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(54) **SAFETY STOPPER**

(57) Safety stopper (1) and container (7) wherein the stopper (1) comprises an inner cylindrical body (2) and an outer cylindrical body (3) concentrically positioned and joined together at their upper perimeter edges by an annular wall (4), wherein said outer cylindrical body (3) comprises an inner thread located on its inner cylindrical surface and an outer thread located on its outer cylindrical surface, wherein the container (7) comprises a gland (8) with an external thread configured to thread into the internal thread of the external cylindrical body (3) of the stopper (1), so that in the coupling position, the gland (8) is lodged in the space between the cylindrical bodies (2, 3) of the safety stopper (1), and once lodged it is blocked with the anti-opening system that both the tamper-evident stopper and the mouth of the container have integrated.

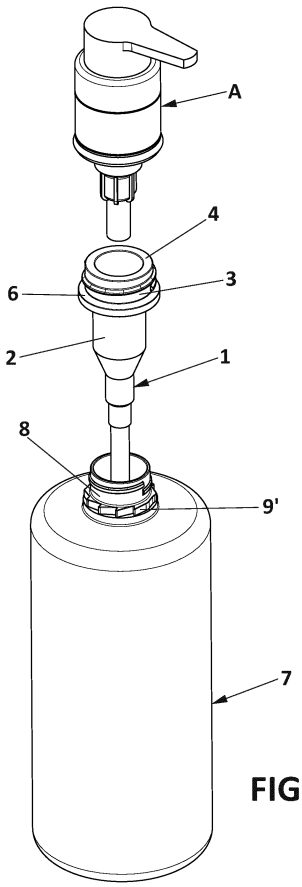

FIG. 1

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Description

TECHNICAL FIELD OF THE INVENTION

[0001] The present invention relates to a safety cap, which has application in the non-gaseous fluid dispensing container industry, and more specifically in the field of liquid soap dispensing bottles, making it possible to ensure that the container is not refilled in an unauthorised manner with any substance other than that contained prior to its first use.

BACKGROUND TO THE INVENTION

[0002] Nowadays, liquid soap dispensing containers are well known, consisting of bottles that incorporate a dosing pump on which the user acts by pressing to produce the dispensing of a quantity of liquid. These dispenser containers are obviously applicable to other substances, including foodstuffs.

[0003] The elements comprising the metering pump include elastic means for the return of the dispensing nozzle, making it the most costly element of the entire package as a whole.

[0004] The inside of the container is usually accessible to any user by unscrewing the dosing pump. In this way, the user can refill the contents of the container once it has been completely consumed.

[0005] However, there are cases in which, for safety reasons or because of the product manufacturer's own decision, it is necessary to prevent the packaging from being refilled in a way that is not authorised by the product manufacturer or the end user. In other words, there are cases in which it is necessary to guarantee a single use of the packaging. In such cases, the main problem is that none of the packaging components can be used, including the most expensive of them, which is the dosing pump.

DESCRIPTION OF THE INVENTION

[0006] A first aspect of the present invention relates to a safety cap, which ensures that the container incorporating it cannot be reopened and refilled once it has been filled, the safety cap fitted and opened for the first time, which is done when a standard metering pump is placed on the cap, This is done when a standard dosing pump is placed on the stopper, which can be removed for reuse in other containers, this being the most expensive component of the entire container as a whole, while the safety cap cannot be removed from the container, which prevents it from being refilled.

[0007] The safety plug proposed in the invention comprises an inner cylindrical body and an outer cylindrical body concentrically positioned and joined together at their upper perimeter edges by an annular wall.

[0008] The outer cylindrical body comprises an internal thread located on its inner cylindrical surface and an external thread located on its outer cylindrical surface.

[0009] In this way, the inner thread is placed on the thread of the gland or neck of the container, which is usually a bottle, and the outer thread allows a standard dosing or dispensing pump, i.e. a commercial multi-purpose dosing pump, to be received on the top. The gland is located between the cylindrical bodies of the cap.

[0010] It is possible for the height of the outer cylindrical body to be less than the height of the inner cylindrical body. In such a way that the dimensions of the outer cylindrical body correspond to those of the gland, thus being covered by the cap, while those of the inner cylindrical body are introduced into the body of the container, allowing the dispensing and return mechanisms of the dosing pump itself to be housed.

[0011] In this sense, for a better adaptation to the contour of commercially available dosing pumps, it is envisaged that the inner cylindrical body extends downwards, in the opposite direction to that of the annular wall that joins it to the outer cylindrical body, in at least one decreasing section, preferably two. In other words, the section of the cylindrical body has sequential concentric sectors that towards the inside of the bottle have a smaller cross-section, so that the end has a section equivalent to that of an inner extraction tube of the dosing pump, which usually has a cannula connected to it to reach the bottom of the container and take advantage of all its contents.

[0012] In order to fully ensure that the container has not been tampered with before its first use, it is envisaged that the safety cap comprises a sealed aluminium foil which is arranged at the top, mouth, of the cap and occupies the entire inner cross-section of the inner cylindrical body, which is broken by the inner extraction tube or the dosing pump cannula when coupled to the outer thread of the safety cap. As mentioned above, it is envisaged that the aluminium foil will have adequate strength to allow it to be broken by the insertion of the pump cannula, in the optional case where the metering pump has a cannula. Thus, it is possible to have a plurality of closed containers with the safety cap of the invention in place, which are opened at the moment of insertion of the dosing pump, which can be placed sequentially in different containers as they are going to be used for the consumption or use of their contents.

[0013] It is also envisaged that the lower perimeter edge, opposite to the annular wall, of the outer cylindrical body terminates in a flare with a diameter greater than that of the outer cylindrical body itself.

[0014] A second aspect of the invention relates to an assembly comprising a container with a safety cap as described above, wherein the container comprises a gland with an external thread configured to thread into the internal thread of the external cylindrical body of the safety cap. Thus, in the mating position, the gland is housed in the space between the cylindrical bodies of the safety cap.

[0015] The widening of the outer cylindrical body of the

safety cap comprises non-return means configured to cooperate with complementary non-return means located at the base of the gland, such that the non-return means allow threading in the coupling direction between the safety cap and the container up to the coupling stop position and prevent unscrewing. The flare allows for the concealment and protection of the non-return means, which are contained within the flare.

DESCRIPTION OF THE DRAWINGS

[0016] To complement the description being made and in order to assist in a better understanding of the features of the invention, in accordance with a preferred example of a practical embodiment thereof, a set of drawings is attached hereto as an integral part of said description, in which the following is illustratively and non-limitingly depicted:

Figure 1.- Shows an exploded view from a top view of a standard metering pump, as well as the safety cap and the container of the invention.

Figure 2.- Shows an exploded view from a lower viewpoint of the elements represented in the previous figure.

Figure 3.- Shows a longitudinal section of the container of the invention with the safety cap of the invention as well as a dosing pump coupled together.

Figure 4.- Shows an elevation view and a cross section of the non-return means located in the area corresponding to the external coupling between the safety cap and the threaded gland of the neck of the container.

Figure 5.- Shows an elevation and profile view of the safety plug, showing the non-return means located at the end of the inner cylindrical surface of the outer cylindrical body.

Figure 6.- Shows a longitudinal section of the safety cap.

PREFERRED EMBODIMENT OF THE INVENTION

[0017] In view of the figures shown, it can be seen that in one of the possible embodiments of the invention, the safety plug (1) proposed by the invention comprises an inner cylindrical body (2) and an outer cylindrical body (3) concentrically located and joined together at their upper perimeter edges by means of an annular wall (4). As can be seen in particular in figure 6, the outer cylindrical body (3) comprises an inner thread located on its inner cylindrical surface and an outer thread located on its outer cylindrical surface.

[0018] The height of the outer cylindrical body (3) is less than the height of the inner cylindrical body (2). The dimensions of the outer cylindrical body (3) correspond to those of the gland (8) of the container (7), thus being covered by the cap (1), while those of the inner cylindrical body (2) are inserted into the body of the container (7) to house the dispensing and return mechanisms of the dosing pump (A).

[0019] In this sense, for a better adaptation to the contour of the commercially available metering pumps (A), the inner cylindrical body (2) is extended at the bottom, in the opposite direction to that of the annular wall (4) that joins it to the outer cylindrical body (3), in two additional decreasing sections.

[0020] As can be seen in the longitudinal sections of figures 3 and 6, the safety plug (1) comprises an aluminium foil (5) that occupies the entire inner cross-section of the inner cylindrical body (2), which is broken by the inner extraction tube or the cannula, not shown, of the dosing pump (A) when coupled to the outer thread of the safety plug (1).

[0021] Figures 1 to 4 show a n assembly consisting of a container (7) with a safety cap (1) according to the invention, where the container (7) comprises a gland (8) with an external thread configured to thread into the internal thread of the external cylindrical body (3) of the safety cap (1). Thus, in the mating position, the gland (8) is housed in the space between the cylindrical bodies (2, 3) of the safety cap (1).

[0022] The figures show that the lower perimeter edge, opposite to that of the annular wall (4), of the outer cylindrical body (3) ends in a widening (6) with a diameter greater than that of the outer cylindrical body (3) itself. This widening (6) of the outer cylindrical body (3) of the safety plug (1) comprises non-return means (9) configured to cooperate with complementary non-return means (9') located at the base of the gland (8), in such a way that the non-return means (9, 9') allow the threading in the coupling direction between the safety cap (1) and the container (7) up to the coupling stop position, shown in figures 3 and 4, and prevent unscrewing. The opening (6) conceals and protects the non-return means (9, 9'), which are contained inside the opening (6), as shown in figure 4.

[0023] According to the embodiment shown, the non-return means (9) consist of a number of oblique flanges located on the inner side of the opening (6) and oriented to allow the safety cap (1) to be screwed into the gland (8) of the container (7), as shown in figure 4. For their part, the additional non-return means (9') consist of a plurality of protruding teeth according to a cross section which cooperate with the non-return means (9) of the safety cap (1).

[0024] In view of this description and set of figures, the person skilled in the art will understand that the embodiments of the invention that have been described can be combined in multiple ways within the subject matter of the invention. The invention has been described according to some preferred embodiments thereof, but it will be

apparent to the person skilled in the art that multiple variations can be introduced into such preferred embodiments without exceeding the claimed subject matter of the invention.

Claims

1. Safety plug (1), **characterised in that** it comprises an inner cylindrical body (2) and an outer cylindrical body (3) concentrically located and joined together at their upper perimeter edges by means of an annular wall (4), where said outer cylindrical body (3) comprises an inner thread located on its inner cylindrical surface and an outer thread located on its outer cylindrical surface.

2. Safety plug (1) according to claim 1, wherein the height of the outer cylindrical body (3) is less than the height of the inner cylindrical body (2).

3. Safety cap (1) according to any of the previous claims, in which the inner cylindrical body (2) extends downwards, in the opposite direction to that of the annular wall (4) that joins it to the outer cylindrical body (3), in at least one decreasing section.

4. Safety cap (1) according to any of the previous claims, comprising an aluminium foil (5) that occupies the entire inner cross-section of the inner cylindrical body (2).

5. Safety cap (1) according to any of the previous claims, in which the lower perimeter edge, opposite to that of the annular wall (4), of the outer cylindrical body (3) ends in a widening (6) with a diameter greater than that of the outer cylindrical body (3) itself.

6. A container assembly (7) with a safety cap (1), wherein the safety cap (1) is according to any one of the preceding claims and the container (7) comprises a gland (8) with an external thread configured to thread into the internal thread of the outer cylindrical body (3) of the safety cap (1), the gland (8) being, in the engaged position, located in the space between the cylindrical bodies (2, 3) of the safety cap (1), where the widening (6) of the outer cylindrical body (3) of the safety cap (1) comprises non-return means (9) configured to cooperate with complementary non-return means (9') located at the base of the gland (8), so that said non-return means (9, 9') allow the threading in the coupling direction between the safety cap (1) and the container (7) up to the coupling stop position and prevent its unscrewing.

7. Assembly according to claim 6, wherein the non-return means (9) consist of a plurality of oblique flanges located on the inner side of the widening (6) and oriented to allow the threading of the safety cap (1) into the gland (8) of the container (7), wherein the complementary non-return means (9') consist of a plurality of teeth according to a cross-section which cooperate with the non-return means (9) of the safety cap (1).

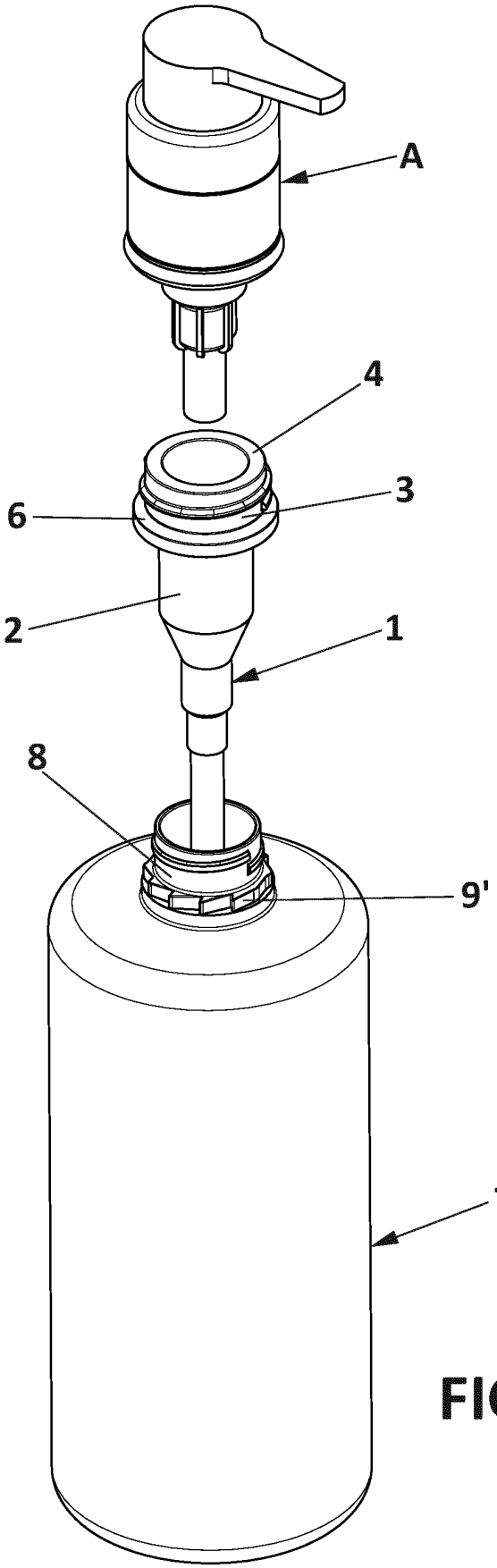


FIG. 1

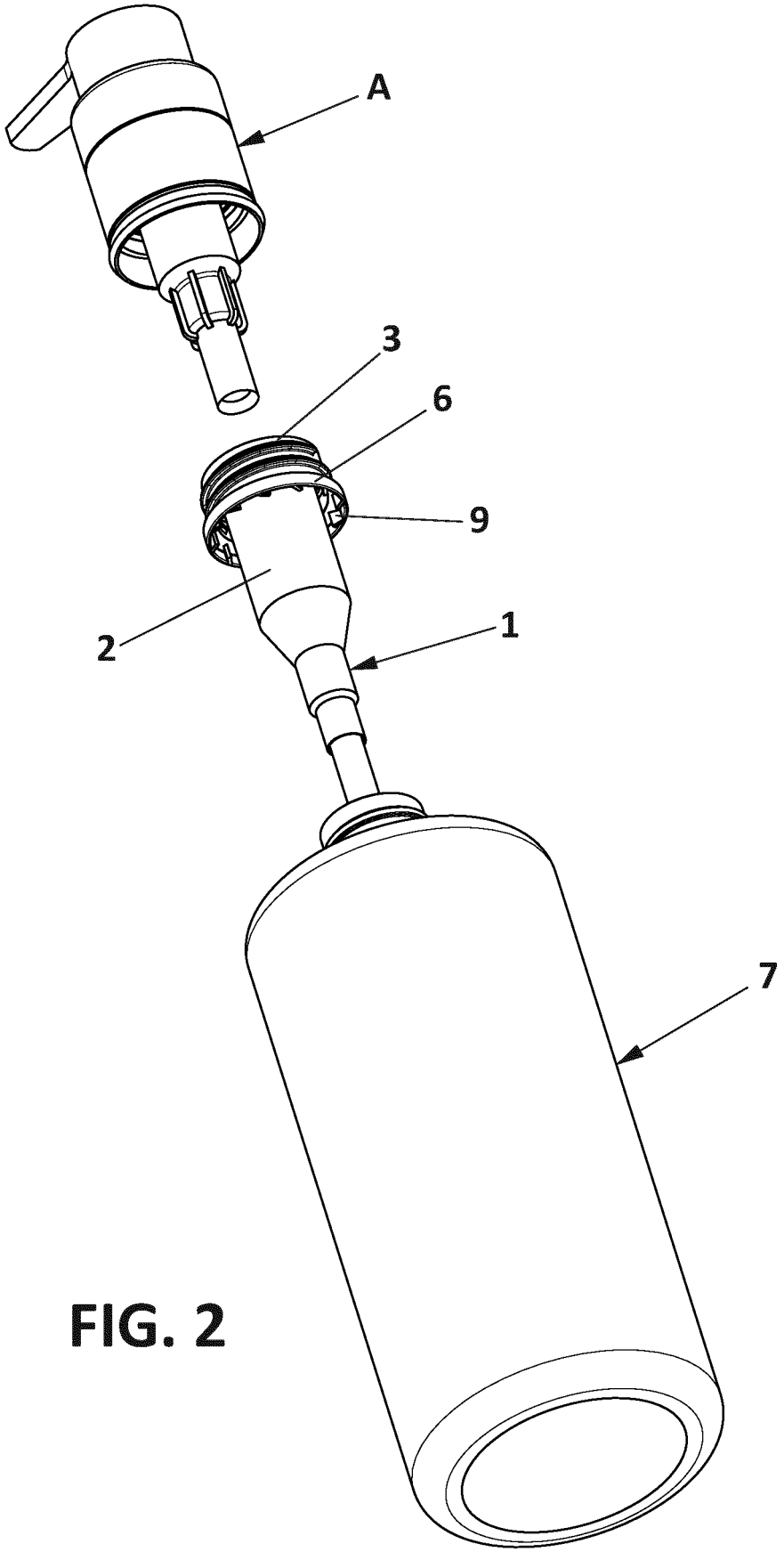


FIG. 2

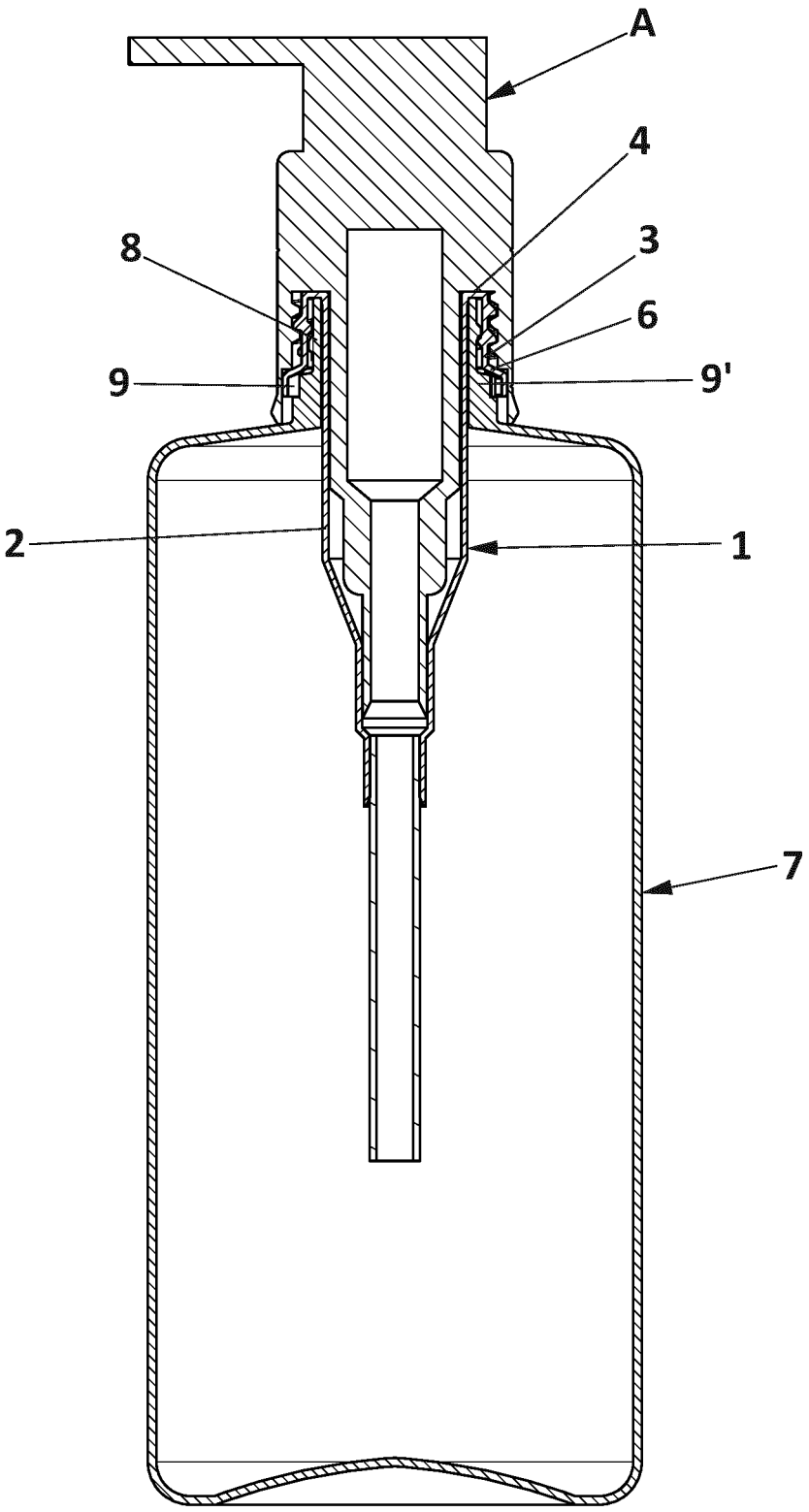
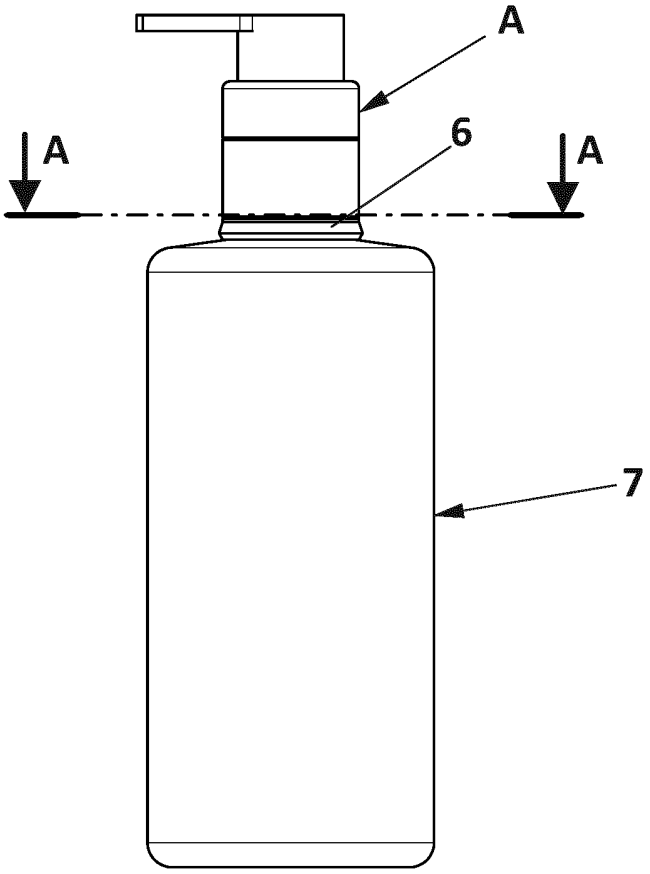


FIG. 3



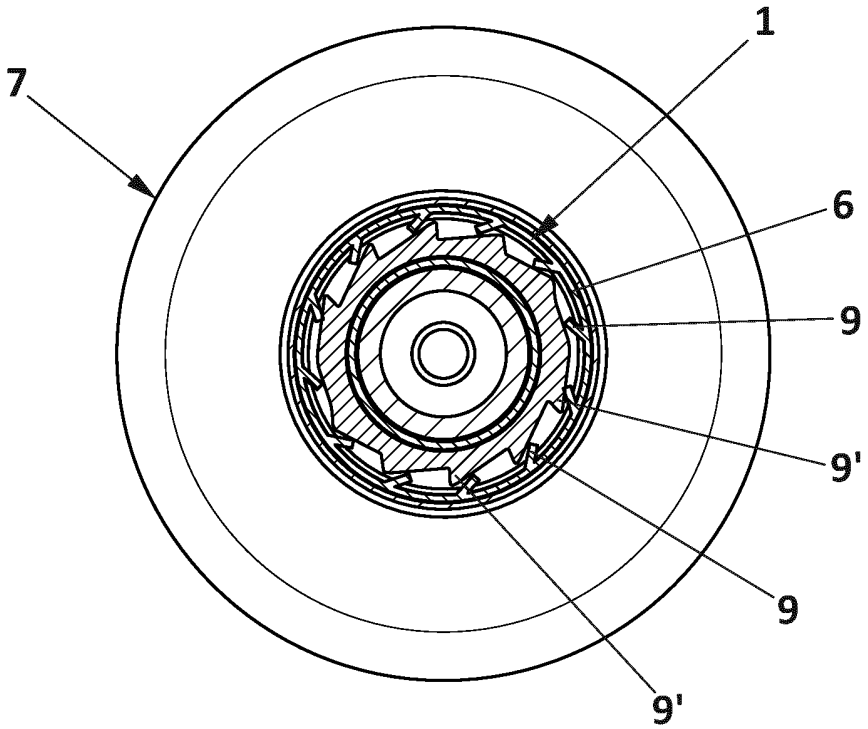


FIG. 4
A-A

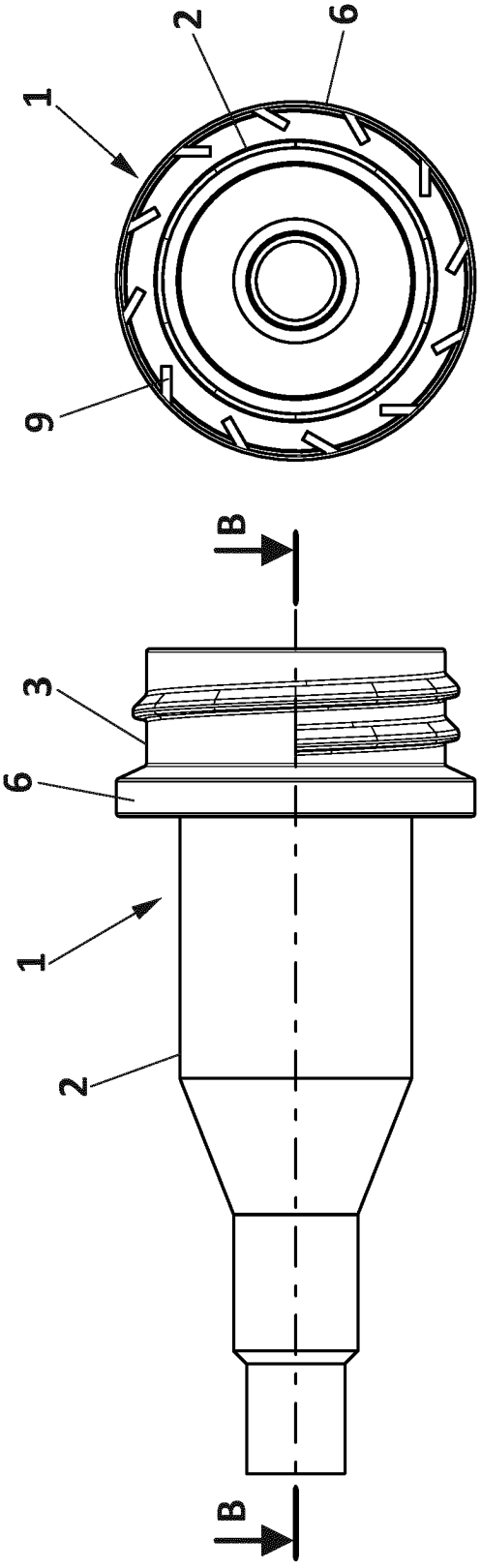


FIG. 5

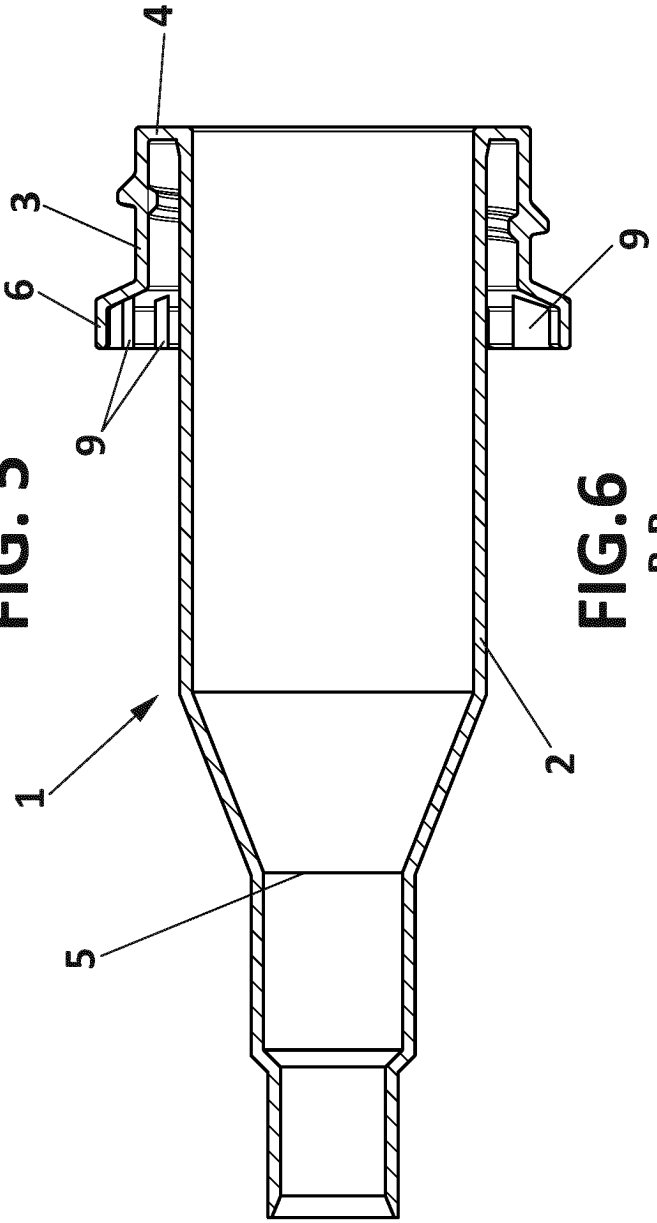


FIG.6
B-B

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2019/070781

A. CLASSIFICATION OF SUBJECT MATTER

See extra sheet

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)
B05B, 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)

EPODOC, INVENES

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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☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
20/07/2020	**(21/07/2020)**
Name and mailing address of the ISA/ OFICINA ESPAÑOLA DE PATENTES Y MARCAS Paseo de la Castellana, 75 - 28071 Madrid (España) Facsimile No.: 91 349 53 04	Authorized officer F. Monge Zamorano Telephone No. 91 3495541

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2019/070781

C (continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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Form PCT/ISA/210 (continuation of second sheet) (January 2015)

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Information on patent family members

International application No.
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INTERNATIONAL SEARCH REPORT

International application No.

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CLASSIFICATION OF SUBJECT MATTER

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B65D51/20 (2006.01)