

Description

CLOSURE ASSEMBLY FOR CONTAINER INCLUDING INTERNAL AND EXTERNAL CAPS WHICH ARE HANDLED AS ONE CLUSTER

Technical Field

- [1] The present invention relates to a closure for a container, and more particularly, to a closure assembly for a container including an internal cap and an external cap which are handled as one cluster, in which the internal cap and the external cap are engaged to each other by locking members each formed on the internal and external caps to prevent the internal cap from being disengaged from the external cap, thereby conveniently opening and closing an outlet opening and also easily assembling the closure assembly, in which the number of components is decreased, the productivity is remarkably increased, and in which the engaging state of the internal cap and the external cap is compact, so that the handling of the closure assembly is convenient.

Background Art

- [2] In general, an internal soft cap is engaged to an outlet opening of the container, and an external solid cap is engaged to the outside of the outlet opening.
- [3] The internal cap includes an insertion portion fitted in the outlet opening of the container, and a flange formed on an upper end of the insertion portion. The external cap is adapted to be engaged to an outer periphery of the outlet opening.
- [4] In the state that the internal cap and the external cap are engaged to the outlet opening of the container, the external cap is primarily unfastened from the outlet opening, and the internal cap is secondarily pulled out from the outlet opening to open the outlet opening of the container.
- [5] Such a sealing container is required to easily open and close the outlet opening and conveniently manage the closure, without worrying about the loss of the closure, as well as excellent sealing function.
- [6] The conventional sealing container has the following problems: it is difficult and inconvenient to disengage the internal cap from the outlet opening; since the internal cap and the external cap are separately formed, the internal cap is likely polluted or lost after the outlet opening is opened; and it is cumbersome to individually engage/disengage the internal and external caps to or from the outlet opening.
- [7] In order to solve the above problems, the applicant has developed and proposed several patent applications, for example, Korean Patent No. 10-0567206, entitled "Closure Structure for Container."
- [8] The closure disclosed in the above patent includes an internal cap 110, an external

cap 120, a resilient coupling member 130 connecting the internal cap with the external cap, and a magnet 140 attached to the internal cap 110. With the construction, it is easy to engage and disengage the internal and external caps to or from an outlet opening 2a of a container body 2, and the pollution and loss of the external and internal caps are prevented.

- [9] However, since the internal cap and the external cap are connected by the coupling member 130, there is another problem in that the number of the components is increased, and the assembling process and manufacturing costs are thus increased.

Disclosure of Invention

Technical Problem

- [10] Therefore, the present invention has been made to solve the above-mentioned problems occurring in the prior art, and an object of the present invention is to provide a closure assembly for a container including an internal cap and an external cap which are handled as one cluster, in which the internal cap and the external cap are engaged to each other by locking members each formed on the internal and external caps to prevent the internal cap from being disengaged from the external cap, thereby conveniently opening and closing an outlet opening and also easily assembling the closure assembly, in which the number of components is decreased, the productivity is remarkably increased, and in which the engaging state of the internal cap and the external cap is compact, so that the handling of the closure assembly is convenient.

Technical Solution

- [11] In order to accomplish the above-mentioned objects, there is provided a closure assembly for a container including an internal cap and an external cap which are handled as one cluster is disclosed, in which the internal cap is tightly fitted into an outlet opening of a container and having a flange formed on an insertion portion, and the external cap has a threaded portion engaged to an outer periphery of the outlet opening to enclose the internal cap. The internal cap and the external cap have a corresponding locking member to prevent the internal cap from being disengaged from the external cap.
- [12] The external cap includes a second engagement portion having a diameter smaller than that of the threaded portion to form a stepped portion and having at least one locking portion formed on an inner periphery of the second engagement portion, and the internal cap includes a first engagement portion protruding upwardly from the internal cap and having a locking portion formed on an outer periphery of the first engagement portion corresponding to the second engagement portion of the external cap.

Advantageous Effects

- [13] With the construction, the closure assembly including the internal and external caps handled as one cluster, the internal cap and external cap are engaged to each other by the locking members each formed on the internal and external caps to prevent the internal cap from being disengaged from the external cap, thereby conveniently opening and closing the outlet opening and also easily assembling the closure assembly. Since the number of the components is decreased, the productivity is remarkably increased. In addition, the engaging state of the internal cap and the external cap is compact, so that the handling of the closure assembly is convenient.

Brief Description of the Drawings

- [14] The above objects, other features and advantages of the present invention will become more apparent by describing the preferred embodiments thereof with reference to the accompanying drawings, in which:
- [15] FIG. 1 is an exploded perspective view illustrating a prior art closure.
- [16] FIG. 2 is an exploded perspective view illustrating a closure assembly according to an embodiment of the present invention.
- [17] FIG. 3 is a cross-sectional view illustrating an engaged state of the closure assembly in FIG. 2.
- [18] FIG. 4 is a cross-sectional view illustrating a closure assembly according to an embodiment of the present invention.
- [19] FIG. 5 is a cross-sectional view illustrating an external cap according to an embodiment of the present invention.
- [20] FIG. 6 is an exploded perspective view illustrating a closure assembly according to an alternative embodiment of the present invention.
- [21] FIG. 7 is a cross-sectional view illustrating an engaged state of the closure assembly in FIG. 6.
- [22] FIG. 8 is a cross-sectional view illustrating a closure assembly according to another embodiment of the present invention.
- [23] FIG. 9 is a cross-sectional view illustrating a closure assembly according to another embodiment of the present invention.
- [24] FIG. 10 is a cross-sectional view illustrating a closure assembly according to another embodiment of the present invention.
- [25] FIG. 11 is a plan view of FIG. 10.
- [26] FIG. 12 is a cross-sectional view illustrating a closure assembly according to another embodiment of the present invention.
- [27] FIG. 13 is a perspective view illustrating a closure assembly according to another embodiment of the present invention.
- [28] FIG. 14 is a cross-sectional view illustrating a closure assembly according to another

embodiment of the present invention.

Best Mode for Carrying Out the Invention

- [29] Now, a closure assembly for a container according to preferred embodiments of the present invention will be described in detail with reference to the accompanying drawings.
- [30] FIG. 2 is an exploded perspective view illustrating a closure assembly according to an embodiment of the present invention, and FIG. 3 is a cross-sectional view illustrating an engaged state of the closure assembly in FIG. 2.
- [31] Referring to FIGs. 2 and 3, a closure assembly 1 for a container according to an embodiment of the present invention includes an internal cap 10 tightly fitted into an outlet opening 2a of a container 2 and having a flange 12 formed on an insertion portion 11, and an external cap 20 having a threaded portion 21 engaged to an outer periphery of the outlet opening 2a to enclose the internal cap 10, in which the internal cap 10 and the external cap 20 have a corresponding locking member C so that the internal cap 10 is not completely detached from the external cap 20 to form a cluster of the external and internal caps.
- [32] The locking member C includes a first coupling column 13 upwardly protruding from a rear surface of the insertion portion 11 of the internal cap 10 and having a hook portion 13a formed at an upper end of the first coupling column 13, and a second coupling column 23 downwardly protruding from an upper surface of the external cap 20 and having a hook portion 23a which is engaged with the hook portion 13a of the first coupling column.
- [33] The hook portions 13a and 23a have hook-shaped ends so that the hook portion 13a is easily engaged with the hook portion 23a and is hardly disengaged from the hook portion 23a. In case the internal cap and the external cap are made of plastic material, the hook portions 13a and 23a can be easily engaged with each other due to the resiliency of the material.
- [34] Also, the internal cap 10 may be provided with a cylindrical guide portion 14 for guiding the second coupling column 23 along the first coupling column 13 and also reinforcing the internal cap 10. The guide portion 14 may be provided with reinforcing ribs 14a.
- [35] The hook portions 13a and 23a of the first and second coupling columns 13 and 23 may be formed in threaded portion 13ab and 23ab which are threadedly engaged with each other, as shown in FIG. 4.
- [36] In case the hook portions 13a and 23a are formed in the threaded portions 13ab and 23ab, the internal cap and the external cap are threadedly engaged with each other at initial engagement. However, if the external cap is continuously rotated towards the

bottom portion of the internal cap, the internal cap and the external cap are locked to prevent the detachment of the external cap from the internal cap.

[37] Preferably, the second coupling column 23 with the hook portion 23a is provided with notches 23b radially formed on the front end thereof, as shown in FIG. 5.

[38] In the locking member C according to another embodiment of the present invention, as shown in FIGs. 6 and 7, the external cap 20 includes a second engagement portion 25 having a diameter smaller than that of the threaded portion 21 to form a stepped portion and having at least one locking portion 25a formed on the inner periphery of the second engagement portion. The internal cap 10 includes a first engagement portion 15 protruding upwardly from the internal cap and having a locking portion 15a formed on the outer periphery of the first engagement portion 15 corresponding to the second engagement portion 25 of the external cap.

[39] The first engagement portion 15 has a recessed groove 15b with an abutment portion 15ba formed on an upper portion of the recessed groove 15b, and the second engagement portion 25 has a locking boss 25b corresponding to the abutment portion 15ba of the recessed groove 15b.

[40] In the locking member C according to another embodiment of the present invention, as shown in FIGs. 8 and 9, the internal cap 10 includes an upper surface 16 covering a space 11a formed on a rear surface of the insertion portion 11 and having an anchor hole 17 formed at a center portion thereof. The external cap 20 is integrally or separately formed with an anchor 27 having an anchor portion 27a for preventing the anchor portion 27a from being released from the anchor hole 17.

[41] In the locking member C according to another embodiment of the present invention, as shown in FIGs. 10 and 11, the external cap 20 is provided with a through-hole 29, and the internal cap 10 includes a locking part 18 passing through the through-hole 29 from the upper portion of the external cap to engage the internal cap 10 and having a knob 18a for preventing the release of the external cap 20. In this instance, the locking part 18 may be fused to the internal cap after assembling, and the knob 18a may be bent when the container is used.

[42] In an embodiment of the present invention, as shown in FIG. 12, the internal cap 10 or the external cap 20 may be provided with a magnet 31 or a Velcro fiber fastener (not shown) for attaching the closure to the container body 2 after the closure is disengaged from the outlet opening of the container body 2.

[43] In this instance, the container body 2 includes a magnet or metal corresponding to the magnet of the closure. Also, in case the Velcro fiber fastener is provided on the external cap, a corresponding Velcro fiber fastener is adhered to any of an outer surface of the container body.

[44] Also, the internal cap 10 or the external cap 20 may be provided with a recessed

mounting portion 22 corresponding to a closure holding part 2b formed on the container body 2, as shown in FIG. 13, in order to hold the closure which is disengaged from the container body 2 on the container body.

- [45] The external cap 20 may be provided with a resilient hanger 33 for hanging the closure from the container body in a cantilever type after the closure is released from the outlet opening of the container body. The resilient hanger 33 is made of resilient material, and has one end fixed to the external cap and the other end fixed to the container body 2.
- [46] The operation of the closure assembly according to the present invention will now be described.
- [47] The closure assembly according to the present invention is adapted to prevent the internal cap from being detached from the external cap, thereby conveniently handling the closure assembly when the outlet opening 2a of the container body is opened. Since the locking member C is provided on the internal cap 10 and the external cap 20, the closure assembly is easily assembled to improve the productivity.
- [48] The locking member C of the present invention consists of the first coupling column 13 with the hook portion 13a and the second coupling column 23 with the hook portion 23a (see FIGs. 2, 3 and 4). Since the internal cap 10 and the external cap 20 are engaged with each other as a cluster without using additional components, the closure assembly can be easily handled when it is engaged to or disengaged from the outlet opening of the container body.
- [49] The above operation can be achieved in cases that the internal cap 10 is provided with the first engagement portion 15 and the external cap 20 is provided with the second engagement portion 25 (see FIGs. 6 and 7), that the anchor 27 is used (see FIG. 8), and that the locking part 18 is provided (see FIG. 8).
- [50] Meanwhile, in case that the internal cap 10 or the external cap 20 is provided with the magnet 31, and the container body 10 is provided with the metal piece or magnet corresponding to the magnet 31, the closure assembly can be attached to the container body when the outlet opening is opened, thereby conveniently handling the closure assembly and also preventing the closure assembly from being lost (see FIG. 12).
- [51] The convenience can be also obtained if the closure holding part 2b is formed on the container body 2 and the recessed mounting portion 22 corresponding to the closure holding part 2b is formed on the external cap 20 (see FIG. 13).
- [52] In case that the external cap 20 is provided with the resilient hanger 33, the closure assembly is hanged from the container body after the closure assembly is released from the outlet opening of the container body, thereby improving the convenience and preventing the pollution of the internal cap 10.
- [53] The forgoing embodiments are merely exemplary and are not to be construed as

limiting the present invention. The present teachings can be readily applied to other types of apparatus. The description of the present invention is intended to be illustrative, and not to limit the scope of the claims. Many alternatives, modifications, and variations will be apparent to those skilled in the art.

Industrial Applicability

- [54] As apparent from the above description, with the closure assembly including the internal and external caps handled as one cluster, the internal cap and external cap are engaged to each other by the locking members each formed on the internal and external caps to prevent the internal cap from being disengaged from the external cap, thereby conveniently opening and closing the outlet opening and also easily assembling the closure assembly.
- [55] Since the number of the components is decreased, the productivity is remarkably increased. In addition, the engaging state of the internal cap and the external cap is compact, so that the handling of the closure assembly is convenient.

Claims

- [1] A closure assembly for a container including an internal cap 10 and an external cap 20 which are handled as one cluster, the internal cap 10 being tightly fitted into an outlet opening 2a of a container 2 and having a flange 12 formed on an insertion portion 11, and the external cap 20 having a threaded portion 21 engaged to an outer periphery of the outlet opening 2a to enclose the internal cap 10,
in which the internal cap 10 and the external cap 20 have a corresponding locking member C so that the internal cap 10 is not completely disengaged from the external cap 20.
- [2] The closure assembly as claimed in claim 1, wherein the locking member C includes a first coupling column 13 upwardly protruding from a rear surface of the insertion portion 11 of the internal cap 10 and having a hook portion 13a formed at an upper end of the first coupling column 13, and a second coupling column 23 protruding downwardly from an upper surface of the external cap 20 and having a hook portion 23a which is engaged with the hook portion 13a of the first coupling column.
- [3] The closure assembly as claimed in claim 1 or 2, wherein the internal cap 10 is provided with a cylindrical guide portion 14 for guiding the second coupling column 23 along the first coupling column 13 and also reinforcing the internal cap 10.
- [4] The closure assembly as claimed in claim 1 or 2, wherein the hook portions 13a and 23a of the first and second coupling columns 13 and 23 are formed in threaded portion 13ab and 23ab which are threadedly engaged with each other.
- [5] The closure assembly as claimed in claim 1 or 2, wherein the second coupling column 23 with the hook portion 23a is provided with notches 23b radially formed on a front end thereof.
- [6] The closure assembly as claimed in claim 1, wherein the external cap 20 includes a second engagement portion 25 having a diameter smaller than that of the threaded portion 21 to form a stepped portion and having at least one locking portion 25a formed on an inner periphery of the second engagement portion, and the internal cap 10 includes a first engagement portion 15 protruding upwardly from the internal cap and having a locking portion 15a formed on an outer periphery of the first engagement portion 15 corresponding to the second engagement portion 25 of the external cap.
- [7] The closure assembly as claimed in claim 6, wherein the first engagement portion 15 has a recessed groove 15b with an abutment portion 15ba formed on

an upper portion of the recessed groove 15b, and the second engagement portion 25 has a locking boss 25b corresponding to the abutment portion 15ba of the recessed groove 15b.

- [8] The closure assembly as claimed in claim 1, wherein the internal cap 10 includes an upper surface 16 covering a space 11a formed on a rear surface of the insertion portion 11 and having an anchor hole 17 formed at a center portion thereof, and the external cap 20 is integrally or separately formed with an anchor 27 having an anchor portion 27a for preventing the anchor portion 27a from being released from the anchor hole 17.
- [9] The closure assembly as claimed in claim 1, wherein the external cap 20 is provided with a through-hole 29, and the internal cap 10 includes a locking part 18 passing through the through-hole 29 from an upper portion of the external cap to engage the internal cap 10 and having a knob 18a for preventing release of the external cap 20.
- [10] The closure assembly as claimed in claim 1, wherein the internal cap 10 or the external cap 20 is provided with a magnet 31 or a Velcro fiber fastener for attaching the closure assembly to the container body 2 after the closure assembly is disengaged from the outlet opening of the container body 2.
- [11] The closure assembly as claimed in claim 1, wherein the internal cap 10 or the external cap 20 is provided with a recessed mounting portion 22 corresponding to a closure holding part 2b formed on the container body 2, in order to hold the closure assembly which is disengaged from the container body 2 on the container body.
- [12] The closure assembly as claimed in claim 1, wherein the external cap 20 is provided with a resilient hanger 33 for hanging the closure from the container body after the closure is released from the outlet opening of the container body, and the resilient hanger 33 is made of resilient material, and has one end fixed to the external cap and the other end fixed to the container body 2.