

PATENT SPECIFICATION

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(54) ANTI-THEFT CLOSURE CAP

(71) We, LE BOUCHAGE MECANIQUE, a Body Corporate organised under the laws of the French Republic, of 6, rue Anatole de la Forge, 75 Paris 17, France, do hereby
 5 declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention relates to anti-theft closure caps for containers having screw collars, especially for bottles.

Anti-theft bottle closure caps having a long skirt are already known; such caps
 15 are intended to be crimped onto the necks of bottles furnished with a collar known as a screw collar; these caps comprise, in the median portion of their skirt, two lines of weakness perforations or incisions which
 20 are horizontal when the bottle is upright which define between them a band or belt which can be pulled off by hand or which comes away when the cap is first unscrewed, while the lower part of the skirt
 25 remains crimped onto the neck of the bottle.

This disappearance of the band has the advantage of making the first opening of the bottle particularly obvious, when the
 30 bottle has been reclosed.

Moreover, if during the manufacture of the cap, an inscription or design of some kind has been applied onto the skirt and straddling said band or belt, the portion of
 35 this design affecting the band is removed at the same time as the band itself. Use is made of this feature notably for the purpose of destroying in a very obvious manner the fiscal stamp which certifies the
 40 payment of the tax imposed upon certain liquids such as alcoholic beverages.

Caps of the type just referred to do however possess certain disadvantages: although it is easy to break the band,
 45 provided that it is equipped in advance

with vertical incisions (i.e. incisions which are vertical when the bottle is upright) which sub-divide it into a number of pieces when the cap is first removed, these
 various pieces do not always automatically
 50 become detached from the remainder of the cap but often remain attached by some small bridges of material either to the skirt which remains crimped onto the neck of the bottle or to the upper part of the cap. 55

Moreover, when the band has been removed, a portion of the collar of the glass bottle is of necessity visible after the bottle has been recorked, between the upper part of the cap and the skirt which remains
 60 crimped onto the neck.

This may be a disadvantage from the aesthetic point of view. Furthermore, caps having a double line of weakness can generally only be fitted to bottles having a
 65 standard height of collar, since if the collar is too shallow there is not sufficient height to place the two lines of rupture which define the band above the level of crimping.

The present invention is intended to
 70 overcome or reduce these disadvantages by providing an anti-theft cap having a skirt, the band of which may be removed in a sure and reliable manner during the first
 opening operation, in such a way notably
 75 as to ensure the disappearance of a large portion of a design on the skirt, such as a fiscal stamp, these caps being moreover suitable for all the types of screw collars,
 80 whatever their height.

According to one aspect of the invention, there is provided an anti-theft closure cap for crimping onto a screw collar of a receptacle, the cap comprising a base and a
 skirt to surround the collar when attached
 85 thereto, the skirt comprising an upper portion adjacent the base, a middle portion forming a breakable band separated from the upper portion by incisions in the skirt alternating with bridges of breakable
 90

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material, and a lower portion penetrating telescopically into said middle portion and retained therein.

- 5 The joining together of the lower and middle parts of the skirt, the purpose of which is to facilitate packaging and handling of the cap by a bottler, should be effected in such a way as to permit the spontaneous falling away of the debris 10 from the band, at the time when the bottle is first opened. If the dimensions of the cap are very accurate, this joining together may be achieved simply by thrusting the lower part into the band. However, if there 15 is some doubt about the strength of this form of joint, it may be reinforced by local radial indentations which deform both the wall of the band itself and also the part of the wall of the lower part of the skirt 20 which penetrates telescopically into the band. According to one preferred form of embodiments, the lower part of the skirt extends inside the band as far as the level of the line of incisions which defines the 25 upper edge of this band.

- In a preferred embodiment of the invention, the internal diameter of the top of the lower portion, like the internal diameter of the upper portion above the band, 30 is equal to or slightly greater than the maximum external diameter of the screw collar of the container to which the cap is to be applied, the internal diameter of the band being itself equal to the external diameter of the lower portion of the skirt. 35 Preferred embodiments of the invention will be described by way of example with reference to the accompanying drawings, in which:

- 40 Figure 1 shows, in partial section and in elevation, an example of a cap according to the invention;

- Figure 2 shows, in partial section and in elevation, the cap of Figure 1 on the 45 mouth of a bottle after it has been crimped beneath the collar and after the screw threads have been formed in the upper part of the cap by swaging or crimping;

- 50 Figure 3 illustrates the appearance adopted by the cap of Figure 2 after the bottle has first been opened and subsequently recorked;

- 55 Figures 4 to 6 show views similar respectively to Figures 1 to 3, for the capping of a bottle equipped with a screw collar of standard height.

- In Figure 1, which shows a form of embodiment of the cap according to the invention in elevation and in partial section, 60 it can be seen that the cap of generally cylindrical shape comprises a base 1 fitted with a peripheral attached skirt 2; a throat 3 formed in the skirt 2 in the vicinity of 65 the base 1 of the cap retains inside the cap

an internal seal 1a, intended for obturating the orifice of the bottle.

The skirt 2 also possesses, in the vicinity of its lower edge, a line of incisions 7 separated by narrow bridges of material 6. 70 The part of the skirt 2 situated below this line of incisions constitutes a breakable band 4.

Inside this band 4 there is situated the second part of the cap; this second part is 75 the lower skirt 5, the upper portion 5a of which penetrates telescopically inside the band 4.

The integral joining together of the two parts of the cap is ensured between the 80 band 4 and the opposite portion 5a of the skirt 5 by means of a plurality of vertical incisions such as 11, produced by a tool which, after it has cut the band 4 through its entire thickness, lightly penetrates into 85 the wall 5a of the lower skirt 5.

If desired, the joint may be still further strengthened by local indentations such as 12, which deform but do not cut into, the 90 wall 4 of the band and the wall 5a of the skirt.

It is also possible to see in Figure 1 a ring 8, which represents diagrammatically a design printed onto the cylindrical wall of the cap and associated with the skirt 2, the 95 band 4 and the portion of the skirt 5 situated beneath the band. This imprinted design may in particular be a fiscal stamp.

Figure 2 shows the cap of Figure 1 after it has been placed on the upper part of the 100 neck 9 of a bottle comprising a screw collar.

The capsulating operation consists, after having placed the cap over the mouth of the bottle, of compressing the seal 1a onto 105 the upper part 9a of the neck, in order to seal the bottle, of crimping the cap in the region 4a, that is to say beneath the collar 10 of the neck and of forming by means of swaging or crimping, in the wall of the 110 skirt 2, a thread corresponding to the thread 10a of the collar on the neck of the bottle.

It will be noted from Figure 2, that the crimping at 4a affects both the lower edge 115 of the band and the portion 5a, opposite the band, of the lower skirt, thus making the cap proof against fraudulent attempts to open it.

The first opening of the bottle capped in 120 this way consists of unscrewing the threaded upper portion 2 of the cap. During this first unscrewing, since the band 4 is retained by the crimping, a rupture is produced of the material bridges 6, while 125 the upper part of the cap tends to rise in an axial direction. Simultaneously, due to the presence of the vertical incisions 11, the band itself breaks into a number of pieces which become detached, while the 130

lower skirt 5-5a remains crimped onto the neck. The result is that, when the bottle is recorked by screwing on again the threaded portion 2 of the cap, the band 5 having disappeared, the initial design 8, for example a fiscal stamp, henceforth appears incomplete, the entirety of the part of this design carried by the band having disappeared. By contrast, the portion 5a of the lower skirt 5 has now become visible and covers the collar of the bottle up to the height of the lower edge of the threaded part 2 of the cap.

The disappearance of a large portion of the design or fiscal stamp enables the first opening of the bottle to be indicated in a particularly obvious manner. Moreover, if an inscription or a design has been applied during manufacture onto the portion 5a of the lower skirt 5 initially concealed beneath the band 4, these inscriptions or designs now become visible, which also makes obvious the fact that the bottle has initially been opened and which may also be used for any desired publicity or advertising purposes. An advantage of the cap according to the invention is thus that the first opening of the bottle is rendered very obvious, for example by the destruction of the fiscal stamp, without however permitting the appearance of a gap, after the bottle has been recorked, between the upper threaded part of the cap and the lower skirt, a feature which would be aesthetically undesirable.

Another advantage of the cap according to the invention is that it can be adapted without any difficulty to standard screw collars known as "shallow", that is to say in which the smooth portion 10 is of small height. The cap according to the invention is however equally well adapted, if desired, to standard collars of the type known as "high"; in such cases, it is possible slightly to modify the external appearance of the cap, for example by forming by means of swaging or crimping in the wall of the cap vertical striations which facilitate the gripping of the upper part which is to be unscrewed. Such a cap is illustrated in Figures 4 to 6.

In Figures 4 to 6, the reference numerals have the same meanings as in Figures 1 to 3. Thus, as can be seen in Figure 5, the smooth portion 10 of the collar of the bottle is higher than in the case of Figure 2, so that it is now possible to create by crimping or swaging, vertical striations 13 in the wall of the skirt 2 above the line of incision 7, that is to say above the band 4. These striations are however situated opposite a smooth portion of the collar 10 and will facilitate the gripping of the upper part of the cap for the purpose of unscrewing it. The functioning of the cap after the

first unscrewing operation is exactly the same as in the preceding case, that is to say, the band 4 becomes detached, taking with it a large portion of the design 8 such as a fiscal stamp and then causes the previously concealed portion 5a of the skirt 5 to be exposed. In view of the fact that the crimping of the cap according to the invention beneath the collar of the receptacle affects a region in which the wall of the cap is double, there may be advantage, for the purpose of reducing the force necessary for the crimping operation, in reducing the thickness of the wall of the skirt 5 and also possibly the thickness of the band 4 during the manufacture of the cap, at least in said region where the crimping will be carried out.

WHAT WE CLAIM IS:—

1. An anti-theft closure cap for crimping onto a screw collar of a receptacle, the cap comprising a base and a skirt to surround the collar when attached thereto, the skirt comprising an upper portion adjacent the base, a middle portion forming a breakable band separated from the upper portion by incisions in the skirt alternating with bridges of breakable material, and a lower portion penetrating telescopically into said middle portion and retained therein.
2. A closure cap according to Claim 1, in which the lower portion is retained within the middle portion by friction therewith.
3. A closure cap according to Claim 1, in which the lower portion is retained within the middle portion by generally vertical incisions in the latter which deform the part of the lower portion within the middle portion.
4. A closure cap according to Claim 1 or 3 in which the wall of the middle portion and of the lower portion therein are deformed by radial indentations to reinforce retention of the lower portion within the middle portion.
5. A closure cap according to any one of the preceding claims, in which the lower portion extends within the middle portion as far as the incisions defining the upper edge of the middle portion.
6. A closure cap according to any one of the preceding claims, in which the internal diameter of the lower portion is equal to or slightly greater than the maximum external diameter of the screw collar to which the cap is to be applied, the internal diameter of the band being equal to the external diameter of the lower skirt.
7. A cap according to any one of the preceding claims, in which the outer surface of the skirt bears a design, of which a portion is situated on the breakable band.
8. A cap according to any one of



lower skirt 5-5a remains crimped onto the neck. The result is that, when the bottle is recorked by screwing on again the threaded portion 2 of the cap, the band 5 having disappeared, the initial design 8, for example a fiscal stamp, henceforth appears incomplete, the entirety of the part of this design carried by the band having disappeared. By contrast, the portion 5a of the lower skirt 5 has now become visible and covers the collar of the bottle up to the height of the lower edge of the threaded part 2 of the cap.

The disappearance of a large portion of the design or fiscal stamp enables the first opening of the bottle to be indicated in a particularly obvious manner. Moreover, if an inscription or a design has been applied during manufacture onto the portion 5a of the lower skirt 5 initially concealed beneath the band 4, these inscriptions or designs now become visible, which also makes obvious the fact that the bottle has initially been opened and which may also be used for any desired publicity or advertising purposes. An advantage of the cap according to the invention is thus that the first opening of the bottle is rendered very obvious, for example by the destruction of the fiscal stamp, without however permitting the appearance of a gap, after the bottle has been recorked, between the upper threaded part of the cap and the lower skirt, a feature which would be aesthetically undesirable.

Another advantage of the cap according to the invention is that it can be adapted without any difficulty to standard screw collars known as "shallow", that is to say in which the smooth portion 10 is of small height. The cap according to the invention is however equally well adapted, if desired, to standard collars of the type known as "high"; in such cases, it is possible slightly to modify the external appearance of the cap, for example by forming by means of swaging or crimping in the wall of the cap vertical striations which facilitate the gripping of the upper part which is to be unscrewed. Such a cap is illustrated in Figures 4 to 6.

In Figures 4 to 6, the reference numerals have the same meanings as in Figures 1 to 3. Thus, as can be seen in Figure 5, the smooth portion 10 of the collar of the bottle is higher than in the case of Figure 2, so that it is now possible to create by crimping or swaging, vertical striations 13 in the wall of the skirt 2 above the line of incision 7, that is to say above the band 4. These striations are however situated opposite a smooth portion of the collar 10 and will facilitate the gripping of the upper part of the cap for the purpose of unscrewing it. The functioning of the cap after the

first unscrewing operation is exactly the same as in the preceding case, that is to say, the band 4 becomes detached, taking with it a large portion of the design 8 such as a fiscal stamp and then causes the previously concealed portion 5a of the skirt 5 to be exposed. In view of the fact that the crimping of the cap according to the invention beneath the collar of the receptacle affects a region in which the wall of the cap is double, there may be advantage, for the purpose of reducing the force necessary for the crimping operation, in reducing the thickness of the wall of the skirt 5 and also possibly the thickness of the band 4 during the manufacture of the cap, at least in said region where the crimping will be carried out.

WHAT WE CLAIM IS:—

1. An anti-theft closure cap for crimping onto a screw collar of a receptacle, the cap comprising a base and a skirt to surround the collar when attached thereto, the skirt comprising an upper portion adjacent the base, a middle portion forming a breakable band separated from the upper portion by incisions in the skirt alternating with bridges of breakable material, and a lower portion penetrating telescopically into said middle portion and retained therein.

2. A closure cap according to Claim 1, in which the lower portion is retained within the middle portion by friction therein.

3. A closure cap according to Claim 1, in which the lower portion is retained within the middle portion by generally vertical incisions in the latter which deform the part of the lower portion within the middle portion.

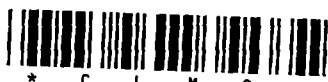
4. A closure cap according to Claim 1 or 3 in which the wall of the middle portion and of the lower portion therein are deformed by radial indentations to reinforce retention of the lower portion within the middle portion.

5. A closure cap according to any one of the preceding claims, in which the lower portion extends within the middle portion as far as the incisions defining the upper edge of the middle portion.

6. A closure cap according to any one of the preceding claims, in which the internal diameter of the lower portion is equal to or slightly greater than the maximum external diameter of the screw collar to which the cap is to be applied, the internal diameter of the band being equal to the external diameter of the lower skirt.

7. A cap according to any one of the preceding claims, in which the outer surface of the skirt bears a design, of which a portion is situated on the breakable band.

8. A cap according to any one of



Claims 1 to 7, in which the outer surface of the portion of the lower skirt which penetrates into the breakable band bears a design which is concealed by the band
5 before the band is broken.

9. A cap according to Claim 1, substantially as hereinbefore described with reference to Figures 1 to 3 or 4 to 6 of the accompanying drawings.

10 10. Containers, when closed by a cap according to any preceding claim.

11. Bottles, when closed by a cap

according to any one of Claims 1 to 9.
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