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(54) CONTAINER

(57) A container (1), comprising a hollow body (8) equipped with an opening (5) and a cap (6), the hollow body featuring, in proximity to the opening (5), a first thread (7), the cap (6) comprising a substantially cylindrical body (2) equipped with a delivery port (3) and a second thread (4) for coupling with the first thread (7) on the hollow body (8); one of either the first thread (7) or the second thread (4) is axially discontinuous.

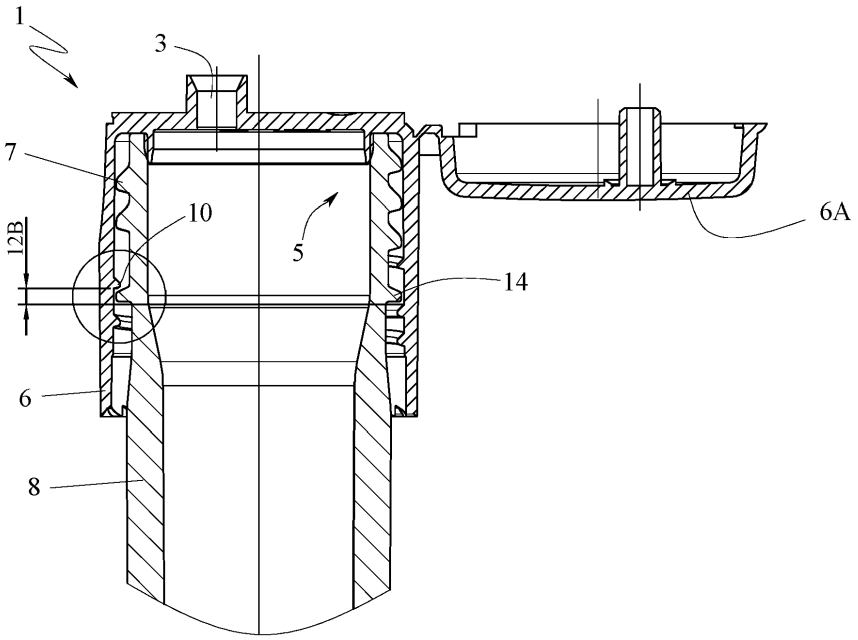

FIG.5

EP 4 206 083 A2

Description

FIELD OF THE INVENTION

[0001] The present invention relates to a container.
[0002] In particular, it relates to a container equipped with a cap, preferably of the flip-top type.

BACKGROUND ART

[0003] Caps, especially flip-top caps, are usually snap-fitted onto bottles or flasks. In this way, such caps cannot be removed. To demonstrate the integrity of a product, the flip-top cap can feature a breakable seal located near the openable part of the cap.
[0004] Alternatively, caps can be screwed to flasks or bottles which have standardised necks featuring threads. The screwing-fitting thereof, is carried out using automatic machines. In this case, it is often useful to seal the cap and part of the container with a film to demonstrate that the cap has not been unscrewed and therefore the contents are intact.
[0005] However, the film must be applied after the container has been filled, which is particularly inconvenient.
[0006] Furthermore, this film is not very ecological as it must be disposed separately from the container.
[0007] US 3690496-A, FR 2790456 A1 and US3844437-A1 are known in the art.

SUMMARY OF THE INVENTION

[0008] The object of the present invention is to provide a container which is an improvement on the prior art.
[0009] A further object of the invention is to provide a container which is more environmentally compatible than those according to the prior art.
[0010] A still further object of the invention is to provide a container wherein the removal of the cap is essentially prevented but the cap can still be fitted by means of the automatic machines already used for standard threaded necks.
[0011] This and other objects are achieved by means of a container according to the technical teachings of the claims annexed hereto.

BRIEF DESCRIPTION OF THE FIGURES

[0012] Further features and advantages of the innovation will become clearer in the description of a preferred but not exclusive embodiment of the device, illustrated - by way of a non-limiting example - in the drawings annexed hereto, in which:

Figure 1 is a perspective view of a cap of a container according to the invention, in the open configuration;

Figure 2 is a side view of the cap in Figure 1;

Figure 3 is an axial sectional view of the cap in Figure 1;

Figure 4 is the axial sectional view in Figure 3 viewed from another angle;

Figure 5 is a partial axial sectional view of the container according to the present invention; and

Figure 6 is an enlarged view of the detail circled in Figure 5.

DETAILED DESCRIPTION OF THE INVENTION

[0013] With reference to Figure 5, reference number 1 is used to denote, as a whole, a container.
[0014] The container 1 comprises a hollow body 8 (shown only partially in Figure 5), which can have any shape. The hollow body 8 features, in proximity to the opening 5, a first thread 7.
[0015] The container also comprises a cap 6, which is shown separately in Figures 1 to 4. The cap 6 comprises a substantially cylindrical body 2 equipped with a dispensing port 3 and a second thread 4 for coupling with the first thread 7 on the hollow body 8.
[0016] According to the invention, one of either the first thread 7 or the second thread 4 is axially discontinuous.
[0017] In the configuration illustrated in the figures, the first thread 7 is provided on a neck of the hollow body 8, while the second thread 4, which is the axially discontinuous thread, is provided on the cap 6. Obviously, a mirror configuration (not shown) is possible.
[0018] In this text, the term 'axially discontinuous' means that the thread has interruptions arranged in an axial direction. In other words, there is at least one plane (or rather a strip) - perpendicular to the container axis A - in which the thread is not present, but it is present both above and below the said plane or strip.
[0019] Essentially, the axially discontinuous thread 4 can be provided on a substantially cylindrical surface 12.
[0020] In this text, the term 'substantially cylindrical' means a perfectly cylindrical or only slightly tapered surface, with a taper of between 0° and 2°.
[0021] This taper may be useful to facilitate mutual centring of the hollow body and the cap.
[0022] The substantially cylindrical surface 12 can comprise a first substantially cylindrical portion 12A featuring a first part 10 of the discontinuous thread 4, a second substantially cylindrical portion 12B without a thread (corresponding to the said plane or strip), and a third substantially cylindrical portion featuring a second part 11 of the discontinuous thread 4.
[0023] The second portion 12B can be interposed between the first portion 12A and the third portion 12C.
[0024] The second portion 12B can be configured to house a flange 14 in such a way that when the flange 14 is located in the said second portion 12B, it is difficult or impossible to unscrew the cap 6 from the hollow body 8.

[0025] The flange 14 can be radially continuous, essentially as already featured on the standard mouths of threaded flasks or bottles according to the prior art.

[0026] Alternatively, the said flange can be radially discontinuous, formed of a series of teeth or protuberances aligned on a plane.

[0027] Advantageously, the flange 14 has a perimeter such as to engage in an undercut manner with the first thread 7 on the hollow body 8 (or at least with the crest of the said thread) when the thread is engaged (or at least partially in contact) with the flange 14.

[0028] The first part 10 of the discontinuous thread 4 can extend axially in such way that when the flange 14 is positioned in the second portion 12B, the first part 10 of the discontinuous thread is disengaged from the thread 7.

[0029] This can be achieved by gauging the thread pitch so that it is, for example, between 0.5 mm and 20 mm, advantageously between 2 and 6 mm, and even more advantageously approximately 3 mm. Obviously the pitch should be optimised according to the cap diameter, which can be anything.

[0030] Furthermore, the circumferential length of the first part 10 of the thread 4 can be three quarters of a turn (i.e. 270°) and, in any case, less than a full turn (i.e. less than 360°).

[0031] Advantageously, the first part 10 of the discontinuous thread and the second part 11 of the discontinuous thread have the same pitch and circumferential length.

[0032] The second part 11 of the thread 4,7 can comprise a portion 11A which is substantially perpendicular to an axis A of the container, the said portion 11A being preferably adjacent to the said second portion 12B.

[0033] In this way, once the flange is interposed between the first and the second part of the thread (see, for example, Figure 6), it is difficult to unscrew the cap since the substantially perpendicular part of the thread slides over the flange, without allowing the flange to 'hook' or engage the said thread.

[0034] In the figures shown here, the axially discontinuous thread 4 is provided on an internal surface of said cap 6, and the said flange 14 is provided on an external surface of the said hollow body 8; preferably the substantially cylindrical surface 12 is an internal surface of the said cap 6.

[0035] As already mentioned, however, a perfect mirror configuration is also possible, in which the axially discontinuous thread is provided on an external surface of the said hollow body 8, and the said flange is provided on an internal surface of the said cap; preferably the substantially cylindrical surface 12 is an external surface of the said hollow body 8.

[0036] Advantageously, the cap 6 is of the flip-top type and comprises a lid 6A configured to hermetically seal the port 3 in the body of the cap 6.

[0037] Advantageously, the cap 6 is made of a single piece of a plastic material.

[0038] The hinging 21 between the body and the lid can be made as a single piece, in a conventional way, by injection moulding a plastic material. Furthermore, the cap can also feature a sealing lip 20 which cooperates with the mouth 5 of the hollow body 8, again made as a single piece.

[0039] By way of example, the cap can be made of one or more of the following plastic materials: PP, PE, PA, and PLA, and possibly also appropriate 'green' or 'bio' materials.

[0040] Between the lid 6A and the cap there may be a seal (of a conventional kind, not shown) which shows that the cap has been opened.

[0041] It has been seen that the invention is particularly effective, since the cap can be mounted on hollow bodies (bottles, flasks etc.) with a standard screw neck, produced with standard design preforms.

[0042] Furthermore, the cap can be fitted using the fitting machines already used for screwing on standard caps.

[0043] The greatest advantage of the axially discontinuous thread is that the cap can be 'locked' on to the container in such a way that it cannot be tampered with or detached from the container during normal product use.

[0044] This results, therefore, in the elimination of the protective film (usually of the heat-shrinkable kind), which is both a pollutant and hard to recycle.

[0045] Furthermore, there is the indubitable advantage that a step which comes after the filling and closing of the container (i.e. the film application step) is eliminated, thereby reducing the cost of the finished product as well as production times.

[0046] A container of this kind is particularly useful for bottles containing oil or, in any case, edible products, which cannot therefore be refilled (except through the port 3 in the cap, which is very difficult).

[0047] Furthermore, it should be emphasized that a cap according to the invention remains permanently secured to the bottle or flask and is very hard (almost impossible) for the end user to remove.

[0048] Various embodiments of the innovation have been disclosed herein, but further embodiments may also be conceived using the same innovative concept.

Claims

1. Container (1), comprising a hollow body (8) equipped with an opening (5) and a cap (6), the hollow body providing, near the opening (5), a first thread (7), the cap (6) comprising a substantially cylindrical body (2) equipped with a delivery port (3) and a second thread (4) for the coupling with the first thread (7) of the hollow body (8), **characterized in that** one between the first thread (7) and the second thread (4) is axially discontinuous, the axially discontinuous thread (7,4) is made on a substantially cylindrical surface (12), the substantially cylindrical surface (12)

comprising a first substantially cylindrical portion (12A) where there is a first part (10) of the discontinuous thread (7,4), a second substantially cylindrical portion (12B) without thread, and a third substantially cylindrical portion where there is a second part (11) of the discontinuous thread (7, 4), wherein said second part (11) of the discontinuous thread (4,7) comprises a portion (11A) substantially perpendicular to an axis (A) of the container.

2. Container according to claim 1, wherein the second portion (12B) is interposed between the first portion (12A) and the third portion (12C).

3. Container according to claim 1, wherein the second portion (12B) is configured to house a flange (14), so that when the flange (14) is placed in said second portion (12B) it is difficult or impossible to unscrew the cap (6) from the hollow body (8).

4. Container according to claim 3, wherein the flange (14) has a perimeter such as to interfere in an undercut manner with said discontinuous thread (4, 7) when it is engaged with the flange (14).

5. Container according to claim 3, wherein the first part (10) of the discontinuous thread (4) extends axially so that, when the flange (14) is positioned in the second portion (12B), the first part (10) of the discontinuous thread is disengaged from the thread (7).

6. Container according to claim 1, wherein said portion (11A) of the second part (11) of the discontinuous thread (4,7) is adjacent to said second portion (12B).

7. Container according to claim 1, wherein said axially discontinuous thread (4, 7) is made on an internal surface of said cap (6), and said flange (14) is made on an external surface of said hollow body (8), preferably in which said substantially cylindrical surface (12) is an internal surface of said cap (6).

8. Container according to claim 1, wherein said axially discontinuous thread (4, 7) is made on an external surface of said hollow body (8), and said flange is made on an internal surface of said cap (6), preferably in which said substantially cylindrical surface (12) is an external surface of said hollow body (8).

9. Container according to one or more of the preceding claims, wherein the cap (6) is of the flip-top type and comprises a lid (6A) configured to hermetically close said port (3).

10. Container according to the preceding claim, in which the cap is made of a single piece of plastic material.

11. Cap of a container according to one or more of the preceding claims.

Patent attorney filing reference: 00604 PTITEP AV

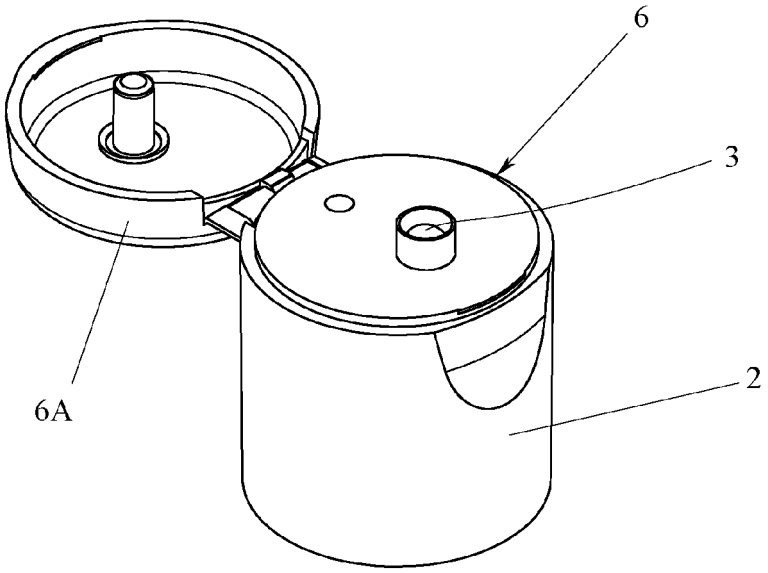

FIG.1

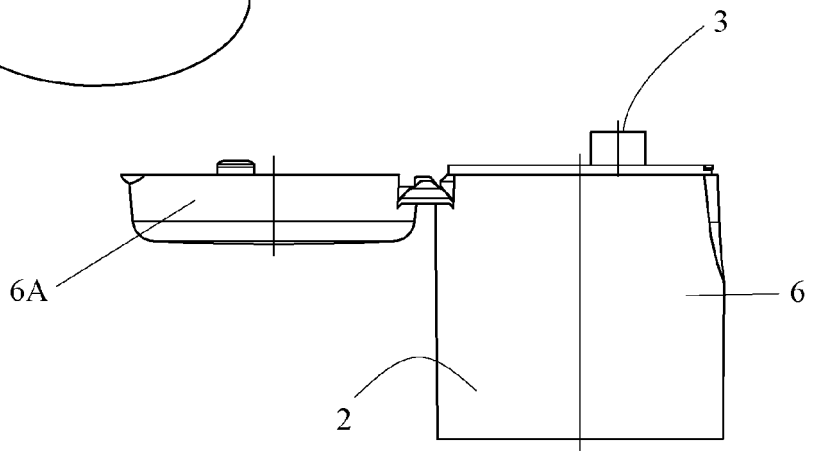

FIG.2

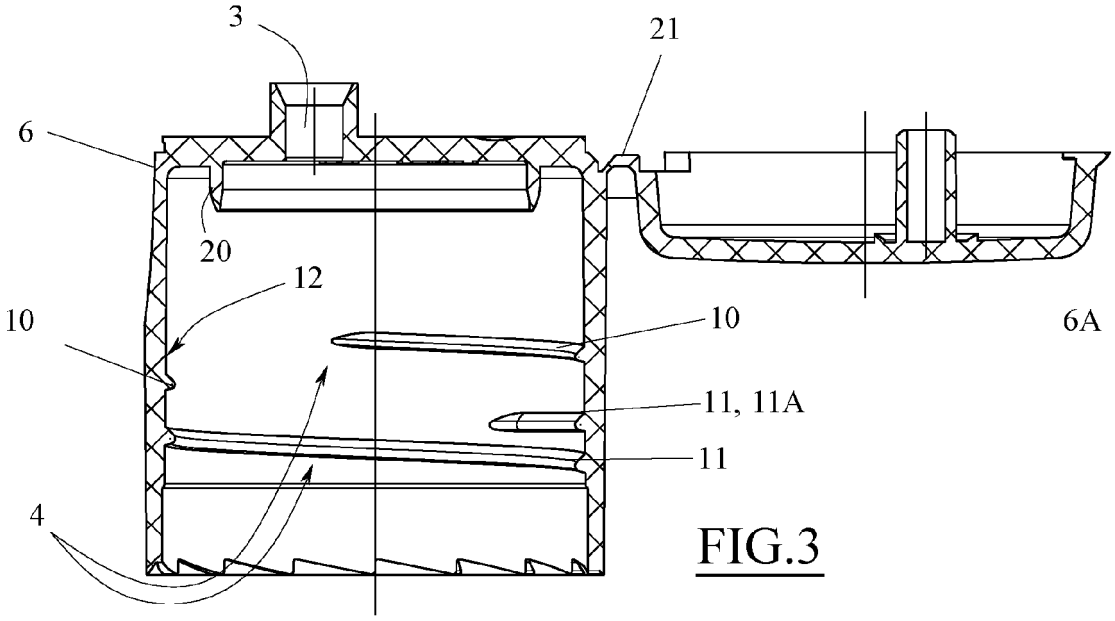

FIG.3

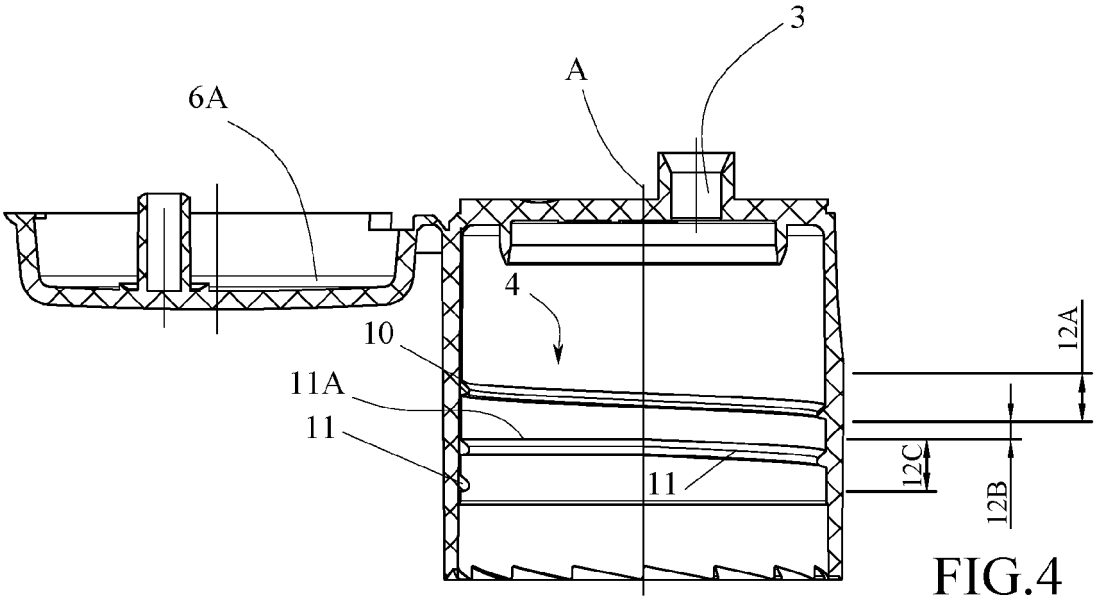

FIG.4

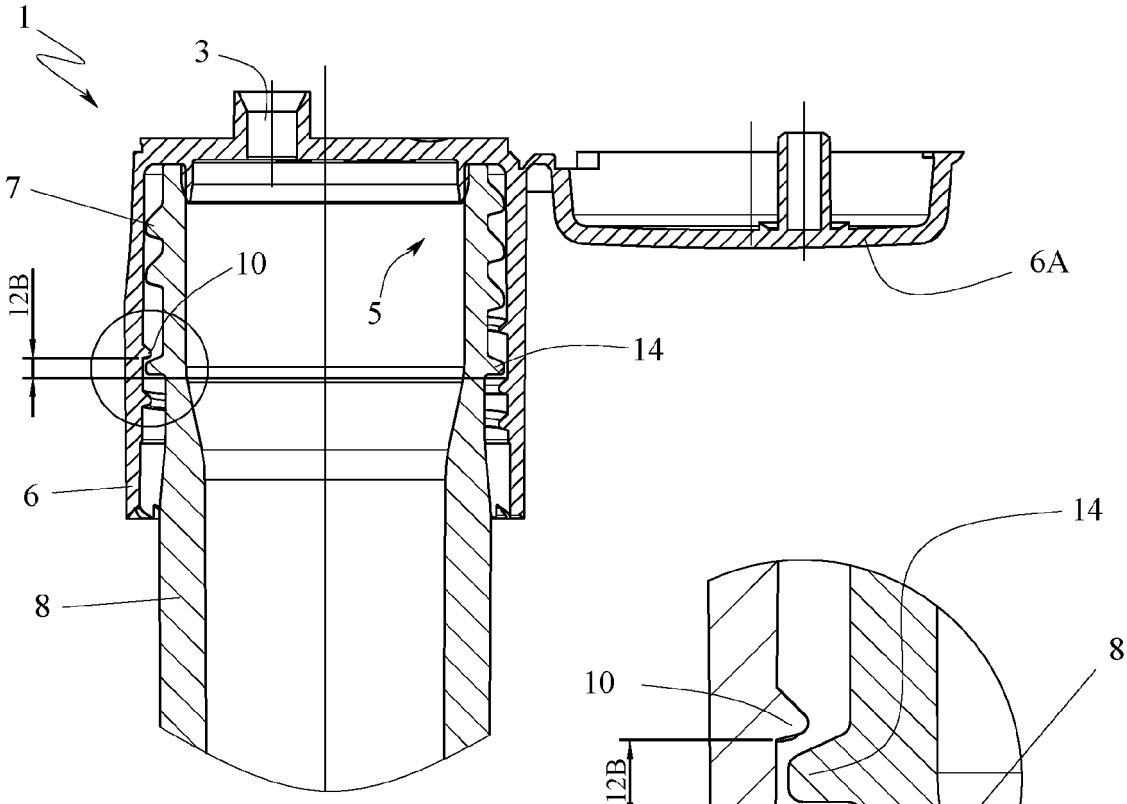

FIG.5

FIG.6

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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- FR 2790456 A1 **[0007]**
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