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EUROPEAN PATENT APPLICATION

21 Application number: **89870135.4**

51 Int. Cl.⁵: **B 65 D 55/02**
B 65 D 41/34

22 Date of filing: **22.09.89**

30 Priority: **23.09.88 ES 8802811**

43 Date of publication of application:
28.03.90 Bulletin 90/13

84 Designated Contracting States:
AT BE CH DE ES FR GB GR IT LI LU NL SE

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54 **Security closure device for containers.**

57 Improved security closure device for containers of the kind comprising a stopper (1) having a thread (2) for its cooperation with the neck (12) of a container, this neck having in turn a corresponding thread (5), corresponding means being provided on said elements of the stopper and of the neck, which in the operating position of the closure device create a difficulty against the opening, which cannot be overcome by children, essentially characterized in that the stopper body comprises in diametral areas of its internal side wall and in parallel direction some projections (3) decreasing to one of their ends, which in the position of complete screwing of the stopper are facing by their projecting ends against second projections (6) of similar configuration, provided in the external wall of the container neck (12), these two kinds of projections operating as retaining means of which the interaction causes the stopper to be blocked.

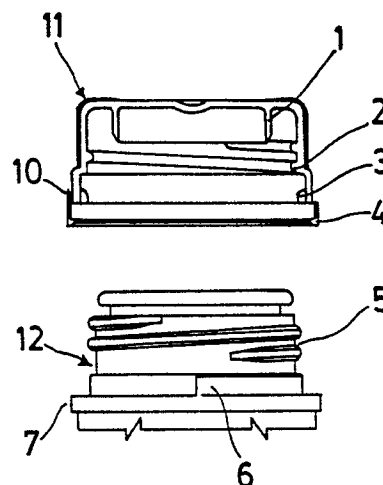


FIG. 1

Description

Security closure device for containers.

This invention relates to an improved security closure device for containers.

More particularly, the invention has for its object to provide a security closure device of a kind which has been devised in order to prevent an easy opening by children, this closure device comprising means provided in the stopper body and in the container neck, which in combination create a difficulty for opening or unthreading the stopper, which may be overcome by two movements, one of which in radial direction and the other in rotation, in order to wholly separate the stopper with respect to the vial or container.

In general, the preferred closure device consists of an one-piece stopper, made of a suitable material, generally a plastic material resisting to the attack by hypochlorites and surface-active materials, which perfectly adapts itself against the neck of a specially designed vial or container.

As previously indicated, both components of the closure device, namely the stopper and the neck of the container, comprise means intended to create a difficulty against opening. These means are made, in the case of the stopper, of two diametrically opposed retaining means, which in combination with two other retaining means provided in the neck of the container, ensure the blocking of the stopper by opposing said retaining means against each other, in the operating position. In order to open the vial, it is necessary to exert a radial pressure onto a signalled area of the side wall or skirt of the stopper, through which the retaining means of the stopper, which prevent the rotation movement thereof are made free. Then, the following movement, which consists of the traditional rotation may be made.

The present invention will be still better understood thanks to the following description given with reference to non-limitative drawings.

Fig. 1 shows the closure device consisting of the stopper body, as seen in diametral cross-section, and of the neck of the container.

Fig. 2 is a plane view of the neck of the container, of which the retaining means can be seen.

Fig. 3 is an elevation view of the stopper, on which the area intended to receive a radial pressure in order to liberate the retaining means can be seen.

Fig. 4 is a plane and cross-sectional view on which the closure device made of two components shown in the operating position of the retaining means can be seen.

Referring now to the Figures, it has been provided a security closure device of the kind comprising a stopper, generally designated by 11 and intended to be applied onto the neck 12 of a container.

The stopper 11 comprises an obturator 1 ensuring the sealing, a thread 2 and the two diametrically opposed retaining means 3 which, in combination with the retaining means 6 provided on the neck 12 of the container create a blocking of the stopper

against rotation.

The stopper comprises a security tape 4 or similar piece, intended to guarantee the inviolability of the container since it prevents any movement of the stopper allowing the opening.

The neck 12 of the vial comprises a thread 5 and the above-mentioned retaining means 6 which abut the retaining means 3 of the stopper, causing the interaction of blocking the stopper 11. Also, a radial flange 7 is provided, where the security tape or the like 4 of the stopper is located.

The operation is as follows.

The opening of the vial requires the preliminary operation consisting of tearing the security tape 4 by pulling on the tab 10, which carries away the tape on the whole maximum diameter of the stopper. Then, a first movement is made, consisting of exerting a radial pressure onto the specially indicated area 8 of the stopper, through which and due to the flexibility of the separation areas 9 existing between the external skirt of the stopper and the neck of the vial, the liberation of the retaining means 3 of the stopper is made, which prevented the rotation movement.

The second movement is that of rotation which due to the thread existing between the stopper and the vial neck, causes an upwards movement of the stopper until the latter is made free from the vial.

The closure of the vial is made by arranging the stopper onto the neck of the vial and rotating clockwise. The flexibility of the plastic material improves the possibility that the retaining means of the stopper overpass by deformation the retaining means of the neck and remain in blocking position, and then the cycle can be initiated.

It has to be understood that the invention is not limited to the features such as hereinabove mentioned but that many variants can be provided, in particular in the shape and material of the components, without departing from the scope of this patent.

Claims

Improved security closure device for containers of the kind comprising a stopper (1) having a thread (2) for its cooperation with the neck (12) of a container, this neck having in turn a corresponding thread (5), corresponding means being provided on said elements of the stopper and of the neck, which in the operating position of the closure device create a difficulty against the opening, which cannot be overcome by children, essentially characterized in that the stopper body comprises in diametral areas of its internal side wall and in parallel direction some projections (3) decreasing to one of their ends, which in the position of complete screwing of the stopper are facing by their projecting ends against second projections (6) of similar configuration, provided in the external wall of

the container neck (12), these two kinds of projections operating as retaining means of which the interaction causes the stopper to be blocked, and in that the stopper wall having projections (3) and the surface of the container neck, also having projections (6), establish hollow areas or separation areas, coinciding

with suitably signalled areas (8) in the external wall of the stopper, intended to receive a radial pressure which in cooperation with the flexibility of the stopper, allows the above-mentioned retaining means preventing the rotation movement thereof to be made free.

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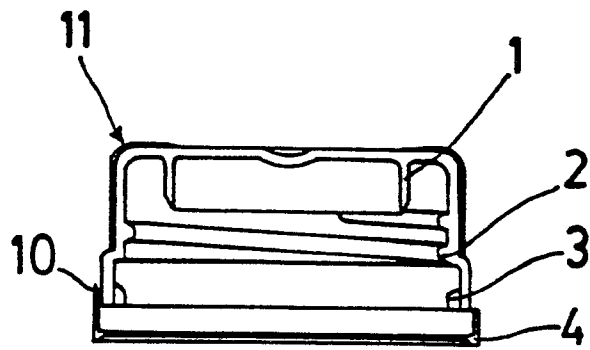


FIG. 1

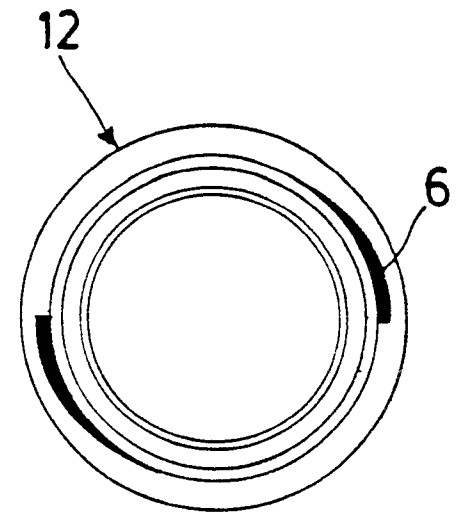
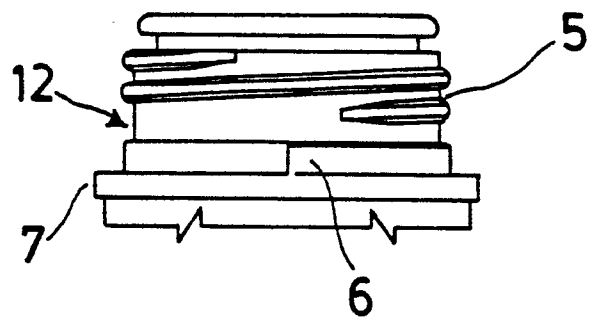


FIG. 2

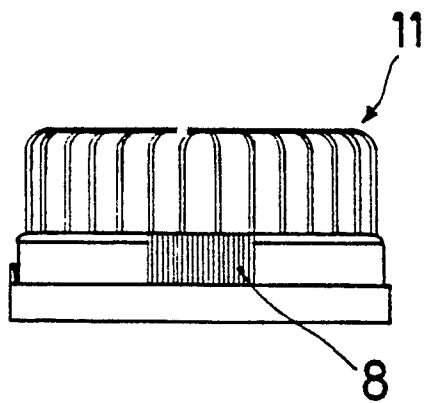


FIG. 3

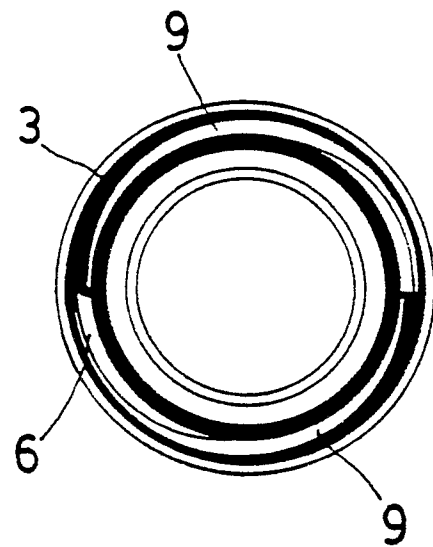


FIG. 4