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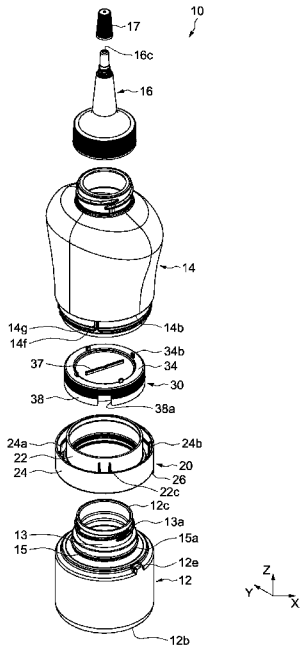
FIG.2



(57) Abstract: Assembly (10) for packaging two products separately and for dispensing a mixture of said products upon first use, said assembly (10) comprising a lower container (12), an upper container (14), a temporary closure member (30) configured to close the lower container (12) before first use, and comprising an internal thread (32a) that cooperates with an external thread (13a) provided on the lower container (12). The assembly comprises an assembly collar (20) snap-fastened onto the lower container (12) and onto the upper container (14), and rotating as one with the upper container (14) and being rotatable with respect to the lower container (12). The temporary closure member (30) is in sealing contact with the assembly collar (20) before first use. Said temporary closure member (30) comprises means for preventing the relative rotation of the temporary closure member (30) and of the assembly collar (20) and does not have means for axial retention with the containers and the collar.

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DESCRIPTION

TITLE: Assembly for packaging two cosmetic products

The present invention relates to the field of assemblies for packaging two products that need to be kept separate from one another, in particular during transport and storage, said products being mixed upon first use of the assembly. The present invention also relates to the dispensing of the resultant mixture of said products. The products are, in particular, cosmetic products.

A "cosmetic product" is understood, in particular within the meaning of the present invention, to be a product as defined in Regulation (EC) No 1223/2009 of the European Parliament and of the Council of 30 November 2009 on cosmetic products.

More particularly, the invention relates to an assembly for packaging and dispensing a product comprising two superposed receptacles that are capable of turning with respect to one another and are able to communicate with one another upon first use.

In general, the invention relates to the packaging of pasty or viscous products, for example hair products. The hair product may be a hair dyeing product, a hair serum, a cream for the hair or any other hair product for keratin fibres.

The invention relates more particularly, but not exclusively, to a packaging assembly configured to keep the dye and the oxidizing agent of a hair dyeing product separate, these two components being intended to be mixed a short time before they are used.

Reference may be made to the document WO201904726 – A1, which describes a device configured to package two products separately and to dispense a resultant mixture upon first use. The device comprises a lower receptacle delimiting a cavity for receiving a first product and an upper receptacle delimiting a cavity for receiving a second product, said receptacles being configured to turn with respect to one another without moving axially with respect to one another. The device also comprises a temporary closure element that is configured to close an open end of the upper receptacle before first use and cooperates by way of a thread with said end of the upper receptacle. Said closure element comprises rotation prevention elements so as to prevent it from rotating during the relative rotation of the two receptacles and so as to move axially towards the lower container until it drops into the latter.

However, on account of the presence of dead zones in which the mixture of products can get stuck, the yields of the mixture are not satisfactory with such a device.

Furthermore, in such a device, it is not possible to force the dispensing of the mixture of the products.

Therefore, there is a need to improve the dispensing and the yield of the mixture of products from such devices.

The aim of the present invention is therefore to overcome the above drawbacks and to allow an improvement in the dispensing and the yield of the mixture of product to be dispensed, while retaining a simple structure that is easy to manufacture and ergonomic.

Another objective of the invention is to ensure that there is a seal between the two receptacles before first use.

A further objective of the invention is to provide an assembly for packaging a product in the form of a unitary assembly that is ready to use, not requiring the separation of the two receptacles in order to open the temporary closure member. In other words, the receptacles that each accommodate a component in the initial state form an assembly and are not intended to be separated from one another at any stage in the operation of the assembly in order to bring about the mixture of these two components.

The subject of the invention is an assembly for packaging two products separately and for dispensing a mixture of said products upon first use. Said assembly comprises:

- a lower container delimiting a first internal volume containing a first product;
- an upper container delimiting a second internal volume containing a second product, said containers being rotatable with respect to one another without moving axially with respect to one another;
- a temporary closure member configured to close an open end of the lower container before first use, and comprising a cylindrical skirt surrounding said open end and a closing element connected to said cylindrical skirt, said skirt being provided, on its internal surface, with an internal thread that cooperates with an external thread provided on the lower container.

The assembly comprises an assembly collar snap-fastened onto the lower container and onto the upper container. Said collar rotates as one with the upper

container and is rotatable with respect to the lower container, wherein, before first use, the temporary closure member is in sealing contact with the assembly collar.

Said temporary closure member comprises first rotation prevention means cooperating with second rotation prevention means provided on the assembly collar so as to prevent the relative rotation of the temporary closure member and of the assembly collar and the temporary closure member does not have means for axial retention with the containers and the collar, such that when the lower container is rotated with respect to the upper container, the temporary closure member is moved axially until it is located in the internal volume of the upper container.

In an assembled position before first use, the lower container and the upper container are snap-fastened to the assembly collar. The lower container can turn with respect to said collar, whereas the upper container rotates as one with said collar.

The assembly collar ensures such an inseparable connection of the lower container with respect to the upper container, while allowing relative rotation of the upper container with respect to the lower container.

The assembly collar also keeps the temporary closure member in a position, before first use, in which said member sealingly partitions the internal volumes of said containers.

Advantageously, the assembly collar comprises an internal skirt disposed radially between the open end of the lower container and a lower end of the upper container, said internal skirt comprising, on its internal surface, a snap-fastening bulge intended to be snap-fastened over an annular rib provided on the lower container.

For example, the internal skirt of the assembly collar also comprises, on its internal surface, a sealing lip protruding towards the open end of the lower container.

Advantageously, the internal skirt of the assembly collar comprises, in its internal surface, a groove, preferably an annular groove, that cooperates, in a preassembled intermediate position, with a snap-fastening bead carried by the temporary closure member.

The snap-fastening bead protrudes, for example, outwards.

In a variant, provision could be made for the external surface of the internal skirt of the collar to comprise a groove that cooperates with an inwardly protruding snap-fastening bead carried by the temporary closure member.

According to one embodiment, the temporary closing member also comprises an intermediate cylindrical skirt radially surrounding the internal cylindrical skirt at

least partially and comprises a bead that protrudes outwards and cooperates with the groove in the collar.

The bead is preferably annular.

For example, the temporary closing member comprises an external skirt surrounding the intermediate skirt. The three cylindrical skirts of the temporary closing member are coaxial.

For example, the assembly collar comprises an external skirt radially surrounding the internal skirt of the assembly collar and the lower end of the lower container, said external skirt comprising, on its internal surface, at least one snap-fastening protrusion protruding radially towards the internal skirt and cooperating with a snap-fastening protrusion provided on the external surface of the lower end of the upper container.

Advantageously, the external skirt of the collar comprises, on its internal surface, at least one rotation prevention protrusion cooperating with at least one notch provided in the external surface of the lower end of the upper container.

For example, the external skirt of the collar comprises four rotation prevention protrusions that each cooperate with a notch provided in the upper container. As a variant, a different number of rotation prevention protrusions could be provided.

According to one embodiment, the first rotation prevention means are at least one notch formed in the external skirt of the temporary closure member and the second rotation prevention means are formed by at least one longitudinal rib provided on the external surface of the internal skirt of the assembly collar.

For example, the second rotation prevention means are formed by at least one group of longitudinal ribs disposed on the external surface of the internal skirt of the assembly collar.

As a variant, a different number of groups of longitudinal ribs, for example more than or equal to three, could be provided. The groups of ribs are regularly spaced apart around the circumference of the internal skirt. A number of ribs per group of ribs equal to one, two, three or more than three, could also be provided.

For example, the first rotation prevention means are formed by at least one U-shaped notch provided in the external cylindrical skirt of the temporary closing member. The notch cooperates with a group of longitudinal ribs of the collar.

For example, two or three notches that are regularly spaced apart from one another around the entire circumference of said external skirt of the temporary closure member could be provided. As a variant, a different number of notches, for example a number greater than or equal to three, could be provided.

Each notch cooperates with a group of longitudinal ribs provided on the internal skirt of the collar, such that the temporary closure member is not set in rotation when the collar rotates.

In other words, the cooperation of the notches with the longitudinal ribs forms the rotation prevention means between the temporary closure member and the collar.

Other forms of rotation prevention means of the closure member with respect to the collar could also be provided.

Advantageously, the assembly collar comprises first angular limiting means cooperating with second angular limiting means provided on the lower container in order to limit the angular rotation of said lower container with respect to said collar, in particular to an angular range of around 180°.

For example, the lower container comprises, on its external surface, a first angular limiting stop that cooperates with at least one second angular limiting stop protruding from the lower surface of the body of the collar towards the lower container. The angular limiting stops respectively form the first and second angular limiting means.

Thus, the angular rotation of the lower container with respect to the collar is limited to an angular range, for example around 180°. The angular range is delimited by the angular limiting stops provided on the collar and on the lower container.

The angular range of rotation of the lower container with respect to the collar needs to be enough to allow the disengagement of the thread segments of the internal thread of the closure member. In other words, the angular range of rotation of the lower container with respect to the collar is greater than or equal to the angular range of the thread segments of the internal thread of the closure member.

For example, the internal thread of the closure member comprises three thread segments that each extend over an angular range of 120°.

Such a use advantage implies the assembly of the collar, of the closure member and of the lower container in the same angular positions, in order that one of the thread segments of the internal thread of the closure member is engaged with the same thread segment of the lower container.

To this end, the closure member comprises an indexing member protruding from the upper surface of the closure member, in order to be positioned angularly on the neck of the lower container when it is fitted.

In general, the closure member comprises at least one indexing member configured to allow it to be positioned angularly on the lower container.

For example, the internal skirt of the collar is disposed radially between the intermediate skirt and the external skirt of the temporary closing member.

For example, the lower surface of the closing element comprises an annular sealing lip having an outside diameter substantially equal to the inside diameter of the open end of the lower container in order to be inserted into said open end and to sealingly close the lower container before first use of the assembly.

Advantageously, the outside diameter of the closing element is greater than the outside diameter of the open end of the neck of the lower container.

According to one embodiment, the upper surface of the closing element comprises axial protrusions extending axially into the upper container. Said axial protrusions make it possible to avoid the closure of the open end of the lower container and/or of the open upper end of the upper container once the temporary closure member is detached from the lower container, and thus to prevent the temporary closure member from impeding the flow of the mixture of the products.

For example, and entirely non-limitingly, the upper surface of the closing element comprises four axial protrusions that are in this case regularly spaced apart around the entire circumference of the closing element. As a variant, two or three axial protrusions could be provided.

According to one embodiment, the assembly comprises a device for application of said product mounted on the upper container.

For example, the product application device is in the form of a dispensing tube in fluidic communication with the upper container.

The product application device may comprise a skirt for mounting on the neck of the upper container that is mounted on the neck of the upper container by screwing or snap-fastening.

The application device may also comprise, on the opposite side from the mounting skirt, a frangible dispensing nozzle allowing access to the internal volume. The dispensing nozzle is intended to be broken before first use in order to open the dispensing orifice.

As a variant, the application device comprises a cap or lid screwed onto its upper end and designed to selectively close and open up the dispensing orifice.

The body of the lower container is advantageously made of rigid synthetic material, that is to say material that is not compressible by a user, and the body of the upper container is advantageously made of elastic synthetic material that is more flexible than the body of the lower container and is compressible by a user so as to eject product contained in the internal receiving volume simply by pressing on the body of the upper container.

The body of the upper container is more flexible than the body of the lower container.

The body of the upper container may be made, for example, of thermoplastic elastomer.

According to a second aspect, the invention relates to a method for assembling an assembly as described above. The method comprises the following steps:

- pre-assembling the temporary closure member and the assembly collar in an intermediate position in which the temporary closure member is snap-fastened in the assembly collar, in particular by cooperation between the annular bead and the groove,
- screwing the temporary closure member onto the open end of the lower container,
- axially moving the assembly collar with the lower container until it is snap-fastened to the lower container, in particular by cooperation of the snap-fastening bulge of the collar under the rib of the lower container, said axial movement of the assembly collar reversing the snap-fastening of the temporary closure member and the assembly collar, and
- axially moving the upper container towards the assembly collar until it is snap-fastened to said collar, in particular by cooperation of the corresponding snap-fastening protrusions.

Advantageously, in the unfastened position of the temporary closure member and the assembly collar, the protrusion, and in particular the annular bead, for snap-fastening the temporary closure member to the assembly collar remains in sealing contact with the collar, and in particular with the lower surface of the lower skirt of the collar.

At the end of the assembly method, the assembly is in an assembled use position in which the lower container, the upper container and the assembly collar are assembled inseparably.

The snap-fastening of the lower container to the collar is thus realized by a purely axial movement, different from the screwing movement of the lower container into the temporary closure member, so as to limit assembly forces.

The respective axial movements of the assembly collar and of the upper container can be carried out successively or simultaneously.

According to another aspect, the invention relates to a method for using an assembly as described above, wherein the rotation of the lower container is actuated, this causing the axial movement of the temporary closure member towards the upper container until the temporary closure member has been completely unscrewed with respect to the neck of the lower container, the internal volume of the upper container then being in fluidic communication with the internal volume of the lower container.

The temporary closure member is located in the internal volume of the upper container and may serve as an agitator contributing to the mixing of the products.

The user can then detach the frangible dispensing nozzle or unscrew the cap of the application device in order to use the assembly and apply the resultant mixture of the products through the dispensing orifice.

The present invention will be understood better from studying the detailed description of embodiments that are given by way of entirely non-limiting examples and are illustrated by the appended drawings, in which:

[Fig 1] is a face-on view of an assembly for packaging cosmetic products according to one embodiment of the invention, in an assembled position before use;

[Fig 2] is an exploded perspective view of the assembly in Figure 1;

[Fig 3] is a view in cross section, along the line III-III, of the assembly in Figure 1;

[Fig 4] is a detail view of the assembly in Figure 3;

[Fig 5]

and

[Fig 6] illustrate the steps of assembling the assembly in Figure 1; and

[Fig 7] is a detail view of the assembly in Figure 1 in a position in which the two containers are placed in communication.

In the rest of the description, reference will be made to an orthonormal basis X, Y, Z, where Z corresponds to an elevation axis representing the vertical direction, in which there can be seen:

- a longitudinal axis X, which is horizontal and extends from left to right in the top views;

- a transverse axis Y, which is horizontal, perpendicular to the longitudinal axis X, and extends from front to rear in the top views; and

- a vertical axis Z, which is orthogonal to the longitudinal axis X and transverse axis Y and extends from top to bottom in the top views.

The expressions "upper" and "lower" refer to the upper part and the lower part of the figures, in the assembled position of the assembly.

Figures 1 to 7 illustrate an example of an assembly 10 for packaging two products separately and for dispensing a mixture of said products upon first use.

The assembly 10 can be used to package two cosmetic products, for example two liquid or semi-liquid cosmetic products, or a liquid product and a powder.

For example, the products may be hair products, such as haircare products, for example hair dyeing products, creams or any product used for keratin fibres.

The assembly 10 is particularly intended for products requiring a single application. As a variant, the assembly 10 could be intended to be used for several applications.

By way of non-limiting example, the first product is a dye and the product is an oxidizing agent, which, when they are mixed to form a mixture, forms a dyeing product for the keratin fibres.

As illustrated in Figure 1, the assembly 10 extends axially along an axis Z-Z' presumed to be vertical in the figures.

The assembly 10 comprises a lower reservoir or container 12 delimiting an internal volume 12a for receiving a first product A, visible in Figure 2, an upper reservoir or container 14 delimiting an internal volume 14a for receiving a second product B, and a device 16 for application of said product that is mounted on the upper container 14.

The assembly 10 also comprises an assembly collar 20 mounted between the lower container 12 and the upper container 14 and a temporary closure member 30 that is mounted on the lower container 12 and separates the lower container 12 from the upper container 14 before first use of the assembly 10.

In the assembled position before first use, shown in Figures 3 and 4, the lower container 12, the upper container 14 and the assembly collar 20 are configured to be able to turn with respect to one another about the vertical axis Z without moving axially along said axis.

The body of the lower container 12 is provided with a closed lower end 12b forming a bottom and an open upper end 12c, at the opposite end from the lower end 12b, forming a neck provided with an opening 12d that allows access to the internal volume 12a for receiving the first product.

By way of non-limiting example, the neck 12c may have an outside diameter less than the outside diameter of the body of the lower container 12.

As illustrated, the neck 12c comprises, on its outer surface 13, an external thread 13a. The neck 12c is connected to the body of the lower container 12 by an external shoulder 15 comprising, on its outer surface, a rib 15a, in this case an annular rib, protruding radially outwards.

A "shoulder" is understood to be any surface that is substantially normal to the elevation axis of a cylindrical component resulting from an abrupt change in diameter.

The body of the lower container 12 may be made, for example, of rigid synthetic material, that is to say material that is not compressible by a user.

The body of the upper container 14 is provided with an open lower end 14b and an open upper end 14c, at the opposite end from the lower end 14b, forming a neck provided with an opening 14d that allows access to the internal volume 14a for receiving the second product.

By way of non-limiting example, the neck 14c may have an outside diameter less than the outside diameter of the body of the upper container 14.

As illustrated, the neck 14c comprises, on its outer surface, an external thread 14e that cooperates with a tapped thread 16b provided on the product application device 16.

As a variant, a snap-fitting rib could be provided for snap-fitting a product application device 16 onto the upper container 14.

The body of the upper container 14 may be made, for example, of flexible synthetic material, so as to be able to eject product contained in the internal receiving volume 14a simply by pressing on the latter. The body of the upper container 14 is

more flexible than the body of the lower container 12. The body of the upper container 14 may, for example, be made of thermoplastic elastomer.

The product application device 16 is in the form of a dispensing tube in fluidic communication with the upper container 14. The product application device 16 comprises a skirt 16a for mounting on the neck 14c of the upper container 14 comprising the tapped thread 16b cooperating with the external thread 14e of the upper container 14. The application device 16 also comprises, on the opposite side from the mounting skirt 16a, a dispensing orifice 16c allowing access to the internal volume 14a and a cap 17 screwed onto the upper end of the application device 16 and designed to selectively close and open up the dispensing orifice 16c. The cap 17 is intended to be unscrewed from the application device 16 to allow the mixture of the products to be dispensed through the dispensing orifice 16c.

As a variant, provision could be made for the dispensing orifice 16c to be closed by a frangible dispensing nozzle intended to be broken before first use to allow the mixture of the products to be dispensed through said dispensing orifice 16c.

As illustrated, the assembly collar 20 comprises two coaxial cylindrical skirts 22, 24.

The internal skirt 22 of the assembly collar 20 is disposed radially between the neck 12c of the lower container 12 and the lower end 14b of the upper container 14.

The internal skirt 22 of the assembly collar 20 comprises, on its internal surface, a snap-fastening bulge 22a intended to be snap-fastened over the annular rib 15a provided on the lower container 12.

The internal skirt 22 of the assembly collar 20 also comprises, on its internal surface, a sealing lip 22b protruding towards the neck 12c of the lower container 12.

The internal skirt 22 of the assembly collar 20 also comprises, on its external surface, a plurality of groups of longitudinal ribs 22c, one pair of which can be seen in Figure 2, protruding radially towards the external skirt 24.

As illustrated, the internal skirt 22 of the assembly collar 20 comprises, on its external surface, three groups of two longitudinal ribs 22c arranged at 120°. As a variant, a different number of groups of longitudinal ribs could be provided. A different number of ribs per group of ribs could also be provided, for example one rib or number greater than or equal to three.

The internal skirt 22 comprises, on its internal surface, a groove 22d, in this case an annular groove, that cooperates with a snap-fastening bead 36a carried by the temporary closure member 30.

The external skirt 24 radially surrounds the internal skirt 22 and the lower end 14b of the lower container 14.

The external skirt 24 comprises, on its internal surface, a snap-fastening protrusion 24a protruding radially towards the internal skirt 22 and cooperating with a snap-fastening protrusion 14f provided on the external surface of the lower end 14b of the upper container 14.

The snap-fastening protrusion 24a in this case comprises four protruding segments spaced apart regularly from one another. As a variant, a different number of protruding segments could be provided.

The external skirt 24 radially surrounds the internal skirt 22 and comprises, on its internal surface, rotation prevention protrusions 24b cooperating with notches 14g provided in the external surface of the lower end 14b of the upper container 14.

The external skirt 24 in this case comprises four rotation prevention protrusions 24b that each cooperate with a notch 14g provided in the upper container 14. As a variant, a different number of rotation prevention protrusions 24b could be provided.

The rotation prevention protrusions 24b are spaced apart regularly between two snap-fastening protrusion segments 24a.

In the assembled position before first use, which can be seen in Figure 3, the lower container 12 and the upper container 14 are snap-fastened to the assembly collar 20. The lower container 12 can turn with respect to said collar 20, whereas the upper container 14 rotates as one with said collar 20.

As illustrated in Figure 3, during transport and before first use, the open end 12c of the lower container 12 is closed by the temporary closing member 30.

As illustrated, the temporary closing member 30 is a cover which can be screwed, sealingly, onto the external thread 13a of the neck of the lower container 12.

The temporary closing member 30 comprises an internal cylindrical skirt 32 and a closing element 34 connected to said skirt 32. The internal cylindrical skirt 32 extends radially between the neck 12c of the lower container 12 and the lower end 14b of the upper container 14.

The internal cylindrical skirt 32 comprises, on its internal cylindrical surface, an internal thread 32a cooperating with the external thread 13a of the neck of the lower container 12.

The outside diameter of the closing element 34 is greater than the outside diameter of the open end 12b of the neck of the lower container 12.

The lower surface of the closing element 34 comprises an annular sealing lip 34a having an outside diameter substantially equal to the inside diameter of the open end 12b of the neck of the lower container 12 in order to be inserted into said open end and to sealingly close the lower container 12 before first use of the assembly.

The upper surface of the closing element 34 comprises axial protrusions 34b extending axially into the upper container 14. Said axial protrusions 34b make it possible to avoid the closure of the open end of the lower container 12 and/or of the open upper end of the upper container 14 once the temporary closure member 30 is detached from the lower container 12, and thus to prevent the temporary closure member 30 from impeding the flow of the mixture of the products.

As illustrated, and entirely non-limitingly, the upper surface of the closing element 34 comprises four axial protrusions 34b that are in this case regularly spaced apart around the entire circumference of the closing element 34. As a variant, a different number of axial protrusions 34b, for example two or three axial protrusions 34b, could be provided.

The temporary closing member 30 also comprises an intermediate cylindrical skirt 36 radially surrounding the internal cylindrical skirt 32 partially and comprising an external bead 36a protruding outwards and cooperating with the groove 22d in the collar 20 in a preassembled position that can be seen in Figure 5. The bead 36a is annular in this case.

The temporary closing member 30 also comprises an external cylindrical skirt 38 surrounding the intermediate cylindrical skirt 36.

The external cylindrical skirt 38 also comprises a plurality of U-shaped notches 38a, one of which can be seen in Figure 2. The notches 38a open out on either side of the internal surface and the external surface of the external skirt 38.

As illustrated, the external cylindrical skirt 38 of the temporary closing member 30 comprises three notches 38a that are regularly spaced apart from one another around the entire circumference of said skirt 38. As a variant, a different

number of notches 38a, for example one notch, two notches or a number greater than or equal to three, could be provided.

Each notch 38a cooperates with a group of longitudinal ribs 22c provided on the internal skirt 22 of the collar 20, such that the temporary closure member 30 is not set in rotation when the lower container 12 rotates with respect to the assembly formed by the upper container 14 and the collar 20, which rotate as one on account of the cooperation of the rotation prevention protrusions 24b and the notches 14g.

In other words, the cooperation of the notches 38a with the longitudinal ribs 22c forms rotation prevention means between the temporary closure member 30 and the collar 20.

Other forms of rotation prevention means of the closure member 30 with respect to the collar 20 could also be provided.

In general, the cylindrical skirt 32 and the lower container 12 comprise rotation prevention means for preventing the rotation of the temporary closure member 30 with respect to the assembly collar 20.

The internal skirt 22 of the assembly collar 20 is disposed radially between the external cylindrical skirt 38 of the temporary closure member 30 and the intermediate cylindrical skirt 36 of said member 30.

As illustrated, the lower container 12 comprises, on its external surface, a first angular limiting stop 12e that cooperates with a second angular limiting stop 26 protruding from the lower surface of the body 24 of the collar 20 towards the lower container 12. The angular limiting stops respectively form the first and second angular limiting means.

Thus, the angular rotation of the lower container with respect to the collar is limited to an angular range, for example around 180°. The angular range is delimited by the angular limiting stops 12e, 26 provided on the collar 20 and on the lower container 12.

The angular range of rotation of the lower container 12 with respect to the collar 20 needs to be enough to allow the disengagement of the thread segments of the internal thread 32a of the closure member 30. In other words, the angular range of rotation of the lower container 12 with respect to the collar 20 is greater than or equal to the angular range of the thread segments of the internal thread 32a of the closure member 30.

In the example illustrated, and entirely non-limitingly, the internal thread 32a of the closure member 30 comprises three thread segments that each extend over an angular range of 120°.

Such a use advantage implies the assembly of the collar 20, of the closure member 30 and of the lower container 12 in the same angular positions, in order that one of the thread segments of the internal thread 32a of the closure member 30 is engaged with the same thread segment of the lower container 12.

To this end, the closure member 30 comprises an indexing member 37 protruding from the upper surface of the closure member 30, in order to be positioned angularly on the neck of the lower container 12 when it is fitted.

An example of assembling the assembly 1 for packaging and dispensing a product is carried out using the following method, with reference to Figures 5 and 6.

The temporary closure member 30 and the assembly collar 20 are preassembled in an intermediate position, which can be seen in Figure 5, in which the annular bead 36a of the temporary closure member 30 is snap-fastened in the groove 22d in the assembly collar 20.

The subassembly formed by the temporary closure member 30 and the assembly collar 20 is positioned angularly with respect to the lower container 12 by virtue of the indexing member 37 and then screwed onto the lower container 12 by way of the corresponding threads 13a, 32a.

The collar 20 is then moved axially towards the lower container 12 until the snap-fitting bead 22a of the collar 20 snap-fits under the rib 15a of the lower container 15, as can be seen in Figure 6.

During this step, the collar 20 is moved axially whereas the temporary closure member 30 is not moved axially, and so the annular bead 36a of the temporary closure member 30 is unfastened from the groove 22d of the assembly collar 20. In this position, which can be seen in Figure 6, the annular bead 36a remains advantageously in sealing contact with the inner surface of the inner skirt 22 of the collar 20.

Simultaneously with this step, or subsequently, the upper container 14 is clip-fastened onto the collar 20 via a relative axial movement of the container 14 towards the collar 20 until the snap-fastening protrusions 14f, 24a are snap-fastened, as can be seen in Figures 3 and 4. In this assembled use position, the lower container 12, the upper container 14 and the assembly collar 20 are assembled inseparably.

The assembly collar ensures such an inseparable connection of the lower container 12 with respect to the upper container 14, while allowing relative rotation of the lower container 12 with respect to the upper container 14.

The assembly collar 20 thus makes it possible to obtain an assembly for packaging a product that is ready to use, not requiring the separation of the two containers in order to detach the temporary closure member. In other words, the containers that each accommodate a product in the initial state form an assembly and are not intended to be separated from one another at any stage in the operation of the assembly in order to bring about the mixture of these two products.

The assembly collar 20 also keeps the temporary closure member 30 in a position, before first use, in which said member sealingly separates or partitions the internal cavities 12a, 14a of said containers 12, 14.

The snap-fastening of the lower container 12 to the collar 20 is thus realized by a purely axial movement, different from the screwing movement of the lower container 12 into the temporary closure member 30, so as to limit assembly forces.

Once the assembly 10 has been assembled, the user actuates the rotation of the lower container 12, thereby causing the axial movement of the temporary closure member 30 towards the upper container 14 until the temporary closure member has been fully unscrewed from the neck of the lower container 12, as can be seen in Figure 7. The internal volume 14a of the upper container 14 is thus in fluidic communication with the internal volume 12a of the lower container 12.

This is because the temporary closure member 30 does not have means for axial retention with the containers 12, 14 and the collar 20, and so, when the lower container 12 is rotated with respect to the upper container 14, the temporary closure member 30 is moved axially until it is located in the internal volume 14a of the upper container 14.

The temporary closure member 30 is thus located in the internal volume 14a of the upper container 14 and may serve as an agitator contributing to the mixing of the products.

The user can then unscrew the cap 17 in order to use the assembly 10 and apply the resultant mixture of the products A and B through the dispensing orifices 16c.

By virtue of the assembly according to the present invention, the dispensing and yield of the mixture of product to be dispensed are substantially improved, while retaining a simple structure that is easy to manufacture and ergonomic.

Moreover, it is possible to ensure that there is a seal between the two receptacles before first use.

CLAIMS

1. Assembly (10) for packaging two products separately and for dispensing a mixture of said products upon first use, said assembly (10) comprising:

- a lower container (12) delimiting a first internal volume (12a) containing a first product (A);

- an upper container (14) delimiting a second internal volume (14a) containing a second product (B), said containers (12, 14) being rotatable with respect to one another without moving axially with respect to one another;

- a temporary closure member (30) configured to close an open end (12c) of the lower container (12) before first use, and comprising an internal cylindrical skirt (32) surrounding said open end (12c) and a closing element (34) connected to said internal cylindrical skirt (32), said skirt (32) being provided, on its internal surface, with an internal thread (32a) that cooperates with an external thread (13a) provided on the lower container (12), characterized in that the assembly comprises an assembly collar (20) snap-fastened onto the lower container (12) and onto the upper container (14), said collar (20) rotating as one with the upper container (14) and being rotatable with respect to the lower container (12), wherein, before first use, the temporary closure member (30) is in sealing contact with the assembly collar (20), said temporary closure member (30) comprising first rotation prevention means (38a) cooperating with second rotation prevention means (22c) provided on the assembly collar (20) so as to prevent the relative rotation of the temporary closure member (30) and of the assembly collar (20) and the temporary closure member (30) not having means for axial retention with the containers and the collar, such that when the lower container (12) is rotated with respect to the upper container (14), the temporary closure member (30) is moved axially until it is located in the internal volume (14a) of the upper container (14).

2. Assembly (10) according to Claim 1, wherein the assembly collar (20) comprises an internal skirt (22) disposed radially between the open end (12c) of the lower container (12) and a lower end (14b) of the upper container (14), said internal skirt (22) comprising, on its internal surface, a snap-fastening bulge (22a) intended to be snap-fastened over an annular rib (15a) provided on the lower container (12).

3. Assembly (10) according to Claim 2, wherein the internal skirt (22) of the assembly collar (20) also comprises, on its internal surface, a sealing lip (22b) protruding towards the open end (12c) of the lower container (12).

4. Assembly (10) according to Claim 2 or 3, wherein the internal skirt (22) of the assembly collar (20) comprises a groove (22d) that cooperates, in a preassembled intermediate position, with a snap-fastening bead (36a) carried by the temporary closure member (30).

5. Assembly (10) according to Claim 4, wherein the temporary closing member (30) also comprises an intermediate cylindrical skirt (36) radially surrounding the internal cylindrical skirt (32) at least partially and comprising the snap-fastening bead (36a) that protrudes outwards and cooperates with the groove (22d) in the collar (20).

6. Assembly (10) according to Claim 5, wherein the internal skirt (22) of the assembly collar (20) is disposed radially between an external cylindrical skirt (38) of the temporary closure member (30) and the intermediate cylindrical skirt (36) of said member (30).

7. Assembly (10) according to any one of Claims 2 to 6, wherein the assembly collar (20) comprises an external skirt (24) radially surrounding the internal skirt (22) and the lower end (14b) of the lower container (14), said external skirt (24) comprising, on its internal surface, at least one snap-fastening protrusion (24a) protruding radially towards the internal skirt (22) and cooperating with a snap-fastening protrusion (14f) provided on the external surface of the lower end (14b) of the upper container (14).

8. Assembly (10) according to Claim 7, wherein the external skirt (24) comprises, on its internal surface, at least one rotation prevention protrusion (24b) cooperating with at least one notch (14g) provided in the external surface of the lower end (14b) of the upper container (14).

9. Assembly (10) according to any one of Claims 2 to 8 in combination with Claim 6, wherein the first rotation prevention means are at least one notch (38a) formed in the external skirt (38) of the temporary closure member (30) and wherein the second rotation prevention means are formed by at least one longitudinal rib (22c) provided on the external surface of the internal skirt (22) of the assembly collar (20).

10. Assembly (10) according to any one of the preceding claims, wherein the lower surface of the closing element (34) comprises an annular sealing lip (34a) having an outside diameter substantially equal to the inside diameter of the open end (12b) of the lower container (12) in order to be inserted into said open end.

11. Assembly (10) according to any one of the preceding claims, wherein the assembly collar (20) comprises first angular limiting means (26) cooperating with second angular limiting means (12e) provided on the lower container (12) in order to limit the angular rotation of said lower container (12) with respect to said collar (120), in particular to an angular range of around 180°.

12. Assembly (10) according to any one of the preceding claims, wherein the closure member (30) comprises at least one indexing member (37) configured to allow it to be positioned angularly on the lower container (12).

13. Assembly (10) according to any one of the preceding claims, comprising a device (16) for application of said product mounted on the upper container (14).

14. Assembly (10) according to any one of the preceding claims, wherein the body of the lower container (12) is made of rigid synthetic material and the body of the upper container (14) is made of elastic synthetic material that is more flexible than the body of the lower container (12), so as to eject product contained in the internal receiving volume (14a) simply by pressing on the body of the upper container (14).

15. Method for assembling an assembly (10) according to any one of Claims 1 to 14, comprising the following steps:

- pre-assembling the temporary closure member (30) and the assembly collar (20) in an intermediate position in which the temporary closure member (30) is snap-fastened in the assembly collar (20),
- screwing the temporary closure member (30) onto the open end (12c) of the lower container (12),
- axially moving the assembly collar (20) with the lower container (12) until it is snap-fastened to the lower container (12), said axial movement of the assembly collar (20) reversing the snap-fastening of the temporary closure member (30) and the assembly collar (20), and
- axially moving the upper container (14) towards the assembly collar (20) until it is snap-fastened to said collar.

16. Assembly method according to Claim 15, wherein the respective axial movements of the assembly collar (20) and of the upper container (14) are carried out simultaneously.

17. Method for using an assembly (10) according to any one of Claims 1 to 14, wherein the rotation of the lower container (12) is actuated, this causing the axial movement of the temporary closure member (30) towards the upper container (14) until

the temporary closure member (30) has been completely unscrewed with respect to the neck of the lower container (12), the internal volume (14a) of the upper container (14) then being in fluidic communication with the internal volume (12a) of the lower container (12).

FIG.1

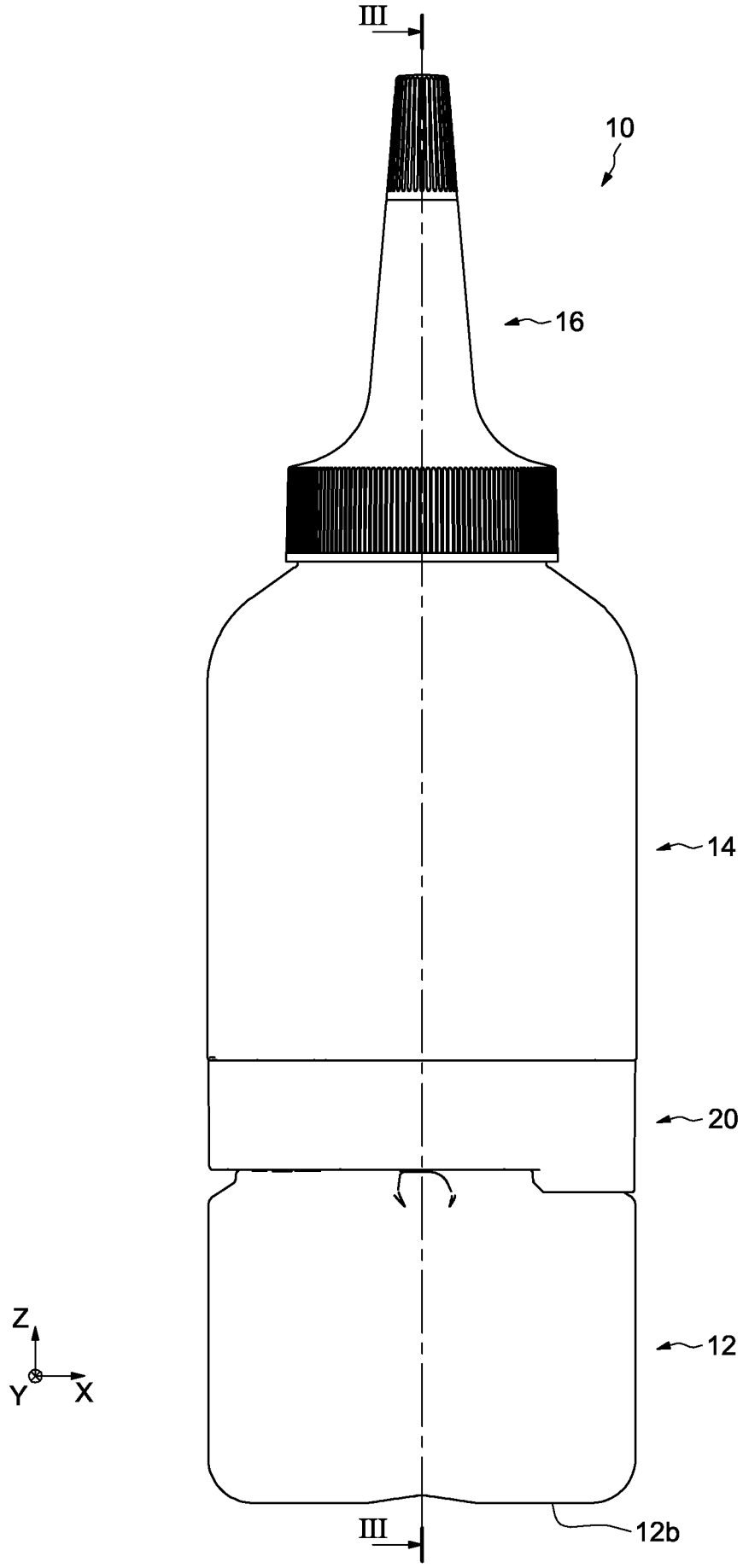
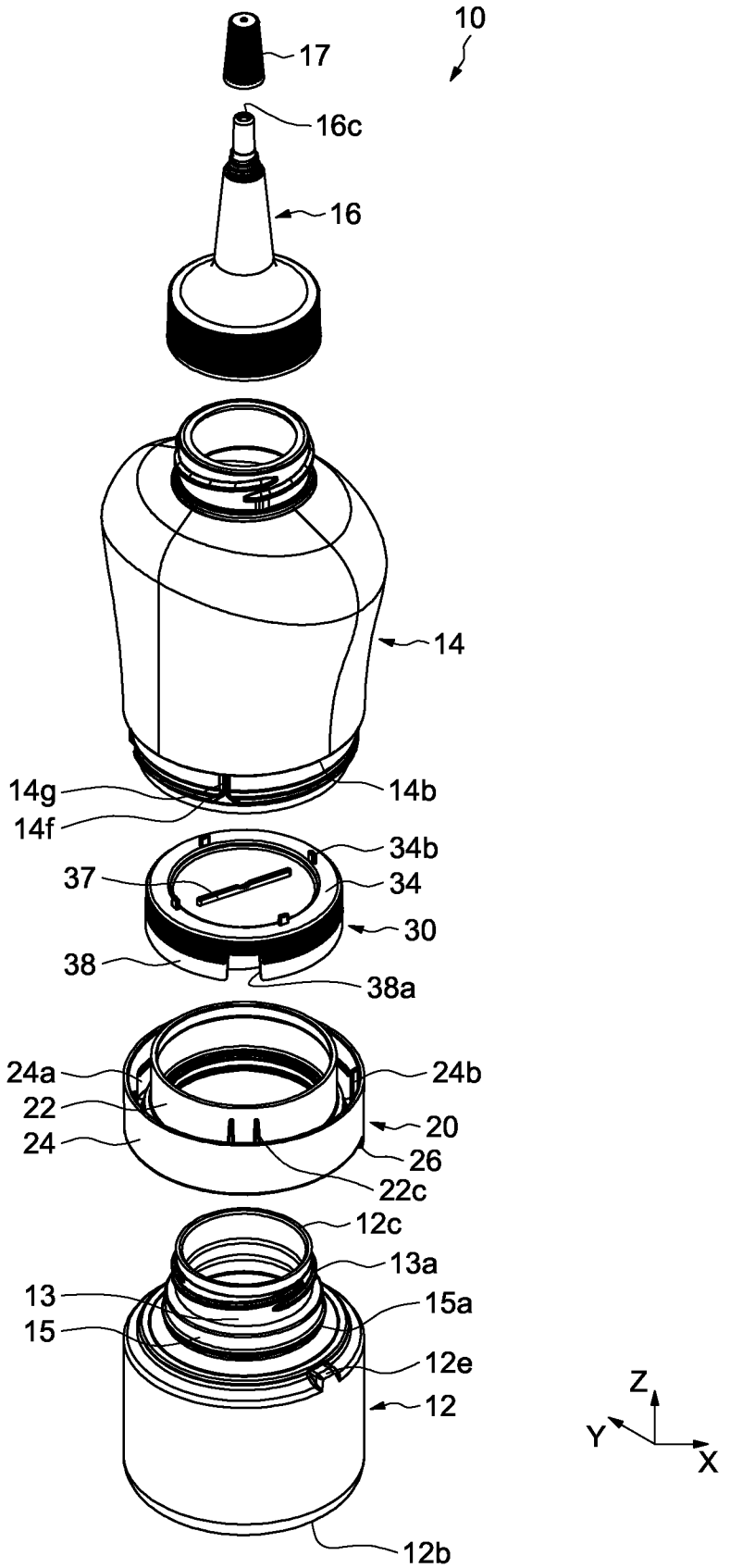


FIG.2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16
14
14g
14f
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34b
37
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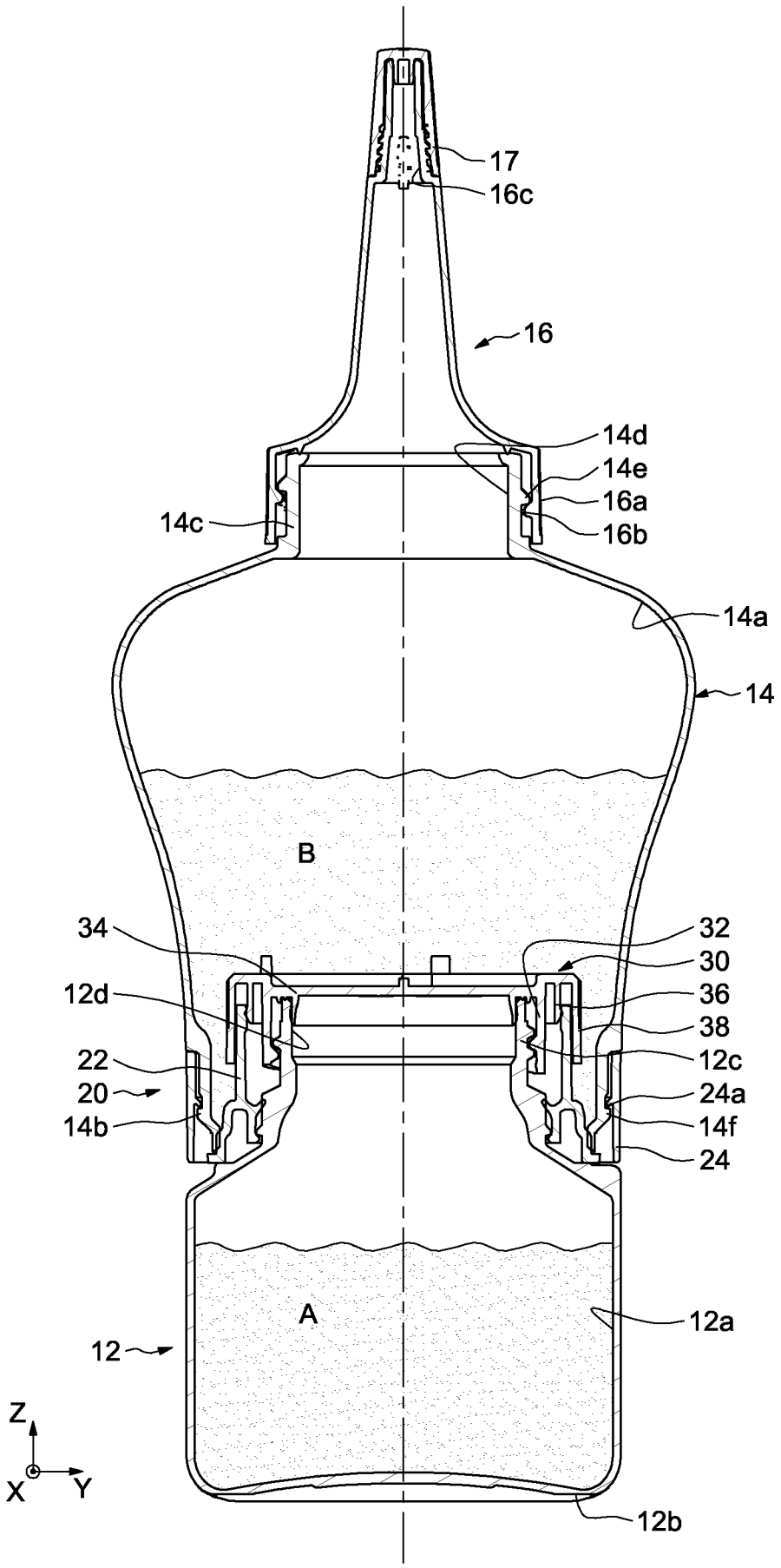
26
22c
12c
13a
13
15a
15
12e
12
12b
Z
Y
X

FIG.3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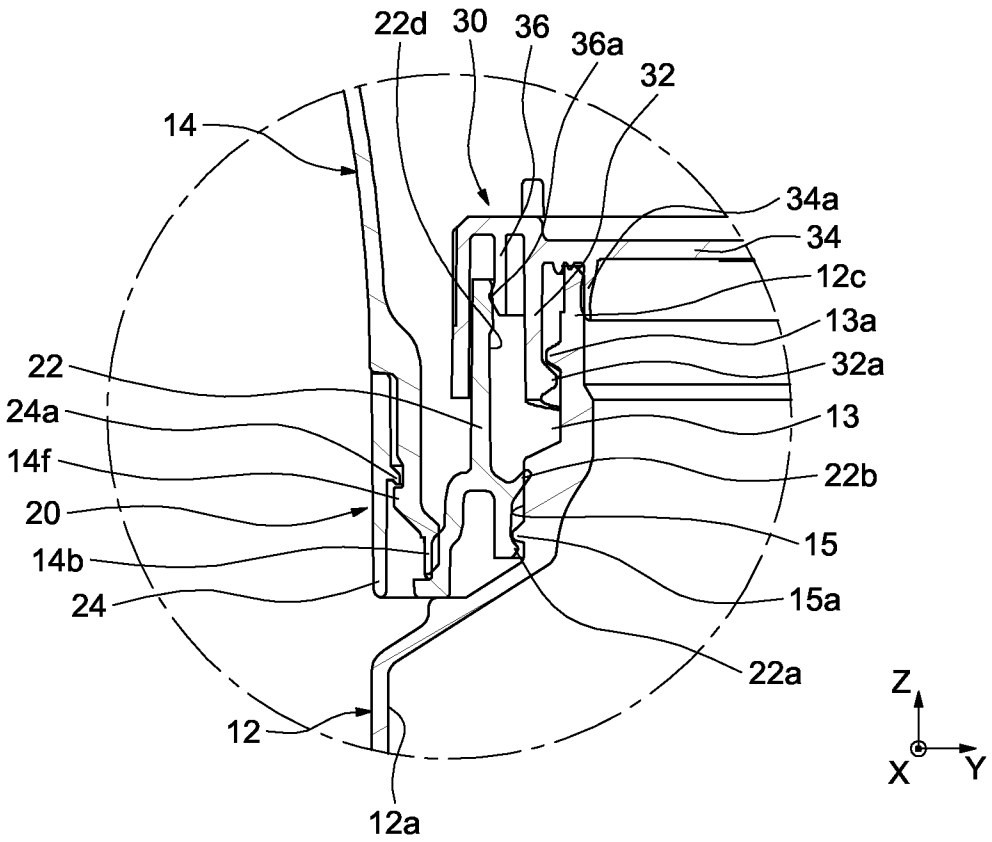
12b

FIG.4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36
36a
32
14
34a
34
12c
13a
22
32a
24a
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14f
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15
14b
15a
24
22a
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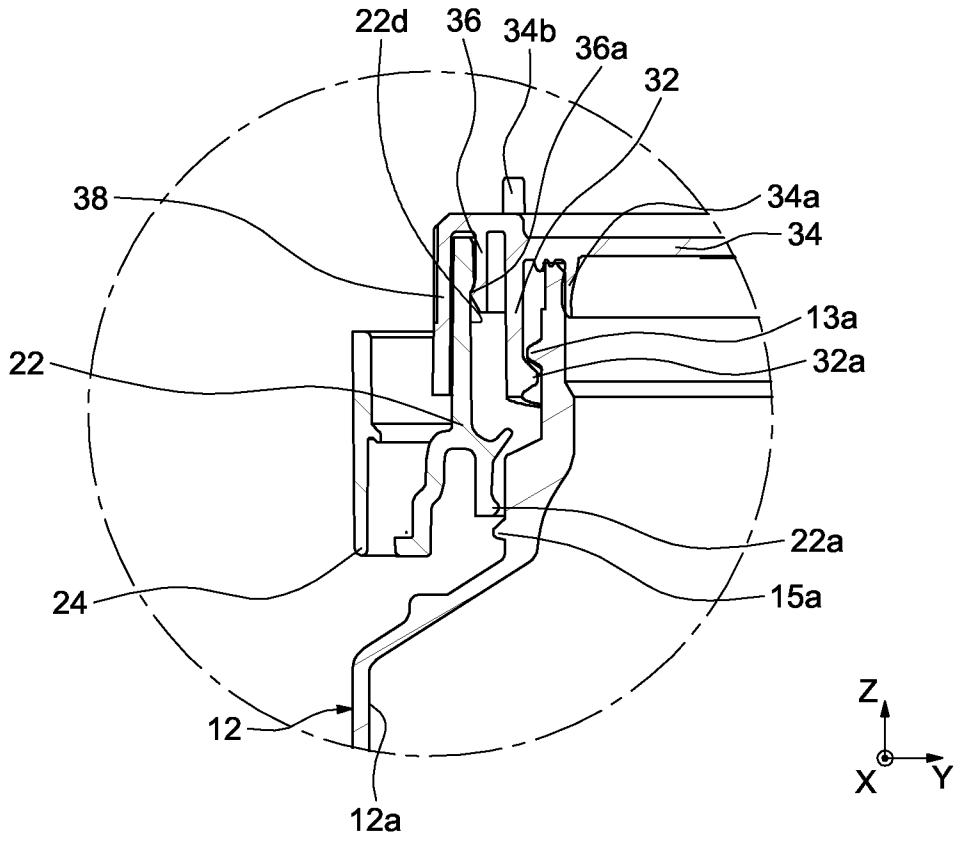
12a
Z
X
Y

FIG.5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36
34b
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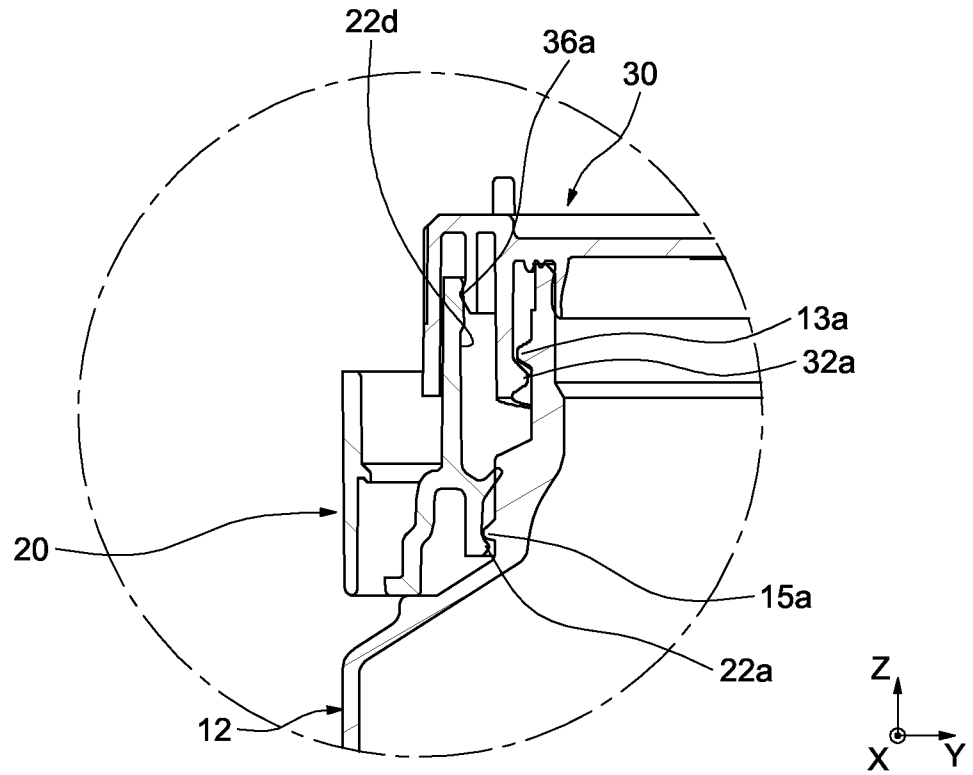
FIG.6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22a
12
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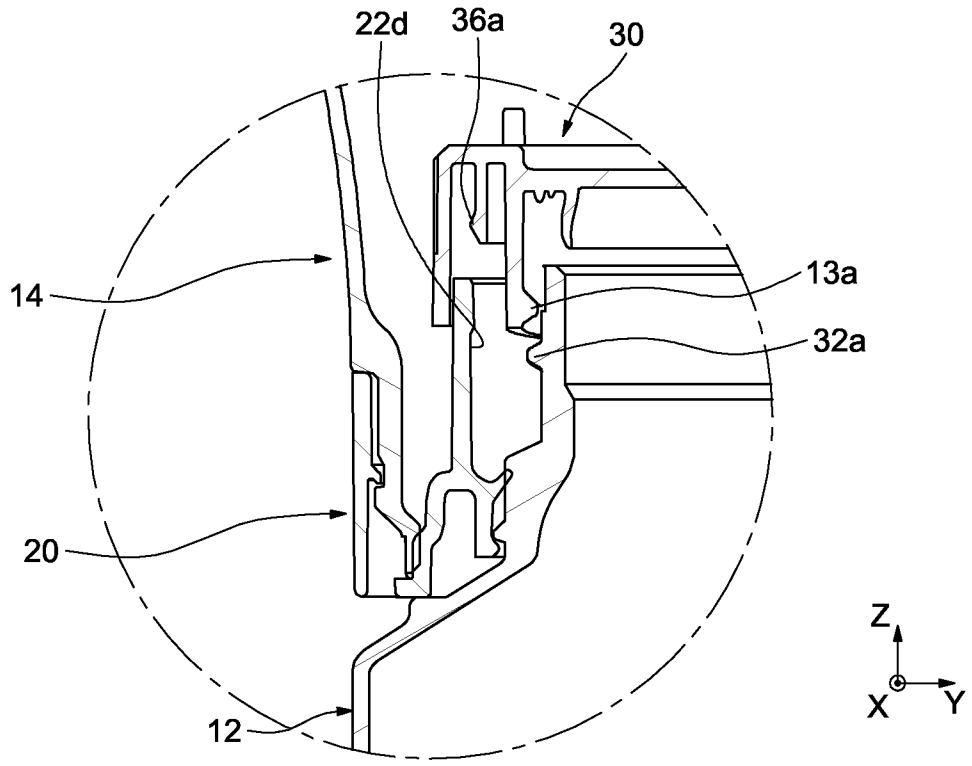
FIG.7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36a
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14
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20
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Z
X
Y

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2022/085266

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D81/32
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	WO 2019/232499 A1 (IN SPIRIT GROUP INC) 5 December 2019 (2019-12-05) figures 4,5	1-17
A	US 2002/030064 A1 (LACOUT FRANK [FR]) 14 March 2002 (2002-03-14) figure 4	1-17

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
28 March 2023	12/04/2023

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Wimmer, Martin

1

INTERNATIONAL SEARCH REPORT

Information on patent family members

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