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(54) Tamper-evident composite snap closure.

(57) There is described a composite closure cap in which a metal cover or panel portion (12) is inserted from the top end in a lateral ring or skirt portion (10), plastic molded and joined, at its opposite end, to a tampering evidencing band (28) by means of breakable bridges.

The cap is characterized in that at least one jut (32), designed to be engaged by hand to open the packing, is provided on the outer surface of the ring portion, and locking means are circumferentially located on the inner surface of said ring portion to cooperate with a bead (24) of the container (26) to keep the packing sealed.

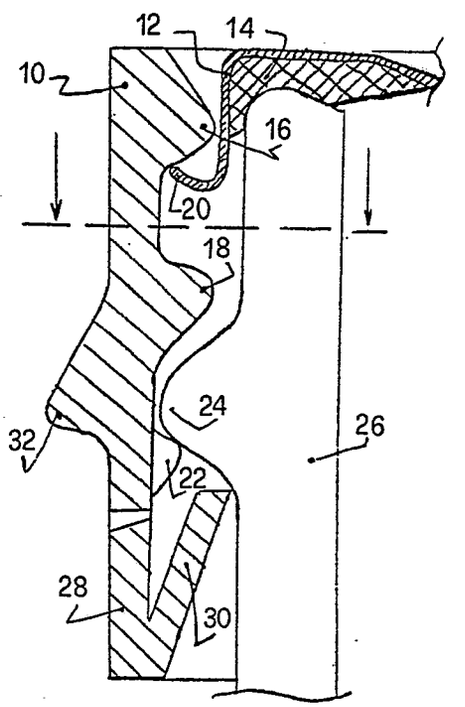

Fig. 1.

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A composite closure cap of the snap type, with evidencing of the tampering.

The present invention refers to a composite closure cap provided with a tampering evidencing band, and of the snap type, i.e. that can be opened by laterally applying a force to a suitable jut with a finger of a hand, generally the thumb.

Composite caps are known, provided with a plastic molded ring or skirt portion and a separate metal cover or panel portion. The ring or skirt portion is joined to a tampering evidencing band by means of breakable bridges, in order to immediately make recognizable any action whatsoever for tampering the packing to which such a cap has been applied, even before the real opening of the packing has taken place.

Generally, in caps of such a kind, the ring or skirt portion is provided with a threading, in order to thraed fasten the composite cap to the container, and the opening of the packing is carried out by unscrewing the cap with respect to the container.

However, sometimes the opening by unscrewing can be difficult since a stiking action can happen on the threads due to various reasons.

Therefore, the main object of the present invention is to provide a composite closure cap with evidencing of the tampering, of the snap opening type, for a better opening of the packing to which the same cap is applied.

Another object of the present invention is to provide a composite cap with evidencing of the tampering, of the snap type, in which the tampering evidencing band is automatically taken apart from the skirt portion, upon the opening of the packing, and stays around the neck of the container as a proof that the tampering of the packing has been carried out.

Still another object of the present invention is to provide a composite cap with evidencing of the tampering, of the snap type, of simple and cheap construction, suitable for a mass production.

According to the present invention, a composite closure cap, in which a metal cover or panel portion is inserted from the top end in a lateral ring or skirt portion, plastic molded and joined, at its opposite end, to a tampering evidencing band by means of breakable bridges, is characterized in that at least one jut, designed to be engaged by hand to open the packing, is provided on the outer surface of the ring portion, and locking means are circumferentially located on the inner surface of said ring portion to cooperate with a bead of the container to keep the packing sealed.

The main advantage that is achieved with the composite cap according to the present invention is the opening easiness due to the fact that the sticking of the threads, peculiar of the thread caps, is prevented.

Another advantage of the present composite cap lies in the easiness of application to the conteiner, without the need that one is worried about closure torques or sealing precautions.

In the following, the present invention will be further clarified from the description of one form of practical embodiment of the composite closure cap of the snap type, 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 partial vertical cross-sectional view of a packing with a composite closure cap according to the present invention; and

Figure 2 is a cross-sectional view of the composite cap, taken on the line II-II of the figure 1.

With reference to the figures of the accompanying drawing, a composite cap of the snap type according to the present invention comprises a plastic molded lateral ring or skirt portion 10, and a separated metal cover or panel portion 12.

The metal cover 12 is generally comprised of a stamped and sheared disk, with a sealing gasket 14, sprayed or of another kind. The gasket 14 can be the usual gasket of sprayed plastisol or a cut disk, fastened to the edge or the whole surface of the cover 12.

The metal cover 12 is assembled in the upper portion of the plastic ring 10, in a housing delimited in its upper part by a continuous circumferential bead 16, which radially projects towards the inside of the plasting ring 10. The housing for the metal cover 12 is also delimited in its lower part by a set of four shoulders 18, located at an equal distance along an internal circle on the plastic ring 10 and radially projecting towards the inside of the ring 10.

Therefore, the housing for the metal cover takes up a shape elongated along the vertical cross-section of the figure 1, and in this housing there is inserted from the top end the metal cover 12, which is housed in a loose way so as to be able to carry out a certain translational motion with respect to the plastic ring 10, as it will be better explained in the following.

The circumferential edge 20 of the cover 12 is shaped so as to snap in its housing after having passed over the continuous circumferential bead 16 upon the assembling of the cap and then it can no longer leave its housing, making the cap handling operations easier.

The plastic ring 10 has four projections 22, located at an equal distance along an internal circle

on the plastic ring 10, radially projecting towards the inside of the ring 10 and offset and alternated in the plan view, with respect to the shoulders 18, as it is better shown in figure 2.

The projections 22 on the plastic ring 10 are designed to cooperate with a corresponding continuous circumferential bead 24 of the container 26 in order to keep the cap fastened to the container so as to sealingly close the packing.

The plastic ring 10 ends, at its lower part, in a tampering evidencing band 28, provided with a continuous circumferential tab 30, facing towards the inside of the cap. The continuous circumferential tab 30 has a shape with a V-shaped vertical cross-section with respect to the band 28, as it is better shown in figure 1, and it is designed to engage the bead 24 of the container 26 when the cap is in its position of complete closure of container 26.

The tampering evidencing band 28 is connected to the plastic ring 10 by a set of bridges, which remain in place after an interrupted weakening groove has been carried out around the whole circumference of the ring 10 of the composite closure cap. Obviuosly, the bridges fasten the band 28 to the plastic ring 10 and are broken upon the opening of the packing.

To open the packing, a jut 32 is provided on the outer surface of the plastic ring 10, designed to be engaged by the thumb of the person who desires to open the packing. In fact, by acting on the jut 32, one can cause the projections 22 to jump over the bead 24 and therefore the composite cap to be disengaged from the container.

The continuous circumferential tab 30 is resilient enough to bend and then to snap, after having jumped over the bead 24 of the container 26, when the composite cap is applied to the container upon the closure of the packing, but, at the same time, having a continuous shape along its whole circumference, it provides the tampering evidencing band 28 with a stiffening feature, which allows it to certainly separate from the plastic ring 10 upon the removal of the cap to open the packing, when the continuous circumferential tab 30 remains locked under the bead 24.

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 bead on the container.

Upon the opening of the packing, starting to remove the cap by means of the action of the thumb on the jut 32, the tampering evidencing band 28 is immediately torn away from the plastic ring 10, whereas the separate metal cover 12 remains in its place on the mouth of the container 26, since its circumferential edge 20 is not immediately engaged by the shoulders 18.

As it is clearly shown in figure 1, only after the ring 10 has been further lifted, the shoulder 18 that is located near the jut 32, engages the circumferential edge 20 of the metal cover 12 and lifts it from the mouth of the container 26 in one point only due to the resilience of the plastic ring 10. For all that, the vacuum is broken and the contents of the packing is put in communication with the external environment.

This behaviour of the composite cap during its removal 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.

Although the preferred embodiment of the present composite cap has been shown and described, it is obvious that some particulars can be changed to fulfil specific requirements. So, the number and arrangement of the shoulders 18 and/or projections 22 and their relevant mutual positions can be changed. Furthermore, the jut 32 can be repeated along the external circumference of the plastic ring 10 to provide more than one hold for the action of the thumb.

Also, a variation can be provided, in which the tampering evidencing band extends to a lower position with respect to the position shown in the drawing, in order to make the manufacture of the weakening groove easier. In such a manner, the continuous circumferential tab of the tampering evidencing band engages a second bead provided on the neck of the container, below the bead cooperating with the projections of the plastic ring to guarantee the sealing of the packing.

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 closure cap in which a metal cover or panel portion (12) is inserted from the top end in a lateral ring or skirt portion (10), plastic molded and joined, at its opposite end, to a tampering evidencing band (28) by means of breakable bridges, characterized in that at least one jut (32), designed to be engaged by hand to open the packing, is provided on the outer surface of the ring portion, and locking means are circumferentially located on the inner surface of said ring portion to cooperate with a bead (24) of the container (26) to keep the packing sealed.

2. A composite cap according to claim 1, char-

acterized in that said locking means are comprised of a number of projections (22), provided on a circle inside the plastic ring portion (10) and radially extending towards the inside of the ring portion (10).

3. A composite cap according to claim 2, characterized in that said projections (22) are four in number and are equally spaced apart along said circle inside the ring portion (10).

4. A composite cap according to claim 2 or 3, characterized in that one of said projections is provided on the inner side of said ring portion (10) at the position in which said jut (32) is provided on the outer side thereof.

5. A composite cap according to any one of the preceding claims, characterized in that the housing provided on the ring portion (10) for the cover portion (12) is delimited by a continuous circumferential bead (16) in the upper part, and by a number of shoulders (18) radially projecting towards the inside of said ring portion (10) in the lower part thereof.

6. A composite cap according to claim 5, characterized in that said shoulders (18) are four in number and are equally spaced apart along a circle inside the ring portion (10).

7. A composite cap according to claim 5 or 6, characterized in that one of the shoulders is provided on the inner side of said ring portion (10) at the position in which said jut (32) is provided on the outer side thereof.

8. A composite cap according to claim 3 and 6, characterized in that said four projections (22) and said four shoulders (18) are offset and alternated with respect of each other in the plan view.

9. A composite cap according to claim 8, characterized in that one of the shoulders is provided on the inner side of said ring portion (10) at the position in which said jut (32) is provided on the outer side thereof.

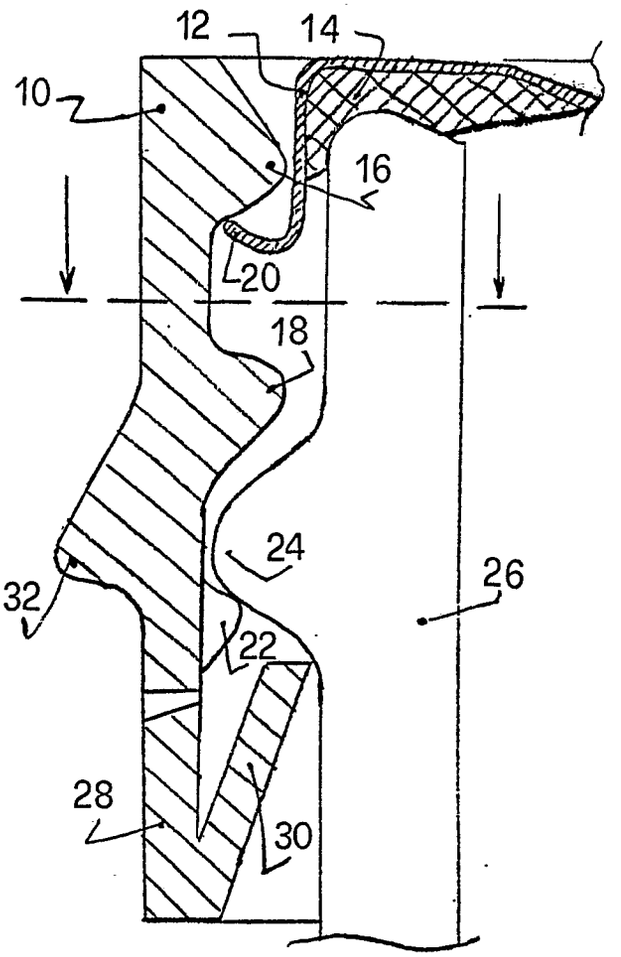

Fig. 1.

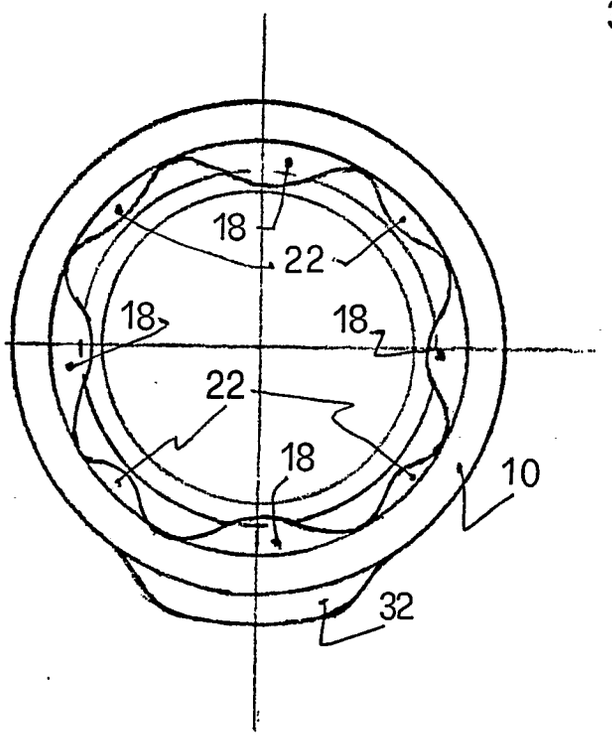

Fig. 2.