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(54) **FLIP-TOP CAP AND CONTAINER WITH WHICH SAID CAP IS ASSOCIATED**

(57) A flip-top cap (1) for thin-walled flexible containers (100), comprising a tubular body (2) in which, at a first end (2a) lying on a first plane (π_1), coupling means (3) are defined for coupling said cap (1) to a container (100), a dispenser tube (4) defining a dispenser mouth (5) according to a main axis (X1) and projecting orthog-

onally from a surface (6) defined at the second end (2b) of the tubular body (2), and a top closing element (7) hinged to the tubular body (2). The surface (6) lies on a second plane (π_2) incident on the first plane (π_1), so that the main axis (X1) is oblique with respect to the first plane (π_1).

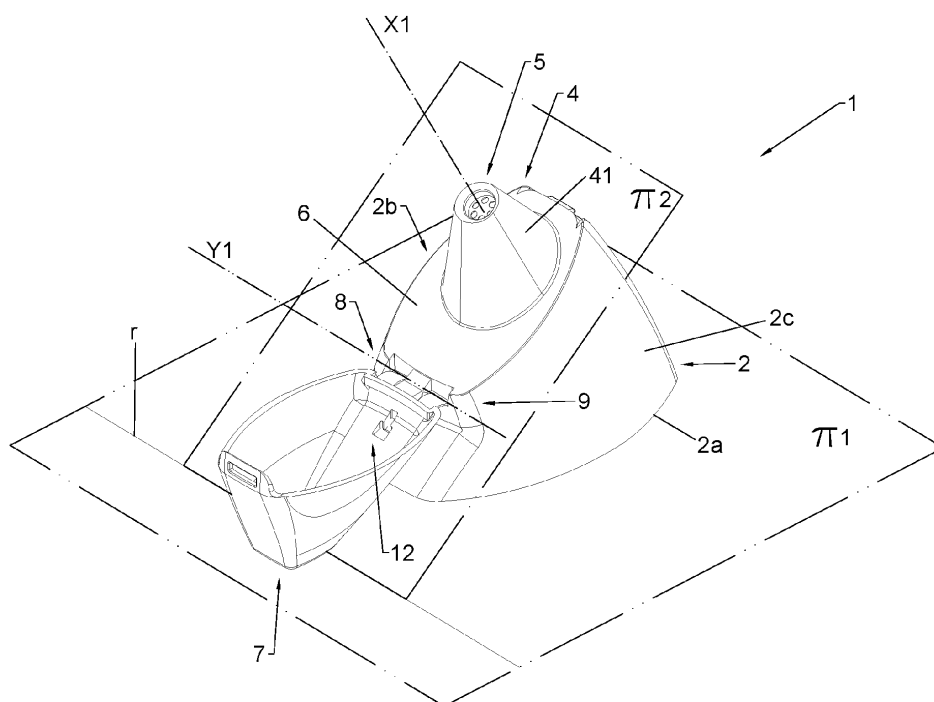


Fig.6

Description

[0001] The present invention concerns the field of plastic caps, and in particular the field of flip-top caps, which can be opened easily, for example with a movement of the thumb.

[0002] According to the present invention, in particular, a flip-top cap is attached to the dispenser mouth of a thin-walled flexible container, preferably suitable for holding toilet cleaners.

[0003] Flip-top caps are known which consist of a dispenser tubular body applied to the upper end of a container and in turn provided with a dispenser mouth.

[0004] This cap is also provided with a top closing element made as a single body with the dispenser tubular body, which alternately determines the open and closed conditions of the dispenser tubular body itself. In particular, the top closing element is joined to the dispenser tubular body by flexible hinge means called, in fact, hinge; the hinge is such that it allows the top closing element and the dispenser tubular body to move with respect to each other during the opening and closing steps of the container.

[0005] Advantageously, the top closing element protects the dispenser mouth of the dispenser tubular body, through which the liquid flows out of the container, from contact with foreign bodies, and ensures the necessary hygiene. Moreover, advantageously, with said caps it is not necessary to pay attention to the above-mentioned top closing element during the opening step, as it remains integral with the dispenser tubular body and there is no risk of losing it and of dirtying it if it is accidentally dropped.

[0006] Usually, the containers associated with these types of caps are used to hold shampoos, body washes or dishwashing detergents.

[0007] However, despite the said advantages, flip-top caps are configured to dispense the contents of the container in a direction that is essentially parallel to the extension axis of the container itself.

[0008] This, consequently, leads to the technical disadvantage that the containers to which said flip-top caps are attached are not suitable to be used for particular purposes or in particular circumstances, above all when the container is intended to be used to apply a toilet cleaner to the rim of the toilet, that is, to its inner upper edge, under which the flush water usually runs.

[0009] In fact, said containers with flip-top caps are not suitable for the use described above for basically two reasons.

[0010] The first reason is related to the fact that, with the dispenser mouth in a direction substantially parallel to the extension of the container, it is difficult to reach the above-mentioned rim.

[0011] The second reason is related to the fact that the above-mentioned top closing element itself, once opened, becomes an obstacle when approaching said rim or any area of any object having no direct access.

[0012] In fact, it is known that there are specific con-

tainers made for these special uses, having an integrated dispensing spout whose dispenser mouth is oblique with respect to the extension axis of the container, so as to facilitate the approach of said dispenser mouth to the particular areas to be treated such as, for example, the toilet rim.

[0013] However, even this type of containers has two major disadvantages.

[0014] The first is related to the fact that the cap that closes said latter containers is a separate item, with the disadvantage that it can be lost or can accidentally fall on the ground and become contaminated.

[0015] The second, instead, is related to the fact that said containers in the above-mentioned particular shape are, from an industrial point of view, much more complex to fill with the appropriate liquid product compared to containers whose dispenser mouth is substantially parallel to the extension axis of the container itself, and therefore pointing upwards during filling, and which are subsequently coupled with a flip-top cap.

[0016] The task of the present invention is to develop a flip-top cap that overcomes the drawbacks of the caps of the known type.

[0017] More specifically, it is the object of the invention to provide a flip-top cap suited to be applied to containers whose dispenser mouth is parallel to the extension axis of the container and, at the same time, which are suited to be used for the application, for example, of toilet detergents or other detergents at the level of the rim of a toilet or at any other area without direct access.

[0018] Even more specifically, it is the object of the present invention to provide a flip-top cap which makes such particular uses possible and which, at the same time, can be associated with containers that are easier to fill industrially than the containers specifically made for such uses.

[0019] The task and the objects mentioned above are fulfilled by a flip-top cap according to claim 1.

[0020] Further characteristics of the cap according to claim 1 are described in the dependent claims.

[0021] The container to which the cap according to the invention is associated is also part of the invention.

[0022] The task and the above-mentioned objects, together with the advantages that will be mentioned below, are highlighted in the description of an embodiment of the invention, which is provided by way of non-limiting example, with reference to the attached drawings, wherein:

- Figure 1 shows a side view of a cap according to the invention in the closed configuration;
- Figure 2 shows a first axonometric view of the cap of the invention shown in Figure 1;
- Figure 3 shows a second axonometric view of the cap of the invention shown in Figure 1;

- Figure 4 shows a side view of the cap of the invention in the open configuration;
- Figure 5 shows a first axonometric view of the cap of the invention shown in Figure 4;
- Figure 6 shows a second axonometric view of the cap of the invention shown in Figure 4;
- Figure 7 schematically shows the use of a container associated with the cap of the invention for applying a detergent product at the level of the rim of a toilet;
- Figure 8 shows a container according to the invention, with which the cap of the invention is associated.

[0023] The flip-top cap according to the invention, which can be associated with thin-walled flexible containers, is shown in Figures from 1 to 6, where it is indicated as a whole by 1.

[0024] Said cap 1 comprises a tubular body 2 in which, at a first end 2a lying on a first plane $\pi 1$, coupling means 3 are defined for coupling the same cap 1 and a container 100 together.

[0025] In addition, the cap 1 is provided with a dispenser tube 4, visible in Figures from 4 to 6, comprising a tubular wall 41 that defines a dispenser mouth 5 of the cap 1 according to a main axis X1, through which the contents of the container 100 are dispensed.

[0026] The dispenser tube 4, as can be observed in Figure 4, extends projecting from a surface 6 defined at the second end 2b of the tubular body 2, so that the main axis X1 is substantially orthogonal to the surface 6.

[0027] Furthermore, the cap 1 comprises a top closing element 7 hinged to the tubular body 2 through hinge means 8, so as to allow the top closing element 7 to rotate around a hinge axis Y1 orthogonal to the main axis X1.

[0028] The top closing element 7 is suited to close the dispenser mouth 5 of the dispenser tube 4.

[0029] According to the invention, the surface 6 lies on a second plane $\pi 2$ incident on the first plane $\pi 1$, as can be seen in Figures 1, 3, 4 and 6, so that the main axis X1 is oblique with respect to the first plane $\pi 1$. Furthermore, according to the invention, the top closing element 7 is hinged to the tubular body 2 at a first section 9 of the second end 2b of the tubular body 2 itself, facing towards the line of incidence r between the first plane $\pi 1$ and said second plane $\pi 2$.

[0030] The combination of features described above has the advantage of making it possible to provide a flip-top cap that can be applied to the same containers to which the known flip-top caps are applied, and at the same time makes it possible to define a dispensing direction of the contents of such containers that is oblique with respect to the extension axis of the containers themselves. This makes it possible to easily fill containers at the industrial stage, while at the same time allowing the container with the associated cap 1 of the invention to

be used to apply said contents to areas without direct access, such as for example the rim of a toilet.

[0031] Furthermore, the fact that the top closing element 7 is hinged to the tubular body 2 at said first section 9 allows the same top closing element 7, when the cap 1 is open, not to hinder the approaching movement of the dispenser mouth 5, for example, to the rim B of a toilet, as schematically shown in Figure 7.

[0032] In particular, according to a preferred embodiment of the invention, the top closing element 7 is configured to rotate around the hinge axis Y1 from a closed position, in which the top closing element 7 itself closes the dispenser mouth 5, to a completely open position, according to which the bottom 7a of said top closing element 7 is substantially coplanar with the surface 6. Advantageously, said last detail feature provides a better guarantee that the top closing element 7 is not an obstacle to the approaching movement of the dispenser mouth 5 towards the rim of a toilet, for example.

[0033] According to an embodiment of the invention, the cap 1 is also provided with first locking means 11, at the portion 10 of the side wall 2c of the tubular body 2 facing towards the line of incidence r, and with second locking means 12, complementary to the first locking means 11, at the outer wall 7b of the top closing element 7 facing the portion 10 of the side wall 2c, when the top closing element 7 is in the completely open position.

[0034] In this way, advantageously, the first locking means 11 and the second locking means 12 are configured to be reversibly coupled together and keep the top closing element 7 locked in the completely open position. This makes it possible to keep the top closing element 7 in the completely open position when applying the contents of the container at the level of the rim of a toilet, for example, thus preventing the top closing element 7 from moving and hindering said application.

[0035] More specifically, according to the latter embodiment, the first locking means 11 comprise a locking tooth 13 projecting from the portion 10 of the side wall 2c and the second locking means 12 comprise a locking opening 14 in which the locking tooth 13 is suited to become engaged by interference, when the top closing element 7 is in the completely open position.

[0036] According to a further aspect of the invention, in an embodiment of the cap 1 the dispenser tube 4 has substantially the shape of a truncated cone, as can be observed in Figure 4.

[0037] This, advantageously, allows the dispenser tube 4 to wedge through easier to the toilet rim, for example.

[0038] Furthermore, according to an embodiment of the invention, according to a cross section plane $\pi 3$, on which the main axis X1 lies, the top closing element 7 is substantially in the shape of a scalene trapezoid 15, in which the lower portion 16 of the longer oblique side 15a is hinged to the tubular body 2. Said characteristic advantageously makes it easier to ensure the coplanarity of the bottom 7a of the top closing element 7 with respect

to the surface 6, when the top closing element 7 itself is in the completely open position, as shown in Figure 4.

[0039] Furthermore, according to the preferred embodiment of the invention, the cap 1 is configured so that the tubular body 2 comprises first coupling means 18 at a second section 17 of the second end 2b, diametrically opposite the hinge means 8. Furthermore, it is provided that the top closing element 7, at its portion facing the first coupling means 18, when it is in said closed position, comprises second coupling means 19, complementary to the first coupling means 18, so that said first coupling means 18 are reversibly engaged with the second coupling means 19, as shown in Figure 2. This, advantageously, makes it possible to keep the cap 1 closed in a stable manner and to prevent the cap itself from opening accidentally.

[0040] As mentioned above, a thin-walled flexible container 100, shown in Figure 8 and preferably suitable for holding toilet cleaners, is also part of the invention. Said container has a substantially longitudinal extension along an extension axis X3. According to the invention, said container 100 comprises a cap 1 of the invention coupled thereto at its dispenser mouth 101.

[0041] In particular, the dispenser mouth 101 of the container 100 is defined on a surface 102 substantially parallel to the bottom 103 of the container itself and perpendicular to the extension axis X3. In this way, the container 100 remains easy to be filled at an industrial level.

[0042] The cap 1 of the invention is coupled with the container 100 through coupling means 3 at the level of said surface 102, so that the main axis X1 of the same cap 1 is oblique with respect to the bottom 103 and the longitudinal axis X3. As a result of what has been described above, it can be understood that the flip-top cap of the invention and the container to which said cap of the invention is applied achieve all the set objects.

[0043] More specifically, the object to provide a flip-top cap suited to be applied to containers whose dispenser mouth is parallel to the extension axis of the container and, at the same time, which are suited to be used for the application, for example, of toilet detergents or other detergents at the level of the rim of a toilet or at any other area without direct access is achieved. Even more specifically, the object to provide a flip-top cap which makes such particular uses possible and which, at the same time, can be associated with containers that are easier to fill industrially than the containers specifically made for such uses is achieved.

Claims

1. Flip-top cap (1) for thin-walled flexible containers (100), comprising:

- a tubular body (2) in which, at a first end (2a) lying on a first plane (π_1), coupling means (3) are defined for coupling said cap (1) to one of

said containers (100);

- a dispenser tube (4) comprising a tubular wall (41) defining a dispenser mouth (5) of said cap (1) according to a main axis (X1), wherein said dispenser tube (4) extends so as to project from a surface (6) defined at the second end (2b) of said tubular body (2) so that said main axis (X1) is substantially orthogonal to said surface (6);
- a top closing element (7) hinged to said tubular body (2) by means of hinging means (8) for rotating said top closing element (7) about a hinge axis (Y1) orthogonal to the main axis (X1), said top closing element (7) being suitable for closing said dispenser mouth (5) of said dispenser tube (4);

wherein said surface (6) lies on a second plane (π_2) incident on said first plane (π_1), so that said main axis (X1) is oblique with respect to said first plane (π_1), the cap (1) being **characterized in that** said top closing element (7) is hinged to said tubular body (2) at a first section (9) of said second end (2b) facing towards the line of incidence (r) between said first plane (π_1) and said second plane (π_2).

2. Cap (1) according to claim 1, **characterized in that** said top closing element (7) is configured to rotate around said hinge axis (Y1) from a closed position, in which said top closing element (7) closes said dispenser mouth (5), to a completely open position, according to which the bottom (7a) of said top closing element (7) is substantially coplanar with said surface (6).

3. Cap (1) according to claim 2, **characterized in that:**

- first locking means (11) are defined at the portion (10) of the side wall (2c) of said tubular body (2) facing towards said line of incidence (r);
- second locking means (12) complementary to said first locking means (11) are defined on the outer wall (7b) of said top closing element (7) facing said portion (10) of said side wall (2c) when said top closing element (7) is in said completely open position, said first locking means (11) and said second locking means (12) being configured to be reversibly coupled together and maintain said top closing element (7) locked in said completely open position.

4. Cap (1) according to claim 3, **characterized in that** said first locking means (11) comprise a locking tooth (13) projecting from said portion (10) of said side wall (2c) and said second locking means (12) comprise a locking opening (14) in which said locking tooth (13) can become engaged by interference when said top closing element (7) is in said completely open position.

5. Cap (1) according to any of the preceding claims, **characterized in that** said dispenser tube (4) is substantially in the shape of a truncated cone.
6. Cap (1) according to any of the preceding claims, **characterized in that**, according to a cross section plane ($\pi 3$) on which said main axis (X1) lies, said top closing element (7) has substantially the shape of a scalene trapezoid (15), in which the lower portion (16) of the longer oblique side (15a) is hinged to said tubular body (2). 5 10
7. Cap (1) according to any of the preceding claims, **characterized in that:** 15
- first coupling means (18) are defined in said tubular body (2) at a second section (17) of said second end (2b) diametrically opposite said hinge means (8);
 - said top closing element (7), at its portion facing said first coupling means (18), when it is in the closed position, comprises second coupling means (19) complementary to said first coupling means (18) in such a manner that said first coupling means (18) are reversibly coupled with said second coupling means (19). 20 25
8. Thin-walled flexible container (100) preferably suited to contain toilet cleaners, substantially extending longitudinally along an extension axis (X3), **characterized in that** it comprises, coupled thereto at its dispenser mouth (101), a cap (1) according to any of the preceding claims. 30
9. Container (100) according to claim 8, **characterized in that** said dispenser mouth (101) is defined on a surface (102) which is substantially parallel to the bottom (103) of said container (100) and perpendicular to said extension axis (X3). 35 40
10. Container (100) according to claim 9, **characterized in that** said cap (1) is coupled with said container (100) through said coupling means (3) at the level of said surface (102) in such a way that said main axis (X1) of said cap (1) is oblique with respect to said bottom (103) and to said longitudinal axis (X3). 45

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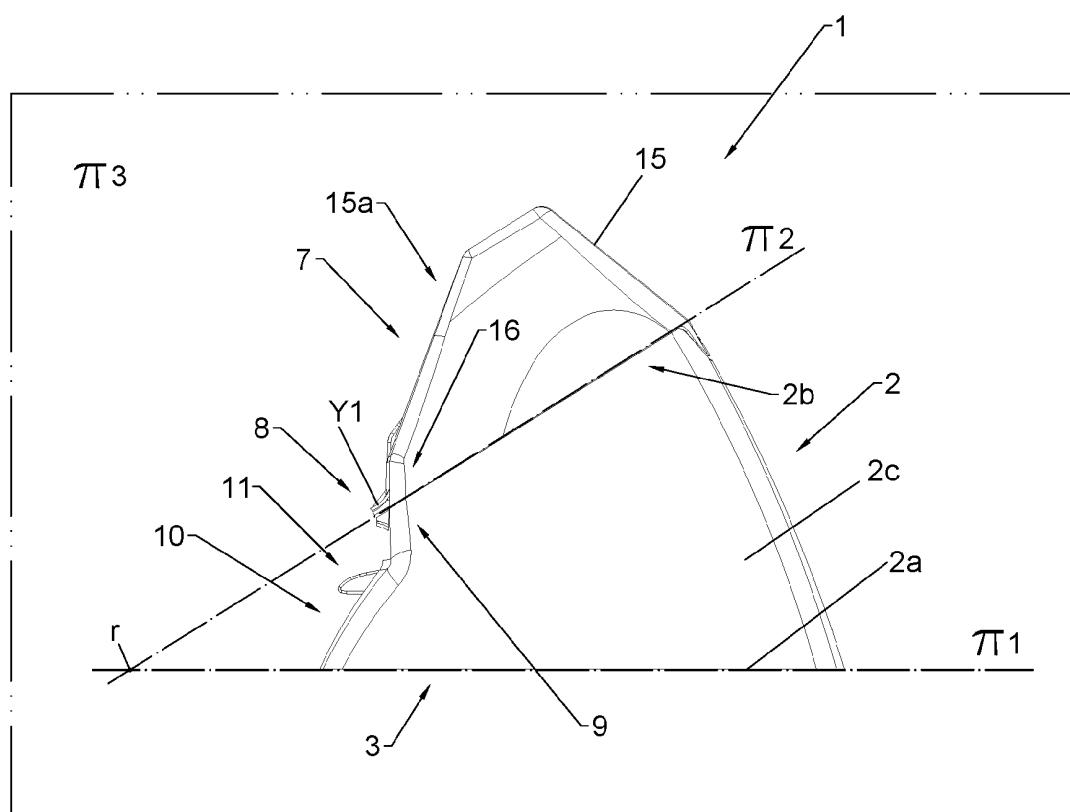


Fig.1

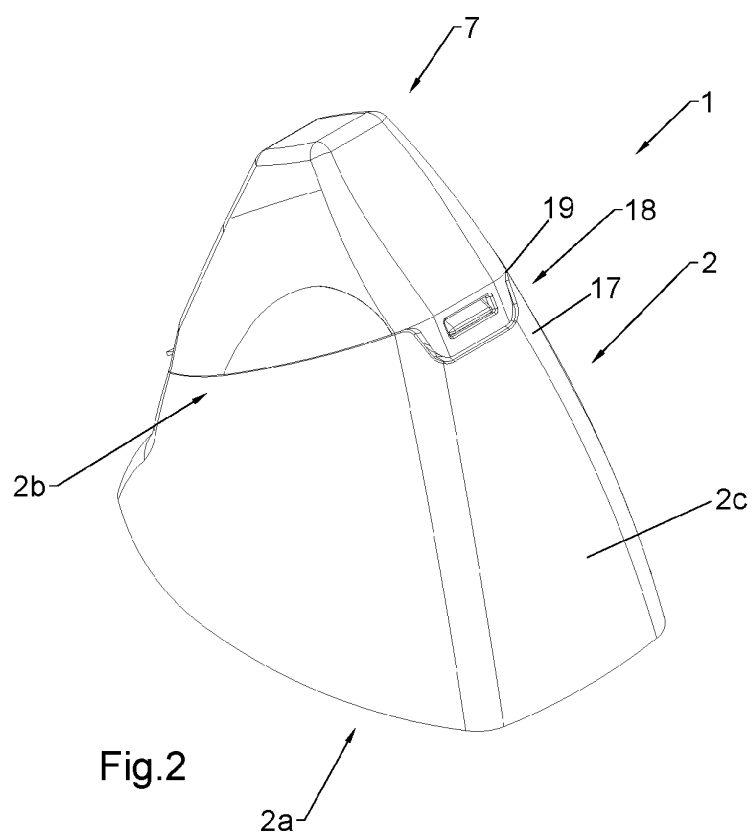
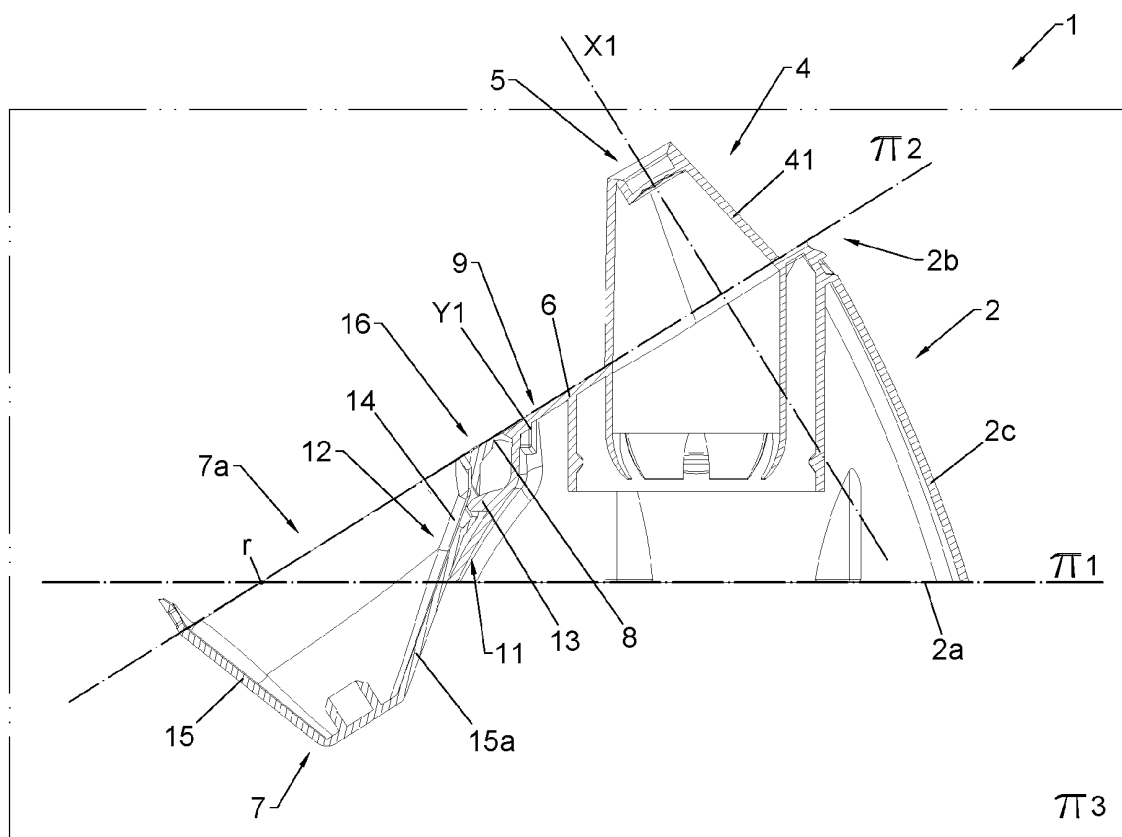
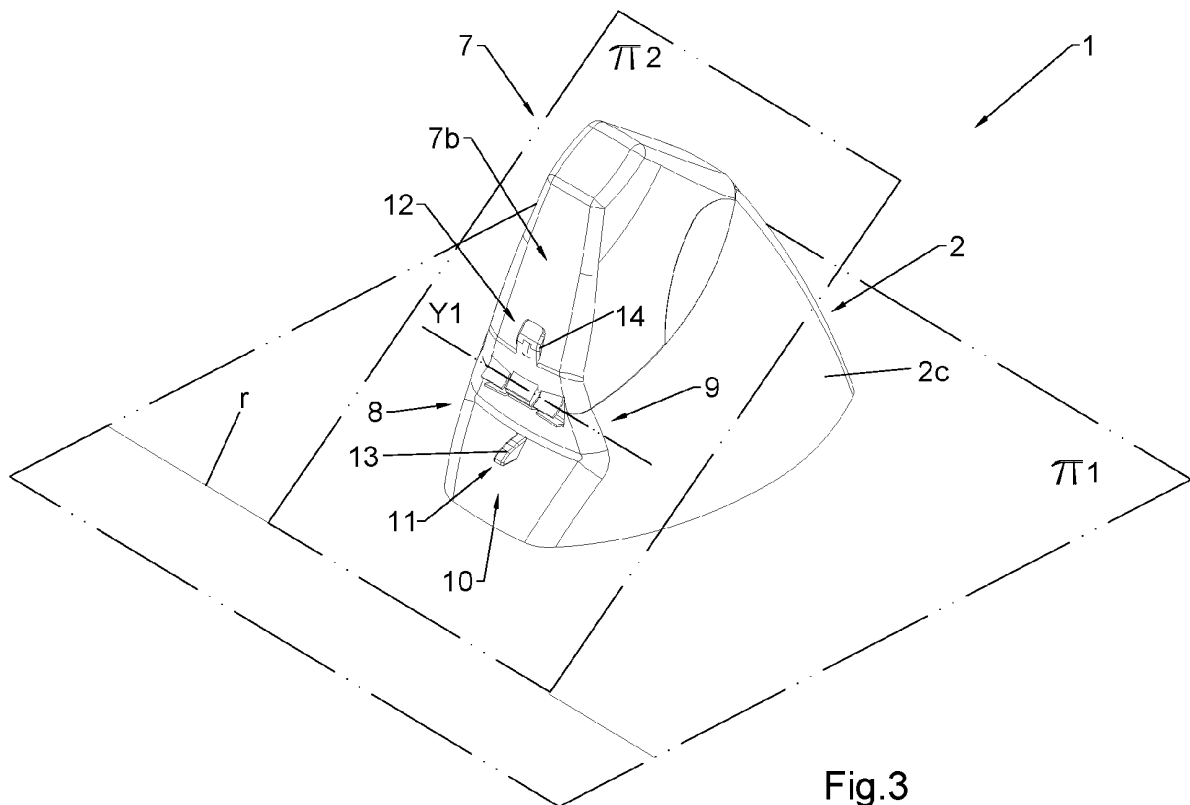


Fig.2



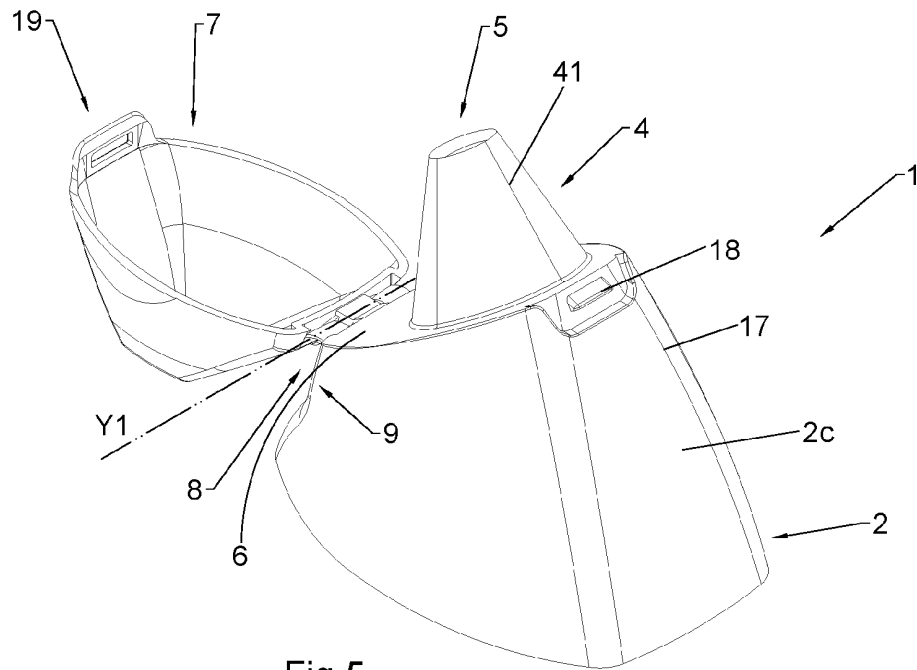


Fig.5

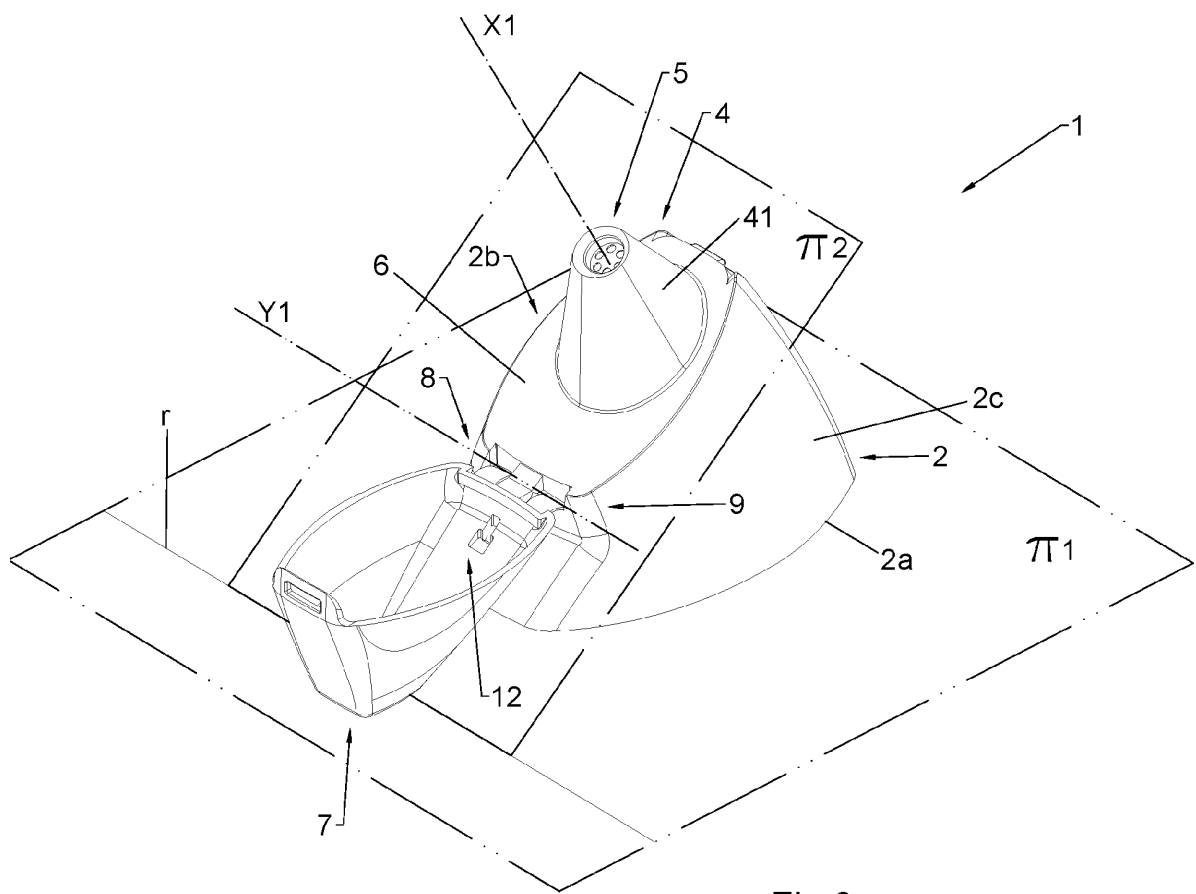


Fig.6

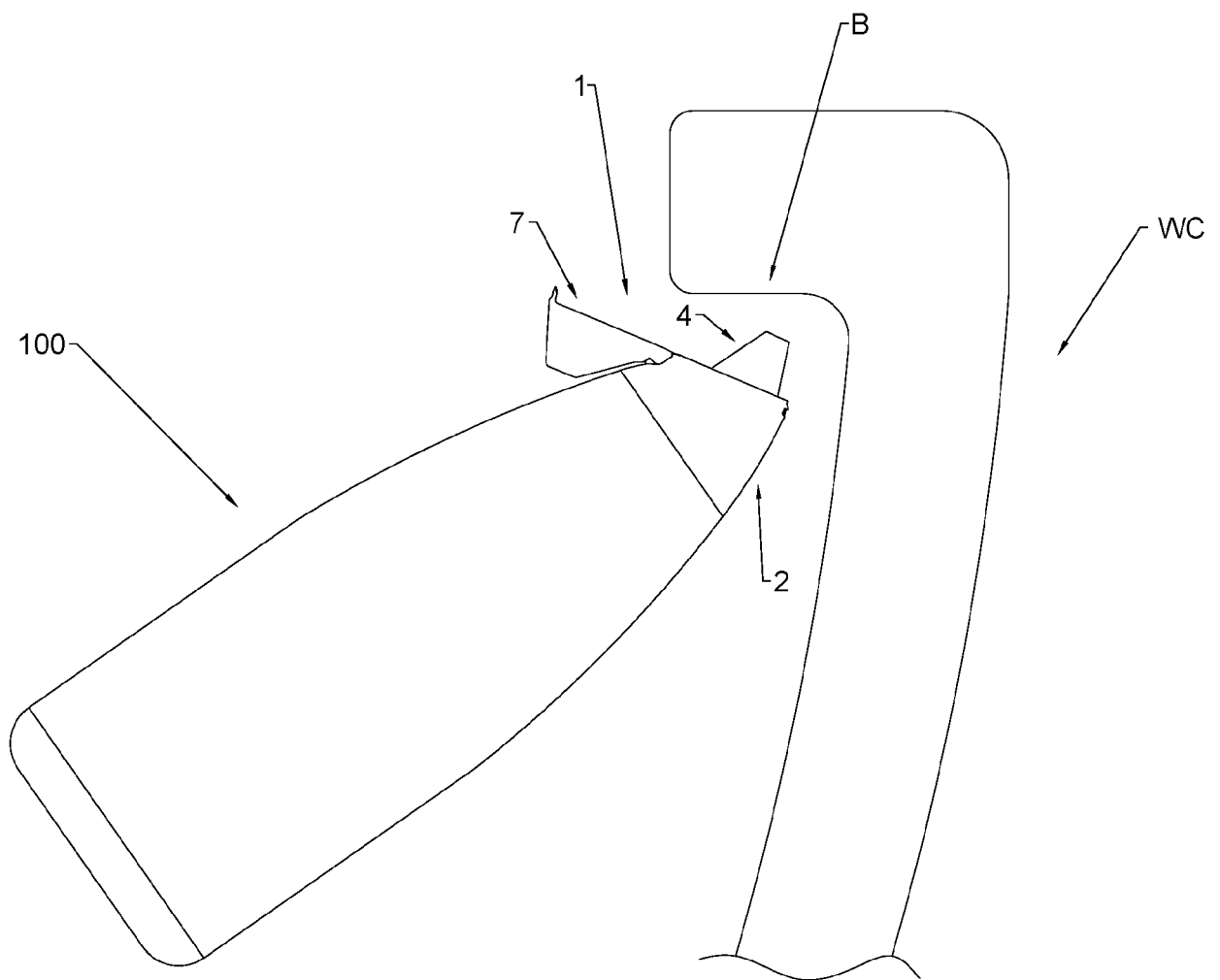


Fig.7

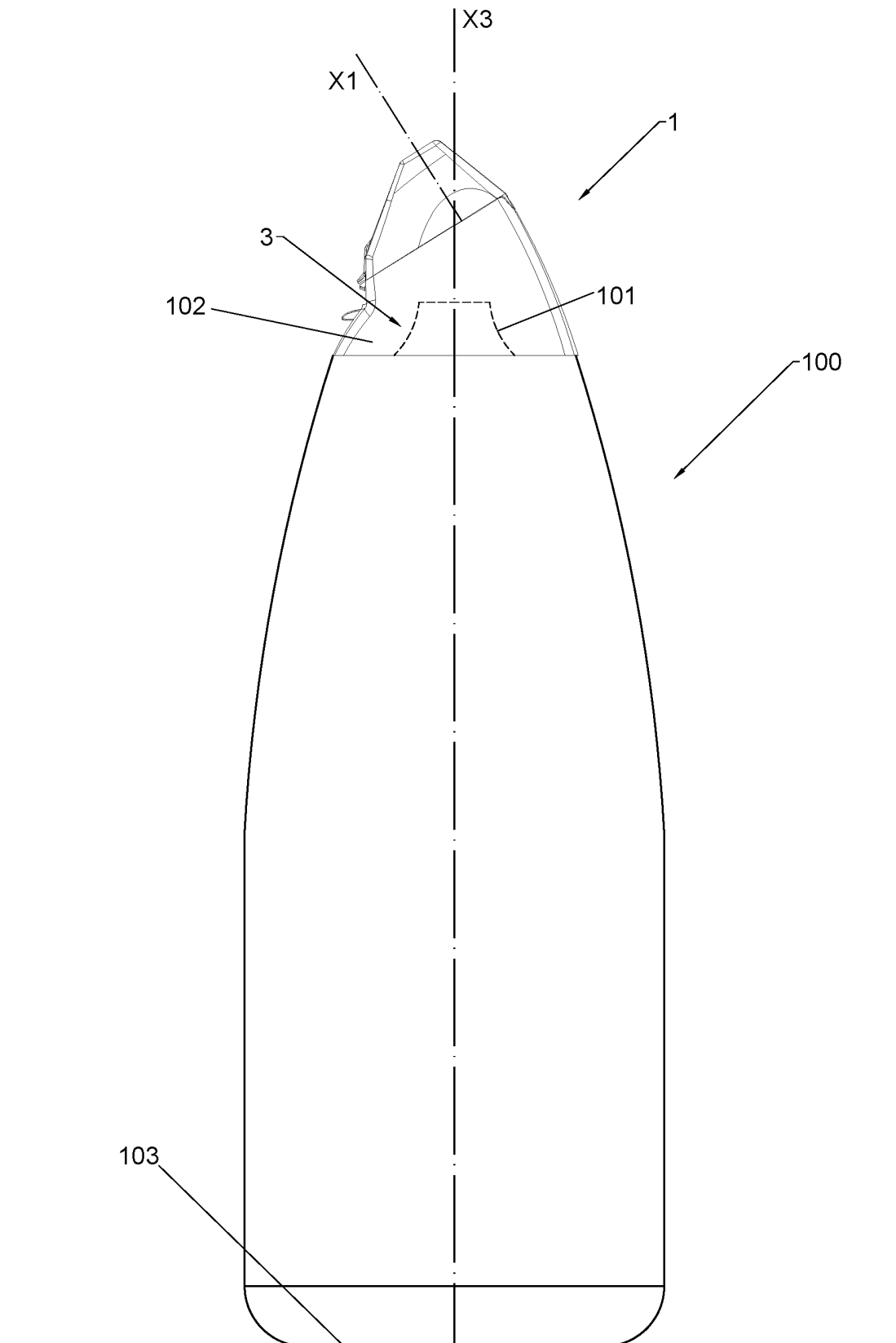


Fig.8



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Application Number

EP 24 18 5112

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EPO FORM 1503 03.82 (P04C01)

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The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		18 October 2024	Fournier, Jacques
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