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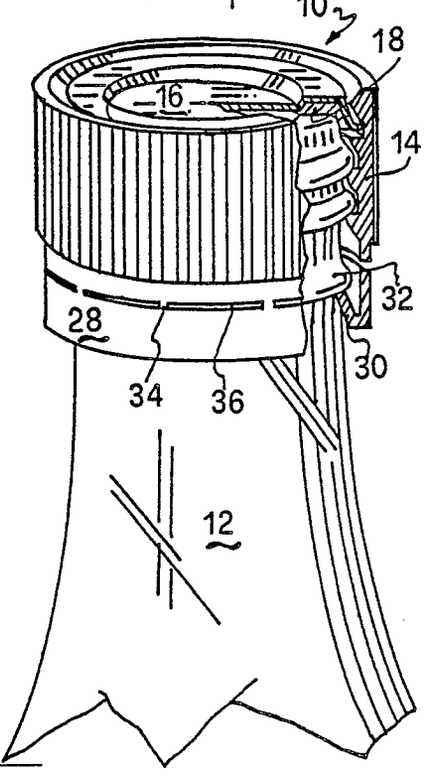
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(54) Improvement in the composite closure caps with evidencing of the tampering.

(57) There is described a composite cap for the closure of a container, with evidencing of the tampering, in which a plastic molded portion like a threaded ring has a housing to accommodate a metal cover portion provided with a sealing gasket and is joined, at its lower edge, to a tampering evidencing band by means of a set of breakable bridges. The composite cap is characterized in that the tampering evidencing band is provided with a continuous circumferential bead, facing toward the inside of the cap and designed to engage a rib provided on the neck of the container, whereas the housing has a lengthened shape.

Preferably, the continuous circumferential bead has a V-shaped vertical cross-section with respect to the tampering evidencing band.

Fig. 1.



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Improvement in the composite closure caps with evidencing of the tampering.

The present invention refers to an improvement in the composite caps with evidencing of the tampering, i.e. in particular in such caps, which have a plastic molded portion like a ring or skirt and a separate metal portion like a cover and are provided with a tampering evidencing band in order to immediately make recognizable any action whatsoever for tampering the packing to which said cap has been applied, even before that the very opening of the packing has taken place.

At present, a number of composite closure caps are available on the market, for sealing containers. Generally, they comprise a plastic molded portion like a ring or skirt, which has a thread to fasten the composite cap to the container, and a metal cover or other top disk which is inserted into the upper portion of the ring to complete the cap.

In order to facilitate the removal of the die, the ring portion is shaped so as to receive the metal cover by insertion of the cover itself from the top end of the ring inside the ring itself, where it is accommodated in a suitably shaped groove.

Furthermore, recently, to the composite closure caps of the above quoted kind, comprised of a plastic ring and a metal cover, there are added tampering indicating or evidencing members, at the bottom portion of the molded skirts, in the form of projections, or clamping tabs, or fishhooks.

In other words, a tampering evidencing band is provided under the plastic ring, provided with a circumferential set of clamping tabs facing towards the inside of the cap, i.e. towards the neck of the container. As the tampering evidencing band is secured to the plastic ring by means of a number of breakable bridges and the clamping tabs make an engagement along a suitable projection of the neck of the container, upon the unscrewing of the cap, the breakable bridges are torn away and the tampering evidencing band is separated from the ring of the cap. This provides a clear evidence that one person has made an attempt to open the container, even before the metal cover is really separated from the mouth of the container.

However, the above mentioned composite closure caps suffer from the drawback that, due to the manufacturing tolerances and irregularities of the neck of the container, generally made from glass, and of the plastic cap ring itself, the clamping tabs do not engage all in the same manner the projection of the neck of the container and the breakable bridges do not tear themselves all at the same time upon the opening of the packing.

Even due to the flexibility of the tampering evidencing band, this fact sometimes causes disadvantages during the opening of the cap, such as the jamming of the cap itself in a partially open position and the removal of the tampering evidencing band along with the plastic ring of the cap, in case any of the breakable bridges succeed in remaining unbroken.

Therefore, the main object of the present invention is to provide an improved composite closure cap.

Another object of the present invention is to improve in particular the embodiment of its band for evidencing the tampering.

Still another object of the present invention is to improve the phase of breaking away the tampering evidencing band in a cap of the above cited type.

According to the present invention, the composite cap for the closure of a container, with evidencing of the tampering, of the above described type, is characterized in that it comprises in combination a continuous circumferential bead located on the tampering evidencing band, facing towards the inside of the cap and designed to engage a rib provided on the neck of the container, and a housing of a lengthened shape to accommodate the metal cover portion.

Preferably, the continuous circumferential bead has a V-shaped vertical cross section with respect to the tampering evidencing band.

The main advantage that is achieved by means of the improvement according to the present invention lies in the stiffening of the tampering evidencing band.

A further advantage lies in the fact that the tampering evidencing band, so stiffened, is more easily separated from the plastic ring of the cap and does not cause opening drawbacks in the containers.

In the following, the present invention will be further clarified from the description of one form of practical embodiment of the improved composite closure cap with evidencing of the tampering according to the present invention, the description being made in a purely illustrative and not limiting way, with reference to the accompanying drawing, in which:

Figure 1 is a perspective view of an improved closure cap according to the present invention;

Figure 2 is a partial vertical cross-section view of the closure cap of the figure 1; and

Figure 3 is a bottom plan view of the cap of figures 1 and 2.

With reference to the figures of the accompanying drawing, an improved composite cap 10

according to the present invention, for closing a container 12, comprises a plastic molded ring 14 and a separate metal cover 16. Generally, the metal cover 16 is comprised of a pressed and blanked disk, with a gasket 18, of a sprayed or other kind. The gasket 18 can be the usual gasket of sprayed plasti sol or a cut disk fastened to the edge or to the full surface of the cover 16.

The metal cover 16 is mounted on the upper portion of the plastic ring 14, in a housing having the shape of a lengthened groove 20. More exactly, it is inserted from the upper edge of the ring 14 and is pressed downwardly until its circumferential edge 22 snaps into the groove 20. The edge of the metal cover 16 is loosely accommodated inside the groove 20, so that the metal cover 16 can reciprocate for while with respect to the plastic ring 14, as it will be better explained in the following.

The circumferential edge 22 of the cover 16 is shaped so that it snaps into the groove 20 when the cap is assembled and afterwards it can no longer come out from the groove 20.

The plastic ring 14 has threads 24, which engage corresponding threads 26 on the container and terminates, at its lower end, in a band 28 for evidencing the tampering.

The tampering evidencing band 28 has a continuous circumferential bead 30, facing towards the inside of the cap. The continuous circumferential bead 30 has a shape like a tab with a V-shaped vertical cross-section with respect to the band 28, as it is better shown in figure 2, and it is designed to engage a rib 32 provided on the neck of the container 12 when the cap 10 is in the position of complete closure of the container 12.

As it is better shown in figure 2, the rib 32 has a highly sloped upper surface and an almost horizontal lower surface, and this in order to make it easier for the continuous circumferential bead 30 to pass over the rib 32 upon the closure of the container.

The tampering evidencing band 28 is connected to the plastic ring 14 by means of a set of bridges 34, which remain in place after an interrupted weakening groove 36 has been carried out around the whole circumference of the ring 14 of the closure cap. Obviously, the bridges 34 fasten the band 28 to the ring 14 of the cap and are broken upon the opening of the container.

The continuous circumferential tab or bead 30 is resilient enough to bend and then to snap after having been pressed over the threads 26 and the rib 32 of the container, when the composite cap 10 is applied to the container 12 upon the closure of the container, but, at the same time, with its projection tab 30, continuous along all its circumference, it provides the tampering evidencing band 28 with a stiffening feature, which allows it to certainly separate from the plastic ring 14 upon the unscrewing of the cap for opening the container 12, when the continuous circumferential tab remains locked under the rib 32.

This allows wide differences, due to the dimentional tolerances, to be absorbed both between the cap and the container, and in the manufacturing of the rib on the container.

It is to be noted that, when a packing is opened, starting to unscrew the cap, the tampering evidencing band 28 is immediately torn away from the plastic ring 14, whereas the separate metal cover 16 remains in its place on the mouth of the container 12, since its circumferential edge 22 is not immediately engaged by the lower surface of the groove 20. As it is clearly shown in figure 2, only after the composite cap 10 has been further rotated, the lower surface of the groove 20 engages the circumferential edge 22 of the separate metal cover 16 and lifts it from the mouth of the container 12, putting the contents of the packing in communication with the external environment. This provides a further guarantee that the tampering evidencing band is always torn away before the actual destroying of the sealing of the packing and not at the same time with it.

It is obvious that other numerous and different changes and modifications can be performed by those skilled in the art on the above described embodiment of the present invention, without departing from its scope. It is intended therefore that all these changes and modifications are encompassed in the field of the invention.

Claims

1. A composite cap for closing a container, with evidencing of the tampering, in which a plastic molded portion like a threaded ring has a housing to accommodate a metal cover portion provided with a sealing gasket and is joined, at its lower edge, to a tampering evidencing band by means of a set of breakable bridges, a cap which is characterized in that it comprises in combination:
a continuous circumferential bead, located onto said tampering evidencing band, facing towards the inside of the cap and designed to engage a rib provided on the neck of the container, and
a housing having a lengthened shape for accommodating said metal cover portion.

2. A composite cap according to claim 1, characterized in that said continuous circumferential bead has a V-shaped vertical cross-section with respect to the tampering evidencing band.

3. A composite cap according to claim 1 or 2, characterized in that said rib provided on the neck of the container and engaged by said continuous circumferential bead has a highly sloped upper surface and an almost horizontal lower surface.

4. A composite cap according to any one of the preceding claims, characterized in that said housing of a lengthened shape for accommodating the metal cover portion allows a reciprocating movement of the cover portion with respect to the ring portion.

Fig. 1.

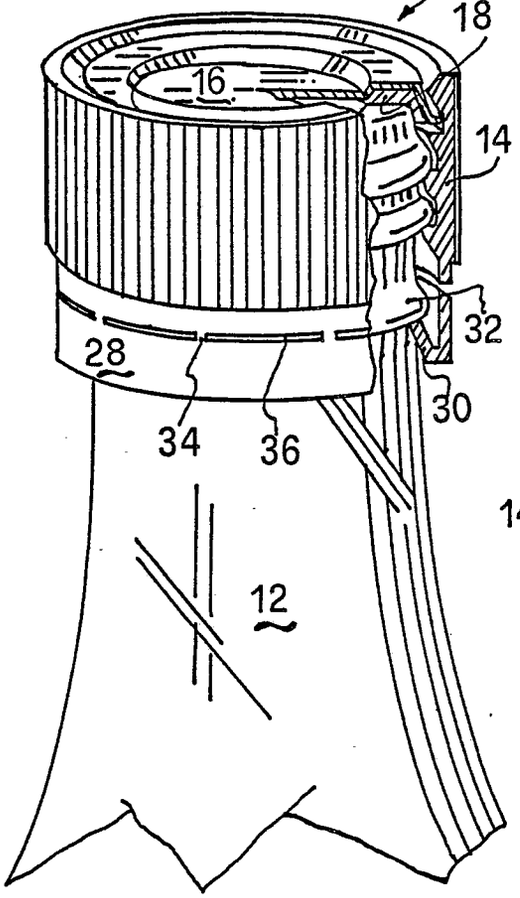


Fig. 2.

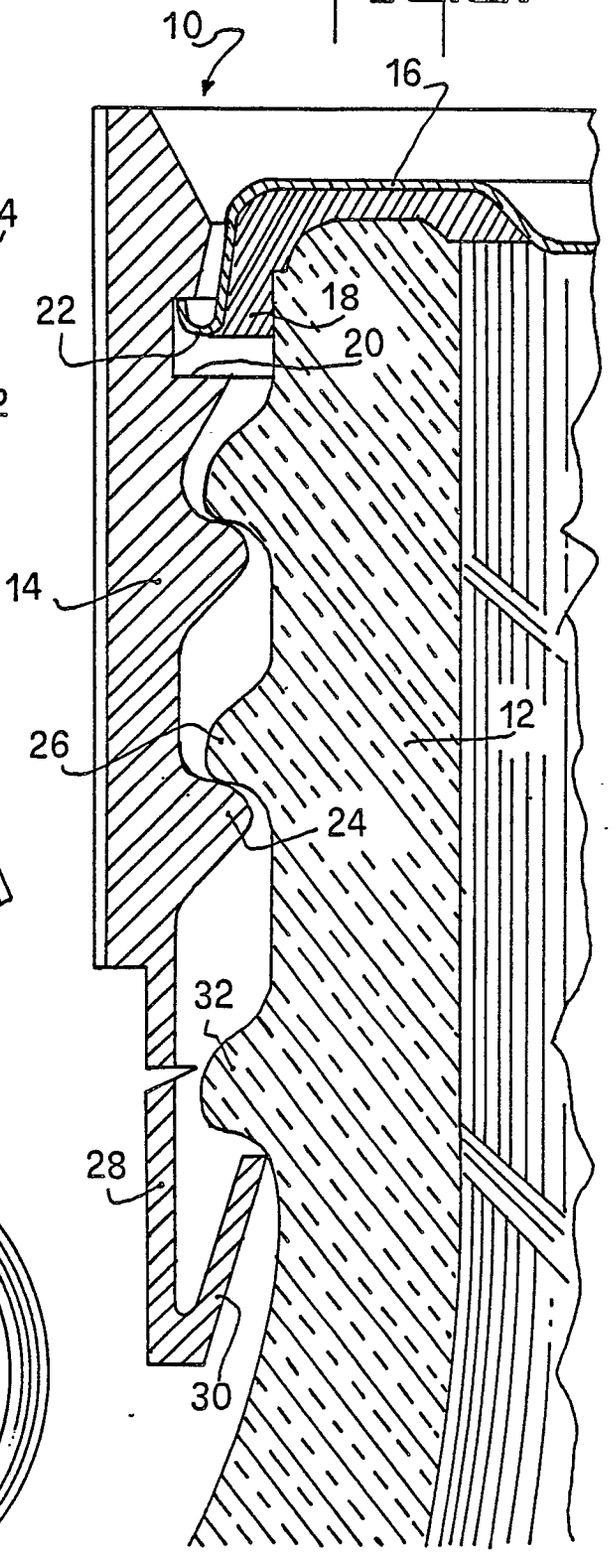


Fig. 3.

