

19



Europäisches Patentamt
European Patent Office
Office européen des brevets

11 Publication number:

0 140 843
A2

12

EUROPEAN PATENT APPLICATION

21 Application number: **84830267.5**

51 Int. Cl.⁴: **B 65 D 55/02**

22 Date of filing: **05.10.84**

30 Priority: **02.11.83 IT 2343783 U**

71 Applicant: **CAPSULIT S.r.l., C.so Indipendenza 6, I-20122 Milan (IT)**

43 Date of publication of application: **08.05.85**
Bulletin 85/19

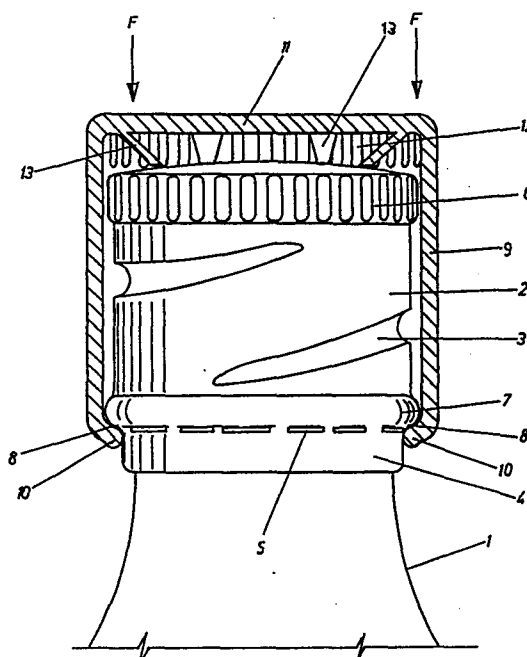
72 Inventor: **Rizzardi, Napoleone, Via Zambelletti, 10, I-20129 Milano (IT)**

84 Designated Contracting States: **BE CH DE FR GB LI NL SE**

74 Representative: **La Ciura, Salvatore, c/o STUDIO D'ORIO Via F. Sforza, 3, I-20122 Milan (IT)**

54 An anti-loose closure, in particular for closing noxious substances containers.

57 An anti-loose closure, in particular for closing noxious substance containers, such as bottles and the like, wherein the closure comprises a first cap (2), preferably made of aluminium, having, at a lower part thereof, a safeguard strip (4) that is detachable along a break line (5), and, at an upper part thereof, a knurled rim (6); a second cap (9) that is external to the first cap (2), said second cap (9) having a knurled region (12) provided therein, near its bottom wall (11), which is designed to engage with the knurled rim (6) on the cap (2); and resilient means formed on the bottom (11) of the outer cap (9) and designed to interfere with the internal lower wall of the inner cap (2) to hold the knurled regions (6 and 12) in an axially spaced relationship with one another, said resilient means being such that when acted upon by an externally exerted pressure they will yield to cause said knurled regions to be brought into mutual engagement.



- 1 -

AN ANTI-LOOSE CLOSURE, IN PARTICULAR FOR CLOSING NOXIOUS
SUBSTANCES CONTAINERS

This invention relates to an anti-loose closure of the so-called "child-proof" type that is designed to prevent it from being opened by a child and to be used, in particular, for closing noxious substances bottles or
5 containers, wherein the closing cap proper is an aluminium cap and is provided with a safeguard strip.

The "child-proof" types of closures are well known and have been proposed in a variety of forms made from either
10 plastic or plastic-aluminium combined material.

These "child-proof" closures are composed of an inner cap which is the sealing closure for the bottle or container concerned, and an outer cap that covers the inner cap and
15 is normally free rotatable with respect to the inner cap but may be brought into engagement with this latter to cause it to rotate, thereby threadingly opening or closing it.

Such known types of closures are, in general, complicated
20 and expensive in construction and they are not always pro

vided with safety-means securing them against mishandling, which safety-means is in many cases and for many kinds of substances, also of medicinal nature, a requisite.

5. The closure according to this invention is of simple and rather inexpensive conception and it has a safeguard strip provided on the inner cap which is removable or breakable on first opening of the associated container, while retaining the anti-loose or unthreading-preventing, requisite
10 of this type of closure.

The "child-proof" closure according to this invention has an inner cap that is provided with an annular rib located at such a level thereon as to interfere with an
15 abutment surface on the outer cap to prevent this latter from being taken-off but to permit it to be moved in an axial direction as is necessary for bringing said outer cap from a disengaged position with respect to the inner cap, to an engaged position therewith to cause the in-
20 ner cap to rotate and, thus, to be either threaded out or threaded down, the inner cap being extended in an out-ward direction beyond the abutment surface on the outer cap so as to form a safeguard-strip that is detachable along a tear or break line formed immediately below said annular
25 rib.

The means permitting the outer cap to engage with the inner cap comprise a knurled region provided inside the skirt of the outer cap near the bottom thereof, an external knur-
30 led region provided on the inner cap at the upper end of its skirts, and fin-shaped formations that project out

0140843

of the bottom of the outer cap to interfere with the lower outer wall of the inner cap, and which are such as to hold the two knurled regions in a spaced apart relationship, but to resiliently yield under the effect of an axial pressure so as to cause said two knurled regions to be brought into engagement with one another.

One embodiment of the invention is described below with reference to the single figure of the accompanying drawing, which shows, by way of a non restrictive example, a front, part sectional view of a closure according to this invention, as applied to a container.

With reference to the above figure, shown at 1 is the neck of a container, such as a bottle, on which an aluminium closure cap 2 is clamped, the cap 2 being provided with a thread 3 for enabling the cap to be threadingly applied onto, and removed from the bottom neck, on which neck the cap 2 is clamped in place by means of a safeguard strip 4 that has to be detached along a rupture line 5 in order to obtain the first opening of same cap 2.

The safeguard-strip 4 may be of the type that is pulled away manually by pulling on a tongue-shaped part thereof, or it may be detachable along the break line 5, shown in the figure, by unthreading of the cap 2.

The cap 2 has at its upper part a knurled rim 6 and is provided, just above the break line 5, with a rib 7 defining a lower shoulder 8.

Fitted over the cap 2 is a second cap 9 substantially cylindrical in shape, a lower edge 10 of which is bent inwardly in such a manner as to contract diametrically to define a bearing surface that fits underneath the shoulder 8 of rib 7. In this way, once the outer cap 9 has been fitted in place by pressing it down, the cap 9 cannot be withdrawn neither by itself nor by pulling action exerted thereon.

10 Provided on the internal wall of cap 9, near the bottom thereof, is a second knurled region 12 designed to engage with the knurled region 6. The knurled regions 6 and 12 are held in an axially spaced apart relationship by fin-shaped formations 13 that project out of the bottom 15 11 of cap 9 so as to retain the cap 9 in a raised position.

In this raised position, the cap 9 is free rotatable with respect to the inner cap 2 and, thus, it is unable to cause this latter to unthread, whereby the anti-loose action 20 preventing child's from having access to the bottle contents—such as, for example, a noxious substance—is ensured.

Because of the outer cap 9 being made of a plastic resilient material, the protruding fin-formations 13, that are preferably arranged in a circle on the cap bottom 11, afford 25 spring means which are such that, upon exerting a pressure on the cap 9 in an axial direction, as shown by arrows F in the drawing, said fin-formations will resiliently deform to cause the knurled region 12 to descend axially 30 to be brought into engagement with the knurled region 6 on the inner cap. Then, by turning the outer cap 9, also the

inner cap 2 can be caused to turn therewith, thereby to thread out said cap 2 or thread it down, respectively, as desired.

- 5 The force that is necessary in order to deform the fin-formations 13 to bring the two knurled regions into mutual engagement, is normally greater than the force that is able of being exerted by, for example, a child, so that any effort by this latter aiming at causing the cap 9 to
10 turn does not involve the risk of the inner cap 2 to be caused to turn therewith and, th-us, to be threaded out.

Upon first unthreading of the closure, the safeguard strip 4 will be detached too.

15

For the closure to operate, it is necessary that, as indicated above, a pressure should be exerted on the outer cap 9 for both unscrewing and screwing down purposes.

- 20 It should be appreciated from what has been described herein before, that an anti-loose or "child-proof" closure has been achieved, whereby an outer cap of plastic material can be coupled with an inner cap of aluminium, that is provided with a safeguard-strip, by the aid of means that
25 are comparatively simple in construction and low in cost.

Obviously, the anti-loose closure according to this invention is not restricted to the particular embodiment disclosed herein, and many changes, as to the details of
30 construction, may be made thereto without departing from the spirit and scope of this invention.

Claims:

1. An anti-loose closure, in particular for use in association with containers, such as bottles and the like,
5 designed to contain noxious substances, characterized in that the anti-loose closure comprises: a first cap (2) preferably made of aluminium and having at a lower part thereof a safeguard-strip (4) that is detachable along a break line (5), with a rib (7) being formed immediately
10 above said break line (5) to define a lower shoulder (8), the cap (2) having at the top thereof a knurled rim (6); a second cap (9) that is external to the first cap (2) and has an inwardly bent edge (10) providing a bearing surface designed to fit underneath the shoulder (8) thereby to
15 prevent the outer cap from being withdrawn, there being provided inside the cap (9), adjacent the bottom wall (11) thereof, a knurled region (12) arranged to engage with the knurled rim (6) on the cap (2), and resilient means being finally provided on the bottom (11) of the outer cap (9)
20 said resilient means being able to interfere with the external lower wall of the inner cap (2) so as to maintain the knurled regions (6) and (12) in an axially spaced apart relationship, and said resilient means being such as to yield under external pressure exerted thereon to cause said
25 knurled regions to be brought into engagement with one another.

2. The closure according to claim 1, wherein said resilient means are fin-shaped formations (13) that are arranged in
30 a circle on the bottom (11) of cap (9).

3. The closure according to claim 1, wherein said resilient means is an endless annular formation projecting out of the bottom (11) of cap (9).

1/1

