Screw Top for Bottles

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Abstract

The invention relates to the creation of a safe screw top for bottles, which prevents unauthorized and indiscernible opening and reclosing of the bottles. According to the invention, this object is achieved in that a cylinder is disposed at the base coaxially to the casing.
SCREW TOP FOR BOTTLES

[0001] The invention relates to a screw closure for bottles, having a safety band that is formed by a cap that has a base on which a cylindrical mantle is disposed, which mantle is provided, on its inside, with a thread, whereby the safety band is connected with the mantle by way of crosspieces.

[0002] Screw closures for bottles, of the type stated initially, are known (see, for example, WO 98/15465 A1). They have the task, for one thing, of allowing secure closing of the bottle, and thereby preventing the liquid contained in the bottle from running out, both before it is opened for the first time and after it is re-closed. Furthermore, the screw closures are supposed to indicate that the bottle has been opened for the first time, in order to indicate unauthorized opening of the closure to the consumer, directly, and to draw the consumer’s attention to possible removal of the liquid that is contained in the bottle, or its contamination. For this purpose, the safety band is disposed on the mantle in destructible manner. When the closure is opened for the first time, the band itself tears, or it tears in the region of the crosspieces, so that opening of the bottle is directly visible even after re-closing.

[0003] The known bottle closures fulfill the task assigned to them only in limited manner. While they are tight even after being re-closed, so that no liquid can run out of the bottle, the closures fulfill the second demand on the closures, namely that of indicating unauthorized opening and re-closing, only in insufficient manner. This is because the possibility exists of screwing the bottle open without destroying the safety band, so that the bottle is closed and has the appearance, from the outside, of not having been opened again after having been filled at the bottler, although the bottle might have become contaminated in the meantime, within the scope of the opening procedure described above. The function of the safety band is thereby canceled out.

[0004] This is where the invention wishes to provide a remedy. The invention is based on the task of creating a screw closure for bottles, which prevents unauthorized and invisible opening and re-closing of the bottles. According to the invention, this task is accomplished in that a cylinder is disposed on the base, coaxial to the mantle.

[0005] With the invention, a screw closure for bottles is created, which prevents invisible opening and re-closing of the bottles. This is guaranteed in that during notching and heating of the bottle neck, compression is prevented on the basis of the cylinder disposed coaxial to the mantle. As a result, a reduction in the diameter of the bottle thread and thus destruction-free passage of the safety band is prevented. Instead, pulling it out, even in the heated and notched state of the bottle neck, leads to destruction or tearing off of the safety band, so that the safety band fulfills its task.

[0006] In an embodiment of the invention, the cylinder is hollow. The hollow configuration of the cylinder leads to very inexpensive production, on the one hand, and on the other hand, the weight of the closure is comparable to the closures known from the state of the art, because of the low material requirement.

[0007] It is advantageous if the cylinder is closed on its side facing away from the base. The closed configuration of the cylinder offers increased stability as compared with the open configuration. This has the result that even in the case of extreme heating of the bottle neck, when the cap is screwed on, deformation is prevented, to a great extent, thereby additionally increasing the safety with regard to unauthorized opening and re-closing.

[0008] Preferably, the cylinder has a thread. Provision of a thread on the cylinder brings about a further increase in the stability of the closure in the closed state. The thread can either be a self-tapping thread that cuts into the bottle neck when the closure is screwed onto the bottle for the first time; in a modification, a thread can also be provided on the inside of the bottle neck, during production, which thread then corresponds with the thread provided on the mantle.

[0009] The task of the invention is furthermore accomplished by means of a screw closure for bottles having a safety band, in which the closure is surrounded by a shrink-wrap film. By means of the use of the shrink-wrap film, opening of the bottle without destruction of the shrink-wrap film is hardly possible; even if it does happen that a bottle is opened without destruction of the shrink-wrap film, there is no possibility of disposing the film on the bottle again without any visible changes, so that the fact that the bottle has already been opened is directly visible to the consumer.

[0010] Other further developments and embodiments of the invention are indicated in the other dependent claims. An exemplary embodiment of the invention is shown in the drawing and will be described in detail in the following. The drawing shows:

[0011] FIG. 1 an axial section through a screw closure;
[0012] FIG. 2 an axial section through a screw closure in another embodiment;
[0013] FIG. 3 . . .;
[0014] FIG. 4 an axial section through a screw closure in another embodiment.

[0015] The screw closure 1 for bottles selected as an exemplary embodiment is provided with a safety band 2. The screw closure 1 is formed by a cap 3 that has a base 31. A cylindrical mantle 32 is disposed on the base. The mantle 32 is provided with an inside thread 33 on its inside.

[0016] The mantle 32 of the screw closure 1 is connected with the safety band 2 by way of crosspieces 4. On the inside of the safety band 2, retaining cams 21 are disposed, which engage behind a rib disposed on the bottle neck in the screwed-on state of the closure 1 onto a bottle. The retaining cams 21 are provided with thrust slants 22 on their side facing away from the base 31, which allow destruction-free screwing on of the closure onto the bottle. In contrast, the side of the retaining cams 21 that faces the base 31 of the cap 3 are essentially structured horizontally, so that they are left hanging on the rib disposed on the neck of the bottle when the closure 1 is opened, thereby making it possible to open the bottle, in functionally proper manner, only with intentional destruction of the safety band 2.

[0017] On the base 31 of the cap 3, a cylinder 5 is disposed coaxial to the mantle 32. The height of the cylinder 5 essentially corresponds to the height of the safety band 2 in connection with the crosspieces 4 as well as of the mantle 32. The cylinder 5 therefore projects all the way into the region of the rib of the bottle neck. The outside diameter 5 essentially corresponds to the inside pressure meter of the bottle neck, so that in the screwed-on state, the bottle neck, with its thread, is guided between the mantle 32 of the cap 3 and the cylinder 5.

[0018] In the exemplary embodiment, the cylinder 5 is configured to be hollow. It is closed off by means of a bottom 51 on its side facing away from the base 31. In the exemplary embodiment according to FIG. 2, the cylinder 5 has an outside
thread 52. The outside thread 52 can either be structured to be self-tapping and therefore to cut itself into the inside of the bottle neck when it is screwed on. However, it can also correspond with a thread provided on the inside of the bottle neck. In this case, the pitch of the thread provided on the inside of the bottle neck corresponds to that of the inside thread 33 of the cap 3.

In the exemplary embodiment according to FIG. 4, the screw closure is also provided with a safety band 22. The closure also consists of a cap 3 that is configured in comparable manner to the exemplary embodiment according to FIG. 1. Likewise, crosspieces 4 are provided between cap 3 and safety band 2. The screw closure shown in the exemplary embodiment according to FIG. 4, however, is configured without a cylinder. Instead, the closure 1 is surrounded by a shrink-wrap film 7. It can be seen that the shrink-wrap film 7 extends over the outside of the bottle and in doing so covers the closure 1 as well as the bottle neck that is indicated.

The screw closure 1 according to the invention, with a cylinder 5 disposed on the inside, prevents the bottle neck, including the thread, from being compressed, in order to remove the thread of the bottle neck without destroying the safety band 2. Because of the outside diameter of the cylinder 5, which essentially corresponds to the inside diameter of the bottle neck, deformation in the sense of a reduction in diameter is as good as excluded. In the exemplary embodiment according to FIG. 2, a shape-fit connection is furthermore created on the basis of the outside thread 52 provided on the cylinder 5, which additionally makes removal of the thread of the bottle neck without destruction of the safety band 2 more difficult.

In the case of the exemplary embodiment provided with the shrink-wrap film 7, destruction of the shrink-wrap film 7 is the result of unscrewing the screw closure 1. If someone nevertheless succeeds in opening the screw closure 1 without destruction of the shrink-wrap film 7, while it is fundamentally possible to re-close the bottle with the screw closure 1 and the shrink-wrap film 7, visible traces remain on the film, which easily allow the consumer to recognize that this is a bottle that has already been opened.

1. Screw closure for bottles, having a safety band that is formed by a cap that has a base on which a cylindrical mantle is disposed, which mantle is provided, on its inside, with a thread, whereby the safety band is connected with the mantle by way of crosspieces, wherein a cylinder (5) is disposed on the base (31), coaxial to the mantle (32).

2. Screw closure according to claim 1, wherein the cylinder (5) is hollow.

3. Screw closure according to claim 1, wherein the cylinder (5) is closed on its side facing away from the base (31).

4. Screw closure according to claim 1, wherein the cylinder (5) has a thread (52).

5. Screw closure for bottles, having a safety band that is formed by a cap that has a base on which a cylindrical mantle is disposed, which mantle is provided, on its inside, with a thread, whereby the safety band is connected with the mantle by way of crosspieces, wherein the closure is surrounded by a shrink-wrap film (7).

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