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(54) **Container cap including a primary cap and a secondary cap joined by a hinge**

Behälterverschluss mit durch ein Scharnier verbundener erster und zweiter Kappe

Fermeture pour récipient comprenant un capuchon primaire et un capuchon secondaire reliés par une charnière

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Description

The present invention concerns a container cap according to the precharacterizing portion of claim 1.

The present invention relates to a cap adapted to be fitted on an opening of a container for foods, drugs and cosmetics, and in particular to a cap having a secondary cap hinged to a primary cap via a reversible hinge which reverses the resilient urging force thereof from an opening direction to a closing direction or vice versa depending on the angular position of the cap.

A cap made of synthetic resin material is often fitted on an opening of a container for foods, drugs and cosmetics. The cap often consists of a primary cap having a outlet opening at a top wall thereof, and a secondary cap adapted to close this outlet opening.

For instance, Japanese utility model publication (kokai) No. 1-66355 discloses a container cap including a primary cap 1 and a secondary cap 2 which are joined together by a pair of flexible hinge strips 3a having a reduced thickness, and also by a resilient piece 3b so that the direction of the biasing force of the resilient piece may be reversed from the closing direction to the opening direction and vice versa depending on the angular position of the secondary cap. This utility model publication also discloses a plate member 4 which is slidably guided on a top surface of the primary cap and provided with a tapered surface 5, and allows the secondary cap to be opened up with a single hand by pushing the plate member which in turn pushes up the secondary cap with its tapered surface and pushes the inner surface of the resilient piece 3b with a free end 6 thereof.

However, according to this prior art, the thinned hinge portions show on the exterior in two places, and the resilient piece protrudes outward when the secondary cap is opened. These facts are highly detrimental to the external appearance. This conventional cap provides the advantage of allowing the secondary cap to be opened up with a single hand but involves a large number of fabricating and assembling work steps and a complex management of the component parts because a slidable member is made of a separate member, and needs to be molded separately and assembled to the primary cap.

The CH-A-683 833 discloses a container cap as in the preamble of claim 1, comprising a primary cap provided with an outlet opening and a secondary cap attached to the primary cap with a hinge. The container cap also comprises a resilient piece molded with the secondary cap and attached to the primary cap.

In view of the above problems of the prior art, a primary object of the present invention is to provide a container cap including a primary cap and a secondary cap joined by a reversible hinge which minimizes the part of the hinge showing on the exterior of the container and having no pronounced external protrusions.

A second object of the present invention is to pro-

vide a container cap including a primary cap and a secondary cap joined by a reversible hinge which can be opened up with a single hand, and can be made from a small number of component parts.

A third object of the present invention is to provide a container cap including a primary cap and a secondary cap joined by a reversible hinge which is convenient to use and easy to fabricate.

The container cap of the present invention is defined in the characterizing portion of claim 1.

The objects of the present invention are accomplished by providing a container cap integrally molded from synthetic resin material, comprising: a primary cap adapted to be fitted on an opening of a container, and provided with an outlet opening in a top wall thereof; and a secondary cap attached to the primary cap with hinge means, and provided with a plug member adapted to be closely fitted into the outlet opening of the primary cap; the hinge means comprising a thin strip integrally molded with a top end of the primary cap and a bottom end of the secondary cap, and a resilient piece integrally molded with one of the primary cap and the secondary cap and attached to the other of the primary cap and the secondary cap, in each case, at a point slightly more inwardly than the thin strip, the resilient piece being configured as a reversible hinge which reverses a direction of a biasing force thereof at a certain critical opening angle of the secondary cap.

Thus, because the hinge means may consist of an integrally molded single thin strip for connecting the primary cap to the secondary cap, and the resilient piece may be hidden inside the thin strip, the externally exposed portions of the hinge means can be minimized, and the resilient piece can be totally concealed. In particular, because the resilient piece has a somewhat complex shape, and makes a relatively large flexing movement, the concealment of the resilient piece is highly effective in improving the external appearance of the hinge means. Because only one end of the resilient piece is integrally molded with the cap, the molding process is kept easy. The free end of the resilient piece can be readily attached to the primary cap or the secondary cap, as the case may be, by snap fitting it into a slit formed in the associated part.

According to a preferred embodiment of the present invention, the primary cap is generally cylindrical in shape, and the thin strip joins an upper axial end of a side wall of the primary cap with an associated lower peripheral portion of the secondary cap. Preferably, the resilient piece is provided with a pair of thinned portions provided adjacent to the primary cap and the secondary cap, respectively. For the convenience of the handling of the container cap, the secondary cap may be provided with a finger catch on a side wall diagonally opposite to the hinge means.

Now the present invention is described in the following with reference to the appended drawings, in which:

Figure 1 is a plan view of the container cap according to the present invention in its molded state;

Figure 2 is a longitudinal sectional view of the container cap of Figure 1 in its molded state;

Figure 3 is a longitudinal sectional view of the container cap with the secondary cap closed;

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Figures 1 to 3 show the container cap according to the present invention. This cap 1 is injection molded in its developed or unfolded condition as illustrated in Figure 1 and 2, and comprises a primary cap 2 which is generally cylindrical and cup-shaped and adapted to be fitted onto an opening of a container main body (not shown in the drawings) and a secondary cap 6 having a plug member 5 projecting from an inner surface thereof for closing an outlet opening 4 provided in a top wall 3 of the primary cap 2. The cap 1 is integrally molded from highly resilient synthetic resin material such as polypropylene. More specifically, these two parts 2 and 6 are joined together by a thin and flexible hinge portion 7 at axial end portions of the circumferential walls thereof.

A part of the inner surface of the secondary cap 6 radially adjacent to the plug member 5 is integrally provided with a resilient piece 8 for producing a reversible elastic force. This resilient piece 8 is provided with one end which is connected to the inner surface of the top wall 9 of the secondary cap 6 via a thinned hinge portion 10 and another end which forms an engagement piece 13 provided with a thinned hinge portion 12 so as to be flexible and adapted to be connected to the primary cap 2 by being fit into a slit 11 provided in a part of the secondary cap 2 radially and inwardly adjacent to the hinge portion 7.

Now the mode of assembling this container cap and the operation thereof are described in the following. First of all, the secondary cap 6 in the unfolded state is raised to an angle approximately equal to 90 degrees, and the tip of the engagement piece 13 is fitted into the slit 11. Because the tip of the engagement piece 13 is somewhat enlarged, once the engagement piece 13 is fully fitted into the slit 11, the tip of the engagement piece 13 is snap fitted and engaged by the inner edge of the slit 11, and is kept engaged therein. In this condition, the primary cap 2 is fitted onto the opening of the container main body in advance.

The resilient strip 8 is slightly curved in its natural state, and is deflected into the shape of letter-U when the secondary cap 6 is turned in the closing direction. When the resilient strip 8 is thus deflected, it produces an elastic force tending to restore itself to a straight condition, and can reverse the direction of its biasing force from the closing direction to the opening direction and vice versa at a certain critical angle (Figure 3).

When the secondary cap 6 is closed and the tip of the plug member 5 projecting from the inner surface of

the secondary cap 6 is fitted into the outlet opening 4 of the primary cap 2, the plug member 5 is kept engaged in the outlet opening 4 in a liquid tight condition by virtue of its own resiliency because the tip of the plug member 5 is slightly oversized as compared to the inner diameter of the outlet opening 4. Furthermore, the outlet opening 4 is defined by an annular lip which is designed to be highly resilient, and the inner bore is countersunk from both inside and outside.

The secondary cap 6 can be opened by pushing up a finger catch 14 projecting from a open end of the secondary cap 6. Once the secondary cap 6 is opened and the plug member 5 is removed from the outlet opening 4, the secondary cap 6 is opened to an angle suitable for dispensing liquid from the outlet opening 4 by the reversible hinge formed by the resilient piece 8 and the hinge portion 7.

Thus, according to this aspect of the present invention, the externally exposed part of the hinge portion is minimized, and the external projections are totally eliminated. Also, the handling of the cap of this type and the external appearance can be substantially improved. Furthermore, these advantages are provided without increasing the number of component parts or complicating the structure.

Claims

1. A container cap (1) integrally molded from synthetic resin material, comprising:

- a primary cap (2) adapted to be fitted on an opening of a container, and provided with an outlet opening (4) in a top wall (3), and
- a secondary cap (6) attached to said primary cap (2) with a hinge means (7)
- said hinge means (7) comprising a thin strip integrally molded with a top end of said primary cap (2) and a bottom end of said secondary cap (6), and a resilient piece (8) integrally molded with one of said primary cap (2) and said secondary cap (6) said resilient piece being configured as a reversible hinge which reverses a direction of biasing force thereof at a certain critical opening angle of said secondary cap (6)

characterized in that

said secondary cap (6) is provided with a plug member (5) adapted to be closely fitted into said outlet opening (4) of said primary cap; and

said resilient piece (8) is attached to the other of said primary cap (2) and said secondary cap (6), in each case, at a point slightly more inwardly than said thin strip, by being snap fitted into a slit (11) formed therein.

2. A container cap (1) according to claim 1, characterized in that said primary cap (2) is generally cylindrical in shape, and said thin strip joins an upper axial end of a side wall of said primary cap (2) with an associated lower peripheral portion of said secondary cap (6). 5
3. A container cap (1) according to claim 1, characterized in that said resilient piece (8) is provided with a pair of thinned portions (10,12) provided adjacent to said primary cap (2) and said secondary cap (6), respectively. 10
4. A container cap (1) according to claim 1, characterized in that said secondary cap (6) is provided with a finger catch (14) on a side wall diagonally opposite to said hinge means (7). 15

Patentansprüche

1. Behälterkappe (1), die aus Kunstharzmaterial einstückig geformt ist, mit:
- einer primären Kappe (2), die dafür ausgebildet ist, auf eine Öffnung eines Behälters aufgesetzt zu werden, und mit einer Auslaßöffnung (4) in einer oberen Wand (3) versehen ist, und 25
 - einer sekundären Kappe (6), die an der primären Kappe (2) mit einer Gelenkeinrichtung (7) befestigt ist, 30
 - wobei die Gelenkeinrichtung (7) einen dünnen Streifen aufweist, der an einem oberen Ende der primären Kappe (2) und an einem unteren Ende der sekundären Kappe (6) angeformt ist, und ein elastisches Stück (8), das an der primären Kappe (2) oder an der sekundären Kappe (6) angeformt ist, wobei das elastische Stück als ein reversibles Gelenk ausgebildet ist, welches die Richtung einer Vorspannkraft desselben bei einem gewissen kritischen Öffnungswinkel der sekundären Kappe (6) umkehrt, 40
- dadurch gekennzeichnet, daß
- die sekundäre Kappe (6) mit einem Stopfenteil (5) versehen ist, das eng in die Auslaßöffnung (4) der primären Kappe paßt; und 45
- das elastische Stück (8) an der sekundären Kappe (6) bzw. an der primären Kappe (2), in jedem Fall in einem Punkt, der etwas weiter einwärts als der dünne Streifen liegt, durch Einschnappen in einen darin gebildeten Schlitz (11) befestigt wird. 50
2. Behälterkappe (1) nach Anspruch 1, dadurch gekennzeichnet, daß die primäre Kappe (2) insgesamt eine zylindrische Form hat und daß der dünne 55

Streifen ein oberes axiales Ende einer Seitenwand der primären Kappe (2) mit einem zugeordneten unteren peripheren Teil der sekundären Kappe (6) verbindet.

3. Behälterkappe (1) nach Anspruch 1, dadurch gekennzeichnet, daß das elastische Stück (8) mit einem Paar dünner ausgebildeter Teile (10, 12) versehen ist, die an der primären Kappe (2) bzw. an der sekundären Kappe (6) vorgesehen sind.
4. Behälterkappe (1) nach Anspruch 1, dadurch gekennzeichnet, daß die sekundäre Kappe (6) mit einer Fingernase (14) an einer Seitenwand diagonal entgegengesetzt zu der Gelenkeinrichtung (7) versehen ist.

Revendications

1. Une fermeture de conteneur (1) moulé en une seule pièce à partir d'une matière de résine synthétique, comprenant:
- un capuchon primaire (2) adapté pour être ajusté sur une ouverture d'un conteneur, et pourvu d'une ouverture de sortie (4) dans une paroi supérieure (3), et
 - un capuchon secondaire (6) attaché à ce capuchon primaire (2) au moyen d'une charnière (7)
 - cette charnière (7) comprenant une mince bande moulée de façon intégrante avec une extrémité supérieure de ce capuchon primaire (2) et une extrémité inférieure de ce capuchon secondaire (6), et une pièce élastique (8) moulée de façon intégrante avec soit ce capuchon primaire (2) soit ce capuchon secondaire (6) cette pièce élastique étant configurée sous forme d'une charnière réversible qui inverse une direction de force précontrainte à un certain angle d'ouverture critique de ce capuchon secondaire (6), 40
- caractérisée en ce que:
- ce capuchon secondaire (6) est pourvu d'un élément obturateur (5) adapté pour être ajusté étroitement dans cette ouverture de sortie (4) de ce capuchon primaire; et 45
- cette pièce élastique (8) est attachée à l'autre de ces capuchons primaire (2) et secondaire (6), dans chaque cas, a un endroit légèrement plus à l'intérieur de cette bande mince, en étant encliquetée dans une fente (11) formée dans celle-ci. 50
2. Une fermeture de conteneur (1) selon la revendication 1, caractérisée en ce que ce capuchon primaire (2) a une forme généralement cylindrique, et 55

cette mince bande relie une extrémité axiale supérieure d'une paroi latérale de ce capuchon primaire (2) à une partie périphérique inférieure associée de ce capuchon secondaire (6).

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3. Une fermeture de conteneur (1) selon la revendication 1, caractérisée en ce que cette pièce élastique (8) est pourvue d'une paire de parties amincies (10, 12) prévue adjacent à ce capuchon primaire (2) et ce capuchon secondaire (6), respectivement.

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4. Une fermeture de conteneur (1) selon la revendication 1, caractérisée en ce que ce capuchon secondaire est pourvu d'un cran (14) pour le doigt sur une paroi latérale diagonalement à l'opposé de cette charnière (7).

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Fig. 1

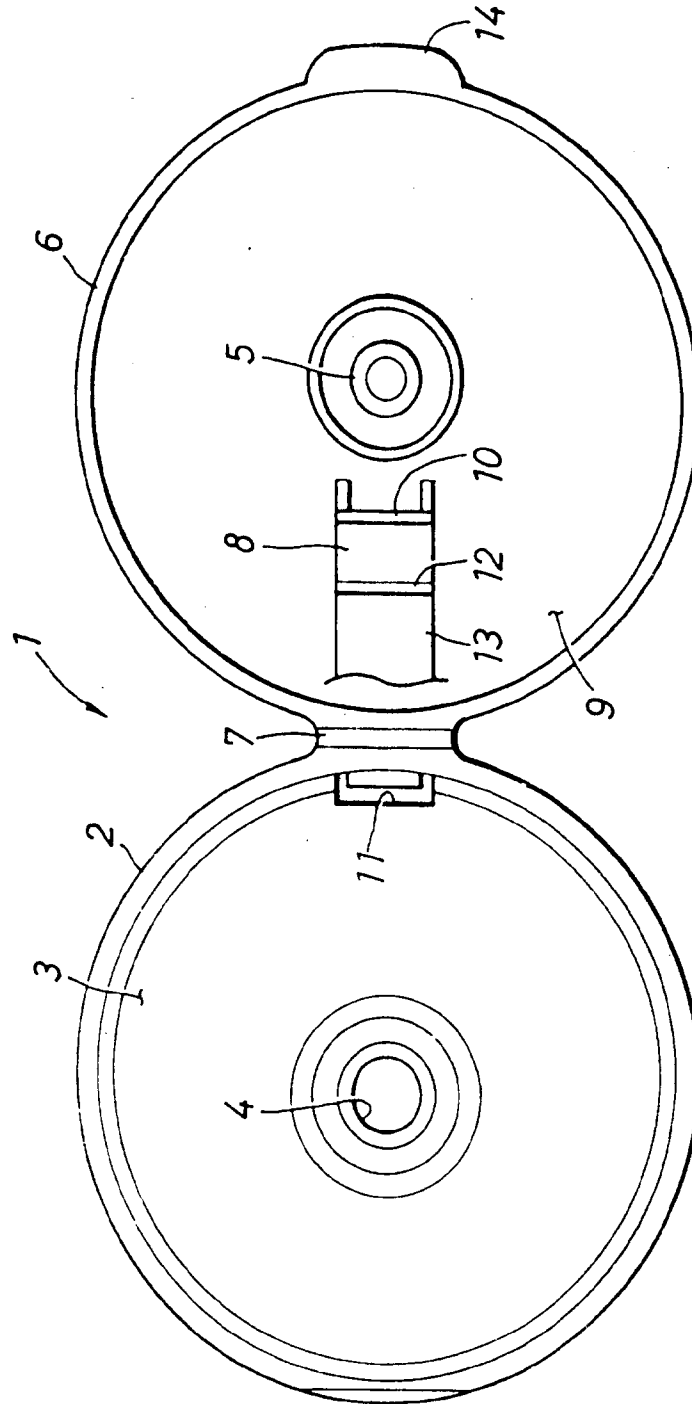


Fig. 2

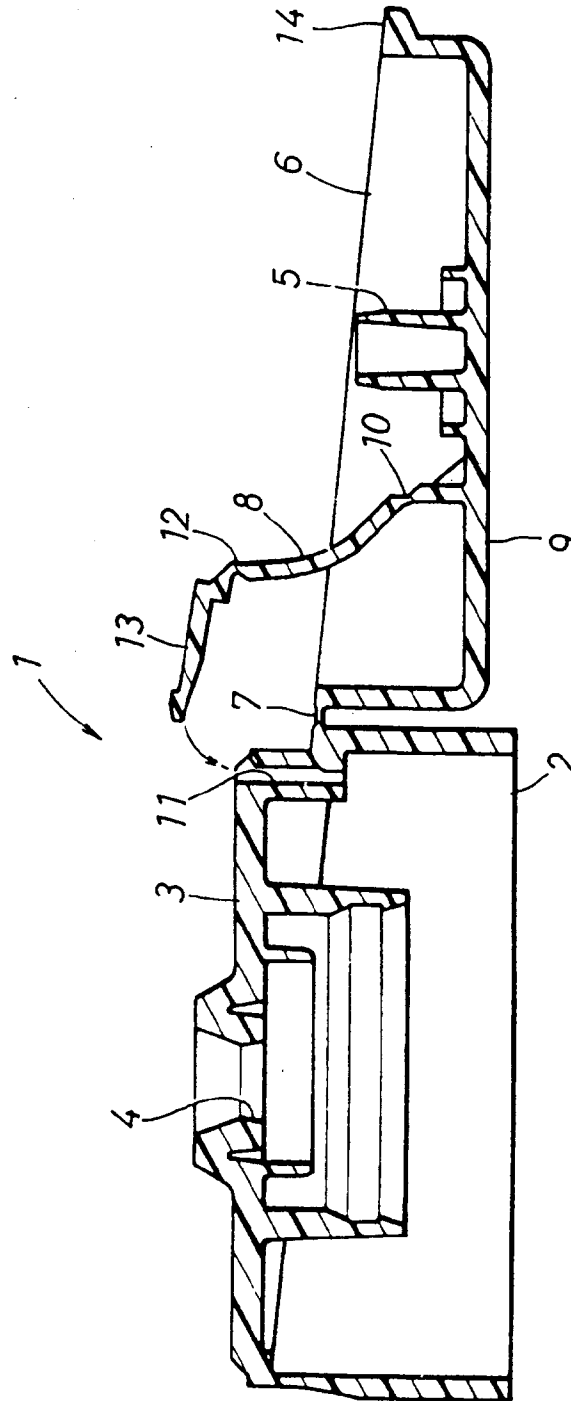


Fig. 3

