- or top-loading laundry washing and/or drying machine of the type comprising a casing; a wash tub connected in floating manner to the casing by a number of suspension devices; a perforated laundry drum for housing laundry for washing, and which is mounted inside the wash tub to rotate about an axis of rotation; and a drive unit connected by a connecting member to the laundry drum to rotate it, on command, about the axis of rotation.

[0002] More specifically, the present invention relates to a household machine featuring a detergent dispenser unit comprising a detergent dispenser for containing bleach or a given amount of powdered prewash detergent; to which the following description refers purely by way of example.

[0003] As is known, home washing machines comprise a detergent dispenser unit designed to contain a given amount of liquid or powdered detergents, which are flushed into the wash tub in a given sequence according to the wash cycle performed by the machine on the basis of the user-selected wash program.

[0004] The dispenser unit normally comprises a detergent dispenser defined by a drawer container divided into four inner compartments : a first compartment contains powdered detergent which is flushed into the tub at the prewash stage; a second compartment contains detergent which is flushed into the tub at the main wash stage; a third compartment contains a liquid softener; and a fourth compartment contains liquid bleach.

[0005] Washing machines with a four-compartment detergent container of the type described above have the major drawback of only allowing a limited increase in the capacity and easiness to fill of the second and third compartments containing large quantities of detergents, which are used more frequently and in larger amounts than bleach or powdered prewash detergent.

[0006] To overcome this drawback, washing machines have been proposed comprising a detergent dispenser with a three-compartment container, in which one compartment is used for powdered prewash detergent or liquid bleach. More specifically, Patent EP0685587B1 describes a washing machine with a detergent dispenser unit comprising a container, in turn comprising a first compartment for powdered prewash detergent; a second compartment for powdered main wash detergent; and a third compartment for liquid softener.

[0007] The detergent dispenser also comprises a liquid bleach pan, which is inserted removably into the first compartment to bleach the wash, and is removed to perform the prewash cycle.

[0008] The above solution is unsatisfactory in that, for the same compartment to correctly contain powdered detergent and liquid bleach, the compartment must be provided with siphons, which complicate the design of the detergent dispenser as a whole.

[0009] As is known, simplifying washing machine detergent dispenser units is one of several major design issues, which are the object of continual improvement aimed at simplifying use by the end user. Despite extensive research over the past few years into improving detergent dispenser units and relative detergent dispensers, however, considerable room for improvement still remains.

[0010] It is therefore an object of the present invention to provide a washing machine equipped with a detergent dispenser unit comprising a multifunction detergent dispenser that is easy to produce and use.

[0011] According to the present invention, there is provided a laundry washing and/or drying machine as claimed in Claim 1 and preferably in any one of the following Claims depending directly or indirectly on Claim 1.

[0012] According to the present invention, there is also provided a method of operating a washing machine, as claimed in Claim 6 and preferably in any one of the following Claims depending directly or indirectly on Claim 6.

[0013] According to the present invention, there is also provided a detergent dispenser as claimed in Claim 9 and preferably in any one of the following Claims depending directly or indirectly on Claim 9.

[0014] A non-limiting embodiment of the present invention will be described by way of example with reference to the accompanying drawings, in which:

Figure 1 shows a schematic view in perspective of the top portion of a laundry washing and/or drying machine equipped with a multifunction detergent dispenser in accordance with the teachings of the present invention;

Figure 2 shows a larger-scale side view in perspective of the Figure 1 multifunction detergent dispenser comprising a first container;

Figure 3 shows a larger-scale, exploded view in perspective of the Figure 2 multifunction detergent dispenser;

Figure 4 shows a larger-scale cross section of the multifunction detergent dispenser along line I-I in Figure 2;

Figure 5 shows a larger-scale section of the multifunction detergent dispenser;

Figure 6 shows a top plan view of the multifunction dispenser comprising a second container;

Figure 7 shows a larger-scale section of the multifunction detergent dispenser along line III-III in Figure 6;

Figure 8 shows a larger-scale section of a portion of the multifunction detergent dispenser along line IV-IV in Figure 2.

[0015] Number 1 in Figure 1 indicates as a whole a home laundry washing and/or drying machine compris-

ing a preferably, though not necessarily, parallelepiped-shaped casing 2; a wash tub 3 mounted inside casing 2; a laundry drum 4 having a preferably, though not necessarily, perforated wall, and mounted inside wash tub 3 to rotate about an axis of rotation (not shown); and a drive unit (not shown) connected by a connecting member (not shown) to laundry drum 4 to rotate it, on command, about the axis of rotation.

[0016] Washing machine 1 also comprises a detergent storage and dispenser unit 6 containing a number of chemical detergents, and which, on command, selectively feeds each detergent into tub 3 according to the wash sequence implemented by machine 1 on the basis of a user-selected wash program.

[0017] More specifically, storage and dispenser unit 6 comprises a multifunction detergent dispenser 7, in turn comprising a detergent container 8 designed to fit firmly but easily removably to machine 1; and a lid 9 which fits firmly but easily removably to container 8 (Figure 3).

[0018] With reference to Figures 2, 3, 4, container 8 is open on top, and is divided internally into three different trays or compartments for respective detergents.

[0019] More specifically, a first compartment 10 is designed inside to contain a liquid softener; a second compartment 11 is designed inside to contain a specific main-wash detergent; and a third compartment 12 is designed to contain a specific powdered prewash detergent.

[0020] In the Figure 3, 4, 5 example, container 8 comprises an elongated, substantially bean-shaped tray, in turn comprising a detergent feed conduit 13 located at the bottom of container 8, i.e. directly beneath compartments 10, 11, 12, and which feeds the mixture of water and at least one detergent by gravity into tub 3.

[0021] In the Figure 5 example, second and third compartments 11, 12 have respective outlets 11a, 12a formed in the respective bottom walls, and which connect second and third compartments 11, 12 to feed conduit 13 to permit outflow of the water and powdered detergent mixture from container 8 into tub 3.

[0022] More specifically, the first softener compartment 10 is located in the central portion of container 8, and second and third compartments 11, 12 are formed on opposite sides of first compartment 10.

[0023] Lid 9 (Figures 2 and 3) is defined by a peripheral frame 15, which is also substantially bean-shaped to fit firmly but easily removably to the top peripheral edge 16 of container 8, and has three through openings 18, 19, 20 facing respective compartments 10, 11, 12 of container 8.

[0024] More specifically, a first opening 18 is formed in the central portion of frame 15 and faces first compartment 10; and a second and third opening 19, 20 are located on opposite sides of first opening 18, and face second and third compartment 11, 12 respectively.

[0025] With reference to Figures 3 and 5, detergent dispenser 7 also comprises a siphon 17 located inside first compartment 10, and for discharging the liquid softener from first compartment 10 into feed conduit 13 underneath.

[0026] More specifically, in the Figure 2 example, siphon 17 comprises two straight sleeves, which fit one inside the other when lid 9 is fixed to container 8. More specifically, a first sleeve 17a is located inside first compartment 10, has a preferably, though not necessarily, circular cross section, and extends upwards from the bottom wall of first compartment 10, in a direction parallel to the mid-plane of container 8, so that its bottom end communicates with feed conduit 13, and its top end communicates with first compartment 10.

[0027] A second sleeve 17b of siphon 17 has a preferably, though not necessarily, circular cross section larger in outside diameter than first sleeve 17a, and is connected to lid 9 inside first opening 18.

[0028] In the Figure 3 example, second sleeve 17b extends downwards from the plane of frame 15, with its axis parallel to the mid-plane of lid 9, and is connected to frame 15 by a lateral supporting appendix 15a.

[0029] Unlike known washing machine dispensers, detergent dispenser 7 of machine 1 comprises a spare container 21 (Figures 6, 7), which fits firmly, but easily removably, to lid 9, in lieu of container 8, whenever bleaching, as opposed to prewashing, is required.

[0030] More specifically, spare container 21 is the same design, externally, as container 8, i.e. is open on top to fit to lid 9, and comprises three different inner compartments for three different detergents. In the Figure 7 example, container 21 comprises a central first compartment 22 for liquid softener; a second compartment 23 located on one side of first compartment 22, and for containing specific main-wash detergent; and a third compartment 24 located on the opposite side of first compartment 22 to second compartment 23, and for containing liquid bleach for bleaching the wash.

[0031] In the container 21-lid 9 configuration, detergent dispenser 7 also comprises an additional siphon 27 located inside third compartment 24 to drain the liquid bleach from third compartment 24 into feed conduit 13 underneath.

[0032] More specifically, in the Figure 7 example, siphon 27 comprises two sleeves, which fit one inside the other when lid 9 is fixed to container 21. A first sleeve 27a is located inside third compartment 24, has a preferably, though not necessarily, circular cross section, and extends upwards from the bottom wall of third compartment 24, in a direction parallel to the mid-plane of container 21, so that its bottom end communicates with feed conduit 13, and its top end communicates with third compartment 24.

[0033] A second sleeve 27b of siphon 27 has a preferably, though not necessarily, circular cross section larger in outside diameter than first sleeve 27a, and is connected to lid 9 inside third opening 20.

[0034] It should be pointed out that the additional siphon 27, defined by engagement of sleeves 27a and 27b, advantageously provides for retaining the liquid bleach inside third compartment 24, which cannot be done in

third compartment 12 of container 8, in which the liquid bleach would flow freely and uncontrollably through outlet 12a and straight into feed conduit 13 and tub 3.

[0035] With reference to Figure 1, unit 6 also comprises a known feed device 14 for selectively feeding water into each of compartments 10-12 or 22-24 of detergent dispenser 7; and an electronic control unit 28 for performing a number of wash programs selectable by the user on a control interface 29.

[0036] Electronic control unit 28 also controls feed device 14 to selectively feed water into each of compartments 10-12 or 22-24 of detergent dispenser 7 according to the user-selected wash program.

[0037] More specifically, electronic control unit 28 performs at least three different wash programs selectable by the user on control interface 29, which comprises one or more selection buttons and/or one or more selection knobs. More specifically, the user may select at least one standard wash program, i.e. with no prewash or bleach stage; or a wash program comprising a prewash stage; or a wash program comprising at least one bleach stage.

[0038] More specifically, when the wash program comprising a prewash stage is selected, electronic control unit 28 controls feed device 14, at least at the initial stage in the program, to feed water into third compartment 12 of container 8 of detergent dispenser 7 to flush the powdered prewash detergent into tub 3.

[0039] When a wash program comprising a bleach stage is selected, on the other hand, electronic control unit 28 provides, before at least one rinse stage in the wash program, for feeding water into third compartment 24 of container 21 of detergent dispenser 7 to flush the liquid bleach for the bleach stage into tub 3.

[0040] In connection with the above, it should be pointed out that the selection buttons and/or knobs on control interface 29 may be wired to allow user selection of the wash program comprising the prewash stage, or the wash program comprising the bleach stage.

[0041] Detergent dispenser 7 as described above may advantageously be used in a detergent dispenser unit 6 of a front-loading machine 1 having, for example, a recess formed specially in the casing to house detergent dispenser 7, or in a detergent dispenser 6 of a top-loading machine 1.

[0042] In the Figure 1 example, machine 1 is a top-loading machine having a top opening 30 for loading and unloading laundry in and out of tub 3, and which is formed in the top wall of casing 2 and closed by a door 31 hinged to casing 2.

[0043] More specifically, in the Figure 1 example, detergent dispenser 7 is fitted directly to the lateral edge of opening 30. For which purpose, containers 8 and 21 may comprise a number of external connecting tabs (not shown) which fit inside respective seats (not shown) formed in a lateral wall of opening 30, to fit container 8 or 21 firmly but easily removably to casing 2; and the ends of frame 15 of lid 9 are shaped to rest at least partly on two lateral-edge portions of opening 30.

[0044] In actual use, to prewash the laundry, the user : fits lid 9 to first container 8 to form dispenser 7; fits dispenser 7 to machine 1; and pours softener, when desired, into first compartment 10, wash detergent into second compartment 11, and powdered prewash detergent into third compartment 12.

[0045] At this point, electronic control unit 28 performs the wash program comprising the prewash stage, which corresponds to an initial stage in which water is fed into third compartment 12 to flush the water and powdered prewash detergent mixture into tub 3. After which, electronic control unit 28 feeds water into first compartment 10 and second compartment 11, according to the user-selected program.

[0046] To bleach the wash, on the other hand, the user : substitutes second container 21 for first container 8, and fits second container 21 to lid 9 to form detergent dispenser 7; fits detergent dispenser 7 to machine 1; and pours softener, when desired, into first compartment 22, wash detergent into second compartment 23, and liquid bleach into third compartment 24.

[0047] At this point, electronic control unit 28 performs the wash program comprising the bleach stage, which may correspond to feeding water into third compartment 12, just before at least one rinse stage, to flush the water and liquid bleach mixture into tub 3.

[0048] In connection with the above, it should be pointed out that, in a different embodiment, as opposed to selecting a wash program comprising a bleach stage on control interface 29, the wash may be bleached by selecting a "standard" wash program comprising at least one stage in which water is fed into third compartment 12 before and/or during a rinse stage.

[0049] In this way, bleaching may be performed by simply pouring liquid bleach into third compartment 24 of dispenser 7, and selecting the standard wash program.

[0050] With reference to Figure 7, detergent dispenser 7 may also comprise a third siphon 33, which may be located inside second compartment 11 of first container 8 or second compartment 23 of second container 21 to retain liquid detergent inside second compartment 11 or 23. More specifically, like the first and second siphon 17 and 27, third siphon 33 may comprise two sleeves, which fit one inside the other when lid 9 is fixed to container 8 or 21. A first sleeve 33a is located inside second compartment 11 or 23, has a preferably, though not necessarily, circular cross section, and extends upwards from the bottom wall of second compartment 11 or 23, in a direction parallel to the mid-plane of container 8 or 21, so that its bottom end communicates with feed conduit 13, and its top end communicates with second compartment 11 or 23. And a second sleeve 33b of third siphon 33 has a circular cross section, is preferably, though not necessarily, larger in outside diameter than first sleeve 33a, and is connected to lid 9 inside second opening 19.

[0051] The detergent dispenser described above has the major advantage of enabling the user to perform bleaching or prewash cycles by simply changing the dis-

penser container according to the selected cycle.

[0052] Clearly, changes may be made to the machine and operating method as described and illustrated herein.

Claims

1. A laundry washing and/or drying machine (1) comprising a casing (2); a wash tub (3) mounted inside said casing (2); a laundry drum (4) mounted for rotation inside said tub (3); and detergent dispensing means (6) for containing and selectively dispensing a number of detergents into said tub (3), and comprising a detergent dispenser (7) which fits firmly but easily removably to the machine (1);
said detergent dispenser (7) comprising: a first container (8) which is divided into three separate compartments, wherein a first compartment (10) is designed to contain liquid softener, a second compartment (11) is designed to contain detergent for a main-wash stage of a wash cycle, and a third compartment (12) is designed to contain powdered prewash detergent for a prewash stage of a wash cycle; a lid (9) which fits firmly but easily removably to said first container (8); said machine (1) being **characterized in that** a second container (21) which is fittable firmly but easily removably to said lid (9) in lieu of said first container (8), and is divided into three separate compartments, wherein a first compartment (22) is designed to contain liquid softener, a second compartment (23) is designed to contain wash detergent, and a third compartment (24) is designed to contain liquid bleach;
said detergent dispenser (7) comprising a first siphon (17) which is located in the first compartment (10; 22) of said first (8) and/or of said second (21) container for connecting said first compartment (10; 22) to a feed conduit (13) of the detergent dispenser (7) connected to said tub (3); said second container (21) and said lid (9), when coupled to one another, forming a second siphon (27) which is located in the third compartment (24) of said second container (21) for connecting said third compartment (24) to a feed conduit (13) of the detergent dispenser (7) connected to said tub (3), thus to permit bleaching of the laundry during a wash cycle of the machine (1).

2. A machine (1) as claimed in Claim 1, and comprising interface means (29) enabling the user to select, from a number of wash programs, a wash program comprising at least one bleach stage; feed means (14) for selectively feeding water into each said compartment (10, 11, 12; 22, 23, 24) of said detergent dispenser (7); and electronic control means (28) which, on receiving a signal from said interface means (29) indicating selection of said wash program comprising at least one bleach stage, control said feed means (14) to feed water into said third compartment (24) of said second container (21) to flush said liquid bleach into said tub (3).

3. A machine (1) as claimed in Claim 2, wherein said interface means (29) enable the user to select, from a number of wash programs, a wash program comprising at least one prewash stage; and said electronic control means (28), on receiving a signal from said interface means (29) indicating selection of said wash program comprising at least one prewash stage, control said feed means (14) to feed water into said third compartment (12) of said first container (8) to flush said powdered prewash detergent into said tub (3).

4. A machine (1) as claimed in any one of the foregoing Claims, wherein said detergent dispenser (7) comprises a third siphon (33) which is located in the second compartment (11; 23) of said first (8) and/or of said second container (21) for connecting said second compartment (11; 23) to a feed conduit (13) of the detergent dispenser (7) connected to said tub (3).

5. A machine (1) as claimed in Claim 4, wherein said first (17), second (27), and third (33) siphon each comprise at least two sleeves fitted one inside the other, and of which a first sleeve (17a, 27a, 33a) is connected firmly to a bottom wall of the corresponding first (8) or second (21) container, and a second sleeve (17b, 27b, 33b) is connected firmly to said lid (9) and fits over said first sleeve (17a, 27a, 33a) when said lid (9) is connected to said first (8) or second container (21).

6. A method of operating a laundry washing and/or drying machine comprising a casing (2); a wash tub (3) mounted inside said casing (2); a laundry drum (4) mounted for rotation inside said tub (3); and detergent dispensing means (6) for containing and selectively dispensing different types of detergent into said tub (3), and comprising a detergent dispenser (7) which fits firmly but easily removably to the machine (1), and in turn comprises: a first container (8) divided into three separate compartments, wherein a first compartment (10) is designed to contain liquid softener, a second compartment (11) is designed to contain detergent for a main-wash stage of a wash cycle, and a third compartment (12) is designed to contain powdered prewash detergent for a prewash stage of a wash cycle; and a lid (9) which fits firmly but easily removably to said first container (8);
said method being **characterized by** comprising the following steps:

a) providing a second container (21) divided into three separate compartments, wherein a first compartment (22) is designed to contain liquid

softener, a second compartment (23) is designed to contain wash detergent, and a third compartment (24) is designed to contain liquid bleach; and providing a first siphon (17) on said detergent dispenser (7) which is located in the first compartment (10; 22) of said first (8) and/or of said second (21) container for connecting said first compartment (10; 22) to a feed conduit (13) of the detergent dispenser (7) connected to said tub (3);

b) fitting said second container (21) to said lid (9) in lieu of said first container (8), so as to form together a second siphon (27) which is located in the third compartment (24) of said second container (21) for connecting said third compartment (24) to a feed conduit (13) of the detergent dispenser (7) connected to said tub (3), thus to permit bleaching of the laundry during a wash cycle of the machine (1).

7. A method as claimed in Claim 6, wherein said machine comprises feed means (14) for selectively feeding water into each said compartment (10, 11, 12; 22, 23, 24) of said detergent dispenser (7); when said lid (9) is fitted to said second container (21), said method comprising the steps of:

- selecting, from a number of wash programs and by means of interface means (29) on the machine (1), a wash program comprising at least one bleach stage; and
- controlling said feed means (14) to feed water into the third compartment (24) of said second container (21) to flush said liquid bleach into said tub (3).

8. A method as claimed in Claim 6 or 7, wherein, when said lid (9) is fitted to said first container (8), said method comprises the steps of:

- selecting, from a number of wash programs and by means of interface means (29) on the machine (1), a wash program comprising at least one prewash stage; and
- controlling said feed means (14) to feed water into the third compartment (12) of said first container (8) to flush said powdered prewash detergent into said tub (3).

9. A detergent dispenser (7) for a laundry washing and/or drying machine (1), which fits firmly but easily removably to the machine (1), and which comprises: a first container (8) divided into three separate compartments, wherein a first compartment (10) is designed to contain liquid softener, a second compartment (11) is designed to contain detergent for a main-wash stage of a wash cycle, and a third compartment (12) is designed to contain powdered prewash detergent for a prewash stage of a wash cycle; and a lid (9) which fits firmly but easily removably to said first container (8);

said detergent dispenser (7) being **characterized by** additionally comprising: a second container (21) which is fittable firmly but easily removably to said lid (9) in lieu of said first container (8), and is divided into three separate compartments, wherein a first compartment (22) is designed to contain liquid softener, a second compartment (23) is designed to contain wash detergent, and a third compartment (24) is designed to contain liquid bleach; and a first siphon (17) located in the first compartment (10; 22) of said first (8) or second container (21) for connecting said first compartment (10; 22) to a feed conduit (13) of the detergent dispenser (7) connected to said tub (3);

said second container (21) and said lid (9), when coupled to one another, forming an second siphon (27) which is located in the third compartment (24) of said second container (21) for connecting said third compartment (24) to said feed conduit (13), thus to permit bleaching of the laundry during a wash cycle of the machine (1).

10. A detergent dispenser as claimed in Claim 9, and comprising a third siphon (33) located in the second compartment (11; 23) of said first (8) and/or second container (21) for connecting said second compartment (11; 23) to said feed conduit (13).

11. A detergent dispenser as claimed in Claim 10, wherein said first (17), second (27), and third (33) siphon each comprise at least two sleeves fitted one inside the other, and of which a first sleeve (17a, 27a, 33a) is connected firmly to a bottom wall of the corresponding first (8) or second container (21), and a second sleeve (17b, 27b, 33b) is connected firmly to said lid (9) and fits over said first sleeve (17a, 27a, 33a) when said lid (9) is connected to said first (8) or second container (21).

Patentansprüche

1. Maschine (1) zum Waschen bzw. Trocknen von Wäsche, die ein Gehäuse (2); einen Waschbottich (3), der in dem Gehäuse (2) angebracht ist; eine Wäschetrommel (4), die drehbar in dem Bottich (3) angebracht ist; und Mittel (6) zum Abgeben von Reinigungsmittel zum Enthalten und wahlweisen Abgeben einer Anzahl von Reinigungsmitteln in den Bottich (3) umfasst, und die eine Reinigungsmittel-Abgabevorrichtung (7) umfasst, die fest, jedoch leicht entnehmbar in der Maschine (1) sitzt;

wobei die Reinigungsmittel-Abgabevorrichtung (7) Folgendes umfasst: einen ersten Behälter (8), der in drei getrennte Fächer unterteilt ist, wobei ein erstes

Fach (10) ausgelegt ist, flüssigen Weichspüler zu enthalten, ein zweites Fach (11) ausgelegt ist, Reinigungsmittel für einen Hauptwaschgang eines Waschzyklus zu enthalten, und ein drittes Fach (12) ausgelegt ist, pulverförmiges Vorwaschmittel für einen Vorwaschgang eines Waschzyklus zu enthalten; einen Deckel (9), der fest, jedoch leicht abnehmbar auf dem ersten Behälter (8) sitzt; wobei die Maschine (1) durch einen zweiten Behälter (21) gekennzeichnet ist, der anstelle des ersten Behälters (8) fest, jedoch leicht abnehmbar an dem Deckel (9) sitzt und in drei getrennte Fächer unterteilt ist, wobei ein erstes Fach (22) ausgelegt ist, flüssigen Weichspüler zu enthalten, ein zweites Fach (23) ausgelegt ist, Waschmittel zu enthalten, und ein drittes Fach (24) ausgelegt ist, flüssiges Bleichmittel zu enthalten;
wobei die Reinigungsmittel-Abgabevorrichtung (7) einen ersten Siphon (17), der sich in dem ersten Fach (10; 22) des ersten (8) bzw. zweiten (21) Behälters zum Verbinden des ersten Fachs (10; 22) mit einer Zufuhrleitung (13) der Reinigungsmittel-Abgabevorrichtung (7), die mit dem Bottich (3) verbunden ist, umfasst; wobei der zweite Behälter (21) und der Deckel (9) dann, wenn sie miteinander gekoppelt sind, einen zweiten Siphon (27) bilden, der sich in dem dritten Fach (24) des zweiten Behälters (21) befindet, um das dritte Fach (24) mit einer Zufuhrleitung (13) der Reinigungsmittel-Abgabevorrichtung (7), die mit dem Bottich (3) verbunden ist, zu verbinden, um ein Bleichen der Wäsche während eines Waschzyklus der Maschine (1) zu ermöglichen.

2. Maschine (1) nach Anspruch 1, die Schnittstellenmittel (29), damit der Benutzer aus einer Anzahl von Waschprogrammen ein Waschprogramm auswählen kann, das wenigstens einen Bleichgang umfasst; Zufuhrmittel (14) zum wahlweisen Zuführen von Wasser in jedes der Fächer (10, 11, 12; 22, 23, 24) der Reinigungsmittel-Abgabevorrichtung (7); und Mittel (28) zur elektronischen Steuerung, die beim Empfangen eines Signals von den Schnittstellenmitteln (29) die Auswahl des Waschprogramms anzeigen, das wenigstens einen Bleichgang umfasst, und die Zufuhrmittel (14) steuern, Wasser in das dritte Fach (24) des zweiten Behälters (21) zuzuführen, um das flüssige Bleichmittel in den Bottich (3) zu spülen, umfasst.

3. Maschine (1) nach Anspruch 2, wobei die Schnittstellenmittel (29) dem Benutzer ermöglichen, aus einer Anzahl von Waschprogrammen ein Waschprogramm auszuwählen, das wenigstens einen Vorwaschgang umfasst; und wobei die Mittel (28) zur elektronischen Steuerung beim Empfangen eines Signals von den Schnittstellenmitteln (29) die Auswahl des Waschprogramms anzeigen, das wenigstens einen Vorwaschgang umfasst, und die Zufuhrmittel (14) steuern, Wasser in das dritte Fach (12) des ersten Behälters (8) zuzuführen, um das pulverförmige Vorwaschmittel in den Bottich (3) zu spülen.

4. Maschine (1) nach einem der vorhergehenden Ansprüche, wobei die Reinigungsmittel-Abgabevorrichtung (7) einen dritten Siphon (33) umfasst, der sich in dem zweiten Fach (11; 23) des ersten (8) bzw. des zweiten Behälters (21) zum Verbinden des zweiten Fachs (11; 23) mit einer Zufuhrleitung (13) der Reinigungsmittel-Abgabevorrichtung (7), die mit dem Bottich (3) verbunden ist, befindet.

5. Maschine (1) nach Anspruch 4, wobei der erste (17), der zweite (27) und der dritte (33) Siphon jeweils wenigstens zwei Überwürfe umfassen, die ineinander passen, und wobei jeweils ein erster Überwurf (17a, 27a, 33a) fest mit einer Bodenwand des entsprechenden ersten (8) oder zweiten (21) Behälters verbunden ist und wobei ein jeweils zweiter Überwurf (17b, 27b, 33b) mit dem Deckel (9) fest verbunden ist und über den jeweils ersten Überwurf (17a, 27a, 33a) passt, wenn der Deckel (9) mit dem ersten (8) oder zweiten Behälter (21) verbunden ist.

6. Verfahren zum Betreiben einer Maschine zum Waschen bzw. Trocknen von Wäsche, die ein Gehäuse (2); einen Waschbottich (3), der in dem Gehäuse (2) angebracht ist; eine Wäschetrommel (4), die zum Drehen in dem Bottich (3) angebracht ist; und Mittel (6) zum Abgeben von Reinigungsmittel zum Enthalten und wahlweisen Abgeben unterschiedlicher Arten von Reinigungsmitteln in den Bottich (3) umfasst, und die eine Reinigungsmittel-Abgabevorrichtung (7) umfasst, die fest, jedoch leicht entnehmbar in der Maschine (1) sitzt, und die ihrerseits Folgendes umfasst: einen ersten Behälter (8), der in drei getrennte Fächer unterteilt ist, wobei ein erstes Fach (10) ausgelegt ist, flüssigen Weichspüler zu enthalten, ein zweites Fach (11) ausgelegt ist, Reinigungsmittel für einen Hauptwaschgang eines Waschzyklus zu enthalten, und ein drittes Fach (12) ausgelegt ist, pulverförmiges Vorwaschmittel für einen Vorwaschgang eines Waschzyklus zu enthalten; und einen Deckel (9), der fest, jedoch leicht abnehmbar auf dem ersten Behälter (8) sitzt;
wobei das Verfahren **dadurch gekennzeichnet ist, dass** es die folgenden Schritte umfasst:

a) Bereitstellen eines zweiten Behälters (21), der in drei getrennte Fächer unterteilt ist, wobei ein erstes Fach (22) ausgelegt ist, flüssigen Weichspüler zu enthalten, ein zweites Fach (23) ausgelegt ist, Waschmittel zu enthalten, und ein drittes Fach (24) ausgelegt ist, flüssiges Bleichmittel zu enthalten; und Bereitstellen eines ersten Siphons (17) an der Reinigungsmittel-Abgabevorrichtung (7), die sich in dem ersten Fach

(10; 22) des ersten (8) bzw. zweiten (21) Behälters zum Verbinden des ersten Fachs (10; 22) mit einer Zufuhrleitung (13) der Reinigungsmittel-Abgabevorrichtung (7), die mit dem Bottich (3) verbunden ist, befindet;
b) Einsetzen des zweiten Behälters (21) in den Deckel (9) anstelle des ersten Behälters (8), so dass sie zusammen einen zweiten Siphon (27) bilden, der sich in dem dritten Fach (24) des zweiten Behälters (21) zum Verbinden des dritten Fachs (24) mit einer Zufuhrleitung (13) der Reinigungsmittel-Abgabevorrichtung (7), die mit dem Bottich (3) verbunden ist, befindet, um so ein Bleichen der Wäsche während eines Waschzyklus der Maschine (1) zu ermöglichen.

7. Verfahren nach Anspruch 6, wobei die Maschine Zufuhrmittel (14) zum wahlweisen Zuführen von Wasser in jedes der Fächer (10, 11, 12; 22, 23, 24) der Reinigungsmittel-Abgabevorrichtung (7); wenn der Deckel (9) auf dem zweiten Behälter (21) sitzt, umfasst, wobei das Verfahren die folgenden Schritte umfasst:

- Auswählen eines Waschprogramms, das wenigstens einen Bleichgang umfasst, aus einer Anzahl von Waschprogrammen und mittels Schnittstellenmitteln (29) an der Maschine (1); und
- Steuern der Zufuhrmittel (14), Wasser in das dritte Fach (24) des zweiten Behälters (21) zuzuführen, um das flüssige Bleichmittel in den Bottich (3) zu spülen.

8. Verfahren nach Anspruch 6 oder 7, wobei dann, wenn der Deckel (9) auf dem ersten Behälter (8) sitzt, das Verfahren die folgenden Schritte umfasst:

- Auswählen eines Waschprogramms, das wenigstens einen Vorwaschgang umfasst, aus einer Anzahl von Waschprogrammen und mittels der Schnittstellenmittel (29) an der Maschine (1); und
- Steuern der Zufuhrmittel (14), Wasser in das dritte Fach (12) des ersten Behälters (8) zuzuführen, um das pulverförmige Vorwaschmittel in den Bottich (3) zu spülen.

9. Reinigungsmittel-Abgabevorrichtung (7) für eine Maschine (1) zum Waschen bzw. Trocknen von Wäsche, die fest, jedoch leicht entnehmbar in der Maschine sitzt, und die Folgendes umfasst: einen ersten Behälter (8), der in drei getrennte Fächer unterteilt ist, wobei ein erstes Fach (10) ausgelegt ist, flüssigen Weichspüler zu enthalten, ein zweites Fach (11) ausgelegt ist, Reinigungsmittel für einen Hauptwaschgang eines Waschzyklus zu enthalten, und ein drittes Fach (12) ausgelegt ist, pulverförmiges Vorwaschmittel für einen Vorwaschgang eines Waschzyklus zu enthalten; und einen Deckel (9), der fest, jedoch leicht abnehmbar auf dem ersten Behälter (8) sitzt;
wobei die Reinigungsmittel-Abgabevorrichtung (7) **dadurch gekennzeichnet ist, dass** sie zusätzlich Folgendes umfasst: einen zweiten Behälter (21), der anstelle des ersten Behälters (8) fest, jedoch leicht abnehmbar an dem Deckel (9) sitzt und der in drei getrennte Fächer unterteilt ist, wobei ein erstes Fach (22) ausgelegt ist, flüssigen Weichspüler zu enthalten, ein zweites Fach (23) ausgelegt ist, Waschmittel zu enthalten, und ein drittes Fach (24) ausgelegt ist, flüssiges Bleichmittel zu enthalten; und einen ersten Siphon (17), der sich in dem ersten Fach (10; 22) des ersten (8) oder zweiten Behälters (21) zum Verbinden des ersten Fachs (10; 22) mit einer Zufuhrleitung (13) der Reinigungsmittel-Abgabevorrichtung (7), die mit dem Bottich (3) verbunden ist, befindet;
wobei der zweite Behälter (21) und der Deckel (9) dann, wenn sie miteinander gekoppelt sind, einen zweiten Siphon (27) bilden, der sich in dem dritten Fach (24) des zweiten Behälters (21) befindet, um das dritte Fach (24) mit der Zufuhrleitung (13) zu verbinden, um somit ein Bleichen der Wäsche während eines Waschzyklus der Maschine (1) zu ermöglichen.

10. Reinigungsmittel-Abgabevorrichtung nach Anspruch 9, die einen dritten Siphon (33) umfasst, der sich in dem zweiten Fach (11; 23) des ersten (8) bzw. zweiten Behälters (21) zum Verbinden des zweiten Fachs (11; 23) mit der Zufuhrleitung (13) befindet.

11. Reinigungsmittel-Abgabevorrichtung nach Anspruch 10, wobei der erste (17), der zweite (27) und der dritte (33) Siphon jeweils wenigstens zwei Überwürfe umfassen, die ineinander passen, und wobei ein jeweils erster Überwurf (17a, 27a, 33a) fest mit einer Bodenwand des entsprechenden ersten (8) oder zweiten (21) Behälters verbunden ist, und wobei ein jeweils zweiter Überwurf (17b, 27b, 33b) fest mit dem Deckel (9) verbunden ist und über den jeweils ersten Überwurf (17a, 27a, 33a) passt, wenn der Deckel (9) mit dem ersten (8) oder zweiten Behälter (21) verbunden ist.

Revendications

1. Machine à laver et/ou à sécher du linge (1) comprenant une enceinte (2); une cuve de lavage (3) montée à l'intérieur de ladite enceinte (2); un tambour à linge (4) monté pour tourner à l'intérieur de ladite cuve (3); et des moyens de distribution de détergent (6) destinés à contenir et à distribuer de façon sélective plu-

sieurs détergents dans ladite cuve (3), et comprenant un distributeur de détergent (7) qui s'adapte de manière ferme mais aisément amovible sur la machine (1);
ledit distributeur de détergent (7) comprenant: un premier récipient (8) qui est divisé en trois compartiments séparés, dans lequel un premier compartiment (10) est conçu pour contenir un adoucissant liquide, un deuxième compartiment (11) est conçu pour contenir un détergent pour une phase de lavage principal d'un cycle de lavage, et un troisième compartiment (12) est conçu pour contenir un détergent de prélavage en poudre pour une phase de prélavage d'un cycle de lavage; un couvercle (9) qui s'adapte de façon ferme mais aisément amovible sur ledit premier récipient (8); ladite machine (1) étant **caractérisée par** un deuxième récipient (21) qui est adaptable de façon ferme mais aisément amovible sur ledit couvercle (9) au lieu dudit premier récipient (8), et qui est divisé en trois compartiments séparés, dans lequel un premier compartiment (22) est conçu pour contenir un adoucissant liquide, un deuxième compartiment (23) est conçu pour contenir un détergent de lavage, et un troisième compartiment (24) est conçu pour contenir un blanchissant liquide;
ledit distributeur de détergent (7) comprenant un premier siphon (17) qui est situé dans le premier compartiment (10; 22) dudit premier (8) et/ou dudit deuxième (21) récipient afin de connecter ledit premier compartiment (10; 22) à un conduit d'alimentation (13) du distributeur de détergent (7) connecté à ladite cuve (3); ledit deuxième récipient (21) et ledit couvercle (9), lorsqu'ils sont couplés l'un à l'autre, formant un deuxième siphon (27) qui est situé dans le troisième compartiment (24) dudit deuxième récipient (21) afin de connecter ledit troisième compartiment (24) à un conduit d'alimentation (13) du distributeur de détergent (7) connecté à ladite cuve (3), permettant ainsi le blanchissage du linge pendant un cycle de lavage de la machine (1).

2. Machine (1) selon la revendication 1, et comprenant des moyens d'interface (29) permettant à l'utilisateur de sélectionner, parmi plusieurs programmes de lavage, un programme de lavage comprenant au moins une phase de blanchissage; des moyens d'alimentation (14) pour amener de façon sélective de l'eau dans chaque compartiment (10, 11, 12; 22, 23, 24) dudit distributeur de détergent (7); et des moyens de commande électroniques (28) qui, à la réception d'un signal provenant desdits moyens d'interface (29) et indiquant la sélection dudit programme de lavage comprenant au moins une phase de blanchissage, commandent auxdits moyens d'alimentation (14) d'amener de l'eau dans ledit troisième compartiment (24) dudit deuxième récipient (21) afin d'emporter ledit blanchissant liquide dans ladite cuve (3).

3. Machine (1) selon la revendication 2, dans laquelle lesdits moyens d'interface (29) permettent à l'utilisateur de sélectionner, parmi plusieurs programmes de lavage, un programme de lavage comprenant au moins une phase de prélavage; et lesdits moyens de commande électroniques (28), à la réception d'un signal provenant desdits moyens d'interface (29) et indiquant la sélection dudit programme de lavage comprenant au moins une phase de prélavage, commandent auxdits moyens d'alimentation (14) d'amener de l'eau dans ledit troisième compartiment (12) dudit premier récipient (8) afin d'emporter ledit détergent de prélavage en poudre dans ladite cuve (3).

4. Machine (1) selon l'une quelconque des revendications précédentes, dans laquelle ledit distributeur de détergent (7) comprend un troisième siphon (33) qui est situé dans le deuxième compartiment (11; 23) dudit premier (8) et/ou dudit deuxième (21) récipient afin de connecter ledit deuxième compartiment (11; 23) à un conduit d'alimentation (13) du distributeur de détergent (7) connecté à ladite cuve (3).

5. Machine (1) selon la revendication 4, dans laquelle lesdits premier (17), deuxième (27) et troisième (33) siphons comprennent chacun au moins deux manchons agencés l'un à l'intérieur de l'autre, et dont un premier manchon (17a, 27a, 33a) est connecté de façon ferme à une paroi inférieure du premier (8) ou du deuxième (21) récipient correspondant, et un deuxième manchon (17b, 27b, 33b) est connecté fermement audit couvercle (9) et s'adapte au-dessus dudit premier manchon (17a, 27a, 33a) lorsque ledit couvercle (9) est connecté audit premier (8) ou audit deuxième (21) récipient.

6. Procédé de conduite d'une machine à laver et/ou à sécher du linge comprenant une enceinte (2); une cuve de lavage (3) montée à l'intérieur de ladite enceinte (2); un tambour à linge (4) monté pour tourner à l'intérieur de ladite cuve (3); et des moyens de distribution de détergent (6) destinés à contenir et à distribuer de façon sélective différents types de détergents dans ladite cuve (3), et comprenant un distributeur de détergent (7) qui s'adapte de manière ferme mais aisément amovible sur la machine (1), et qui comprend à son tour: un premier récipient (8) qui est divisé en trois compartiments séparés, dans lequel un premier compartiment (10) est conçu pour contenir un adoucissant liquide, un deuxième compartiment (11) est conçu pour contenir un détergent pour une phase de lavage principal d'un cycle de lavage, et un troisième compartiment (12) est conçu pour contenir un détergent de prélavage en poudre pour une phase de prélavage d'un cycle de lavage; et un couvercle (9) qui s'adapte de façon ferme mais aisément amovible sur ledit premier récipient (8);
ledit procédé étant **caractérisé par** les étapes sui-

vantes:

a) prévoir un deuxième récipient (21) divisé en trois compartiments séparés, dans lequel un premier compartiment (22) est conçu pour contenir un adoucissant liquide, un deuxième compartiment (23) est conçu pour contenir un détergent de lavage, et un troisième compartiment (24) est conçu pour contenir un blanchissant liquide; et prévoir un premier siphon (17) sur ledit distributeur de détergent (7), qui est situé dans le premier compartiment (10; 22) dudit premier (8) et/ou dudit deuxième (21) récipient pour connecter ledit premier compartiment (10; 22) à un conduit d'alimentation (13) du distributeur de détergent (7) connecté à ladite cuve (3);
b) adapter ledit deuxième récipient (21) sur ledit couvercle (9) au lieu dudit premier récipient (8), de façon à former ensemble un deuxième siphon (27) qui est situé dans le troisième compartiment (24) dudit deuxième récipient (21) pour connecter ledit troisième compartiment (24) à un conduit d'alimentation (13) du distributeur de détergent (7) connecté à ladite cuve (3), afin de permettre ainsi le blanchissage du linge pendant un cycle de lavage de la machine (1).

7. Procédé selon la revendication 6, dans lequel ladite machine comprend des moyens d'alimentation (14) pour amener de façon sélective de l'eau dans chaque compartiment (10, 11, 12; 22, 23, 24) dudit distributeur de détergent (7); lorsque ledit couvercle (9) est adapté sur ledit deuxième récipient (21), ledit procédé comprend les étapes suivantes:

- sélectionner, parmi plusieurs programmes de lavage et au moyen de moyens d'interface (29) sur la machine (1), un programme de lavage comprenant au moins une phase de blanchissage; et
- commander auxdits moyens d'alimentation (14) d'amener de l'eau dans le troisième compartiment (24) dudit deuxième récipient (21) afin d'emporter ledit blanchissant liquide dans ladite cuve (3).

8. Procédé selon la revendication 6 ou 7, dans lequel, lorsque ledit couvercle (9) est adapté sur ledit premier récipient (8), ledit procédé comprend les étapes suivantes:

- sélectionner, parmi plusieurs programmes de lavage et au moyen de moyens d'interface (29) sur la machine (1), un programme de lavage comprenant au moins une phase de prélavage; et
- commander auxdits moyens d'alimentation (14) d'amener de l'eau dans le troisième compartiment (12) dudit premier récipient (8) afin d'emporter ledit détergent de prélavage en poudre dans ladite cuve (3).

9. Distributeur de détergent (7) pour une machine à laver et/ou à sécher du linge (1), qui s'adapte de façon ferme mais aisément amovible sur la machine (1), et qui comprend: un premier récipient (8) divisé en trois compartiments séparés, dans lequel un premier compartiment (10) est conçu pour contenir un adoucissant liquide, un deuxième compartiment (11) est conçu pour contenir un détergent pour une phase de lavage principal d'un cycle de lavage, et un troisième compartiment (12) est conçu pour contenir un détergent de prélavage en poudre pour une phase de prélavage d'un cycle de lavage; et un couvercle (9) qui s'adapte de façon ferme mais aisément amovible sur ledit premier récipient (8);
ledit distributeur de détergent (7) étant **caractérisé en ce qu'**il comprend en outre: un deuxième récipient (21) qui peut s'adapter de façon ferme mais aisément amovible sur ledit couvercle (9) au lieu dudit premier récipient (8), et qui est divisé en trois compartiments séparés, dans lequel un premier compartiment (22) est conçu pour contenir un adoucissant liquide, un deuxième compartiment (23) est conçu pour contenir un détergent de lavage, et un troisième compartiment (24) est conçu pour contenir un blanchissant liquide; et un premier siphon (17) situé dans le premier compartiment (10; 22) dudit premier (8) ou dudit deuxième (21) récipient pour connecter ledit premier compartiment (10; 22) à un conduit d'alimentation (13) du distributeur de détergent (7) connecté à ladite cuve (3);
ledit deuxième récipient (21) et ledit couvercle (9), lorsqu'ils sont couplés l'un à l'autre, formant un deuxième siphon (27) qui est situé dans le troisième compartiment (24) dudit deuxième récipient (21) pour connecter ledit troisième compartiment (24) audit conduit d'alimentation (13), afin de permettre ainsi un blanchissage du linge pendant un cycle de lavage de la machine (1).

10. Distributeur de détergent selon la revendication 9, et comprenant un troisième siphon (33) situé dans le deuxième compartiment (11; 23) dudit premier (8) et/ou dudit deuxième (21) récipient pour connecter ledit deuxième compartiment (11; 23) audit conduit d'alimentation (13).

11. Distributeur de détergent selon la revendication 10, dans lequel lesdits premier (17), deuxième (27) et troisième (33) siphons comprennent chacun au moins deux manchons agencés l'un à l'intérieur de l'autre, et dont un premier manchon (17a, 27a, 33a) est connecté de façon ferme à une paroi inférieure du premier (8) ou du deuxième (21) récipient corres-

pondant, et un deuxième manchon (17b, 27b, 33b) est connecté de façon ferme audit couvercle (9) et s'adapte au-dessus dudit premier manchon (17a, 27a, 33a) lorsque ledit couvercle (9) est connecté audit premier (8) ou audit deuxième (21) récipient.

FIG.1

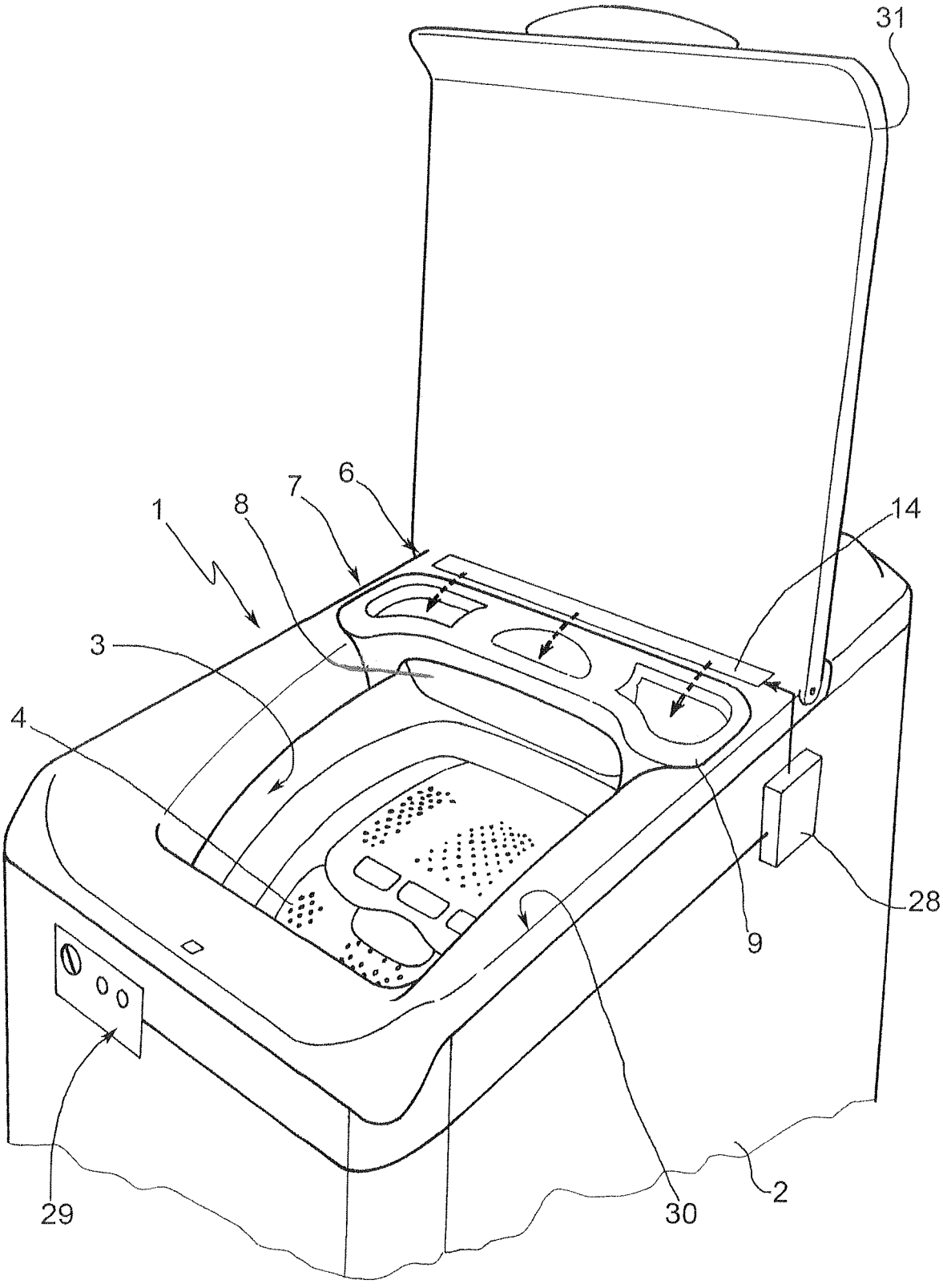


FIG.2

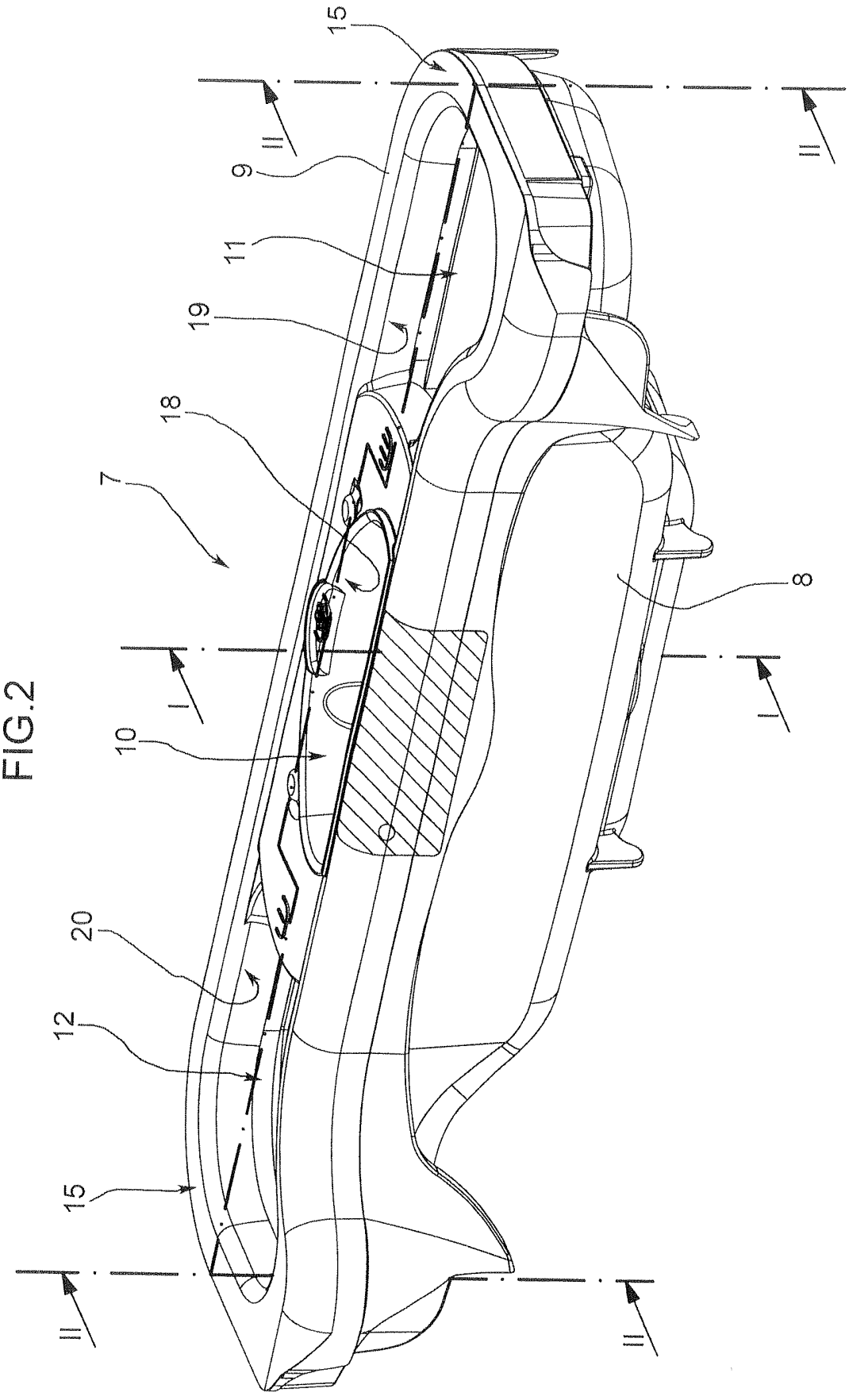


FIG.3

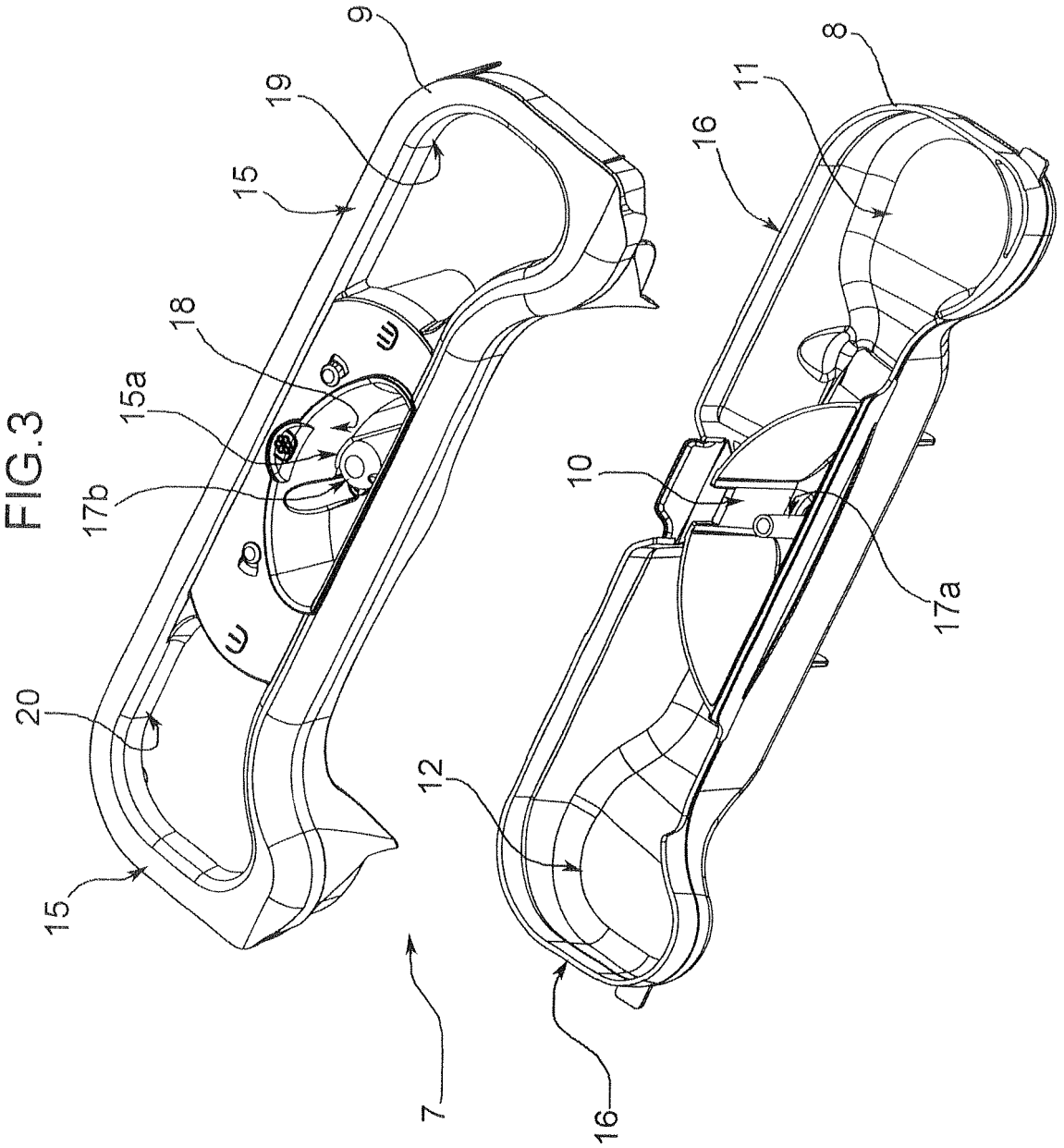


FIG.4

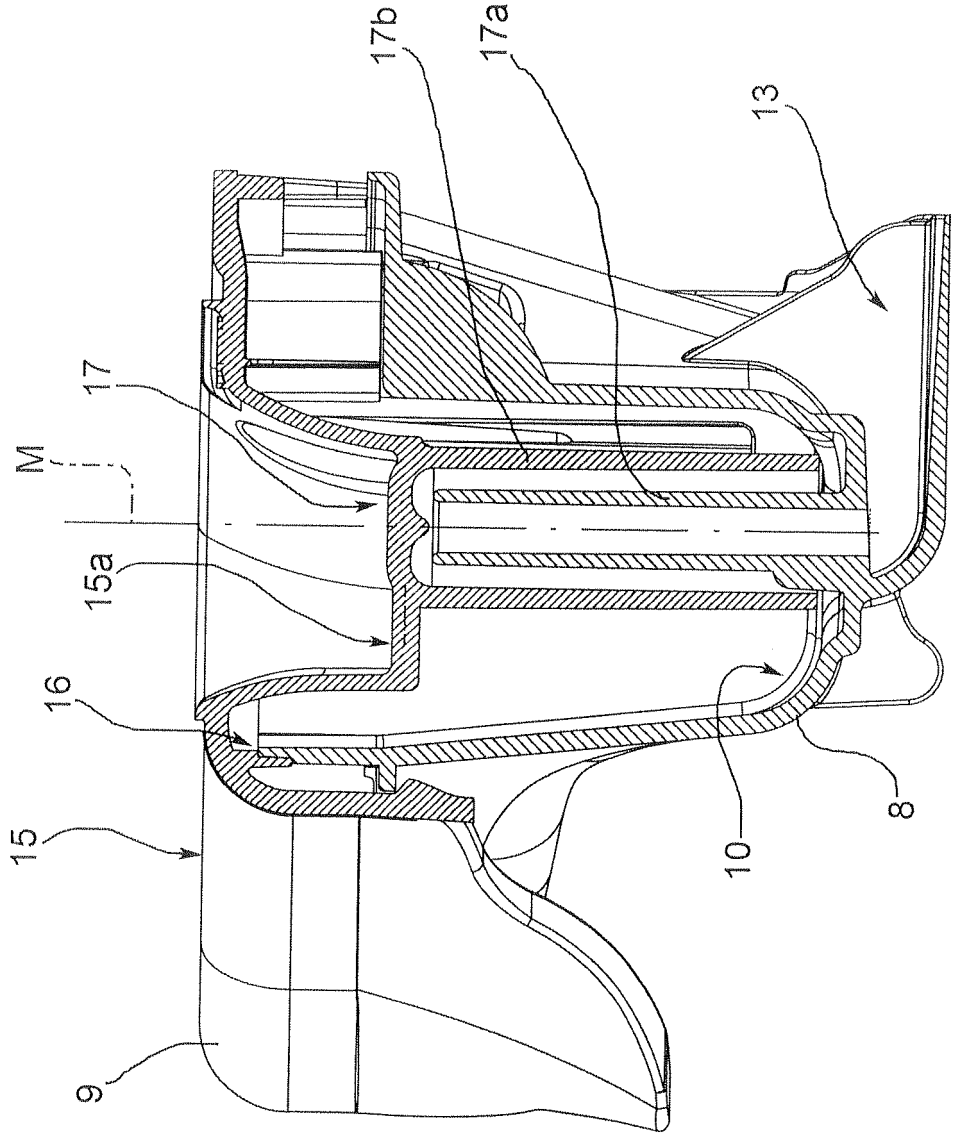


FIG.5

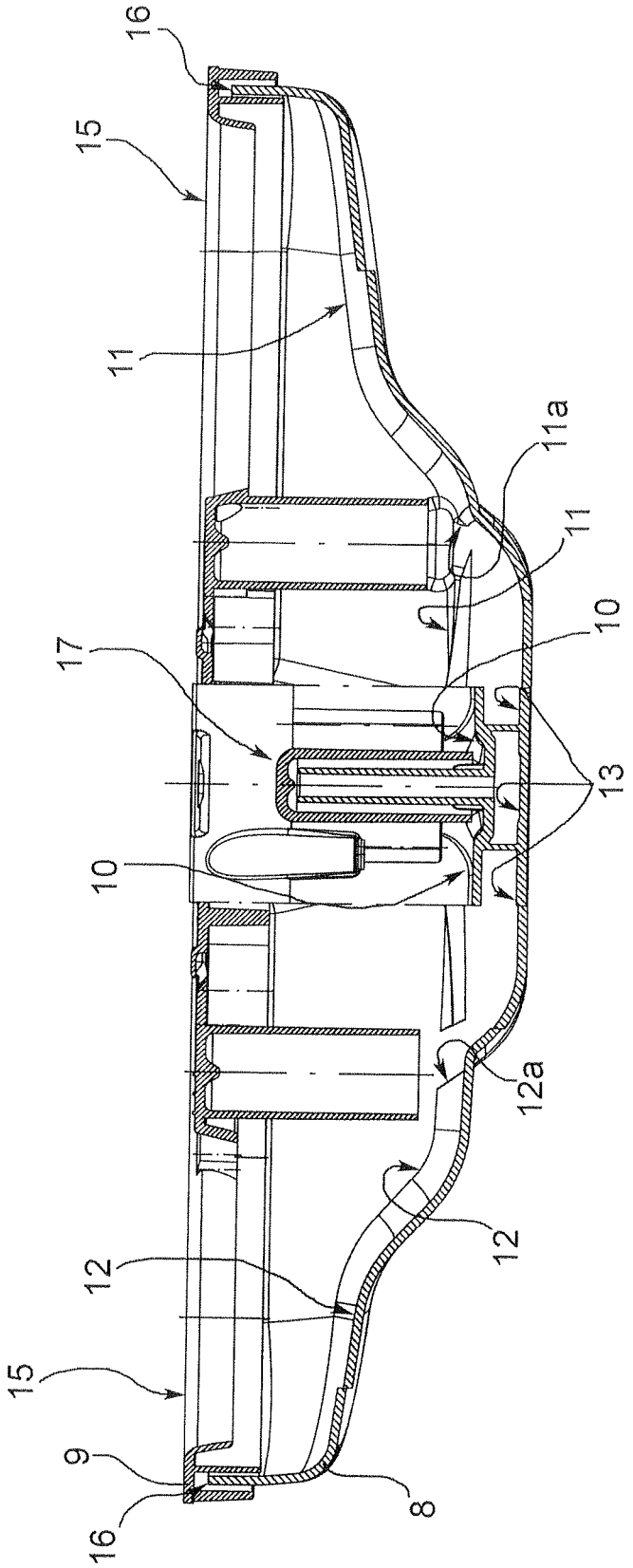


FIG.6

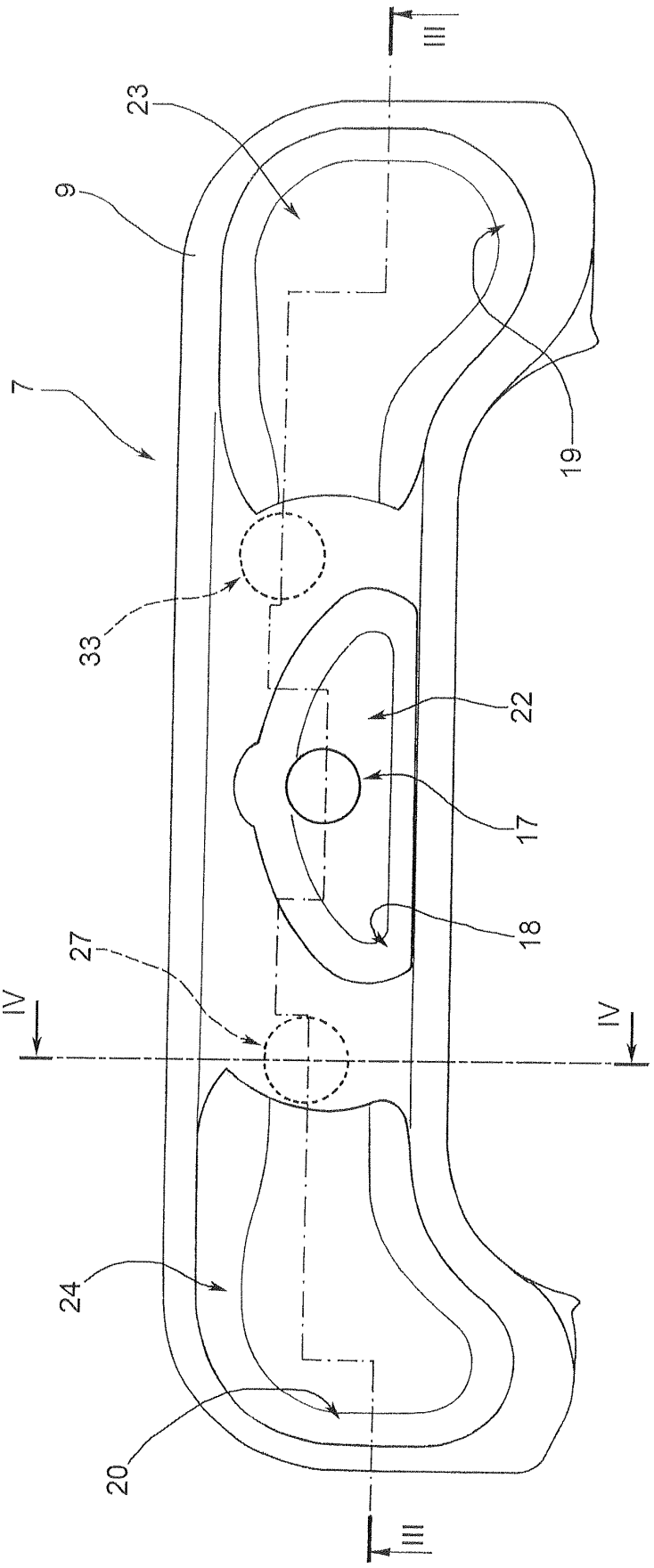


FIG.7

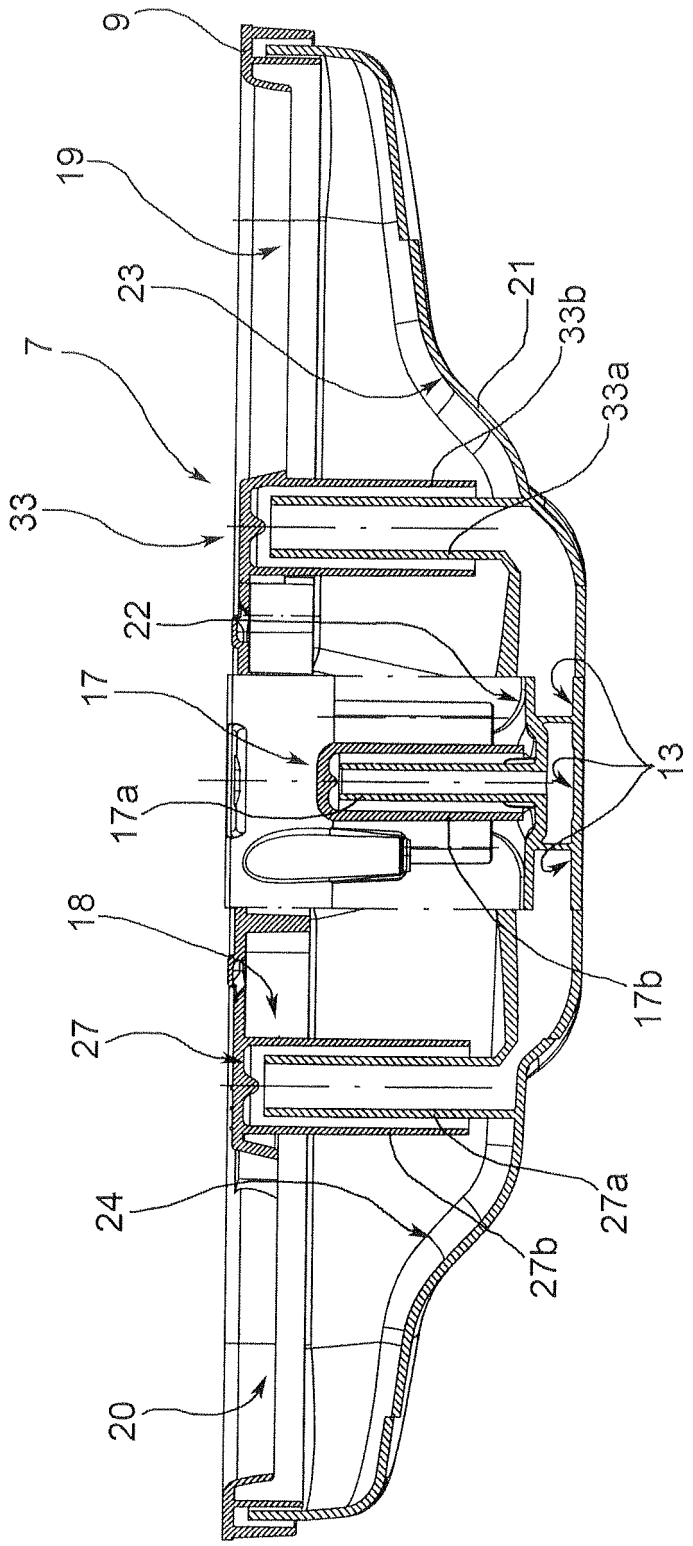
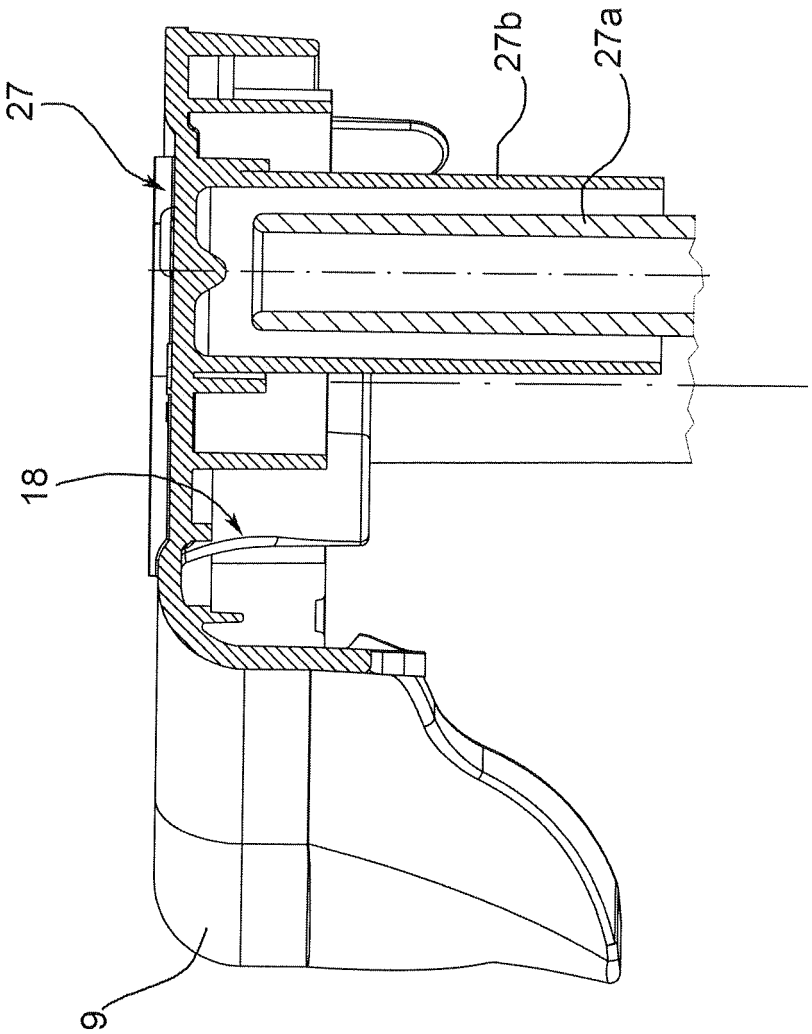


FIG.8



REFERENCES CITED IN THE DESCRIPTION

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- EP 0685587 B1 **[0006]**