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(54) **BOTTLE FOR EXTEMPORANEOUS-PREPARATION PRODUCTS, PARTICULARLY MEDICINAL, PHARMACEUTICAL, COSMETIC PRODUCTS OR THE LIKE**

FLASCHE ZUR IMPROVISIERTEN ZUBEREITUNG VON PRODUKTEN, INSBESONDERE VON MEDIZINISCHEN, PHARMAZEUTISCHEN UND KOSMETISCHEN PRODUKTE ODER DERGLEICHEN

FLACON POUR PRODUITS PRÉPARÉS EXTEMPORANÉMENT, EN PARTICULIER DES PRODUITS MÉDICINAUX, PHARMACEUTIQUES, COSMÉTIQUES OU SIMILAIRES

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EP-A1- 1 795 457 WO-A1-2004/060766
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Description

[0001] The present invention relates to a bottle for extemporaneous-preparation products, particularly medicinal, pharmaceutical, cosmetic products or the like, according to the preamble of claim 1.

Background Art

[0002] In the medicinal sector, in the pharmaceutical sector, in the cosmetic sector or in that of dietary supplements, extemporaneous-preparation products are known, i.e., products made up of the solution or of the mixing of at least two different substances, of which, e.g., one in the liquid state and the other in the powder state, which are kept separate the one from the other until the time of use.

[0003] For the packaging of extemporaneous-preparation products the use is known of bottles such as those described and illustrated in the patent document EP 0 963 325.

[0004] Such bottles are essentially made up of a tank which is closed on the bottom and which extends at the top in a neck, at the top of which is defined a dispensing mouth; inside the tank a first substance is contained, generally in the liquid state.

[0005] In the mouth of the tank is housed a container of a second substance which is made up of a hollow cylindrical body closed at the bottom by a breakable bottom and open at the top; the bottom of the container, as long as this remains intact, separates the second substance from the first.

[0006] Inside the container is inserted, sealed, a cutting element which is made up of a tubular body, the lower extremity of which is sectioned according to an oblique plane or which is bevel shaped and the upper extremity of which extends beyond the top opening of the container.

[0007] The cutting element is axially sliding with respect to the container between a non-interference configuration, wherein it is placed above the intact bottom of the container itself, and a cutting configuration, wherein, pushed towards the bottom of the container, it cuts this along the perimeter edge putting the container, thus opened, into communication with the tank.

[0008] The known bottles, furthermore, have a cover cap which is associated with the neck of the tank by means of a threaded coupling; the lower edge of the cap is temporarily secured, along a breakage line, to a seal ring secured to the neck of the tank and having a weakened axial line in correspondence to which it opens.

[0009] Finally, inside the cap, an annular relief is defined which, after the cap has been screwed onto the neck of the tank, couples with the upper edge of the container, which is elastically deformable in a centripetal direction, to form a single body piece with this.

[0010] At the time of using the product, the cap is screwed onto the neck of the tank to break the seal ring which detaches from this and opens. The screwing up of

the cap causes the sliding of the cutting element inside the container until the bottom of the latter is cut; the second substance is then poured from the container into the tank, inside which it mixes with the first to form the product.

[0011] To dispense the product thus formed, the cap has simply to be unscrewed to also remove, integral with this, the container and the cutting element opening the dispensing mouth of the tank.

[0012] These bottles of known type are not without drawbacks, among which should be recalled the fact that, though keeping the two substances separate until the preparation of the product, they do not permit completely isolating the one with respect to the other.

[0013] In particular, the vapours coming from the outside environment and/or those released by the liquid substance in the tank permeate, in part, inside the container where a powdery, often hygroscopic substance is generally present.

[0014] Before the preparation of the product, when the two substances are still separated, the powdery substance absorbs the vapours released by the liquid substance impregnating itself with these and becoming dense in agglomerates.

[0015] When, at the time of preparing the product, the container is opened and placed in communication with the tank, the agglomerates which have formed tend to remain inside the container and, even when they have been poured into the tank, they have difficulty in dissolving and dispersing themselves completely in the liquid substance.

[0016] The composition of the product thus formed does not correspond to that provided for it; in the event of the product being a drug or a medicinal, this causes an indeterminable alteration of the contents of its active ingredients and of the dosage established for it and, therefore, a disadvantageous modification of the therapy studied for a patient.

[0017] Such drawback is accentuated by the fact that the containers of known bottles are generally made of polymer materials which have a certain degree of permeability to vapours.

[0018] Permeability to vapours is further accentuated in correspondence to the bottom of the container which, being of a breakable type, generally has a reduced thickness and/or is fastened to the body of the container along weakened lines of even more reduced thickness.

[0019] To overcome such drawbacks at least in part, bottles are known like those illustrated in the documents EP 1 186 548 and EP 1 858 774, wherein the container containing the second substance defines an insulating interspace to hinder the transit of the vapours released by the liquid substance.

[0020] In any case, these bottles are not exempt from drawbacks either.

[0021] Recent studies have shown that the presence of an insulating interspace can only delay the diffusion of the vapours released by the liquid substance and,

therefore, not prevent their absorption by the powdery substance and the formation of inconvenient agglomerates.

[0022] Another type of bottle is shown in the patent documents WO 00/53507 and WO 2012/035417, wherein the second substance is contained inside a blistered capsule able to make it humidity and vapour proof.

[0023] The capsule is kept in correspondence to the dispensing mouth and meant to be perforated by means of a perforator element integrated in the cap.

[0024] The perforator is arranged above the blistered capsule and, once operated, crosses the blistered capsule from side to side so as to permit the release of the second substance.

[0025] These bottles too however have a number of drawbacks.

[0026] The use of a perforator arranged above the blistered capsule in fact, results in the latter being perforated on both faces, opening an access inside the cap wherein part of the second substance or of the product obtained by mixing with the first substance can remain inconveniently trapped.

[0027] The perforation, furthermore, determines a non-uniform tearing of the blistered capsule, with the risk of a number of fragments of same becoming separated from the cap and being swallowed by the user together with the product.

[0028] To this must be added that the bottle shown in WO 00/53507 is not always able to provide the necessary hydraulic seal between the cap and the tank, with the risk of unexpected and undesired leaks of the first substance or of the product occurring.

[0029] The bottle shown in WO 2012/035417, on the other hand, has the blistered capsule glued or sealed to the top of the cap; in case of the glue or the sealing yielding, therefore, serious malfunctions could occur, such as the fall of the blistered capsule into the tank and its perforation failure, thereby completely preventing the mixing of the substances and the formation of the product.

[0030] To overcome these drawbacks, at least in part, the international patent application nr. PCT/IB2012/000690 shows a bottle wherein the blistered capsule, instead of being perforated, is crushed by means of a pressing element integrated in the cap.

[0031] The pressing element acts on one face of the blistered capsule, which remains integral and does not break, while the opposite face, because of the pressure applied on the blistered capsule, is broken open, thus releasing the second substance inside the tank.

[0032] The blistered capsule is housed and retained in correspondence to the dispensing mouth of the tank thanks to a bush fitted at least partially in the neck of the tank.

[0033] The bottle made this way is therefore fabricated in the form of four separate components, i.e., the tank, the pressing element integrated in the cap, the blistered capsule and the bush.

[0034] The bottle according to the application nr.

PCT/IB2012/000690 is nevertheless also susceptible to further upgrading aimed, in particular, at increasing its efficiency and ease of use, besides reducing its number of components. Another kind of bottle is disclosed in the patent document GB 2405868.

Description of the Invention

[0035] The main aim of the present invention is to provide a bottle for extemporaneous-preparation products, particularly medicinal, pharmaceutical, cosmetic products or the like, which does in fact allow maintaining the substances making up the product perfectly separate from one another and isolated until the time of product preparation.

[0036] Another object of the present invention consists in providing a bottle which can be used and opened in a simple, practical and easy way by users without requiring any particular effort on their part.

[0037] A further object of the present invention consists in providing a bottle able to ensure the very best water seal between the different components and, at the same time, great sturdiness and stability, so that it offers highly-reliable and efficient use.

[0038] Not the least object of the present invention consists in providing a bottle the costs and production times of which are reduced, which is easy to assemble and which permits limiting the quantities of component parts and construction materials used for its production.

[0039] Another object of the present invention is to provide a bottle for extemporaneous-preparation products, particularly medicinal, pharmaceutical, cosmetic products or the like that allows overcoming the mentioned drawbacks of the state of the art within the ambit of a simple, rational, easy and effective to use as well as low cost solution.

[0040] The above mentioned objects are achieved by the present bottle for extemporaneous-preparation products, particularly medicinal, pharmaceutical, cosmetic products or the like, having the features of claim 1.

Brief Description of the Drawings

[0041] Other characteristics and advantages of the present invention will become more evident from the description of a preferred, but not sole, embodiment of a bottle for extemporaneous-preparation products, particularly medicinal, pharmaceutical, cosmetic products or the like, illustrated purely as an example but not limited to the annexed drawings in which:

Figure 1 is an exploded, partially broken view of the bottle according to the invention;

Figure 2 is a section view, on enlarged scale, of a detail of the bottle according to the invention in a packaging configuration;

Figure 3 is a section view, on enlarged scale, of the detail of Figure 2 in a release configuration.

Embodiments of the Invention

[0042] With particular reference to the embodiment of these figures, globally indicated by 1 is a bottle for ex-temporaneous-preparation products, particularly medicinal, pharmaceutical, cosmetic products or the like.

[0043] By ex-temporaneous-preparation products are meant products obtainable through the solution or the mixing of at least two different substances which are kept separate until the time of product use.

[0044] One of the two substances is generally in powder or granular form, while the other is generally in liquid state.

[0045] The bottle 1 comprises a tank 2 for containing a first substantially liquid substance 3.

[0046] The tank 2 is substantially shaped like a bottle, a phial or the like.

[0047] More in detail, the tank 2 has a central axis A, a closed bottom 4 and, towards the top, extends in a neck 5.

[0048] The top of the neck 5 ends in a dispensing mouth 6 to allow the product to come out, once this has been prepared.

[0049] In this respect, it is underlined that in this treatise, by "top" of the neck 5 is meant the part arranged higher when the tank 2 is placed in the normal collocation position, i.e., with the central axis A vertical, the closed bottom 4 turned downwards and the neck 5 turned upwards.

[0050] Similarly, in the rest of this present treatise, terms will be used such as "over" or "above", "under" or "below", or others still, always with reference to the normal collocation position of the tank.

[0051] In the proximity of the neck 5, a blistered capsule 7, 8 can be placed for containing a second substantially powdered substance 9.

[0052] The blistered capsule 7, 8 has:

- a first foil 7 substantially deformable and shaped to define a containment cavity 7a of the second substance 9 and a perimeter edge 7b; and
- a second foil 8 substantially breakable and flat, which is associated with the perimeter edge 7b to close the containment cavity 7a.

[0053] More in detail, the first foil 7 is substantially curved with the exception of the perimeter edge 7b, which is substantially flat.

[0054] At least one between the first foil 7 and the second foil 8 comprises at least one layer of metal, preferably aluminium, able to prevent the transit of humidity and, above all, any vapours escaping from the first substance 3 contained in the tank 2.

[0055] Preferably, both the first foil 7 and the second foil 8 each have a layer of aluminium, if necessary combined with one or more layers of other material, e.g. plastic or the like (LLDPE, LDPE, MDPE, HDPE).

[0056] The blistered capsule 7, 8 formed this way can

be positioned in the proximity of the neck 5.

[0057] In the particular embodiment shown in the illustrations, the blistered capsule 7,8 is positioned so the second foil 8 is facing and turned towards the inside of the tank 2, i.e., downwards, while the first foil 7 is turned upwards.

[0058] The inner volume of the blistered capsule 7, 8 is temporarily separated from the inner volume of the tank 2 and is suitable for being placed in communication with this for mixing the first substance 3 and the second substance 9 to form the product.

[0059] With the tank 2 is associable at least one removable cap 10 which covers the dispensing mouth 6.

[0060] The cap 10, in particular, can be associated with the tank 2 by means of a threaded coupling.

[0061] The cap 10, in fact, comprises a tubular wall 11 which can be placed around the neck 5; both the tubular wall 11 and the neck 5 are cylinder shaped with round cross section extending along the central axis A, with the tubular wall 11 having an internal threading 12 engageable with an external threading 13 obtained on the neck 5.

[0062] At the base of the tubular wall 11 the bottle 1 has anti-tampering seal means 14, 15 suitable for making evident the removal of the cap 10 from the tank 2.

[0063] The anti-tampering seal means 14, 15 comprise a seal ring 14 which is made in a single body piece with the cap 10 along a tearable line 15 obtained at the base of the tubular wall 11.

[0064] The tearable line 15, e.g., is defined by a series of bridges with weakened section placed in between the seal ring 14 and the base of the tubular wall 11.

[0065] When the cap 10 is fully screwed onto the neck 5, the seal ring 14 can be fastened to the tank 2 by means of a slot coupling.

[0066] Such coupling is made up, e.g., of an annular relief 16 protruding from the outer face of the neck 5 and of a corresponding annular protrusion 17 defined inside the seal ring 14.

[0067] At the top of the tubular wall 11, the cap 10 has an annular disc 18 which extends from the tubular wall 11 towards the central axis A.

[0068] To allow opening the blistered capsule 7, 8 and allow the second substance 9 to come out, the cap 10 has an actuator element 19 moving between a packaging configuration, wherein the actuator element 19 is kept substantially spaced away from the blistered capsule 7, 8, and a release configuration, wherein the actuator element 19 is arranged in contact against the blistered capsule 7, 8 and causes its opening for the outflow of the first substance 3 and its mixing with the second substance 9 to form the product.

[0069] In the embodiment shown in the illustrations, the actuator element 19 is made up of a pressing element suitable for coming into contact with the first foil 7 of the blistered capsule 7, 8 and causing the deformation without breakage of the first foil 7 and the breakage of the second foil 8.

[0070] Alternative embodiments are however possible

wherein the actuator element 19 consists of a perforator element having a sharp profile able to cross both the foils of the blistered capsule 7, 8.

[0071] More in detail, the actuator element 19 and the cap 10 are made in a single body piece and are joined along a pre-breaking line 20 which is breakable for the switch of the actuator element 19 from the packaging configuration to the release configuration.

[0072] In other words, the actuator element 19 and the cap 10 are made joined and, once the cap 10 has been placed on the neck 5 of the tank 2, the actuator element 19 remains far enough from the blistered capsule 7, 8 so as not to negatively affect its integrity.

[0073] To open the blistered capsule 7, 8, a pressure must be applied on the actuator element 19 turned downwards and such as to break the pre-breaking line 20 and bring the actuator element 19 closer to the blistered capsule 7, 8.

[0074] The pressing element 19 is shaped so as to define a tubular body 21, having a closed side 22 arranged above and an open side 23 arranged below.

[0075] The open side 23, in point of fact, consists of an annular surface suitable for coming into contact with the first foil 7 of the blistered capsule 7, 8 and deforming it.

[0076] Between the actuator element 19 and the cap 10 retention means 24, 25 are provided for retaining the actuator element 19 in the release configuration.

[0077] The retention means 24, 25 comprise, e.g., at least one grip recess 24, obtained on at least one between the actuator element 19 and the cap 10, and at least one fastening tooth 25, obtained on the other between the actuator element 19 and the cap 10 and insertable into the grip recess 24 when the actuator element 19 has reached the release configuration.

[0078] In the particular embodiment shown in the illustrations, the grip recess 24 is obtained at the top of the actuator element 19, on its outer side face, while the fastening tooth 25 is obtained on the cap 10 in correspondence to the pre-breaking line 20.

[0079] The cap 10 comprises an annular wall 26 having an outer side surface 27 and an annular edge 28 with which is associated the perimeter edge 7b of the first foil 7.

[0080] The annular wall 26 extends downwards from the annular disc 18 and axially ends in the annular edge 28.

[0081] The annular edge 28 lies on a plane transversal to the central axis A and is substantially flat, so as to facilitate joining to the perimeter edge 7b; the union between the annular edge 28 and the perimeter edge 7b occurs e.g. by means of sealing, heat sealing, ultrasonic sealing, gluing or the like.

[0082] The annular wall 26 and the tubular wall 11 of the cap 10 are substantially coaxial with one another and fitted inside one another, with the tubular wall 11 outside the annular wall 26.

[0083] The tubular wall 11 and the annular wall 26 are spaced away so as to define, between themselves and

the annular disc 18, an annular interspace into which the top of the neck 5 can be fitted.

[0084] In this respect, it is underlined that, in correspondence to the top, the neck 5 defines an end portion 29 having an inner side surface 30 and an annular seat 31 which lies on a plane transversal to the central axis A.

[0085] The annular wall 26 can be fitted in the end portion 29 with the outer side surface 27 in seal contact against the inner side surface 30 and with the blistered capsule 7, 8 blocked between the annular edge 28 and the annular seat 31.

[0086] To facilitate the introduction of the annular wall 26 inside the end portion 29, the outer side surface 27 is tapered towards the annular edge 28 to define an invitation profile guiding the insertion into the inner side surface 30.

[0087] In other words, the outer side surface 27 has a truncated-cone shape with vertex turned downwards.

[0088] It is however underlined that at least a part of the outer side surface 27 is oversized with respect to the inner side surface 30, i.e., it has a larger diameter compared to that of the inner side surface 30.

[0089] This way, the annular wall 26 can be inserted in the end portion 29 with interference, exploiting at least in part the deformability of the material making up the annular wall 26 and the end portion 29 to ensure the sought seal effect between the tank 2 and the cap 10.

[0090] It is further underlined that the axial extension of the annular wall 26 and of the end portion 29 is such as to place the annular edge 28 and the annular seat 31 at a very short distance which determines the crushing of the perimeter of the blistered capsule 7, 8 on both faces, ensuring this stays in position.

[0091] The operation of the bottle 1 is the following.

[0092] The bottle 1 is manufactured in the form of three separate component parts (figure 1): the tank 2 containing the first substance 3, the blistered capsule 7, 8 containing the second substance 9, and the cap 10, which integrates the pressing element 19 and the seal ring 14.

[0093] The assembly of bottle 1 occurs by stably joining (e.g., by means of sealing or gluing) the perimeter edge 7b of the blistered capsule 7, 8 to the annular edge 28 and, subsequently, fitting and screwing the cap 10 over the neck 5.

[0094] During screwing, the annular wall 26 is forced to enter with interference in the end portion 29, ensuring the side seal between the outer side surface 27 of the annular wall 26 and the inner side surface 30 of the end portion 29.

[0095] Once screwing on has been completed, furthermore, the perimeter of the blistered capsule 7, 8 remains perfectly blocked between the annular edge 28 of the annular wall 26 and the annular seat 31 of the end portion 29 (figure 2).

[0096] When the product has to be prepared, all the user has to do is apply a pressure on the pressing element 19 such as to break the pre-breaking line 20 and thus release the pressing element 19 from the cap 10.

[0097] The pressing element 19 is thus forced to switch from packaging configuration to release configuration, wherein it comes into contact with the blistered capsule 7, 8 deforming its first foil 7 without breaking it.

[0098] The pressure applied on the second substance 9 by means of the deformation of the first foil 7 leads to the breaking of the second foil 8, and to the fall by gravity of the second substance 9 through the neck 5 and its pouring inside the tank 2 to form the product (figure 3).

[0099] To dispense the product prepared this way, the cap 10 simply has to be unscrewed from the neck 5.

[0100] Such operation determines the simultaneous removal of the blistered capsule 7, 8, which is stably joined to the annular edge 28, and of the pressing element 19, which remains associated with the cap 10 thanks to the retention means 24, 25.

[0101] When the cap 10 is removed, furthermore, the coupling between the seal ring 14 and the tank 2 remains steady while that between the seal ring 14 and the cap 10 gives way; the tearable line 15, does in fact break, the cap 10 is removed while the seal ring 14 stays on the neck 5 to indicate the bottle 1 has been opened.

Claims

1. Bottle (1) for extemporaneous-preparation products, particularly medicinal, pharmaceutical, cosmetic products or the like, comprising:

- at least a tank (2) for the containment of a first substance (3), which has at least a neck (5) ending up into a dispensing mouth (6);
- at least a blistered capsule (7, 8) for the containment of a second substance (9), which comprises:
 - a first foil (7) deformable and shaped to define a containment cavity (7a) of said second substance (9) and a perimeter edge (7b), and
 - a second foil (8) breakable and flat, which is associated with said perimeter edge (7b) to close said containment cavity (7a);
 said blistered capsule (7, 8) being placed in the proximity of said neck (5), wherein the inner volume of said blistered capsule (7, 8) is temporarily separated from the inner volume of said tank (2) and can be placed in communication with it for mixing the first substance (3) and the second substance (9) together to form a product; and
- at least a removable cap (10), which is associated with said tank (2) to cover said dispensing mouth (6) and which comprises at least an actuator element (19) moving between a packaging configuration, wherein said actuator element (19) is kept spaced from said blistered capsule (7, 8), and a release configuration, wherein said actuator element (19) is arranged in contact against said blistered capsule (7, 8), causing the

opening thereof for the exiting of the second substance (9) and its mixing with the first substance (3) to form said product;

5 **characterized by the fact that:**

- said cap (10) comprises an annular wall (26) having an outer side surface (27) and an annular edge (28) with which said perimeter edge (7b) of the first foil (7) is associated; and
- said neck (5) comprises an end portion (29) having an inner side surface (30) and an annular seat (31);

15 said annular wall (26) being insertable into said end portion (29) with said outer side surface (27) in sealing contact against said inner side surface (30) and said blistered capsule (7, 8) fitted between said annular edge (28) and said annular seat (31), wherein at least one part of said outer side surface (27) is oversized with respect to said inner side surface (30) and said annular wall (26) is insertable into said end portion (29) with interference.

25 2. Bottle (1) according to the claim 1, **characterized by** the fact that said outer side surface (27) is tapered towards said annular edge (28) to define an invitation profile guiding the insertion into said inner side surface (30).

30 3. Bottle (1) according to one or more of the preceding claims, **characterized by** the fact that said blistered capsule (7, 8) is arranged with said second foil (8) facing and turned towards the inside of said tank (2).

35 4. Bottle (1) according to the claim 3, **characterized by** the fact that said actuator element (19) is a pressing element contacting with said first foil (7) and causing the deformation without breakage of said first foil (7) and the breakage of said second foil (8).

40 5. Bottle (1) according to the claim 4, **characterized by** the fact that said pressing element (19) comprises a tubular body (21) having one open side (23) contacting with said first foil (7).

45 6. Bottle (1) according to one or more of the preceding claims, **characterized by** the fact that said actuator element (19) and said cap (10) are made in a single body piece.

50 7. Bottle (1) according to the claim 6, **characterized by** the fact that said actuator element (19) and said cap (10) are joined together along a pre-breaking line (20) which can be broken for the switch of said actuator element (19) from said packaging configuration to said release configuration.

8. Bottle (1) according to one or more of the preceding claims, **characterized by** the fact that it comprises retention means (24, 25) for said actuator element (19) in said release configuration.
9. Bottle (1) according to the claim 8, **characterized by** the fact that said retention means (24, 25) comprise at least a grip recess (24), obtained on at least one between said actuator element (19) and said cap (10), and at least a fastening tooth (25), which is obtained on the other between said actuator element (19) and said cap (10) and is inserted into said grip recess (24) when said actuator element (19) is in the release configuration.
10. Bottle (1) according to one or more of the preceding claims, **characterized by** the fact that said cap (10) is associable with said tank (2) with a threaded coupling.
11. Bottle (1) according to the claim 10, **characterized by** the fact that said cap (10) comprises a tubular wall (11) which is coaxial and external to said annular wall (26) and has an internal threading (12) engageable with an external threading (13) obtained on said neck (5).
12. Bottle (1) according to one or more of the preceding claims, **characterized by** the fact that it comprises anti-tampering seal means (14, 15) suitable for making evident the first removal of said cap (10) from said tank (2).
13. Bottle (1) according to the claim 12, **characterized by** the fact that said anti-tampering seal means (14, 15) comprise a seal ring (14) which is made in a single body piece with said cap (10) along a tearable line (15) and which can be fastened to said tank (2).
14. Bottle (1) according to one or more of the preceding claims, **characterized by** the fact that at least one between said first foil (7) and said second foil (8) comprises at least a metal layer.

Patentansprüche

1. Flasche (1) für Rezeptur-Produkte, insbesondere medizinische, pharmazeutische, kosmetische Produkte oder dergleichen, die Folgendes umfasst:
- mindestens einen Behälter (2) für die Aufnahme einer ersten Substanz (3), der mindestens einen Hals (5) aufweist, der in eine Ausgießmündung (6) endet;
 - mindestens eine blasenartige Kapsel (7, 8) für die Aufnahme einer zweiten Substanz (9), die Folgendes umfasst

- eine erste Folie (7), die verformbar und geformt ist, um eine Aufnahmekammer (7a) der zweiten Substanz (9) und einen Umfangsrand (7b) zu definieren, und
- eine zweite Folie (8), die brechbar und flach ist, welche dem Umfangsrand (7b) zugeordnet ist, um die Aufnahmekammer (7a) zu verschließen;

wobei die blasenartige Kapsel (7, 8) in der Nähe des Halses (5) platziert ist, wobei das Innenvolumen der blasenartigen Kapsel (7, 8) zeitweise von dem Innenvolumen des Behälters (2) getrennt ist und in Verbindung mit ihm zum Mischen der ersten Substanz (3) mit der zweiten Substanz (9) zusammengebracht werden kann, um ein Produkt zu bilden; und

- mindestens einen entfernbarer Verschluss (10), welcher dem Behälter (2) zugeordnet werden kann, um die Ausgießmündung (6) zu bedecken, und welcher mindestens ein Betätigungselement (19) umfasst, das sich zwischen einer Verpackungskonfiguration, in der das Betätigungselement (19) von der blasenartigen Kapsel (7, 8) beabstandet gehalten wird, und einer Freigabekonfiguration bewegt, in welcher das Betätigungselement (19) in Kontakt gegen die blasenartige Kapsel (7, 8) angeordnet ist, wodurch deren Öffnung bewirkt wird, damit die zweite Substanz (9) austritt und mit der ersten Substanz (3) gemischt wird, um das Produkt auszubilden;

gekennzeichnet durch die Tatsache, dass:

- der Verschluss (10) eine ringförmige Wand (26) umfasst, die eine äußere Seitenfläche (27) und einen ringförmigen Rand (28) aufweist, mit welchem der Umfangsrand (7b) der ersten Folie (7) verbunden ist; und
- der Hals (5) einen Endabschnitt (29) umfasst, der eine innere Seitenfläche (30) und einen ringförmigen Sitz (31) aufweist;

wobei die ringförmige Wand (26) in den Endabschnitt (29) mit der äußeren Seitenfläche (27) in abdichtendem Kontakt gegen die innere Seitenfläche (30) eingesetzt werden kann, und die blasenartige Kapsel (7, 8) zwischen den ringförmigen Rand (28) und den ringförmigen Sitz (31) einpasst ist, wobei mindestens ein Teil der äußeren Seitenfläche (27) im Verhältnis zu der inneren Seitenfläche (30) überdimensioniert ist, und die ringförmige Wand (26) in den Endabschnitt (29) mit Presspassung eingesetzt werden kann.

2. Flasche (1) nach Anspruch 1, **gekennzeichnet durch** die Tatsache, dass sich die äußere Seitenflä-

- che (27) in Richtung des ringförmigen Randes (28) verjüngt, um ein Einführungsprofil zu definieren, mit dem das Einsetzen in die innere Seitenfläche (30) geführt wird.
3. Flasche (1) nach einem oder mehreren der vorhergehenden Ansprüchen, **gekennzeichnet durch** die Tatsache, dass die blasenartige Kapsel (7, 8) so angeordnet ist, dass die zweite Folie (8) zu der Innenseite des Behälters (2) zeigt und zu ihr gerichtet ist.
 4. Flasche (1) nach Anspruch 3, **gekennzeichnet durch** die Tatsache, dass das Betätigungselement (19) ein Druckelement ist, das mit der ersten Folie (7) in Kontakt ist und die Verformung ohne Zerbrechen der ersten Folie (7) und das Zerbrechen der zweiten Folie (8) bewirkt.
 5. Flasche (1) nach Anspruch 4, **gekennzeichnet durch** die Tatsache, dass das Druckelement (19) einen röhrenförmigen Körper (21) umfasst, der eine offene Seite (23) aufweist, welche mit der ersten Folie (7) in Kontakt ist.
 6. Flasche (1) nach einem oder mehreren der vorhergehenden Ansprüche, **gekennzeichnet durch** die Tatsache, dass das Betätigungselement (19) und der Verschluss (10) einstückig hergestellt sind.
 7. Flasche (1) nach Anspruch 6, **gekennzeichnet durch** die Tatsache, dass das Betätigungselement (19) und der Verschluss (10) entlang einer vorgesehenen Bruchlinie (20) zusammengefügt sind, die für den Wechsel des Betätigungselementes (19) aus der Verpackungskonfiguration in die Freigabekonfiguration gebrochen werden kann.
 8. Flasche (1) nach einem oder mehreren der vorhergehenden Ansprüche, **gekennzeichnet durch** die Tatsache, dass sie Rückhaltemittel (24, 25) für das Betätigungselement (19) in der Freigabekonfiguration umfasst.
 9. Flasche (1) nach Anspruch 8, **gekennzeichnet durch** die Tatsache, dass die Rückhaltemittel (24, 25) mindestens eine Griffvertiefung (24), die an mindestens einem von dem Betätigungselement (19) oder dem Verschluss (10) erhalten wird, und mindestens einen Befestigungsvorsprung (25) umfassen, der an dem anderen von dem Betätigungselement (19) oder dem Verschluss (10) erhalten wird, und in die Griffvertiefung (24) eingesetzt wird, wenn sich das Betätigungselement (19) in der Freigabekonfiguration befindet.
 10. Flasche (1) nach einem oder mehreren der vorhergehenden Ansprüche, **gekennzeichnet durch** die Tatsache, dass der Verschluss (10) mit dem Behälter (2) über eine Gewindekopplung verbunden werden kann,
 11. Flasche (1) nach Anspruch 10, **gekennzeichnet durch** die Tatsache, dass der Verschluss (10) eine röhrenförmige Wand (11) umfasst, welche koaxial zu und extern von der ringförmigen Wand (26) liegt und ein Innengewinde (12) aufweist, das in ein Außengewinde (13) eingreifen kann, das an dem Hals (5) erhalten wird.
 12. Flasche (1) nach einem oder mehreren der vorhergehenden Ansprüche, **gekennzeichnet durch** die Tatsache, dass sie Dichtungsmittel gegen missbräuchlichen Eingriff (14, 15) umfasst, die geeignet sind, um das erstmalige Entfernen des Verschlusses (10) von dem Behälter (2) offensichtlich zu machen.
 13. Flasche (1) nach Anspruch 12, **gekennzeichnet durch** die Tatsache, dass die Dichtungsmittel gegen missbräuchlichen Eingriff (14, 15) einen Dichtungsring (14) umfassen, der einstückig mit dem Verschluss (10) entlang einer Aufreisslinie (15) hergestellt ist, und der an dem Behälter (2) befestigt werden kann.
 14. Flasche (1) nach einem oder mehreren der vorhergehenden Ansprüche, **gekennzeichnet durch** die Tatsache, dass mindestens eine von der ersten Folie (7) oder der zweiten Folie (8) mindestens eine Metallschicht umfasst.

Revendications

1. Flacon (1) pour des produits à préparation extemporanée, notamment des produits médicaux, pharmaceutiques, cosmétiques ou similaires, comprenant :
 - au moins un réservoir (2) pour le confinement d'une première substance (3), qui possède au moins un goulot (5) aboutissant dans une bouche de distribution (6) ;
 - au moins une capsule à blister (7, 8) pour le confinement d'une seconde substance (9), qui comprend :
 - une première feuille de conditionnement (7) déformable et conformée pour définir une cavité de confinement (7a) de ladite seconde substance (9) et un rebord de périmètre (7b), et
 - une seconde feuille de conditionnement (8) ruptible et plate, qui est associée audit rebord de périmètre (7b) pour fermer ladite cavité de confinement (7a) ;

ladite capsule à blister (7, 8) étant placée à proximité dudit goulot (5), dans lequel le volume intérieur de ladite capsule à blister (7, 8) est temporairement séparé du volume intérieur dudit réservoir (2) et peut être placé en communication avec celui-ci pour mélanger la première substance (3) et la seconde substance (9) ensemble pour constituer un produit ; et

- au moins un capuchon amovible (10), qui peut être associé audit réservoir (2) pour recouvrir ladite bouche de distribution (6) et qui comprend au moins un élément actionneur (19) évoluant entre une configuration de conditionnement, dans laquelle ledit élément actionneur (19) est maintenu espacé de ladite capsule à blister (7, 8), et une configuration de libération, dans laquelle ledit élément actionneur (19) est agencé au contact de ladite capsule à blister (7, 8), provoquant l'ouverture de cette dernière permettant la sortie de la seconde substance (9) et son mélange avec la première substance (3) pour constituer ledit produit ;

caractérisé en ce que :

- ledit capuchon (10) comprend une paroi annulaire (26) ayant une surface latérale extérieure (27) et un bord annulaire (28) avec lequel ledit rebord de périmètre (7b) de la première feuille de conditionnement (7) est associé ; et
- ledit goulot (5) comprend une portion d'extrémité (29) ayant une surface latérale intérieure (30) et un siège annulaire (31) ;

ladite paroi annulaire (26) pouvant être insérée dans ladite portion d'extrémité (29) avec ladite surface latérale extérieure (27) en contact étanche contre ladite surface latérale intérieure (30) et ladite capsule à blister (7, 8) agencée entre ledit bord annulaire (28) et ledit siège annulaire (31), dans lequel au moins une partie de ladite surface latérale extérieure (27) est surdimensionnée par rapport à ladite surface latérale intérieure (30) et ladite paroi annulaire (26) peut être insérée dans ladite portion d'extrémité (29) avec interférence.

2. Flacon (1) selon la revendication 1, **caractérisé en ce que** ladite surface latérale extérieure (27) et biseauté vers ledit bord annulaire (28) pour définir un profil d'invitation guidant l'insertion dans ladite surface latérale intérieure (30).
3. Flacon (1) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce que** ladite capsule à blister (7, 8) est agencée avec ladite seconde feuille de conditionnement (8) en regard de et orientée vers l'intérieur dudit réservoir (2).

4. Flacon (1) selon la revendication 3, **caractérisé en ce que** ledit élément actionneur (19) est un élément d'appui entrant en contact avec ladite première feuille de conditionnement (7) et provoquant la déformation sans rupture de ladite première feuille de conditionnement (7) et la rupture de ladite seconde feuille de conditionnement (8).

5. Flacon (1) selon la revendication 4, **caractérisé en ce que** ledit élément d'appui (19) comprend un corps tubulaire (21) ayant un côté ouvert (23) entrant en contact avec ladite première feuille de conditionnement (7).

6. Flacon (1) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce que** ledit élément actionneur (19) et ledit capuchon (10) sont réalisés en une seule pièce.

7. Flacon (1) selon la revendication 6, **caractérisé en ce que** ledit élément actionneur (19) et ledit capuchon (10) sont solidarités entre eux le long d'une ligne de pré-rupture (20) qui peut être rompue pour faire passer ledit élément actionneur (19) de ladite configuration de conditionnement à ladite configuration de libération.

8. Flacon (1) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce qu'il** comprend des moyens de rétention (24, 25) pour ledit élément actionneur (19) dans ladite configuration de libération.

9. Flacon (1) selon la revendication 8, **caractérisé en ce que** lesdits moyens de rétention (24, 25) comprennent au moins un renforcement d'accrochage (24), obtenu sur au moins l'un parmi ledit élément actionneur (19) et ledit capuchon (10), et au moins une dent d'accrochage (25), qui est obtenue sur l'autre parmi ledit élément actionneur (19) et ledit capuchon (10) et est insérée dans ledit renforcement d'accrochage (24) lorsque ledit élément actionneur (19) est dans la configuration de libération.

10. Flacon (1) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce que** ledit capuchon (10) peut être associé audit réservoir (2) au moyen d'un couplage fileté.

11. Flacon (1) selon la revendication 10, **caractérisé en ce que** ledit capuchon (10) comprend une paroi tubulaire (11) qui est coaxiale et extérieure à ladite paroi annulaire (26) et possède un filetage interne (12) pouvant s'engager avec un filetage externe (13) obtenu sur ledit goulot (5).

12. Flacon (1) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce qu'il** com-

prend des moyens de fermeture inviolables (14, 15) aptes à rendre évident le premier retrait dudit capuchon (10) dudit réservoir (2).

13. Flacon (1) selon la revendication 12, **caractérisé en ce que** lesdits moyens de fermeture inviolables (14, 15) comprennent une bague de scellement (14) qui est réalisée en une seule pièce avec ledit capuchon (10) le long d'une ligne d'arrachage (15) et qui peut être fixée audit réservoir (2). 5 10
14. Flacon (1) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce que** au moins l'une parmi ladite première feuille de conditionnement (7) et ladite seconde feuille de conditionnement (8) comprend au moins une couche métallique. 15

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Fig. 1

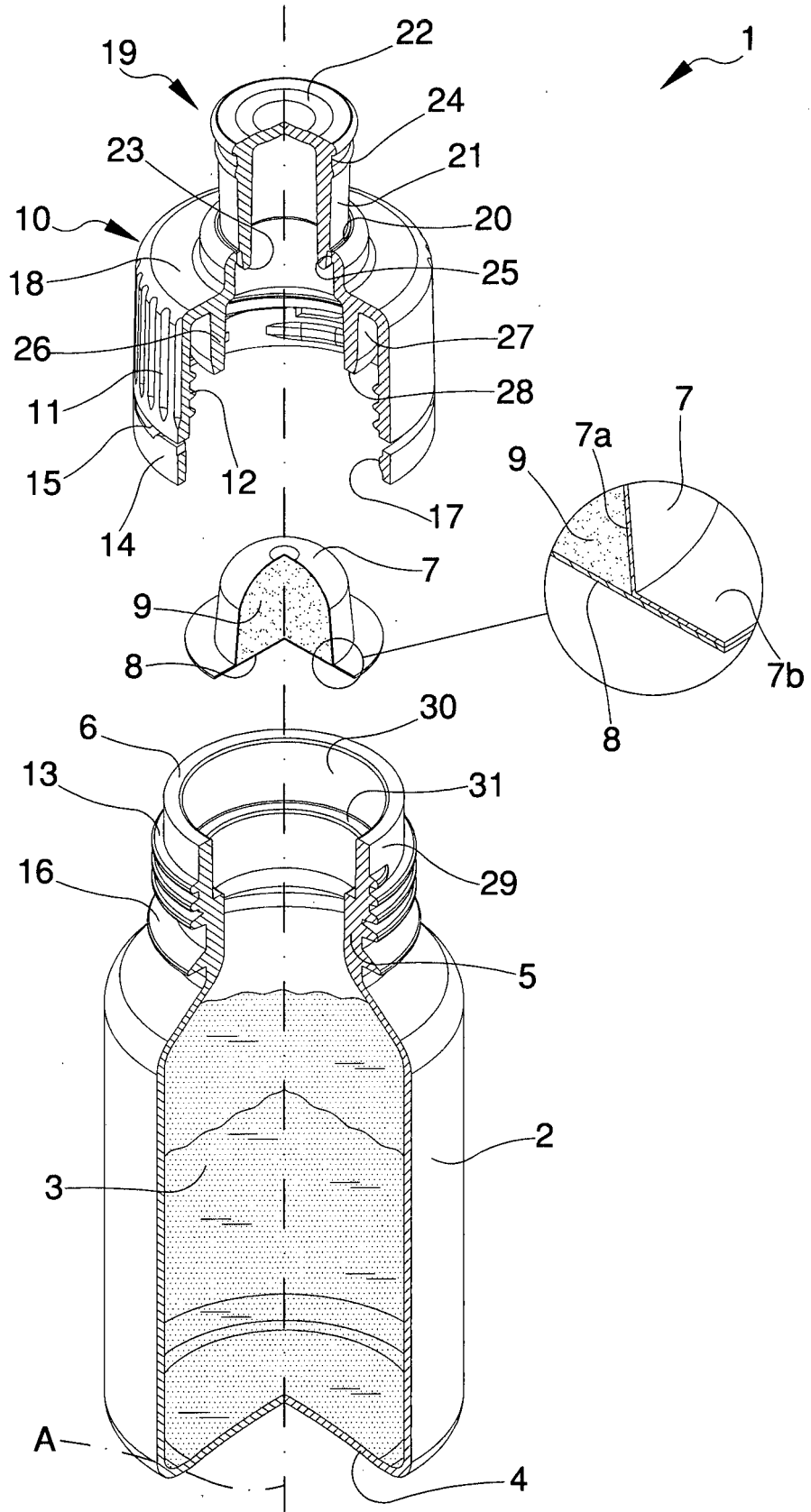


Fig. 3

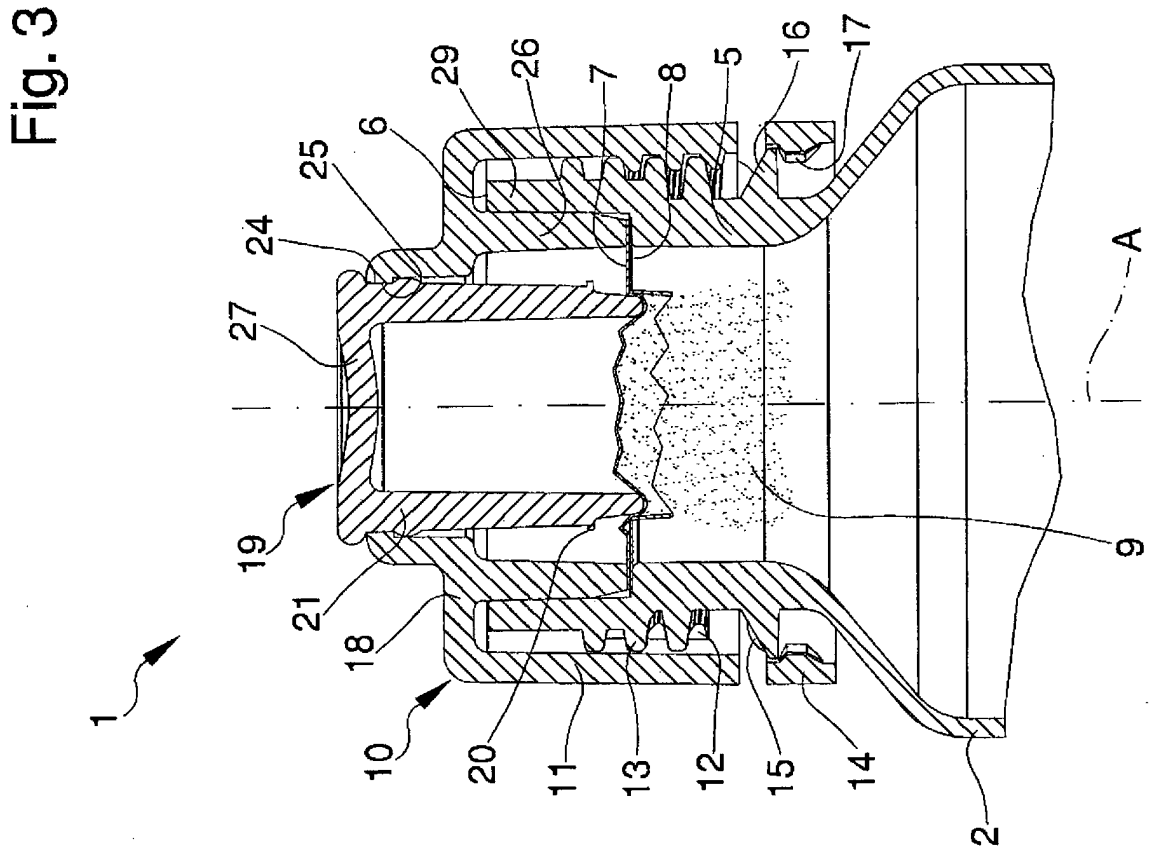
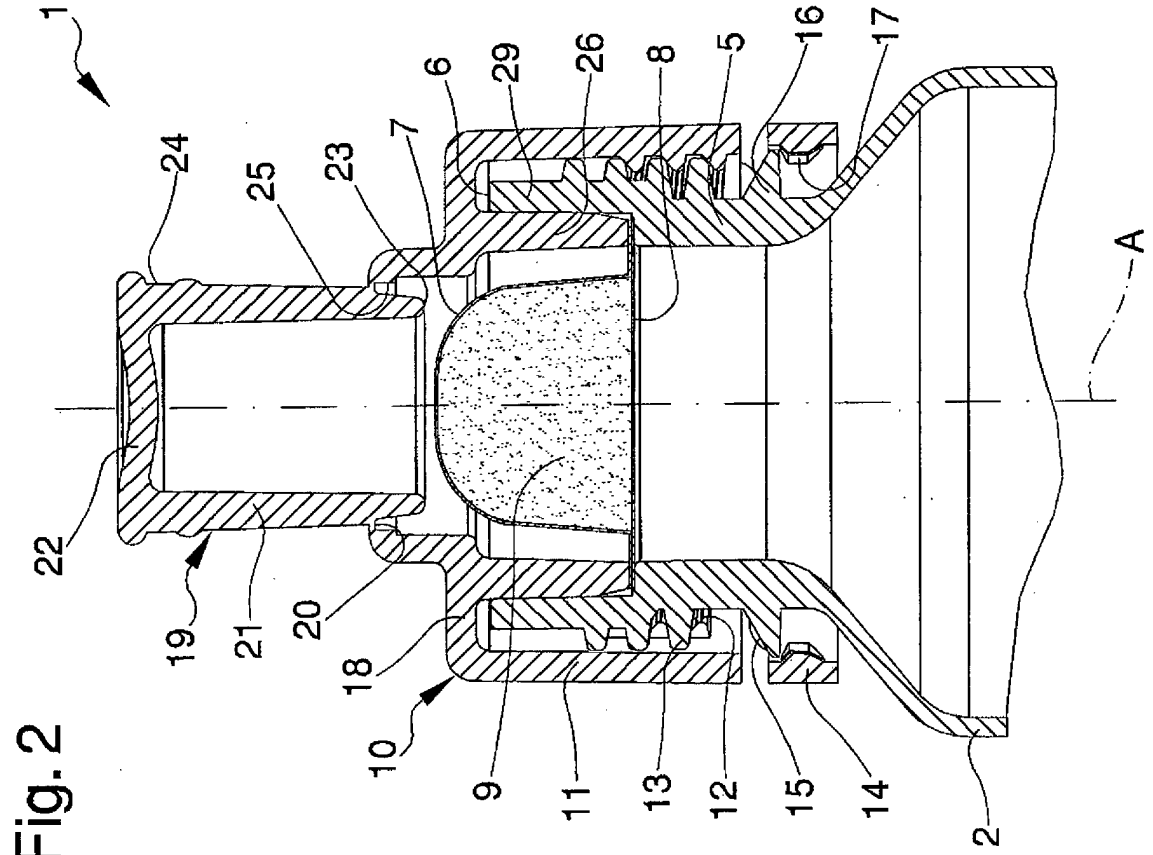


Fig. 2



REFERENCES CITED IN THE DESCRIPTION

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