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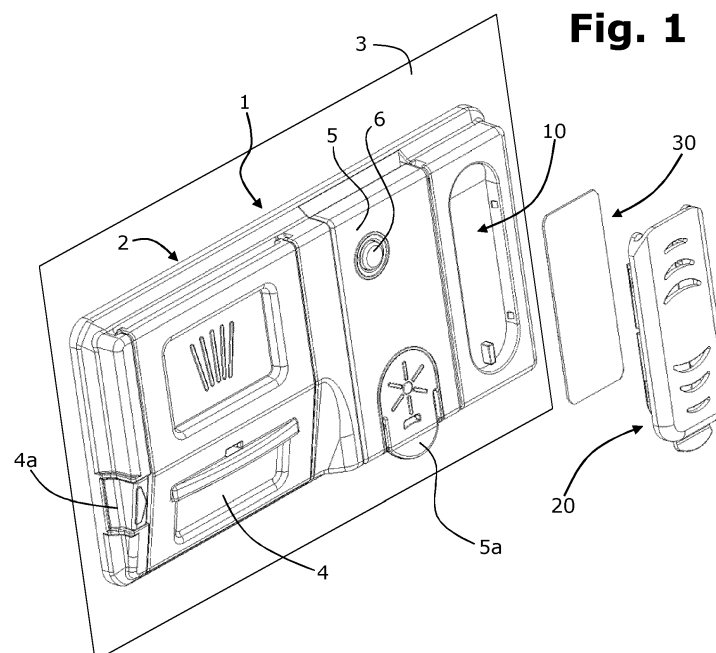
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(54) **A SUBSTANCE DISPENSER FOR DISHWASHERS**

(57) A substance dispenser for dishwashers has a dispenser body (2) prearranged to be fixed within a treatment chamber (3). The dispenser (1) comprises at least one first arrangement (4, 4a) to contain and dispense at least one first treatment substance, such as a detergent, and preferably at least one second arrangement (5, 5a, 6) to contain and dispense a second treatment substance, such as a rinsing aid.

The dispenser (1) comprises at least one third arrangement (10, 20) configured for housing in a removable manner a cartridge (30) for releasing a perfuming substance, the third arrangement (10, 20) including a housing (10) defined in the dispenser body (2), with which a corresponding cover (20) is associated, the cover being manually openable and closable by a user.



Description

Field of the invention

[0001] The present invention relates, in general, to dishwashing machines and has been developed with particular reference to substance dispensers for dishwashers, such as detergents, rinsing aids, and perfuming substances.

State of the art

[0002] It is known that dishwashers for domestic use are usually equipped with at least one substance dispenser. In the majority of cases, this dispenser comprises two distinct arrangements for dispensing different substances in different steps of the same treatment cycle. Typically, a dishwasher dispenser comprises an arrangement for dispensing a washing detergent and a provision for dispensing a rinsing additive.

[0003] The arrangement for dispensing the detergent usually includes a compartment facing the inside of the treatment chamber of the machine, which is openable and closable by a flap hinged to a main dispenser body. The flap is usually urged in the open position by elastic means and has a corresponding release system associated thereto, controllable by the control system of the machine, in order to cause the opening of the compartment and the consequent falling of the detergent into the washing bath. The detergent can be in powder form or consisting of a so-called tablet.

[0004] The arrangement for dispensing the additive usually comprises a tank suitable for containing a quantity of liquid additive, sufficient for carrying out a plurality of treatment cycles performed by the machine. The tank has a corresponding outlet duct, opening towards the inside of the chamber, on which valve means are operative, also controllable by the control system of the machine, in order to cause the dispensing of a dose of the additive in the rinsing bath.

[0005] Dispensers for dishwashers that include only one of the above two arrangement are also known. In any case, and despite the growing spread of tablet-form treatment agents that include both a washing detergent and a rinsing additive, dishwashers are usually equipped with dispensers that integrate the two aforesaid dispensing arrangements, often operated at different times by means of the same actuation system (see, for example, EP 602572 A1). Dispensers of the above type are usually installed in a stationary position within the treatment chamber, particularly at an opening provided in the inner shell of the machine door (the so-called counter-door).

[0006] In addition to the dispensers of the above type, dispensing devices for releasing perfuming substances within the treatment chamber of the dishwasher have also been proposed. In some solutions, these dispensers consist of simple small-sized containers, capable of containing the perfuming substance, which the user can free-

ly place within the treatment chamber, for example, within a cutlery basket. A solution of this type is known for example from EP 1526876 A1. In other cases, the dispenser is arranged to be kept within the treatment chamber for a number of operation cycles of the dishwasher: for this purpose, the dispenser has a corresponding actuation system, configured to cause the controlled release of the doses of perfuming substance during the course of successive treatment cycles. A solution of this type is known, for example, in GB2413262 A.

Summary and object of the invention

[0007] The known dispensers for dispensing perfuming substances in the form of containers which can be positioned by the user in the chamber are inconvenient and impractical for use. On the other hand, the dispensers equipped with an actuation system are relatively complex and expensive.

[0008] In its general terms, the present invention proposes to resolve the above drawbacks, particularly by means of a substance dispenser for dishwashers of simple production, of efficient operation and of convenient use for a user. This object is achieved, according to the present invention, by a substance dispenser device for a dishwashing machine having the characteristics of claim 1.

[0009] A related object of the invention is to provide a cartridge for releasing a perfuming substance into a dishwasher, to be used in conjunction with the dispenser of the invention, of simple production and convenient use for the user. This object is achieved by a cartridge having the characteristics of claim 13.

[0010] A further object of the invention is a dishwashing machine incorporating a dispenser according to claim 1.

Brief description of the drawings

[0011] Further objects, characteristics and advantages of the invention will become clear from the detailed description which follows, with reference to the attached drawings, provided purely by way of non-limiting example, in which:

- Figure 1 is a schematic partially exploded view of a substance dispenser for dishwashers according to one embodiment of the invention;
- Figure 2 is a portion of the dispenser of Figure 1, on an enlarged scale;
- Figure 3 is a schematic perspective view of a cover belonging to an arrangement for releasing a perfumed substance being part of a dispenser according to one embodiment of the invention;
- Figure 4 is a schematic perspective view of a cartridge for releasing a substance, used in combination with a dispenser according to an embodiment of the invention;
- Figures 5, 6, 7 and 8 are schematic views, from dif-

- ferent angles, of the cover of Figure 3;
- Figures 9, 10, and 11 are schematic views, from different angles, of the cartridge of Figure 4; and
- Figures 12, 13, 14 and 15 are schematic views, from different angles, of the cover of Figure 3 associated with the cartridge of Figure 4;

Description of preferred embodiments of the invention

[0012] The reference to "an embodiment" within this description indicates that a particular configuration, structure, or characteristic described in relation to the embodiment is included in at least one embodiment. Therefore, terms such as "*in an embodiment*" and the like, present at different parts of this description, do not necessarily all refer to the same embodiment. Furthermore, particular conformations, structures or characteristics can be combined in any suitable manner in one or more embodiments. The references used herein are for convenience only and, therefore, do not define the field of protection or the scope of the embodiments. It is also specified that, in the following present description, only the elements useful for understanding the invention will be explained in particular detail, assuming that the dispenser of the invention and the relative dishwashers comprise all the other elements known per se for their normal operation.

[0013] In Figure 1, numeral 1 indicates, as a whole, a substance dispenser for a dishwasher according to an embodiment of the present invention. The dispenser 1 has a dispenser body 2 configured to be fixed in a stationary position within the treatment chamber of a dishwasher, not shown here. The dispenser 1 can be, for example, fixed at a respective opening provided in one of the side walls of the chamber, for example, the wall defined by the inner shell of the front loading door of the dishwasher, indicated by 3 in Figure 1.

[0014] The dispenser 1 comprises at least one first arrangement to contain and dispense at least one first treatment substance, such as a washing detergent. For this purpose, in the case exemplified, the aforesaid first dispensing arrangement is implemented according to the known technique and comprises a compartment - not visible - defined in a front area of the dispenser body 2, at which a flap 4 is operative. The flap may, for example, be hinged at one of its longitudinal ends, particularly for rotating according to a horizontal axis; in a different embodiment, the flap 4 can instead be slidably mounted on the dispenser body 2. The flap 4 is preferably urged by elastic means, such as a spring, towards the respective opening position. The first arrangement also includes an engaging/releasing system of the flap 4, of known conception per se and therefore not illustrated, possibly including a button to produce the manual release of the flap. The aforesaid system may comprise, for example, an electric actuator, such as an electromagnet or a thermo-actuator, which is controlled by the control system of the dishwasher, to cause the release of the flap 4, and

therefore its opening, at the appropriate time of a treatment cycle.

[0015] In a preferred embodiment, such as that represented in Figure 1, the dispenser 1 also comprises a second arrangement for dispensing a second treatment substance, such as a rinsing liquid additive. Even the aforesaid second dispensing arrangement can be obtained according to known technique and comprise, for example a tank, not shown, defined within the dispenser body 2 and suitable for containing a quantity of liquid additive, sufficient for carrying out a plurality of treatment cycles. A respective cap is associated with the aforesaid tank, in order to allow the periodical loading of the tank itself. In the illustrated non-limiting example, the aforesaid cap is normally hidden from view by means of a flap 5, which is also hinged to the dispenser body 2, and equipped with a corresponding manual engaging/releasing system, partially visible in 5a. In the case exemplified, moreover, an optical viewer 6, having an indicator function, is associated with the tank, visible through a respective opening of the flap 5, for detecting the level of the additive in the relative tank. Still according to a known technique, the tank has an outlet passage along which electrically-controlled valve means are operative, controlled by the control system of the dishwasher to cause the dispensing of a dose of the additive at the appropriate time of the cycle treatment. The actuation system of the two dispensing arrangement mentioned above may include a single actuator means, also in accordance with a technique widely known in the field (see, for example, the already mentioned EP 602572 A1).

[0016] According to possible variant embodiments, the dispenser of the invention includes a single arrangement for dispensing a treatment substance of the type indicated above.

[0017] According to a characteristic of the invention, the dispenser 1 further comprises a third arrangement, configured to house a cartridge for releasing a perfuming substance in a removable or replaceable manner, preferably a multi-dose cartridge for gradually releasing said substance during successive treatment cycles. As seen in Figure 3, the aforesaid third arrangement includes a housing 10, defined in the dispenser body 2, to which there is associated a corresponding cover 20 manually openable and closable by a user.

[0018] In a preferred embodiment of the invention, the cover 20 is coupled to the dispenser body 2 in a removable manner, i.e. so that it can be completely removed by a user. In any way, the case of a cover 20 hinged to the dispenser body 2 is not excluded from the scope of the invention.

[0019] As particularly appreciable in Figure 2, the housing 10 essentially consists of a compartment or cavity defined in one of the component parts of the dispenser body 2, particularly a front component part. The compartment 10 has a peripheral surface 10a and a bottom surface 10b and, preferably, has a generally oblong shape, which extends in the height direction of the body 2. In

one embodiment, such as that represented, first coupling means 11 are defined at the peripheral surface 10a of the housing 10, for example in the form of teeth, which can cooperate with second engagement means belonging to the cover 20, as described hereinafter. In one embodiment, such as that represented, the first coupling means 11 are defined at one of the sides of the peripheral surface 10a, particularly a longer side, taking for granted that similar coupling means may be provided on the opposite side of the surface 10a. The bottom surface 10b of the housing 10 can define or have one or more associated projections 12 for positioning the cartridge 30 containing the perfuming substance, described below.

[0020] In a particularly advantageous embodiment, the arrangement comprising the compartment 10 and the cover 20 has an insertion and/or retention guide for the cartridge 30. Most preferably, the aforesaid insertion and/or retention guide is defined in the cover 20.

[0021] The cover 20 and the cartridge 30 according to possible embodiments of the invention are represented in a perspective view in Figures 3 and 4 and, with different views, in Figures 5-8 and 9-11, respectively. Figures 12-15 instead illustrate, through different views, the cartridge 30 coupled to the cover 20.

[0022] In one embodiment, as seen for example in Figures 3 and 5-8, the cover 20 comprises an outer wall 21 and an inner wall 22, the latter having a central longitudinal opening 23. The walls 21 and 22 are generally parallel and define the aforesaid guide between each other, indicated with 24, for example, in Figures 5, 7, 12 and 13: given the presence of the opening 23 in the wall 22, in the example shown, the guide 24 comprises two axially extended lateral interstices, essentially mutually parallel and opposite.

[0023] In a preferred embodiment, the cover 20 has two lateral walls 25, which also extend in the longitudinal direction of the cover 20, which are generally parallel to each other and between which the cartridge 30 is positionable, as will emerge hereinafter. Preferably, but not necessarily, the lateral walls 25 belong to a peripheral wall that also includes a connecting portion 26, which extends between two longitudinal homologous ends of the walls 25. In one embodiment of this type, the peripheral wall 25-26 comprises at least one discontinuity, in order to allow the insertion of the cartridge 20 into the guide 24, as can be seen, for example, in Figure 13 and as will become clearer below. Preferably the aforesaid discontinuity is found at the end of the body of the cover 20 corresponding to the end of the wall 22 related to the central opening 23, i.e. the end opposite to the connecting portion 26 between the lateral walls 25, in the exemplified case. The cover 20 preferably has at least one protruding fin 27, which acts as a grip element for the purpose of removing the cover from the dispenser body 2. In the illustrated example, the fin 27 is defined at the end of the cover 20, opposite to the aforesaid discontinuity of the peripheral wall 25-26.

[0024] Still referring to the illustrated embodiment, the

lateral walls 25, or rather the peripheral wall 25-26, rises/rise from the inner wall 22, so as to extend along respective sides of the central opening 23.

[0025] As indicated above, in a preferred embodiment, the dispenser body 2 defines, at the housing 10, the first coupling means 11, and the cover 20 defines corresponding second coupling means, indicated schematically by 28 in Figures 2 and 7, coupleable in a releasable manner to the coupling means 11. In the illustrated example, the coupling means 28 include seats at which small teeth - which form the coupling means 11 - are substantially snap-engageable, provided on the peripheral surface 10a of the housing (see Figure 2). In such an embodiment, therefore, the lateral walls 25 (and here also the connecting portion 26) are at least partially receivable in the housing 10.

[0026] Preferably, the cover 20 has at least one through opening, very preferably in its outer wall 21. In the exemplified case - see for example Figures 3 and 6 - a series of slots are provided, some of which are indicated with 29.

[0027] In one embodiment, such as that represented, the openings 29 are essentially crescent-shaped: different geometries are, however, possible, such as circular openings, polygonal openings and even openings arranged so as to create aesthetic/ornamental motifs intuitively recalling their function, such as for example a series of openings shaped and arranged so as to recall the profile of a flower.

[0028] In Figures 4 and 9-11, there is shown in greater detail a cartridge 30 useable in combination with the dispenser 1. In a preferred embodiment, the cartridge 30 is a cartridge for gradually releasing a perfuming substance, preferably a multi-dose cartridge, i.e. capable of being used for the purposes of carrying out a plurality of treatment cycles performed by the dishwasher.

[0029] The cartridge 30 has a cartridge body 31 that defines a portion 32 suitable for containing one or more doses of the perfumed substance. According to one of its characteristics, the cartridge 30 is specifically prearranged for use in the dispenser 1 and, for this purpose, has at least one engagement element, configured to cooperate with the insertion and/or retention guide of the corresponding third arrangement of the dispenser 1.

[0030] In a preferred embodiment, such as that represented, the aforesaid engagement element comprises at least one flange portion 33 of the cartridge body 31 that is substantially flat, which protrudes laterally from the containment portion 32 and is configured to be inserted into the guide 24, here defined in the cover 20.

[0031] The cartridge body 31 is preferably formed by a shell of impervious material, preferably a printable or thermoformable plastic material, having a central impression that defines the containment portion 32, preferably surrounded on at least two sides by the flange portion 33. The cartridge 30 then comprises a semi-permeable film 34, which is fixed to the aforesaid shell at the flange portion 33, in order to close the impression that forms

the containment portion 32.

[0032] The semi-permeable film 34 can be of a type known per se, suitable for releasing a dose of the perfuming substance following its contact with a fluid, particularly when this fluid has a temperature higher than a certain threshold, indicatively between 40°C and 55°C, preferably around 50°C. Preferably, the material forming the film 34 - for example a polymeric material - is a porous material that, following contact with water or a humid environment, is capable of increasing the size of its pores, thereby enabling release of the perfuming substance from the cartridge. It is preferable that the film 34 is of a type in which the pore size increases as the temperature of the fluid (water or steam), with which the material comes into contact, increases. In this way, the emission of the perfuming substance is maximized at the step or steps of the treatment cycle of the dishwasher in which the temperature of the treatment liquid and/or the environment defined by the chamber is higher, typically the hot rinse step, so that the emission of the substance is maximized near the end of the treatment cycle.

[0033] The operation of the dispenser according to the invention is very simple. When a cartridge 30 must be loaded into the dispenser, the user just has to remove the cover 20 from the dispenser body 2, using, for example, the fin 27, thereby opening the housing 10. After removing the cover 20, the user just has to couple the cartridge 30 thereto, simply by inserting its flange portion 33 into the guide 24, or rather the parts of the portion 33 which extend along the two longer sides of the containment portion 32, as clearly visible, for example, in Figures 12 and 13. The cartridge 30 may possibly be shaped so as to have a preferential insertion orientation in the guide 24, although this does not constitute an essential characteristic of the invention.

[0034] As mentioned, preferably, the cartridge body 31 consists of a shell defining the containment portion 32 and the flange portion 33, where the latter is essentially flat and on which the film 34 is applied. Inserting the cartridge 30 into the cover 20 takes place with the face of the cartridge formed by the film 34 facing the back of the outer wall 21, provided with the slits or openings 29. In this way, the film 34 can be reached by the water during the execution of a treatment step performed by the dishwasher. After inserting the cartridge 30 into the cover 20, as visible, for example, in Figures 12-15, the user just has to reengage the cover 20 at the housing 10, exploiting for this purpose the coupling means 11 and 28: in this condition, the containment portion 32 of the cartridge 30 will be at least partially received in the housing 10. The presence of any positioning elements within the housing 10, such as the element indicated with 12 in Figure 2, can be useful to ensure the maintenance of the correct position of the cartridge 30, with possible slight stress of its body, which is anyway elastically yielding, so as to avoid vibrations thereof during the operation of the machine. The firm positioning of the cartridge 30 is, moreover, also obtainable in the absence of specific position-

ing elements of the type indicated by 12, for example thanks to the presence of the guide 24, and by exploiting the interference of the containment portion 32 of the cartridge with the bottom of the housing 20, also in view of the pliability of this portion 32.

[0035] Of course, analogous operations to those described are carried out during the replacing of a used cartridge 30, the removal of which from the cover 20 evidently occurs by pulling the former from the latter.

[0036] During the course of an operation cycle of the dishwasher, part of the treatment liquid can penetrate into the slits 29, thereby reaching the film 34 and wetting it. The film 34 then passes from a condition of impermeability to a condition of at least partial permeability, with the water which, as said, is able to cause an increase of the pore size of the film itself. As explained, preferably, the material forming the film 34 is sensitive to temperature, so as to further increase the size of its pores or at least its permeability characteristics to the perfuming substance with an increasing temperature of the treatment liquid or the environment defined by the treatment chamber. As already said, therefore, the maximum emission of the perfuming substance is obtained at the treatment step that is performed at the highest temperature of the liquid, that is, the hot rinse, with the maximization of the perfumed emission. The diffusion of the perfuming substance towards the inside of the chamber takes place through the same slits 29 that allow the passage of water and/or steam. In a preferred embodiment, the ratio between the total area of the openings or slits 29 and the active surface of the film 34 (or rather, the part thereof that frontally delimits the containment compartment 32) is between 0.15 and 0.25, so as to have a balanced perfuming, or rather a sufficiently intense perfuming but which nonetheless provides an adequate duration of the cartridge 30.

[0037] As said, the cartridge 30 usable for the purposes of implementing the invention is preferably a multi-dose cartridge, i.e. containing a quantity of perfuming substance sufficient for carrying out a plurality of treatment cycles. As an indication, the containment capacity of the cartridge may be about 3 cc. Preferably, in the absence of contact with water or steam by the film 34 (for example, in the time between two successive treatment cycles), the pores of the film will tend to close again, thereby eliminating or minimizing the emission of the perfuming substance. In a preferred embodiment, moreover, the film 34 is of the type in which, following its first contact with water, its pores remain in any case open, although with a minimal size in order to promote, in each case, a continuous, albeit moderate, release of the perfuming substance: in such an embodiment, the cartridge 30 is still able to carry out its functions during several treatment cycles performed by the dishwasher.

[0038] From the given description, the characteristics of the present invention are clearly evident, as are its advantages, mainly represented by the simplicity of producing the dispenser proposed, by its increased utility,

simplicity and practicality of use. Thanks to the invention, the user no longer has to place any additional objects within the treatment chamber, as typical occurs for containers of perfuming substances removable according to the prior art cited previously, thereby also eliminating any noise due to vibrations of these containers. The provision for releasing the perfuming substance according to the invention does not present any actuation system, and is therefore extremely simple and economical to implement. The body of the cover 20 can be advantageously made by molded plastic material, with operations in themselves elementary. The same applies to the housing 10, which can be defined during the molding step of one of the shells forming the dispenser body 2.

[0039] It is clear to the person skilled in the art that numerous variants of the dispenser described as an example are possible, without thereby departing from the scope of the invention as defined by the attached claims.

[0040] Advantageously, the dispenser and/or the dishwashing machine according to the invention can be equipped with a plurality of covers 20, which are interchangeable, differing in the size of the openings 29. In this way, the user can calibrate, according to his/her preferences, the intensity of the perfuming, simply by selecting, in turn, a cover 20 with a greater or lesser total surface area of the openings. Advantageously, the covers of this plurality can be produced by means of the same mold, by only varying the mould inserts suitable for obtaining the openings or slits 29 at the outer wall 21 of the cover 20.

[0041] Additionally and/or alternatively, the interchangeable covers 20 of a relative plurality could be differentiated from each other according to the type of cartridge (structure and/or dimensions of the usable cartridges).

[0042] The presence of the openings 29, despite being preferable, is not strictly necessary for the purposes of implementing the invention, since the cover 20 is preferably not sealingly-coupled to the housing 10, thereby allowing the passage of water and/or steam, and diffusion of the perfuming substance.

Claims

1. A substance dispenser for dishwashers, having a dispenser body (2) prearranged to be fixed within a treatment chamber (3), the dispenser (1) comprising at least one first arrangement (4, 4a) to contain and dispense at least one first treatment substance, such as a detergent, and preferably at least one second arrangement (5, 5a, 6) to contain and dispense a second treatment substance, such as a rinse aid, the dispenser (1) being **characterized in that** it comprises at least one third arrangement (10, 20) configured for housing in a removable manner a cartridge (30) for the release of a perfuming substance, the third arrangement (10, 20) including a housing (10) defined in the dispenser body (2), to which a

corresponding cover (20) is associated, the cover being manually openable and closable by a user.

2. The dispenser according to claim 1, wherein the cover (20) is coupled in a removable manner to the dispenser body (2).
3. The dispenser according to claim 1 or claim 2, wherein the third arrangement (10, 20) has a guide (24) for insertion and/or retention of the cartridge (30).
4. The dispenser according to claim 3, wherein the guide (24) for insertion and/or retention is defined in the cover (20).
5. The dispenser according to claim 4, wherein the cover (20) has at least one of
 - two generally parallel lateral walls (25), between which the cartridge (30) is at least partly positionable, and
 - a peripheral wall (25-26) having at least one discontinuity to enable insertion of the cartridge (30) into the guide (24) for insertion and/or retention.
6. The dispenser according to any one of the preceding claims, wherein the cover (20) comprises at least one of
 - one or more through-openings (29),
 - at least one grip element (27) for the user.
7. The dispenser according to any one of the preceding claims, wherein the cover (20) comprises an outer wall (21) and an inner wall (22) generally parallel and defining between them the guide (24) for insertion and/or retention between, the inner wall (22) having a longitudinal central opening (23).
8. The dispenser according to claims 5 and 7, wherein the peripheral wall (25-26) and/or the lateral walls (25) rises/rise from the inner wall (22) and extends/extend along respective sides of the longitudinal central opening (23).
9. The dispenser according to claim 2, wherein the dispenser body (2) has, at the housing (10), first coupling means (11) and the cover (20) has second coupling means (28) to which the first coupling means (11) are coupleable in a releasable manner.
10. A dishwashing machine, comprising a substance dispenser according to one or more of claims 1-9.
11. The dishwashing machine according to claim 10, also comprising a plurality of differentiated and interchangeable covers (20), the covers (20) being as

sociable in a removable manner to the dispenser body (2).

12. A cartridge for releasing a perfuming substance pre-arranged for use in the dispenser (1) according to one or more of claims 1-9, the cartridge (30) having a cartridge body (31) defining a containment portion (32), to contain a plurality of doses of the perfuming substance, and at least one engagement element (33) configured for cooperating with a guide (24) of the third arrangement (10, 20). 5 10
13. The cartridge according to claim 12, wherein the at least one engagement element comprises a flange-like portion (33) of the cartridge body (31) that protrudes laterally from the containment portion (32). 15
14. The cartridge according to claim 12 or claim 13, wherein the cartridge body (31) comprises a shell of an impermeable material, having a central impression defining the containment portion (32), and a semi-permeable film (34), to close the impression, the semi-permeable film (34) being designed to release a dose of the perfuming substance following contact thereof with a fluid. 20 25
15. The cartridge according to any one of claims 12-14, wherein the cartridge (30) is a multi-dose cartridge, i.e., capable of being used for the purposes of carrying out a plurality of treatment cycles performed by a dishwasher. 30

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Fig. 1

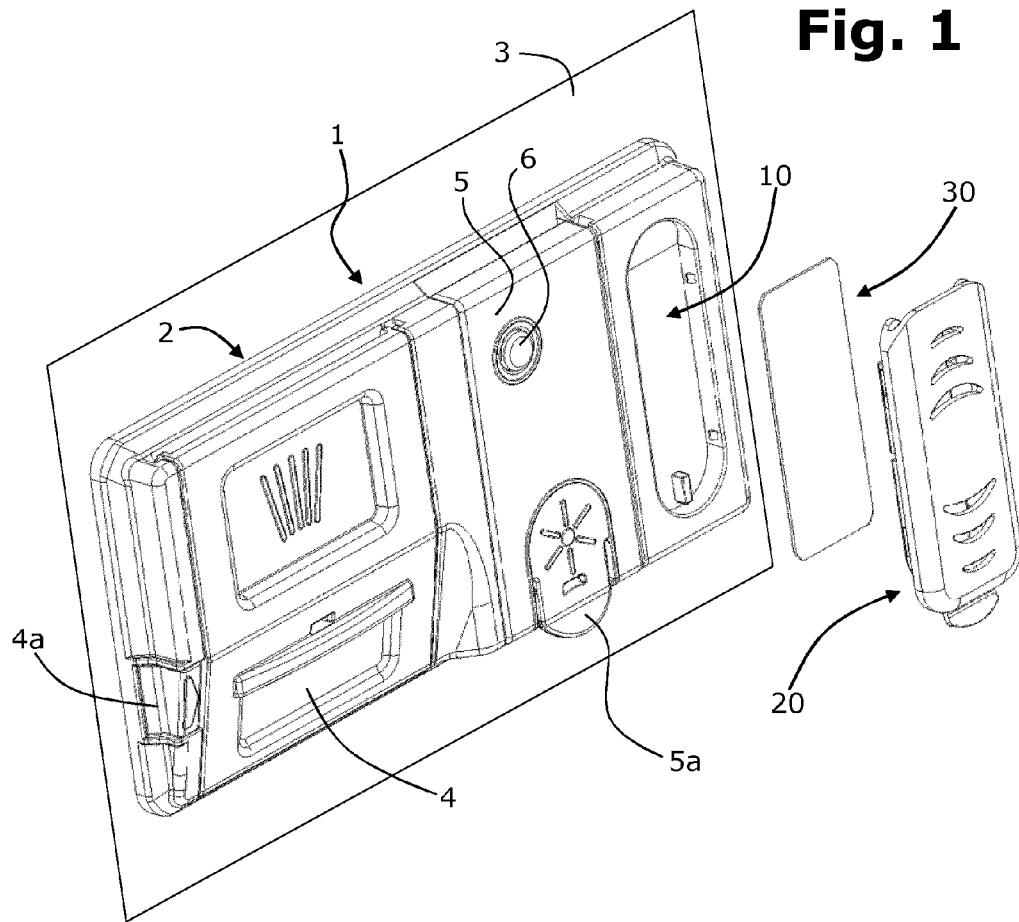
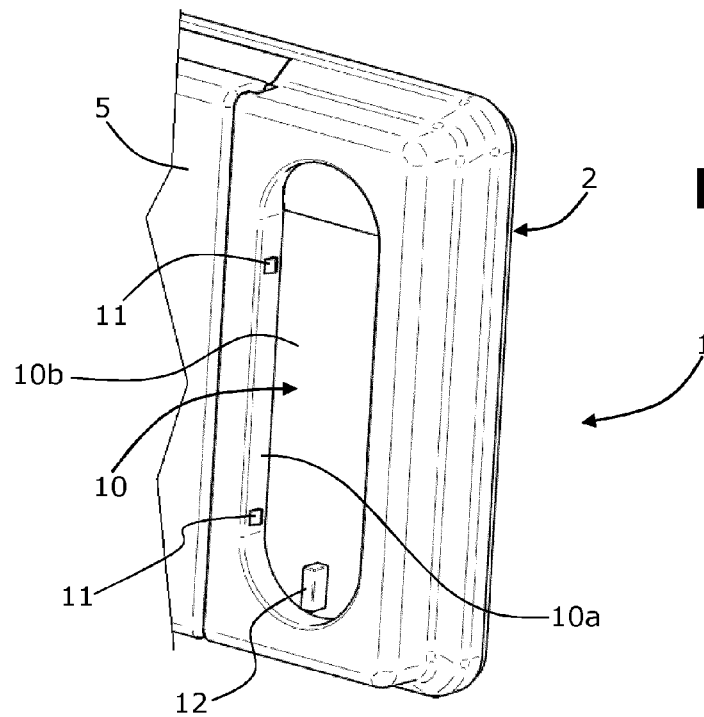


Fig. 2



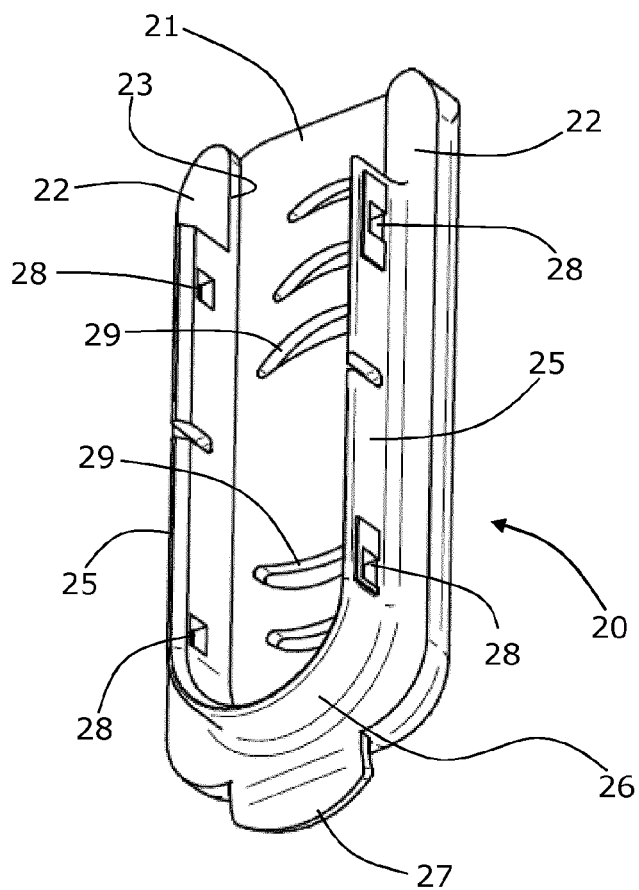
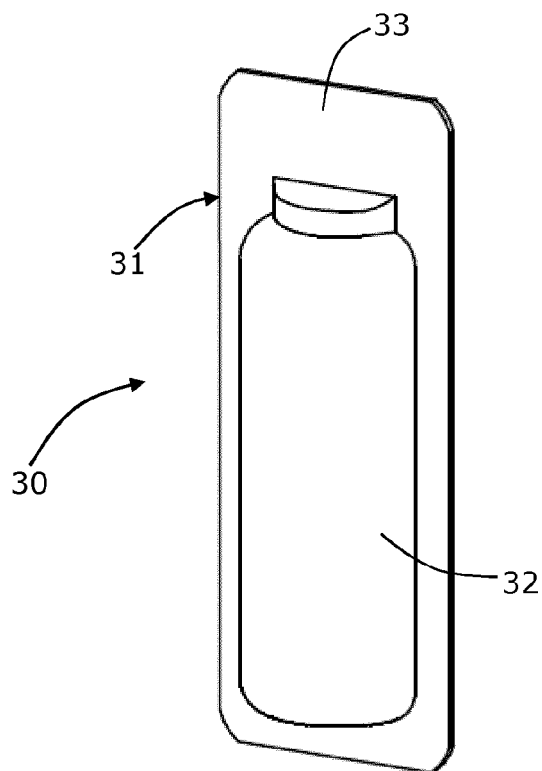


Fig. 3

Fig. 4



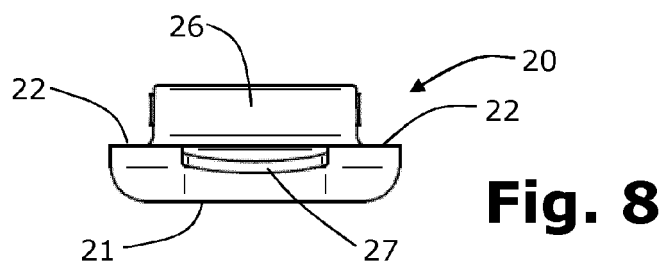
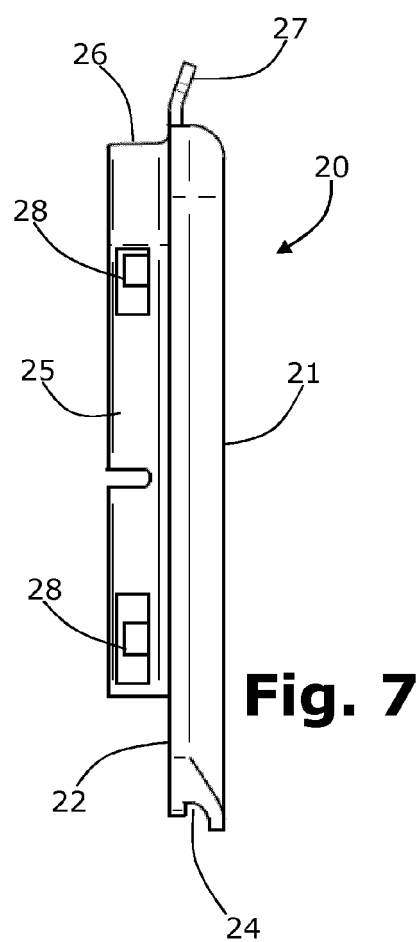
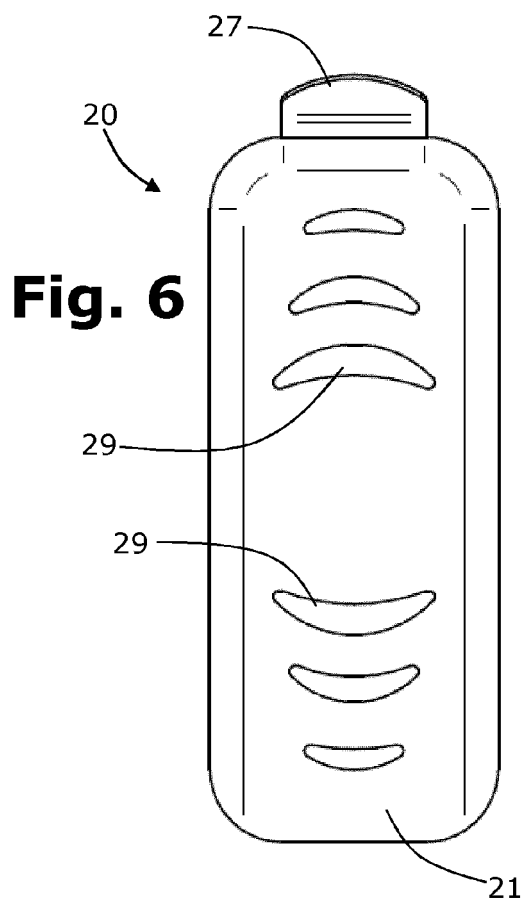
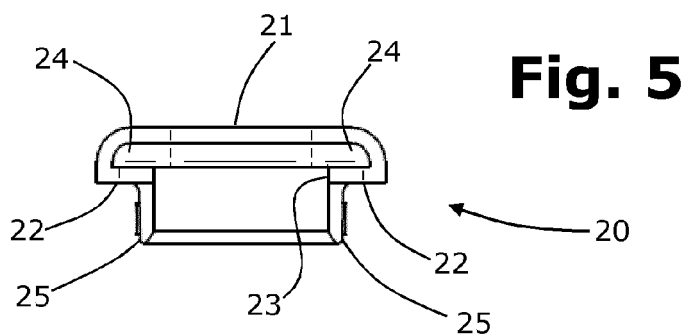


Fig. 9

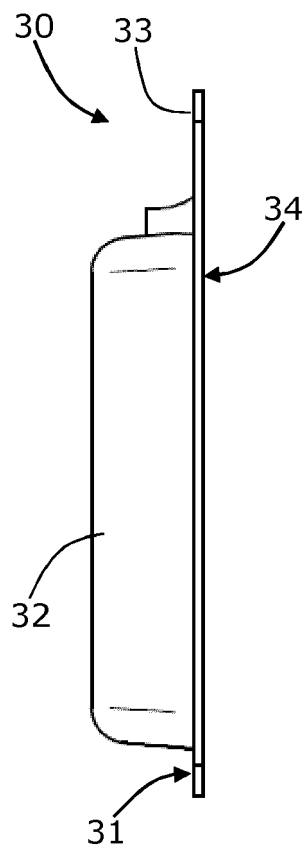


Fig. 10

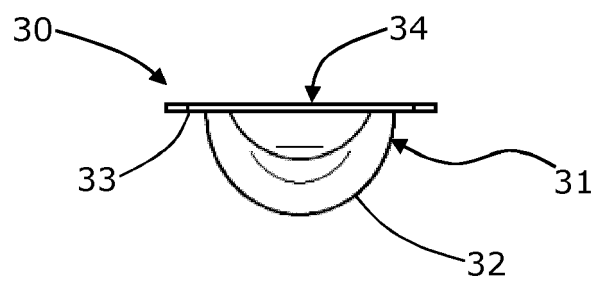
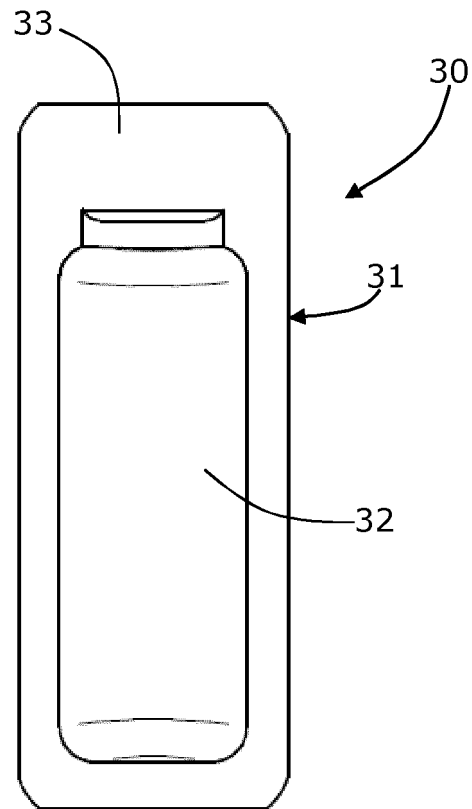


Fig. 11

Fig. 12

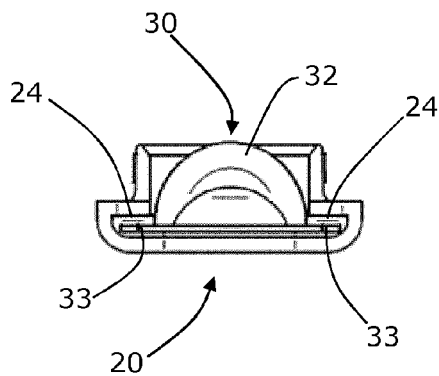


Fig. 13

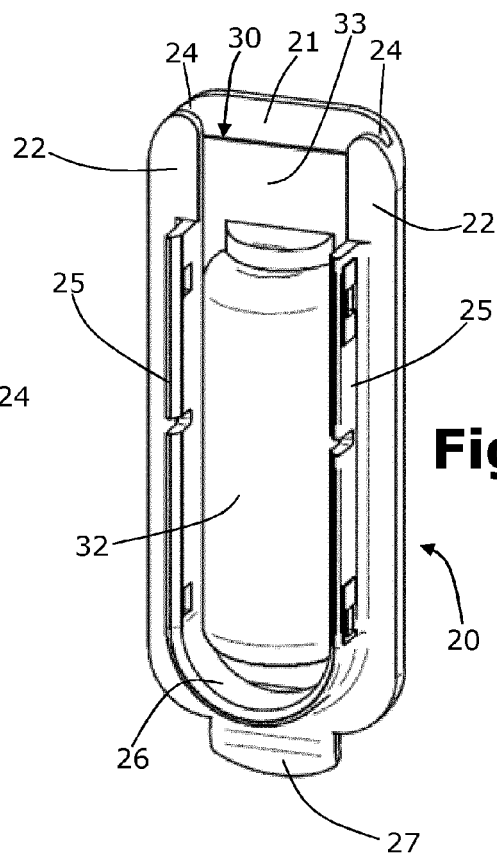


Fig. 14

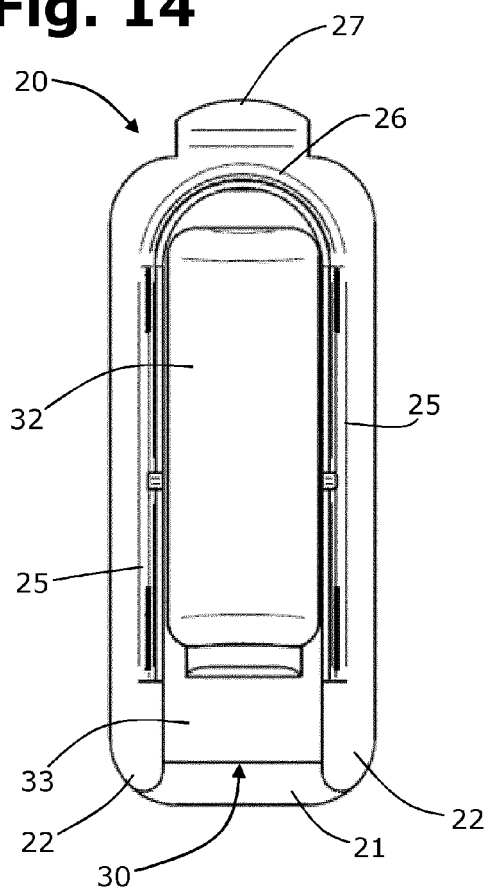
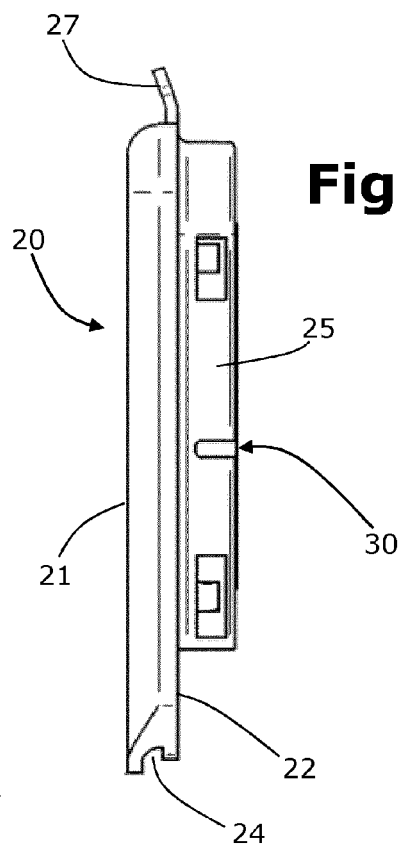


Fig. 15





EUROPEAN SEARCH REPORT

Application Number
EP 15 17 7106

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X A	EP 0 691 099 A2 (CANDY SPA [IT]) 10 January 1996 (1996-01-10) * figures 2,3 *	1,10 2-9, 11-15	INV. A47L15/44 A47L15/16
X A	US 2013/000781 A1 (BISCHOFF COREY MICHAEL [US] ET AL) 3 January 2013 (2013-01-03) * page 1, paragraphs 2,3 * * page 2, paragraph 24 - page 5, paragraph 41; figures 1,4 *	12,13 1-11	
X A	EP 1 082 969 A1 (GEN FIX S R L [IT]) 14 March 2001 (2001-03-14) * column 1, paragraph 1; claims 1,4; figures 1,2,7 *	12-15 1-11	
A	EP 2 529 657 A1 (BSH BOSCH SIEMENS HAUSGERAETE [DE]) 5 December 2012 (2012-12-05) * the whole document *	1-15	
A	WO 2008/141473 A1 (GIVAUDAN SA [CH]; BLONDEAU PHILIPPE [FR]) 27 November 2008 (2008-11-27) * the whole document *	1-15	TECHNICAL FIELDS SEARCHED (IPC) A47L D06F A61L
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 10 September 2015	Examiner Lodato, Alessandra
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 15 17 7106

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

10-09-2015

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0691099 A2	10-01-1996	DE 69532256 D1 DE 69532256 T2 EP 0691099 A2 IT MI940477 U1	22-01-2004 18-11-2004 10-01-1996 04-01-1996
US 2013000781 A1	03-01-2013	US 2013000781 A1 WO 2013003554 A2	03-01-2013 03-01-2013
EP 1082969 A1	14-03-2001	NONE	
EP 2529657 A1	05-12-2012	EP 2529657 A1 TR 201105302 A2	05-12-2012 21-12-2012
WO 2008141473 A1	27-11-2008	CA 2685535 A1 EP 2152326 A1 ES 2390517 T3 US 2010132743 A1 WO 2008141473 A1	27-11-2008 17-02-2010 13-11-2012 03-06-2010 27-11-2008

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 602572 A1 [0005] [0015]
- EP 1526876 A1 [0006]
- GB 2413262 A [0006]