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(54) **Laundry washing machine dispenser for detergent products or similar**

Waschmaschinenspender für Reinigungsmittel oder Ähnliches

Distributeur de produits détergents et similaires de lave-linge

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Description

[0001] The present invention relates to a laundry washing machine dispenser for detergent products or similar.

[0002] More specifically, the present invention relates to a detergent dispenser of the type comprising a vessel which is inserted in drawer-like manner into a dispenser bay on the front wall of the machine casing, and is divided into a number of independent compartments manually fillable with detergent products or softeners.

[0003] If the laundry washing machine is designed for use liquid detergent products, each of the vessel compartments fillable with detergent products is defined by a small basin provided, on the bottom, with a syphon assembly through which the liquid detergent product is drawn out of the basin by the water channeled into the latter when the laundry washing machine starts the washing or softening phase of the washing cycle.

[0004] If the laundry washing machine is designed for use powder detergent products, each of the vessel compartments fillable with detergent products is defined by a small basin lacking one of its lateral walls, so as that the powder detergent product stored in the basin comes out of the latter through said opening together with the water channeled into the basin when the laundry washing machine starts the washing or softening phase of the washing cycle.

[0005] As is known, filling with liquid detergent product a vessel compartment designed for storing powder detergent products has a lot of drawbacks. In fact, immediately after being poured into the vessel compartment, i.e. into the basin, the liquid detergent product flows out of the basin through the missing lateral wall, and reaches the washing tub of the laundry washing machine in advance, thus staining the laundry stored in the washing tub or, at best, greatly reducing its detergent effect due to premature contact with water.

[0006] To eliminate this drawbacks, in the past years the laundry washing machines designed for use powder detergent products were optionally equipped with an additional stand-alone basin properly dimensioned for being inserted in easy-removable manner into a corresponding vessel compartment of the detergent dispenser.

[0007] This further stand-alone basin does not have openings on its lateral walls so as to permanently store a given amount of liquid detergent product, and is provided with a syphon assembly through which the liquid detergent product is discharged into the vessel compartment in which the stand-alone basin is temporarily fitted in, together with the water channeled into the stand-alone basin when the laundry washing machine starts the washing phase of the washing cycle.

[0008] Unfortunately the stand-alone basin does not work properly when it is filled up with high density liquid detergent products. In fact, at the end of the washing cycle the user usually find a lot of residuals of detergent product on the bottom of the stand-alone basin.

[0009] In other words, the water channeled into the stand-alone basin at the beginning of the washing phase does not succeed in dissolving and sweeping into the washing tub all the high density liquid detergent product stored in the stand-alone basin. The washing cycle, therefore, wastes a bit of the liquid detergent product supplied by the user.

[0010] EP-A-1764437 discloses a detergent dispenser for a clothes washing machine having a tub for holding clothes to be washed, comprising a base mounted in the washing machine with a cup-shaped portion adapted to hold and dispense a powder detergent, and a detergent cup removably mounted in the cup-shaped portion of the base to hold and dispense a liquid detergent. The base comprises an auxiliary portion adapted to hold the detergent cup when not in use. The detergent cup comprises a siphon and a bottom discharge opening adapted to be closed by a floating plug), this plug being adapted to open the discharge opening when water in the detergent cup reaches a first predetermined level which is lower than a second predetermined level at which the siphon is activated.

[0011] US-A-2003145633 discloses a clothes washing machine provided with an improved detergent dispenser which can use either liquid or powder detergent for both the prewash and wash cycles of the machine. The dispenser includes a base for receiving the prewash detergent. A tray having a powder detergent cup and a fabric softener cup is positioned within the base. A liquid detergent cup is removably nested within the powder detergent cup. The liquid detergent cup includes a siphon which drains into the powder detergent cup, which in turn drains into the base of the dispenser. The softener cup includes a siphon which drains into the base of the dispenser. The base includes an outlet drain through which the detergent and fabric softener drain for introduction into the tub of the washing machine.

[0012] It is an object of the present invention to provide a laundry washing machine detergent dispenser designed to eliminate the aforementioned drawbacks.

[0013] According to the present invention, there is provided a laundry washing machine dispenser for detergent products or similar, as claimed in Claim 1 and preferably, though not necessarily, in any one of the dependent Claims.

[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 view in perspective of a laundry washing machine dispenser for detergent products or similar in accordance with the teachings of the present invention;
- Figures 2 shows a partially exploded view in perspective of the Figure 1 dispenser;
- Figure 3 shows an exploded view in perspective of a component of the Figures 1 and 2 dispenser;
- Figure 4 is a section view of the dispenser compo-

nent shown in Figure 3.

[0015] With reference to Figures 1 and 2, number 1 indicates as a whole a dispenser for dispensing detergent products or similar specifically designed for being used in a laundry washing machine 2 which is provided with a preferably, though not necessarily, parallelepiped-shaped outer box casing 3 having a front wall 4.

[0016] Detergent dispenser 1 essentially comprises a vessel 5 which is inserted in easy-removable manner into a dispenser bay or seat 5a realized on machine casing 3. More specifically, in the example shown vessel 5 is defined by a drawer-like container 5 inserted in sliding manner into a dispenser bay or seat 5a realized on the front wall 4 of the machine casing 3.

[0017] With reference to Figures 1 and 2, likewise known laundry washing machines, vessel 5 is divided into a number of independent detergent compartments (preferably, though not necessarily, three compartments) each of which is manually fillable with a detergent, softener or similar product.

[0018] At least one of the vessel detergent compartments, hereinafter indicated with number 6, is specifically designed to use powder detergent products, therefore at least the portion of vessel 5 corresponding to detergent compartment 6 is shaped to form a basin 6 having a large thought opening 6a on one of its lateral walls, so as to permit the powder detergent product stored in basin 6 to easily come out of the latter together with the water channeled into basin 6 in known manner when the laundry washing machine 2 starts the washing or softening phase of the washing cycle.

[0019] More specifically, in the example shown vessel 5 is provided with a front handle 7 which, when vessel 5 is fully inserted into dispenser bay 5a, is substantially coplanar with front wall 4, and basin 6 lacks the lateral wall located on the opposite side of front handle 7, thus forming thought opening 6a.

[0020] With reference to Figures 2, 3 and 4, detergent dispenser 1 also comprises an auxiliary stand-alone liquid detergent container 8 which is capable to store a given amount of liquid detergent product, and is properly dimensioned for being inserted in easy-removable manner into detergent compartment 6.

[0021] Liquid detergent container 8 comprises a stand-alone basin 9 which is dimensioned for being inserted in easy-removable manner into detergent compartment 6, and is provided with a thought opening 9a on one of its lateral walls; and at least one syphon assembly 10 (two in the example shown) which is housed into basin 9 for draining out of basin 9 the liquid detergent product stored in the latter when a give amount of water is channeled into detergent compartment 6, i.e. into basin 9, when laundry washing machine 2 starts the washing phase of the washing cycle.

[0022] More specifically, thought opening 9a on basin 9 is smaller in section than thought opening 6a realized on detergent compartment 6, and liquid detergent con-

tainer 8 also comprises a movable closing element 11 which is housed into basin 9, next to thought opening 9a, and is manually movable between a closed position in which closing element 11 obstructs opening 9a to prevent liquid detergent leakage from basin 9, and a wide opened position in which closing element 11 does not obstruct thought opening 9a and therefore allows the liquid detergent product to freely pass across opening 9a.

[0023] With reference to Figures 3 and 4, in the example shown closing element 11 consists of a throttle-valve shutter 11 which is fitted in revolving manner into a projecting pin 9b which protrudes from the bottom wall of basin 9 next to thought opening 9a, substantially parallel to the lateral wall in which opening 9a is formed.

[0024] Throttle-valve shutter 11 is designed so as to be manually rotated between a first angular position in which shutter 11 obstructs opening 9a to prevent the liquid leakage from basin 9, and a second angular position in which shutter 11 forms, in opening 9a, two calibrated chinks or gaps dimensioned for allowing the easy outgoing of high density liquids eventually stored in basin 9. High density liquids that have extreme difficulty in getting out of basin 9 through syphon assemblies 10.

[0025] In other words, when placed in the wide opened position, i.e. in the second angular position, closing element 11 allows a quick and complete outgoing of the high density liquid detergent product eventually stored in basin 9 via opening 9a.

[0026] Preferably, though not necessarily, liquid detergent container 8 finally comprises a manually-removable lid 12 which covers part of basin 9, features part of syphon assemblies 10, and is also optionally provided with a rotary selector 13 which is aligned immediately above, and engages into the throttle-valve shutter 11 for allowing an easy, manually-operated rotation of shutter 11 from the outside of basin 9.

[0027] General operation of detergent dispenser 1 is clearly inferable from the above description, with no further explanation required.

[0028] As regards the auxiliary stand-alone liquid detergent container 8, if it is necessary to use a liquid detergent product in detergent dispenser 1, the user places the movable closing element 11 either in the closed position or in the wide opened position according to the low or high density of the liquid detergent product to be used; fits the auxiliary stand-alone liquid detergent container 8, i.e. basin 9, into detergent compartment 6; and finally pours into basin 9 of liquid detergent container 8 the appropriate amount of liquid detergent product.

[0029] In case a high density liquid detergent product is poured into basin 9, the high viscosity of the detergent product impairs the detergent product from immediately getting out of basin 9 via through opening 9a.

[0030] When laundry washing machine 2 starts the washing phase of the washing cycle, a given amount of water is channeled in known way into detergent compartment 6 which houses the liquid detergent container 8. Said given amount of water fills up the basin 9 and gets

out of the auxiliary stand-alone liquid detergent container 8 through syphon assemblies 10 diluting and sweeping away the liquid detergent product stored in basin 9.

[0031] If the liquid detergent product is a high density liquid detergent product and through opening 9a on basin 9 is free, the water channeled into basin 9 dilutes the high density liquid detergent product, thus permitting said detergent product to get out from basin 9 via opening 9a. Obviously, a small amount of diluted high density liquid detergent product continues to get out from basin 9 via syphon assemblies 10.

[0032] Clearly, changes may be made to detergent dispenser 1 and auxiliary stand-alone liquid detergent container 8 as described herein without, however, departing from the scope of the present invention.

[0033] For example, closing element 11 may be defined by a sliding shutter slidably mounted on the lateral wall of basin 9 so as to selectively close the though opening 9a.

Claims

1. A laundry washing machine dispenser (1) for detergent products or similar, the laundry washing machine (2) being provided with a casing (3) and said dispenser (1) comprising a vessel (5) which is inserted in easy-removable manner into a dispenser bay (5a) realized on said casing (3); said vessel (5) being divided into a number of independent detergent compartments each of which is fillable with a detergent product; the dispenser (1) also comprising an auxiliary stand-alone liquid detergent container (8) which is capable to store a given amount of liquid detergent product, and is fittable in easy-removable manner into a first (6) of said detergent compartments; said auxiliary stand-alone liquid detergent container (8) comprising a stand-alone basin (9) which is dimensioned for being inserted in easy-removable manner into said first detergent compartment (6), and a syphon assembly (10) for draining out of said stand-alone basin (9) the liquid detergent product stored in the latter; said dispenser (1) being **characterized in that** said stand-alone basin (9) is provided with a thought opening (9a) on one of its lateral walls, and **in that** said auxiliary stand-alone liquid detergent container (8) also comprises a manually movable closing element (11) which is adapted to be manually placed in a closed position in which said closing element (11) obstructs the thought opening (9a) of the stand-alone basin (9) to prevent liquid detergent leakage, and in a wide opened position in which said closing element (11) does not obstruct the thought opening (9a) of the stand-alone basin (9) and allows the liquid detergent product to freely pass across said opening (9a).

2. Laundry washing machine dispenser (1) according

to Claim 1, **characterized in that** said first detergent compartment (6) is defined by a basin (6) formed on a portion of said vessel (5); said basin (6) having a thought opening (6a) on one of its lateral walls, so as to permit the easy outgoing of the powder detergent product stored in said first detergent compartment (6).

3. Laundry washing machine dispenser (1) according to Claim 1 or 2, **characterized in that** said closing element (11) is a throttle-valve shutter (11) which is fitted in revolving manner into a projecting pin (8b) which protrudes from the bottom wall of said stand-alone basin (9), next to the thought opening (9a) of said stand-alone basin (9).

4. Laundry washing machine dispenser (1) according to Claim 3, **characterized in that** said throttle-valve shutter (11) is designed so as to be manually rotated between a first angular position in which said throttle-valve shutter (11) obstructs the thought opening (9a) of the stand-alone basin (9) to prevent the liquid leakage from said stand-alone basin (9), and a second angular position in which said throttle-valve shutter (11) forms, in the thought opening (9a) of the stand-alone basin (9), two calibrated chinks dimensioned for allowing the easy outgoing of a high density liquid eventually stored in the auxiliary stand-alone liquid detergent container (8).

5. Laundry washing machine dispenser (1) according to Claim 3 or 4, **characterized in that** said auxiliary stand-alone liquid detergent container (8) comprises a manually-removable lid (12) which covers part of said stand-alone basin (9), and which is provided with a rotary selector (13) which engages into the throttle-valve shutter (11) for allowing an easy, manually-operated rotation of said throttle-valve shutter (11) from the outside of the stand-alone basin (9).

6. Laundry washing machine dispenser (1) according to Claim 5, **characterized in that** said manually-removable lid (12) features part of said syphon assembly (10).

7. Laundry washing machine dispenser (1) according to Claim 1 or 2, **characterized in that** said closing element (11) is a sliding shutter slidably mounted on the lateral wall of the stand-alone basin (9) so as to selectively close the though opening 9a of said stand-alone basin (9).

8. Laundry washing machine dispenser (1) according to any of the preceding Claims, **characterized in that** the dispenser bay (5a) is realized on the front wall (4) of the casing (3) of the laundry washing machine (2), and that said vessel (5) is a drawer-like container (5) which is inserted in sliding manner into

said dispenser bay (5a).

Patentansprüche

1. Waschmaschinenspender (1) für Reinigungsmittel oder Ähnliches, wobei die Waschmaschine (2) mit einem Gehäuse (3) ausgestattet ist und der Spender (1) einen Behälter (5) aufweist, der auf leicht zu entfernende Weise in einen Spenderschacht (5a) eingesetzt ist, der am Gehäuse (3) ausgeführt ist; wobei der Behälter (5) in eine Anzahl von unabhängigen Reinigungsmittelbereichen unterteilt ist, von denen jeder mit einem Reinigungsmittelprodukt befüllbar ist; wobei der Spender (1) auch einen zusätzlichen Stand-alone-Flüssigreinigungsmittel-Behälter (8) aufweist, der eine vorgegebene Menge von Flüssigreinigungsmittel-Produkt aufnehmen kann und der auf leicht zu entfernende Weise in einem ersten (6) der Reinigungsmittelbereiche aufgenommen werden kann; wobei der zusätzliche Stand-alone-Flüssigkeitsreinigungsmittel-Behälter (8) ein Stand-alone-Becken (9) aufweist, das dimensioniert ist, um auf leicht zu entfernende Weise in den ersten Reinigungsmittelbereich (6) eingesetzt zu werden, sowie eine Siphon-Baugruppe (10) zum Ablassen des gespeicherten Flüssigreinigungsmittel-Produkts aus dem Stand-alone-Becken (9); wobei der Spender (1) **dadurch gekennzeichnet ist, dass** das Stand-alone-Becken (9) mit einer Soll-Öffnung (9a) an einer seiner Seitenwände ausgestattet ist und das der zusätzliche Stand-alone-Flüssigreinigungsmittel-Behälter (8) auch ein manuell entfernbares Schließelement (11) aufweist, das eingerichtet ist, um manuell in einer geschlossenen Position platziert zu werden, in der das Schließelement (11) die Soll-Öffnung (9a) des Stand-alone-Beckens (9) sperrt, um den Leckaustritt von Flüssigreinigungsmittel zu verhindern, beziehungsweise in einer weit geöffneten Position, in der das Schließelement (11) die Soll-Öffnung (9a) des Stand-alone-Beckens (9) nicht sperrt und es dem Flüssigreinigungsmittel-Produkt ermöglicht, ungehindert durch die Öffnung (9a) zu passieren.
2. Waschmaschinenspender (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** der erste Reinigungsmittelbereich (6) durch ein Becken (6) definiert ist, dass auf einem Abschnitt des Gefäßes (5) ausgebildet ist; wobei das Becken (6) eine Soll-Öffnung (6a) an einer seiner Seitenwände hat, um das leichte Austreten des Pulverreinigungsmittel-Produkts zu ermöglichen, dass im ersten Reinigungsmittelbereich (6) gespeichert ist.
3. Waschmaschinenspender (1) nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** das Schließelement (11) eine Drosselventilklappe (11) ist, die auf

kreisende Weise in einen herausragenden Stift (8b) eingepasst ist, der aus der Bodenwand des Stand-alone-Beckens (9) neben der Soll-Öffnung (9a) des Stand-alone-Beckens (9) herausragt.

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4. Waschmaschinenspender (1) nach Anspruch 3, **dadurch gekennzeichnet, dass** die Drosselventilklappe (11) konzipiert ist für das manuelle Rotieren zwischen einer ersten Winkelposition, in der die Drosselventilklappe (11) die Soll-Öffnung (9a) des Stand-alone-Beckens (9) versperrt, um den Leckaustritt von Flüssigkeit aus dem Stand-alone-Becken (9) zu verhindern, und einer zweiten Winkelposition, in der die Drosselventilklappe (11) in der Soll-Öffnung (9a) des Stand-alone-Beckens (9) zwei kalibrierte Ritzen bildet, die dimensioniert sind, um das leichte Austreten einer Flüssigkeit mit hoher Dichte zu ermöglichen, die gegebenenfalls im zusätzlichen Stand-alone-Flüssigreinigungsmittel-Behälter (8) gespeichert ist.
5. Waschmaschinenspender (1) nach Anspruch 3 oder 4, **dadurch gekennzeichnet, dass** der zusätzliche Stand-alone-Flüssigreinigungsmittel-Behälter (8) einen manuell abnehmbaren Deckel (12) aufweist, der einen Teil des Stand-alone-Beckens (9) abdeckt und der mit einem drehbaren Wahlschalter (13) ausgestattet ist, der in die Drosselventilklappe (11) eingreift, um eine einfache, manuell betriebene Rotation der Drosselventilklappe (11) von der Außenseite des Stand-alone-Beckens (9) zu ermöglichen.
6. Waschmaschinenspender (1) nach Anspruch 5, **dadurch gekennzeichnet, dass** der manuell abnehmbare Deckel (12) einen Teil der Siphon-Baugruppe (10) aufweist.
7. Waschmaschinenspender (1) nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** das Schließelement (11) eine Gleitklappe ist, die gleitend an der Seitenwand des Stand-alone-Beckens (9) angebracht ist, um die Soll-Öffnung 9a des Stand-alone-Beckens (9) selektiv zu schließen.
8. Waschmaschinenspender (1) nach einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** der Spenderschacht (5a) an der Vorderwand (4) des Gehäuses (3) der Waschmaschine (2) ausgeführt ist und dass das Gefäß (5) ein schubfach-ähnlicher Behälter (5) ist, der auf gleitende Weise in den Spenderschacht (5a) eingesetzt ist.

Revendications

1. Distributeur de lave-linge (1) pour produits détergents ou similaires, le lave-linge (2) étant pourvu d'un coffre (3) et ledit distributeur (1) comprenant un

- récipient (5) inséré de façon facilement amovible dans une baie de distributeur (5a) formée sur ledit coffre (3) ; ledit récipient (5) étant divisé en un certain nombre de compartiments à détergent indépendants, parmi lesquels chacun peut être rempli avec un produit détergent ; le distributeur (1) comprenant également un réservoir à détergent liquide indépendant auxiliaire (8) pouvant stocker une certaine quantité de produit détergent liquide et être installé de façon facilement amovible dans un premier (6) desdits compartiments à détergent ; ledit réservoir à détergent liquide indépendant auxiliaire (8) comprenant un bac indépendant (9) dimensionné pour être inséré de façon facilement amovible dans ledit premier compartiment à détergent (6), et un assemblage de siphon (10) pour drainer le produit détergent liquide stocké dans le bac indépendant (9) hors de celui-ci ; ledit distributeur (1) étant **caractérisé en ce que** ledit bac indépendant (9) est pourvu d'une ouverture traversante (9a) dans l'une de ses parois latérales, et **en ce que** ledit réservoir à détergent liquide indépendant auxiliaire (8) comprend également un élément de fermeture (11) déplaçable manuellement, adapté pour être placé manuellement dans une position fermée dans laquelle ledit élément de fermeture (11) obstrue l'ouverture traversante (9a) du bac indépendant (9), pour empêcher des fuites de détergent liquide, et dans une position grande ouverte dans laquelle ledit élément de fermeture (11) n'obstrue pas ladite ouverture traversante (9a) du bac indépendant (9) et permet au produit détergent liquide de passer librement à travers ladite ouverture traversante (9a).
2. Distributeur de lave-linge (1) selon la revendication 1, **caractérisé en ce que** ledit premier compartiment à détergent (6) est défini par un bac (6) formé sur une partie dudit récipient (5) ; ledit bac (6) présentant une ouverture traversante (6a) dans l'une de ses parois latérales, de manière à faciliter la sortie du produit détergent en poudre stocké dans ledit premier compartiment à détergent (6).
 3. Distributeur de lave-linge (1) selon la revendication 1 ou 2, **caractérisé en ce que** ledit élément de fermeture (11) est un obturateur à vanne papillon (11) ajusté de façon rotative dans une broche saillante (8b) faisant saillie à partir de la paroi inférieure dudit bac indépendant (9), à côté de l'ouverture traversante (9a) dudit bac indépendant (9).
 4. Distributeur de lave-linge (1) selon la revendication 3, **caractérisé en ce que** ledit obturateur à vanne papillon (11) est conçu de manière à pouvoir être tourné manuellement entre une première position angulaire, dans laquelle ledit obturateur à vanne papillon (11) obstrue l'ouverture traversante (9a) du bac indépendant (9) pour empêcher les fuites de li-
 - guide à partir dudit bac indépendant (9), et une deuxième position angulaire dans laquelle ledit obturateur à vanne papillon (11) forme deux fentes étagées dans ladite ouverture traversante (9a) du bac indépendant (9), lesquelles sont dimensionnées pour faciliter la sortie d'un liquide à haute densité éventuellement stocké dans le réservoir à détergent liquide indépendant auxiliaire (8).
 5. Distributeur de lave-linge (1) selon la revendication 3 ou 4, **caractérisé en ce que** ledit réservoir à détergent liquide indépendant auxiliaire (8) comprend un couvercle amovible manuellement (12), lequel recouvre une partie dudit bac indépendant (9) et lequel est pourvu d'une mollette (13) qui s'engage dans l'obturateur à vanne papillon (11) pour faciliter une rotation manuelle dudit obturateur à vanne papillon (11) depuis l'extérieur du bac indépendant (9).
 6. Distributeur de lave-linge (1) selon la revendication 5, **caractérisé en ce que** ledit couvercle amovible manuellement (12) fait partie dudit assemblage de siphon (10).
 7. Distributeur de lave-linge (1) selon la revendication 1 ou 2, **caractérisé en ce que** ledit élément de fermeture (11) est un obturateur coulissant monté de façon coulissante sur la paroi latérale du bac indépendant (9) de manière à fermer sélectivement l'ouverture traversante 9a dudit bac indépendant (9).
 8. Distributeur de lave-linge (1) selon l'une quelconque des revendications précédentes, **caractérisé en ce que** la baie de distributeur (5a) est formée sur la paroi avant (4) du coffre (3) du lave-linge (2), et **en ce que** ledit récipient (5) est un réservoir du genre tiroir (5) inséré de façon coulissante dans ladite baie de distributeur (5a).

FIG. 1

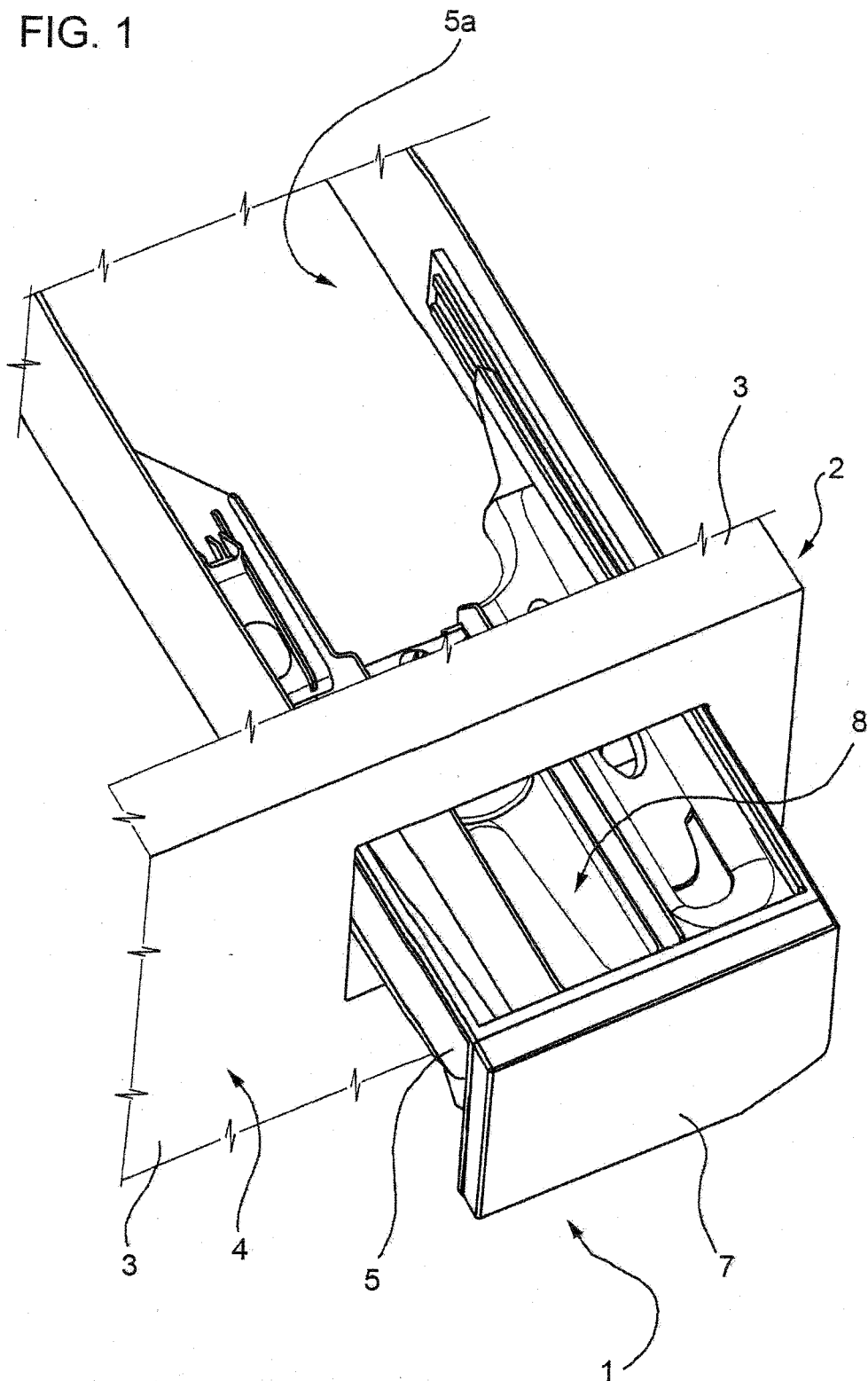


FIG. 2

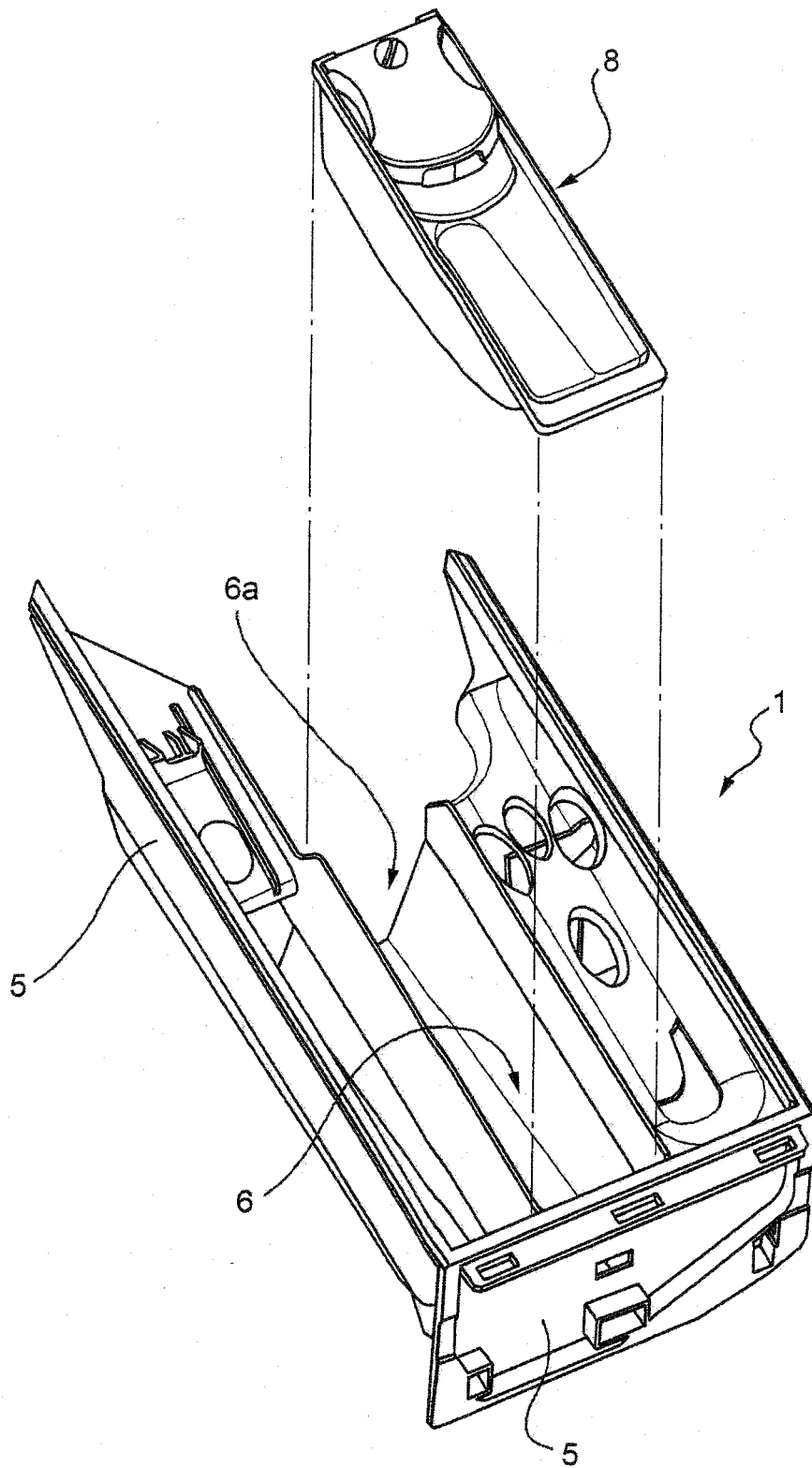


FIG. 3

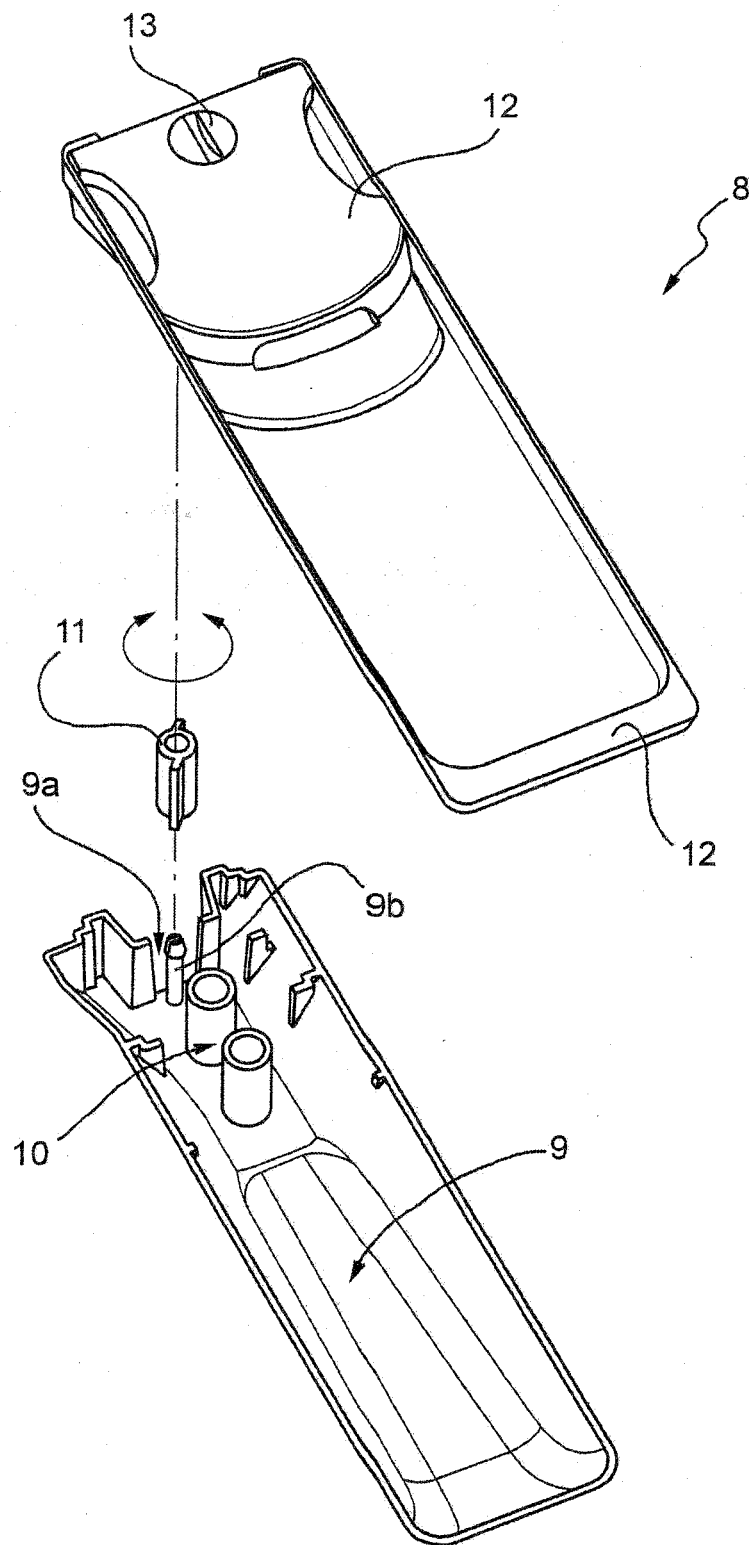
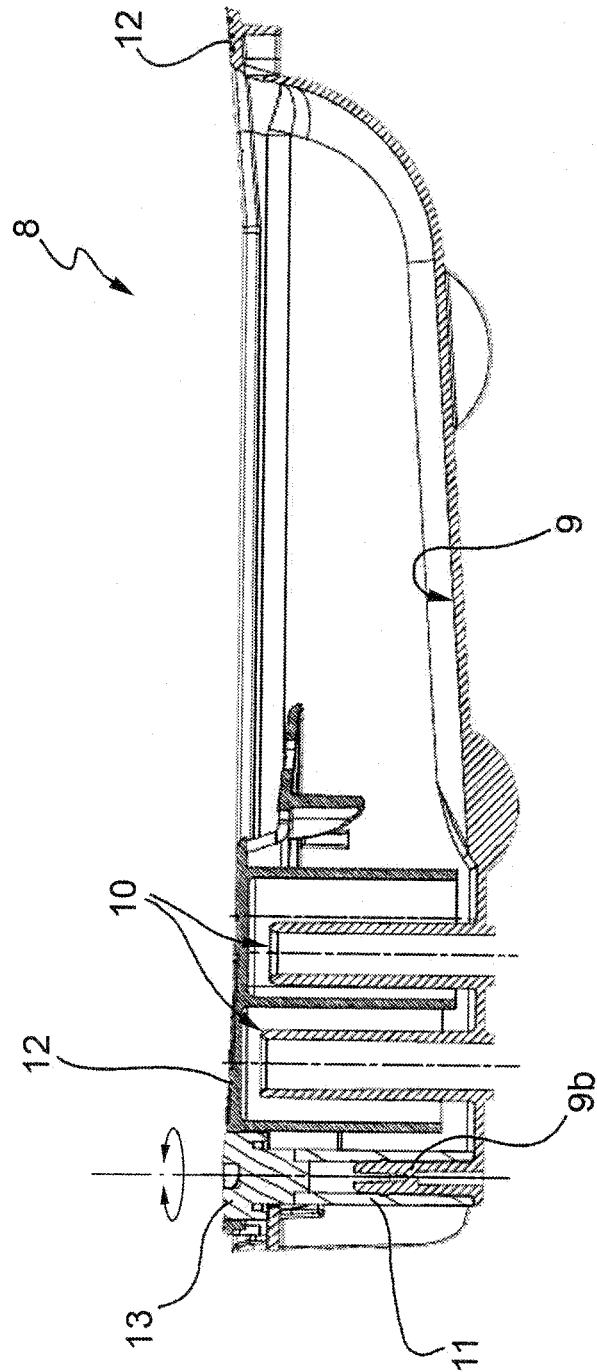


FIG. 4



REFERENCES CITED IN THE DESCRIPTION

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