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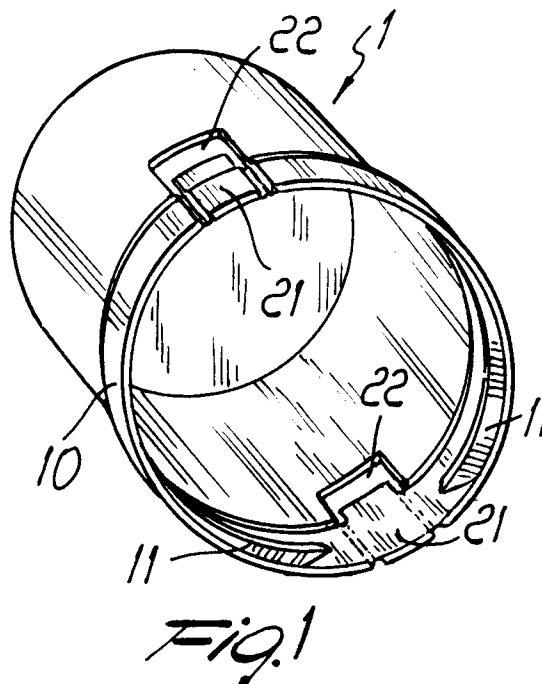
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I-20123 Milano(IT)**(54) **Cap particularly for dispenser cans with pilferproof characteristics.**

(57) A cap particularly for dispenser cans (20) with fully pilferproof characteristics comprises a substantially cylindrical body (1) which is closed at a base. Furthermore, the cap comprises, at the edge opposite to the base, an edge band (10) which has a tooth (11) which extends in circumferential segments and which can be coupled below the collar (15) of a can (20) and the like. The tooth (11) cannot be disengaged from the collar when the edge band (10) is unbroken. The edge band (10), in at least one portion which is not affected by the tooth (11), defines a tab (21) which is surmounted by a recess (22) of the body. At least one fracture line is furthermore provided and extends between the free edge of the body (1) and the recess (22) and can be broken exclusively by means of a tool.

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The present invention relates to a cap particularly for dispenser cans with fully pilferproof characteristics.

As is known, caps to be applied to spray-cans and the like which have a so-called safety seal, i.e. a lower collar which is connected to the remaining part of the cap by means of a weakening line which facilitates the tearing off of said collar, are already currently commercially available. In particular, there is also a tab or another easily accessible element which is specifically preset so that it is possible, simply with one's hand, without excessive effort, to tear the collar off to indicate that the cap has been opened.

In many fields of use, such as for example which involve toxic products or products which are in any case harmful, it is also necessary to have available so-called fully pilferproof caps, i.e. caps in which, in order to perform the first opening, it is necessary to use tools, such as levers, screwdrivers and the like, i.e. caps which cannot be simply opened manually.

Among said caps, mention should be made of a cap which, inside the outer skirt, has a coaxial cylindrical body which mates at the region where the dispenser valve of the can is seamed. An opening is defined on the outer skirt and allows the insertion of a tip of a screwdriver in order to perform a lever action which allows to uncouple the central body from the seaming collar of the valve body.

This type of operation is considerably hazardous, since one might cause, with the tip of the screwdriver, the disengagement of the seaming collar of the dispenser valve, with the possibility of the escape of the contained product.

The aim of the invention is indeed to solve the above described problem by providing a cap particularly for dispenser cans with fully pilferproof characteristics which allows to provide a firm coupling, with the need to use an opening tool, at the time of first opening, using said tool in a region which is distant from the dispenser valve.

Within the scope of the above described aim, a particular object of the invention is to provide a cap which, after the first opening, i.e. after the breakage of a seal performed by means of a tool, requires a particular method for opening, thus in practice constituting a so-called child-proof safety, i.e. a safety which is such as to prevent accidental opening on the part of a child or the like.

Another object of the present invention is to provide a cap which, in addition to having considerably improved characteristics, has a simple structure and furthermore does not require the adoption of a central body which is coaxial to the outer skirt

and which, besides causing a great expenditure of material, creates considerable complexities in manufacturing molds.

Not least object of the present invention is to provide a cap, particularly for dispenser cans, which can be easily obtained starting from commonly commercially available elements and materials and is furthermore competitive from a merely economical point of view.

This aim, these objects and others which will become apparent hereinafter are achieved by a cap particularly for dispenser cans with fully pilferproof characteristics, according to the invention, which comprises a substantially cylindrical body which is closed at a base, characterized in that it comprises, at the edge opposite to said base, an edge band provided with a tooth which extends in circumferential segments and which can be coupled below the collar of a can and the like, said tooth not being disengageable from said collar when said edge band is unbroken, said edge band defining, in at least one portion which is not affected by said tooth, a tab which is surmounted by a recess of said body, at least one fracture line being furthermore provided which extends between the free edge of said body and said recess and which can be broken exclusively by means of a tool.

Further characteristics and advantages will become apparent from the description of a preferred but not exclusive embodiment, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

figure 1 is a schematic exploded perspective view of a cap according to the invention and of the upper part of a can to which the cap can be applied;

figure 2 is a schematic elevation view of the cap applied to a can;

figure 3 is a sectional view, taken along the line III-III of figure 2;

figure 4 is a sectional view, taken along the line IV-IV of figure 2;

figure 5 is a sectional view, taken along the line V-V of figure 2;

figure 6 is a front elevation view of the step of the breakage of the fracture line by means of the tip of a screwdriver;

figure 7 is a view of the tab after breakage;

figure 8 is a sectional view, taken along the line VIII-VIII of figure 7.

With reference to the above figures, the cap particularly for dispenser cans with fully pilferproof characteristics, according to the invention, comprises a substantially cylindrical body or outer skirt 1 which is closed at the base by a bottom.

An edge band 10 is provided at the edge opposite to said base or bottom and has, inside it, a tooth 11 which advantageously extends in circumferential segments; in the described example, which must not be understood in a limiting sense, two semi-circumferential segments are provided in practice.

The tooth 11 is particularly raised and normally protrudes, with respect to the inner surface of the band, by an amount comprised between 0.8 and 1.2 mm. The tooth 11 is defined by a guiding face 11a and by an abutment face 11b which in practice engages below the collar 15 of a can.

The engagement is such that it is not possible to manually disengage the cap while the edge band is completely unbroken.

Since the coupling is very deep, in order to apply the cap to the can, indicated by 20, it is advantageous to perform a preheating of said cap prior to fitting it so that breakages do not occur in the edge band during fitting.

The edge band has at least one tab, indicated by 21, which is provided in the region not affected by the tooth 11. In the illustrated example, two opposite tabs 21 are advantageously provided and are surmounted by a recess or opening 22 of the outer skirt so as to create a small slot.

The tab is laterally delimited, in the direction of extension of the edge band, by two fracture lines 23 which have a reduced thickness, generally comprised between 0.4 and 0.6 mm, and do not allow tear-off breakage of the tab simply by acting with one's hand, since the thickness of the fracture line is relatively high.

In order to break the tab it is sufficient to act with a tool, such as for example the tip of a screwdriver 30, so as to break said tab at one of the fracture lines.

The breakage of the tab allows to interrupt the continuity of the edge face, so that by performing a radial compression at the tab it is possible to generate an "ovalization" of the outer skirt 2 which allows to perform, with a certain effort, the disengagement of the tooth from the collar.

If the compression action is not applied at the region affected by the removed tab, or if the compression is applied in another point, it is not possible to disengage the tooth from the collar and it is thus not possible to remove the cap.

From what has been described above it can thus be seen that the invention achieves the proposed aim and objects, and in particular the fact is stressed that by means of an extremely simple structure one obtains a fully pilferproof cap, i.e. a cap executed so as to prevent its manual opening so long as the edge band is completely unbroken, since the forcing of the application, which is also

facilitated by the pre-heating of the cap prior to its application, creates a very strong coupling of the tooth 11 below the collar 20.

Once the tab has been broken, a safety cap is available which, in order to be opened, requires the execution of a radial compression at the region affected by the removed tab, so as to allow an ovalization of the skirt and thus facilitate the disengagement of the tooth from the collar.

In practice, the materials employed, so long as compatible with the specific use, as well as the contingent shapes and dimensions, may be any according to the requirements.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the scope of each element identified by way of example by such reference signs.

Claims

1. Cap particularly for dispenser cans with fully pilferproof characteristics, comprising a substantially cylindrical body (1) which is closed at a base, characterized in that it comprises, at the edge opposite to said base, an edge band (10) which has a tooth (11) which extends in circumferential segments and which can be coupled below the collar (15) of a can (20) and the like, said tooth (11) not being disengageable from said collar (15) when said edge band (10) is unbroken, said edge band (10) defining, in at least one portion not affected by said tooth (11), a tab (21) which is surmounted by a recess (22) of said body (1), at least one fracture line (23) being furthermore provided which extends between the free edge of said body (1) and said recess (22) and which can be broken exclusively by means of a tool (30).
2. Cap according to claim 1, characterized in that said tab (21) is delimited on said band (10) by a pair of fracture lines (23).
3. Cap according to one or more of the preceding claims, characterized in that it comprises a pair of tabs (21) which are arranged mutually opposite.
4. Cap according to one or more of the preceding claims, characterized in that said fracture lines (23) extend substantially parallel with respect to the axis of said body (1).

5. Cap according to one or more of the preceding claims, characterized in that said tooth (11) extends on the inner face of said edge band (10) for a height substantially comprised between 0.8 and 1.2 mm. 5
6. Cap according to one or more of the preceding claims, characterized in that said fracture line (23) has a thickness of material comprised between 0.4 and 0.6 mm. 10
7. Cap according to one or more of the preceding claims, characterized in that it can be disengaged from said can (20), once at least one tab (21) has been broken, by exerting a radial compression of the cap at the region of the broken tab. 15
8. Cap according to one or more of the preceding claims, characterized in that it can be coupled by pressure to said can (20) after preheating said cap. 20

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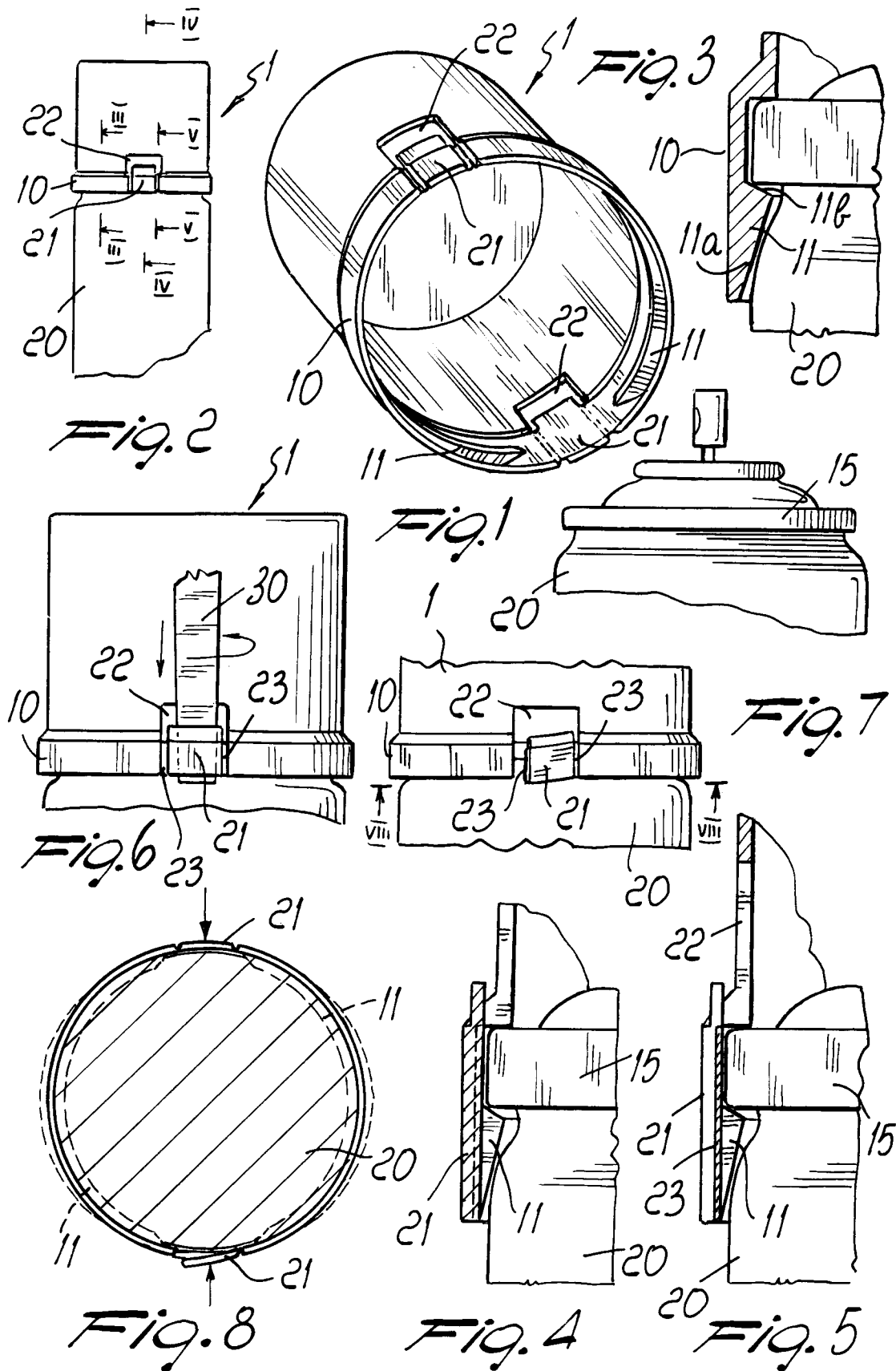
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EUROPEAN SEARCH REPORT

Application Number

EP 91 11 8132

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	EP-A-0 207 832 (ALIZOL SA) * page 2, line 15 - line 19; figures ** - - -	1-8	B 65 D 83/14
A	US-A-4 821 913 (D.P.HIDDING) * abstract; figures ** - - -	1	
A	GB-A-2 096 108 (PLASPHARM) * figures ** - - - - -	1,3	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B 65 D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of search 05 February 92	Examiner ZANGHI A.
CATEGORY OF CITED DOCUMENTS X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons ----- &: member of the same patent family, corresponding document			