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Description

This invention relates to a closure device for a container having a screw-threaded cylindrical opening or neck.

Various closure devices for bottles or other containers have been devised which are resistant to being opened by children, so that these bottles are suitable for holding e.g. medicines or pills. Generally such closures comprise an inner cap which is screw-threaded to engage the screw-threaded cylindrical opening or neck of the bottle, and an outer member which serves for driving the inner member; in order to remove the closure from the bottle, the outer member must be pushed in to engage with the inner member and then turned to unscrew the inner member from the opening of the bottle. However it is often difficult, especially for the elderly or those who suffer from arthritis, to push the outer member in and turn it at the same time. Also, some medicines are very sticky with the result that the inner member becomes stuck firmly to the opening of the container, again making it difficult to unscrew the closure.

I have now devised a closure device which overcomes the problems outlined above.

US-A-3989153 discloses a closure device for a container having a screw-threaded opening, the closure device comprising an inner member in the form of a screw-threaded cap, and an outer member in the form of a cap into which the inner member fits, the outer member operably engaging with the inner member for turning the latter in a closing direction, but being able to turn in an opening direction without operably engaging with the inner member, and the outer member having an opening which enables a portion of the inner member to be operably engaged from outside, for example by means of a coin, for turning the inner member to unscrew it from the container.

The closure device of this invention is characterised in that the opening comprises a circular opening in the top of the outer member arranged such that said portion of the inner member is accessible in all rotary positions of the outer member, whereby said inner member (10) is turnable in the opening direction without operative interengagement with the outer member (16).

Thus, the inner member can be unscrewed easily from the container by the elderly and infirm, without the need for applying excessive torque, using a coin or spoon handle to engage the portion of the inner member. Alternatively, the inner member can be unscrewed from the container by displacing the outer member axially to interengage with the inner member, then turning the outer member: this procedure can be adopted by able persons, without recourse to a coin or spoon han-

dle.

Preferably the inner member portion projects out through the circular opening in the outer member, but this is not essential.

Preferably the said portion of the inner member is formed with a slot which can be engaged for turning the inner member.

Preferably the said portion of the inner member if formed with two slots substantially at right angles to each other.

Preferably the closure device comprises a cover which covers the opening in the outer member and is releasable attached thereto to provide a tamper evident feature.

Preferably the outer member is displaceable axially relative to the inner member to form an interengagement with the inner member such that rotation of the outer member in the opening direction will unscrew the inner member from the container.

An embodiment of this invention will now be described by way of example only and with reference to the accompanying drawings, in which:

Figure 1 is a section through a closure device in accordance with the invention;

Figure 2 is a section through an inner member of the device;

Figure 3 is a view of the top of the inner member;

Figure 4 is a section through an outer member of the closure device;

Figure 5 is a view of the top of the outer member;

Figure 6 is a section through a separate cover member for the opening in the top of the outer member of the closure device; and

Figure 7 is a view of the top of the separate cover member of Figure 6.

Referring to the drawings, there is shown a closure device for the screw-threaded cylindrical opening or neck of a glass bottle or other container. The closure device comprises an inner member 10 in the form of a cap having a top and a depending cylindrical skirt 12 formed with an internal screw-thread 14. The closure device further comprises an outer member 16 in the form of a cap having a flat top 18 and a depending cylindrical skirt 20. The top 18 of the outer member 16 is formed with a circular aperture 22 in its centre, which aperture is closed by a cap-shaped cover portion 19 integral with the outer member 16 and frangibly connected thereto by e.g. four spaced webs 21. The top of the inner member is formed with a cylindrical extension portion 24 which is formed with two slots 26, 28 at right angles to each other in its outer end.

The inner member 10 is received within the outer member 16 so that the extension portion 24

of the inner member 10 projects through the circular aperture 22 in the top of the outer member 16 and into the cover portion 19, the latter being formed with a single channel 23 in its top. This channel also serves as a feature which can be engaged by a coin or other object for removal, but should be so wide that it cannot slot into the slots underneath. The inner member 10 is held captive within the outer member 16 by snap-engagement of its outer rim past an annular ridge 30 on the inside of the skirt 20 of the outer member.

The cover portion forms a tamper-evident feature for the closure device. It can be gripped and torn off by hand, or it can be forced off by pushing the outer member 16 axially inwards relative to the inner member 10 and towards the container, so that the extension portion 24 of the inner member is caused to project further out through the aperture 22.

Four flexible fingers 32 project from the inside of the top of the outer member 16 in a peripheral direction. When the outer member 16 is turned in the clockwise direction, these fingers 32 abut respective abutments or dogs 34 on the top of the inner member, to correspondingly turn the inner member for tightening it onto the container next. Once the cover portion 19 has been removed, then when the outer member 16 is turned in the opposite i.e. counterclockwise direction, the flexible fingers 32 ride over the top of the abutments 34 and the outer member 16 turns freely relative to the inner member 10. However, if the outer member 16 is pushed in the axial direction towards the container, the outer member slides on the inner member (the fingers 32 being urged towards the underside of the top of the outer member). Now if the outer member is turned in the counterclockwise direction, abutments 36 on the underside of the top of the outer member engage the abutments 34 on the top of the inner member, to turn the inner member and so unscrew it from the container.

However, for those who find difficulty in pressing the outer member in and at the same time turning it in the counterclockwise or unscrewing direction, the slots 26, 28 provide an alternative means of loosening the closure device. Thus, a coin or other convenient article e.g a spoon, can be inserted into either slot 26 or 28 and twisted to turn the inner member 10 directly and unscrew it from the container.

The cover portion may be formed as a separate cap-shaped member 119 as shown in Figures 6 and 7 having e.g four radial projections 120 spaced around its rim. The cover portion can then be inserted into the aperture 22 in the outer member 16 from the interior of the latter before the inner member 10 is inserted, the projections 120 preventing the cover from passing right through the

aperture. However, the cover can be pulled by hand through the aperture when desired, or forced off by pushing the other member axially inwards relative to the inner member and container.

The closure device may be provided without the tamper-evident cover portion 19 or cover member 119 if desired.

Claims

1. A closure device for a container having a screw-threaded opening, the closure device comprises an inner member (10) in the form of a screw-threaded cap, and an outer member (16) in the form of a cap into which the inner member fits, the outer member (16) operably engaging with the inner member (10) for turning the latter in a closing direction, but being able to turn in an opening direction without operably engaging with the inner member (10), and the outer member (16) having an opening (22) which enables a portion (24) of the inner member (10) to be operably engaged from outside, for example by means of a coin, for turning the inner member (10) to unscrew it from the container, characterised in that the opening (22) comprises a circular opening in the top of the outer member (16) arranged such that said portion (24) of the inner member (10) is accessible in all rotary positions of the outer member (16), whereby said inner member (10) is turnable in the opening direction without operative interengagement with the outer member (16).
2. A closure device according to claim 1, characterised in that said portion (24) of the inner member (10) projects outwards through said opening (22) in top of the outer member (16).
3. A closure device according to claim 1 or 2, characterised in that said portion (24) of the inner member (10) is formed with a slot (e.g. 26 which can be engaged for turning the inner member (10).
4. A closure device according to claim 3, characterised in that said portion (24) of the inner member (10) is formed with two slots (26, 28) substantially at right angles to each other.
5. A closure device according to any one of the preceding claims, characterised by a cover (19) which covers the opening (22) in the outer member (16) and is releasably attached thereto to provide a tamper evident feature.

6. A closure device according to any one of the preceding claims, characterised in that the outer member (16) is displaceable axially relative to the inner member (10) to form an interengagement with the inner member (10) such that rotation of the outer member (16) in the opening direction will unscrew the inner member (10) from the container.

Patentansprüche

1. Verschlußvorrichtung für einen eine Öffnung mit Schraubgewinde aufweisenden Behälter, wobei die Verschlußvorrichtung ein Innenglied (10) in Form einer Kappe mit Schraubgewinde und ein Außenglied (16) in Form einer Kappe, in die das Innenglied paßt, enthält und das Außenglied (16) in Wirkeingriff mit dem Innenglied (10) gebracht wird, um letzteres in Schließrichtung zu drehen, aber ohne Wirkeingriff mit dem Innenglied (10) in Öffnungsrichtung gedreht werden kann, und wobei das Außenglied (16) eine Öffnung (22) aufweist, mittels derer ein Teil (24) des Innenglieds (10) von außen in Wirkeingriff genommen werden kann, z.B. unter Verwendung einer Münze, um das Innenglied (10) zu drehen und es vom Behälter loszuschrauben, dadurch gekennzeichnet, daß die Öffnung (22) im oberen Abschnitt des Außenglieds (16) eine kreisrunde Öffnung enthält, die so angeordnet ist, daß das Teil (24) des Innenglieds (10) in allen Drehpositionen des Außenglieds (16) zugänglich ist, wobei das Innenglied (10) ohne Wirkeingriff mit dem Außenglied (16) in Öffnungsrichtung gedreht werden kann.
2. Verschlußvorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß das Teil (24) des Innenglieds (10) durch die Öffnung (22) im oberen Abschnitt des Außenglieds (16) nach außen ragt.
3. Verschlußvorrichtung nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß das Teil (24) des Innenglieds (10) mit einem Schlitz (z.B. 26) ausgebildet ist, der zur Drehung des Innenglieds (10) in Eingriff genommen werden kann.
4. Verschlußvorrichtung nach Anspruch 3, dadurch gekennzeichnet, daß das Teil (24) des Innenglieds (10) mit zwei im wesentlichen rechtwinklig zueinander stehenden Schlitz (26, 28) ausgebildet ist.
5. Verschlußvorrichtung nach einem der vorhergehenden Ansprüche, gekennzeichnet durch einen die Öffnung (22) im Außenglied (16) ab-

deckenden Deckel (19), der daran zur Bildung einer äußere Eingriffe anzeigenden Einrichtung lösbar befestigt ist.

- 5 6. Verschlußvorrichtung nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß das Außenglied (16) relativ zum Innenglied (10) axial verschoben ist, um mit dem Innenglied (10) einen derartigen Eingriff zu bilden, daß Drehung des Außenglieds (16) in Öffnungsrichtung das Innenglied (10) vom Behälter losschraubt.

Revendications

1. Dispositif de fermeture pour un récipient ayant une ouverture fileté, le dispositif de fermeture comprend un organe interne (10) sous forme d'un bouchon fileté, et un organe externe (16) sous forme d'un bouchon dans lequel l'organe interne s'adapte, l'organe externe (16) s'engageant fonctionnellement avec l'organe interne (10) pour faire tourner ce dernier dans un sens de fermeture, mais pouvant tourner dans un sens d'ouverture sans s'engager fonctionnellement avec l'organe interne (10), et l'organe externe (16) ayant une ouverture (22) qui permet à une portion (24) de l'organe interne (10) d'être engagée fonctionnellement depuis l'extérieur, par exemple au moyen d'une pièce de monnaie, pour faire tourner l'organe interne (10) pour le dévisser du récipient, caractérisé en ce que l'ouverture (22) comprend une ouverture circulaire dans la partie supérieure de l'organe externe (16) arrangée de telle sorte que ladite portion (24) de l'organe interne (10) soit accessible dans toutes les positions de rotation de l'organe externe (16), ledit organe interne (10) pouvant tourner dans le sens de l'ouverture sans engagement réciproque fonctionnel avec l'organe externe (16).
2. Dispositif de fermeture selon la revendication 1, caractérisé en ce que ladite portion (24) de l'organe interne (10) se projette vers l'extérieur à travers ladite ouverture (22) dans la partie supérieure de l'organe externe (16).
3. Dispositif de fermeture selon la revendication 1 ou 2, caractérisé en ce que ladite portion (24) de l'organe interne (10) est formée avec une fente (par exemple 26) qui peut être engagée pour faire tourner l'organe interne (10).
4. Dispositif de fermeture selon la revendication 3, caractérisé en ce que ladite portion (24) de l'organe interne (10) est formée avec deux lentes (26, 28) essentiellement à angle droit

l'une par rapport à l'autre.

5. Dispositif de fermeture selon l'une quelconque des revendications précédentes, caractérisé par un couvercle (19) qui recouvre l'ouverture (22) dans l'organe externe (16) et lui est attaché de manière détachable pour constituer un élément de mise en évidence d'une tentative d'ouverture. 5
- 10
6. Dispositif de fermeture selon l'une quelconque des revendications précédentes, caractérisé en ce que l'organe externe (16) peut être déplacé axialement par rapport à l'organe interne (10) pour former un engagement réciproque avec l'organe interne (10) de telle sorte que la rotation de l'organe externe dans le sens de l'ouverture dévisse l'organe interne (10) du récipient. 15
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- 5

FIG. 1.

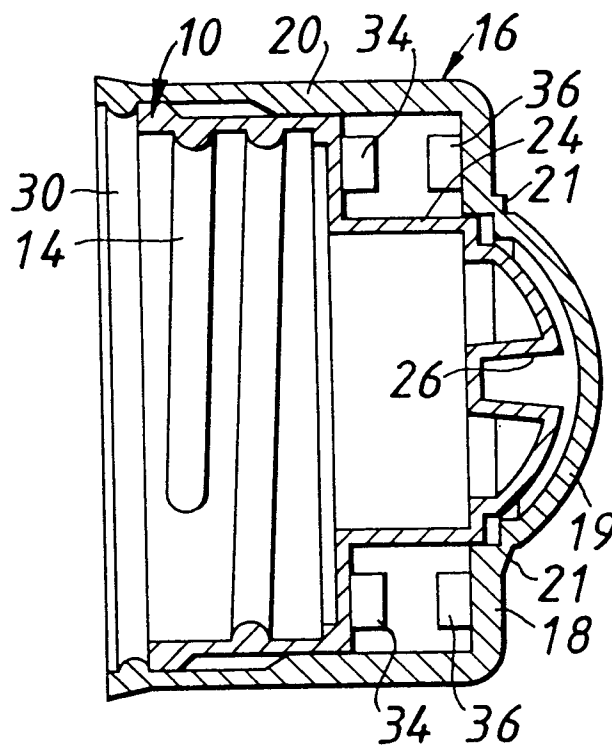


FIG. 2.

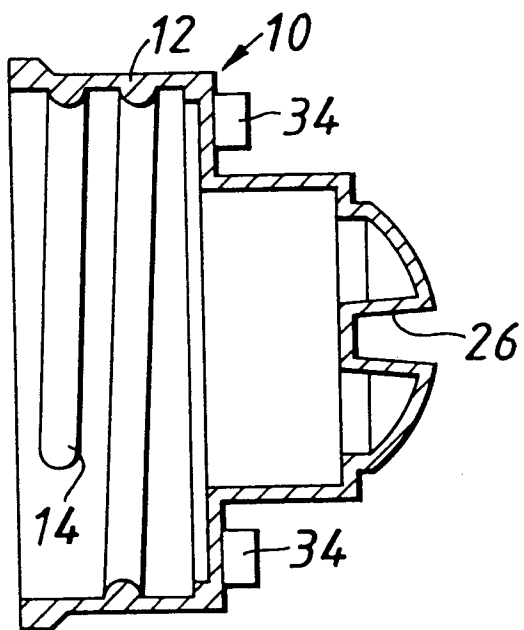


FIG. 3.

