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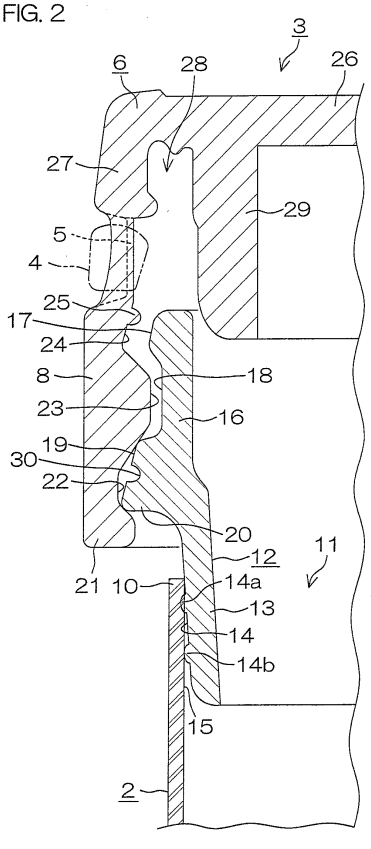
(54) PACKAGING CONTAINER

(57) An annular mouth member (12) is fuse-bonded to an opening upper edge of a container body (2). The annular mouth member (12) includes a first engagement portion (19,30). On the other hand, a lid member (3) includes an engagement ring (8). The engagement ring (8) includes a second engagement portion (22) provided on a lower portion of an inner peripheral surface thereof to be temporarily engaged with the first engagement portion (19), and a third engagement portion (24,25) provided on an upper portion of the inner peripheral surface thereof to be completely engaged with the first engagement portion (19,30). Thus, a packaging container of a type including the lid member (3) and the container body (2) engageable with each other is provided, which permits temporary engagement of the lid member (3) with the container body (2) and, as required, easy removal of the lid member (3) from the container body.

FIG. 2



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Description

TECHNICAL FIELD

[0001] The present invention relates to a packaging container for containing confectionery such as chocolate, chewing gum and candy.

BACKGROUND ART

[0002] In recent years, it has become a common practice to shape chewing gum into thin plates (strips), which are individually wrapped for sale, as well as to shape chewing gum into tablets, which are contained in a reclosable packaging container for sale.
An exemplary packaging container for containing the gum pieces or the like is disclosed in PTL 1.
The packaging container disclosed in PTL 1 includes a container body 100, and an annular mouth member 200 fuse-bonded to a top opening edge of the container body 100. A lid member 300 is fitted around a tubular mouth portion 220 of the annular mouth member 200 to be thereby fixed to the tubular mouth portion 220. More specifically, the lid member 300 integrally includes an annular fixture portion 322 press-fitted over an annular first engagement portion 222 provided on an outer peripheral surface of the tubular mouth portion 220 of the annular mouth member 200, an annular engagement projection 323 press-fitted over an annular second engagement portion 223 provided on the outer peripheral surface of the tubular mouth portion 220 as spaced upward from the first engagement portion 222, a hinge 324 connected to the fixture portion 322 and the engagement projection 323 at one end thereof, and a tamper-proof member 500.
[0003] With such an engagement structure, it is difficult to disengage the lid member 300 from the annular mouth member 200 provided on the side of the container body (or to remove the lid member from the container body) once the lid member 300 is engaged with the annular mouth member 200 (see Paragraph [0055] and FIGS. 6 and 7 in PTL 1).

CITATION LIST

PATENT LITERATURE

[0004]

PTL 1: JP-A-2008-308228

SUMMARY OF INVENTION

TECHNICAL PROBLEM

[0005] Consider a case, for example, in which the packaging container disclosed in PTL 1 is filled with the gum tablets.
If the content of the container is found defective after the lid member is completely engaged with the container body in a plant line (production line), the entire container is wasted.
A conceivable method for preventing such inconvenience is that the container body is filled with the content and then transported on a conveyor with the lid member not engaged therewith but simply placed thereon, and the lid member is completely engaged with the container body after the content is confirmed to be free from any defect in an inspection step in the plant line (production line).
[0006] However, this method is problematic in that the lid member is liable to come off due to vibrations and the like during the transportation because the container body is transported on the conveyor with the lid member simply placed thereon.
In view of the foregoing, it is a principal object of the present invention to provide a packaging container which includes a container body and a lid member engaged with the container body, and is designed so that the lid member is engaged with the container body in an easily removable manner after the container body is filled with the content before the completion of the inspection of the content, thereby reducing a loss in production efficiency for improvement in production stability.
[0007] It is another object of the present invention to provide a packaging container which includes a container body and a lid member that is engageable with the container body at two stages, i.e., in a temporary engagement state in which the lid member can be easily removed from the container body and in a complete engagement state in which the lid member cannot be easily removed from the container body.

SOLUTION TO PROBLEM

[0008] According to an inventive aspect as set forth in claim 1, there is provided a packaging container, which includes: a container body having an opening defined by an upper edge portion thereof; a ring-shaped mouth member fixed to the upper edge portion of the container body; and a lid member engaged with the ring-shaped mouth member to tightly close the opening of the container body in an engaged state; the ring-shaped mouth member including a ring-shaped first engagement portion provided on an outer peripheral surface of the upper edge portion around the opening; the lid member including a lid body which closes the opening, and a ring-shaped engagement ring projecting downward from a periphery of the lid body; the engagement ring including a second engagement portion provide on an inner peripheral surface thereof adjacent a lower edge thereof away from the lid body to be engaged with the first engagement portion in a temporary engagement state, and a third engagement portion provided on the inner peripheral surface thereof adjacent the lid body to be engaged with the first engagement portion in a complete engagement state.

[0009] According to an inventive aspect as set forth in claim 2, the packaging container of claim 1 is configured such that: the first engagement portion includes a projection having an outwardly projecting cross section, and a groove provided in the projection as recessed from an outer side; the second engagement portion includes a recess to be engaged with the projection of the first engagement portion; and the third engagement portion includes a recess and a rib ring to be respectively brought into abutting engagement with the projection and the groove of the first engagement portion.

[0010] According to an inventive aspect as set forth in claim 3, the packaging container of claim 1 or 2 is configured such that the ring-shaped mouth member further includes a fourth engagement portion provided below the first engagement portion to be engaged with the second engagement portion of the lid member when the third engagement portion of the lid member is engaged with the first engagement portion.

ADVANTAGEOUS EFFECTS OF INVENTION

[0011] According to the present invention, the ring-shaped mouth member fixed to the container body includes the ring-shaped first engagement portion. The lid member includes the second engagement portion and the third engagement portion which are engageable with the first engagement portion of the ring-shaped mouth member.

With the first engagement portion in engagement with the second engagement portion, the lid member is engaged with the container body in the temporary engagement state. The temporary engagement state prevents the lid member from being disengaged from the container body due to vibrations and the like. However, the lid member can be relatively easily removed from the container body by applying a force such as to permit the removal of the lid member from the container body.

[0012] Once the third engagement portion is engaged with the first engagement portion in the complete engagement state, on the other hand, it is difficult to remove the lid member from the container body.

With this arrangement, after the container body of the packaging container according to the present invention is filled with content, the lid member is engaged with the container body in the temporary engagement state in a plant line (production line). Thus, the lid member is prevented from coming off from the container body even if the packaging container filled with the content is transported on the conveyor.

[0013] If the inspection of the content is required in a content inspection step, the lid member can be easily removed from the container body, thereby permitting the inspection of the content.

Further, the lid member temporarily engaged with the container body is further pressed against the container body to be brought into complete engagement with the container body. Thus, the lid member is completely engaged with the container body, so that the lid member cannot be easily removed from the container body.

[0014] With this arrangement, the content filled in the container body in the plant line (production line) can be easily visually checked. Thus, the packaging container can be provided, which has a reduced production loss and an improved production adequacy.

BRIEF DESCRIPTION OF DRAWINGS

[0015]

FIG. 1 is a front view of a packaging container according to a first embodiment of the present invention.

FIG. 2 is a partial vertical sectional view showing the major construction of the packaging container according to the first embodiment of the present invention, illustrating the packaging container in a temporary engagement state (first engagement state).

FIG. 3 is a partial vertical sectional view showing the major construction of the packaging container according to the first embodiment of the present invention, illustrating the packaging container in a complete engagement state (second engagement state).

FIG. 4 is a partial vertical sectional view showing the major construction of a packaging container according to a second embodiment of the present invention, illustrating the packaging container in the temporary engagement state (first engagement state).

FIG. 5 is a partial vertical sectional view showing the major construction of the packaging container according to the second embodiment of the present invention, illustrating the packaging container in the complete engagement state (second engagement state).

FIG. 6 is a partial vertical sectional view showing the major construction of a packaging container according to a third embodiment of the present invention, illustrating the packaging container in the temporary engagement state (first engagement state).

FIG. 7 is a partial vertical sectional view showing the major construction of the packaging container according to the third embodiment of the present invention, illustrating the packaging container in the complete engagement state (second engagement state).

DESCRIPTION OF EMBODIMENTS

[0016] With reference to the drawings, embodiments of the present invention will hereinafter be described more specifically.

EMBODIMENTS

[0017] FIG. 1 is a front view of a packaging container 1 according to a first embodiment of the present inven-

tion.

The packaging container 1 includes a container body 2 of paper, and a lid member 3 of a resin engaged with an upper portion of the container body 2.

The container body 2 is of a hollow cylindrical shape having a round plan shape, and has a bottom and an opening defined by an upper edge thereof. The lid member 3 has a round plan shape, and includes an engagement ring 8 provided along an outer peripheral edge thereof as projecting downward.

[0018] The lid member 3 includes an unsealing tab 4, and a tear band 5 connected to the tab 4. The tear band 5 can be removed from the lid member 3 by holding and pulling the tab 4 by fingers. A lid body 6 provided in an upper portion of the lid member 3 can be opened by pushing up an opening/closing tab 7. The lid body 6 can be closed again to a state shown in FIG. 1, i.e., the lid body 6 is reclosable.

[0019] As described above, the lid member 3 is an integrally molded resin component, and this embodiment features an engagement structure by which the lid member 3 is engaged with the container body 2. The engagement structure will be described in detail.

The feature of this embodiment is that the lid member 3 is engageable with the container body 2 in a first engagement state, i.e., in a temporary engagement state, as shown in FIG. 2, and the lid member 3 is engageable with the container body 2 in a second engagement state, i.e., in a complete engagement state, as shown in FIG. 3.

[0020] Referring to FIG. 2, as described above, the container body 2 includes a hollow cylindrical member of paper, and has an opening 11 defined by an upper edge portion 10 thereof. An annular mouth member 12 of a resin is fixed to an inner peripheral surface of the upper edge portion 10. The annular mouth member 12 is a band-shaped ring member having an annular plan shape and a predetermined vertical dimension. A lower portion 13 of the annular mouth member 12 is fitted in the upper edge portion 10 of the container body 2, and an outer peripheral surface 14 of the lower portion 13 is fuse-bonded to the inner peripheral surface 15 of the upper edge portion 10.

[0021] For reliable fusion-bonding of the lower portion 13 of the annular mouth member 12, the lower portion 13 has two ribs (annular projections as seen in plan) 14a, 14b provided in vertically juxtaposed relation on the outer peripheral surface 14 thereof.

An upper portion 16 of the annular mouth member 12 extends upward from the upper edge portion 10 of the container body 2. The upper portion 16 has an inclined surface (taper surface) 17 provided on an upper edge outer peripheral surface thereof and having an outer diameter progressively increased in a direction from the upper side to the lower side. The inclined surface 17 serves to stabilize the lid member 3 during a period in which the container body 2 is transported on a conveyor with the lid member 3 placed thereon and then the lid member 3 is brought into the temporary engagement state after the container body 2 is filled with content in a plant line (production line), and to guide the lid member 3 for easy engagement of the lid member 3 with the container body.

[0022] The annular mouth member 12 has a recessed annular surface 18 provided on an outer peripheral surface of the upper portion 16 thereof below the inclined surface 17 and having a predetermined width as measured vertically. The annular mouth member 12 further has an inclined engagement surface 19 provided below the recessed annular surface 18 and having an outer diameter progressively increased in a direction from the upper side to the lower side. The inclined engagement surface 19 projects outward so as to have steps with respect to the recessed annular surface 18 and the outer peripheral surface of the lower portion 13 of the annular mouth member 12, and a thick and large rib 20 defining the inclined engagement surface 19 serves as a first engagement portion of the annular mouth member 12. The inclined engagement surface 19 defined by the rib 20 has an annular engagement groove 30 provided along a generally vertically middle portion thereof.

[0023] As described above, the lid member 3 includes the engagement ring 8, the tear band 5 located on top of the engagement ring 8, and the lid body 6 located on top of the tear band 5.

A lock projection 21, an annular recess 22 serving as a second engagement portion to be engaged with the rib 20, and a rib surface 23 to be opposed to the recessed annular surface 18 are provided in this order from the lower side to the upper side on an inner peripheral surface of the engagement ring 8.

[0024] Further, the rib surface 23 includes an inclined engagement surface 24 provided on an upper portion thereof and having an inner diameter progressively reduced in a direction from the lower side to the upper side. A rib ring 25 protrudes from the inclined engagement surface 24. The inclined engagement surface 24 and the rib ring 25 define a third engagement portion.

In addition, an inner annular portion 29 extends generally vertically downward from a lower surface of a top plate 26 of the lid body 6 as spaced from an outer peripheral edge defining portion 27 by a predetermined gap 28.

[0025] As shown in FIG. 2, the packaging container according to this embodiment is configured such that the lid member 3 can be engaged with the annular mouth member 12 of the container body 2 in the first engagement state, i.e., in the temporary engagement state.

In the temporary engagement state, the annular recess 22 provided in the inner peripheral surface of the engagement ring 8 of the lid member 3 is engaged with the rib 20 of the annular mouth member 12 from an outer side. The rib 20 and the annular recess 22 are engaged with each other to an engagement degree such that the rib 20 is disengaged from the annular recess 22 when an upward force acts on the lid member 3 to lift the lid member 3.

[0026] By applying a downward pressing force to the

lid member 3, the annular mouth member 12 and the lid member 3 are brought into the second engagement state shown in FIG. 3, i.e., into the complete engagement state, from the state shown in FIG. 2.

In the complete engagement state, the rib 20 of the annular mouth member 12 is intimately engaged with the inclined engagement surface 24 of the engagement ring 8, and the rib ring 25 provided on the inclined engagement surface 24 is fitted in the engagement groove 30 provided in the inclined engagement surface 19. In this state, therefore, the engagement ring 8 of the lid member 3 is kept in tight engagement with the annular mouth member 12, so that the lid member 3 cannot be easily removed from the annular mouth member 12.

[0027] In the second engagement state shown in FIG. 3, the upper portion 16 of the annular mouth member 12 is fitted in the gap 28 defined between the outer peripheral edge defining portion 27 and the inner annular portion 29 of the lid member 3. Thus, the lid member 3 is sealingly engaged with the annular mouth member 12.

Further, the tab 4 indicated by a phantom line is held and pulled to remove the tear band 5, whereby the lid body 6 can be turned about a hinge not shown to be opened with the engagement ring 8 of the lid member 3 kept in complete engagement with the annular mouth member 12. The lid body 6 is reclosable and, with the lid body 6 being closed, the upper portion 16 of the annular mouth member 12 is fitted in the gap 28 for engagement. Thus, the annular mouth member 12 can be sealed with the lid body 6.

[0028] The configuration of the annular mouth member 12 is not limited to that shown in FIGS. 2 and 3, but an outer engagement portion 31 to be fuse-bonded to an outer side of the upper edge portion 10 of the container body 2, for example, may be additionally provided as indicated by a one-dot-and-dash line in FIG. 3. Where the outer engagement portion 31 is additionally provided, the upper edge portion 10 of the container body 2 is bonded between the lower portion 13 of the annular mouth member 12 and the outer engagement portion 31 through fusion-bonding. Therefore, the container body 2 and the annular mouth member 12 can be more firmly fixed to each other.

[0029] In addition, the outer peripheral surface of the outer engagement portion 31 is configured so as to fit the inner peripheral surface of the engagement ring 8, i.e., the lock projection 21, the annular recess 22 and the rib surface 23, whereby the engagement between the outer surface of the outer engagement portion 31 and the inner peripheral surface of the engagement ring 8 is additionally provided in the complete engagement state (second engagement state). This permits more firm engagement of the lid member 3 with the annular mouth member 12 of the container body 2 in the complete engagement state (second engagement state).

[0030] FIGS. 4 and 5 are partial vertical sectional views each showing the major construction of a packaging container according to a second embodiment of the present invention, in which the annular mouth member 12 is fuse-bonded to an outer side of the upper edge portion 10 of the container body 2 rather than to the inner side of the upper edge portion 10 of the container body 2. Particularly, FIG. 4 shows the temporary engagement state (first engagement state), and FIG. 5 shows the complete engagement state (second engagement state).

In FIGS. 4 and 5, components corresponding to those described with reference to FIGS. 2 and 3 are designated by the same reference characters as in FIGS. 2 and 3.

[0031] A feature shown in FIGS. 4 and 5 is that the annular mouth member 12 is fuse-bonded to an outer peripheral surface 33 of the upper edge portion 10 of the container body 2 rather than to the inner peripheral surface 15 of the upper edge portion 10 of the container body 2. Therefore, the annular mouth member 12 has two ribs 14a, 14b provided in vertically juxtaposed relation on a lower inner peripheral surface 34 thereof for facilitating the fusion-bonding.

In comparison with the preceding embodiment (FIGS. 2 and 3), the annular mouth member 12 has a smaller vertical dimension. As in the preceding embodiment, an inclined surface 17, a recessed annular surface 18, a rib 20, an inclined engagement surface 19 provided on an outer peripheral surface of the rib 20 and an engagement groove 30 provided in the inclined engagement surface 19 are provided in this order from the upper side on the outer peripheral surface of the annular mouth member 12.

[0032] The lid member 3 has the same construction as in the preceding embodiment (FIGS. 2 and 3).

Even with the arrangement shown in FIGS. 4 and 5, the lid member 3 can be engaged with the annular mouth member 12 in the temporary engagement state (first engagement state) as shown in FIG. 4. In the temporary engagement state (first engagement state), the lid member 3 can be easily removed from the annular mouth member 12.

When the lid member 3 is pressed down from the state shown in FIG. 4, the annular mouth member 12 and the lid member 3 are brought into the complete engagement state (second engagement state) as shown in FIG. 5. In the second engagement state, the engagement ring 8 is firmly engaged with the annular mouth member 12. That is, the rib ring 25 is fitted in the engagement groove 30 with the inclined engagement surface 24 and the inclined engagement surface 19 in abutment against each other, so that the annular mouth member 12 and the lid member 3 are reliably and firmly engaged with each other.

[0033] In this embodiment, the annular mouth member 12 is not fuse-bonded to the inner peripheral surface of the container body 2. Therefore, this embodiment is advantageous in that the content (e.g., gum tablets) can be easily taken out of the container through the opening 11 without being caught by the annular mouth member 12. Further, the annular mouth member 12 has a reduced vertical dimension, so that the amount of the resin to be used for the annular mouth member 12 can be advanta-

geously reduced.

[0034] FIGS. 6 and 7 are partial vertical sectional views each showing the major construction of a packaging container according to a third embodiment of the present invention. Particularly, FIG. 6 shows the temporary engagement state (first engagement state), and FIG. 7 shows the complete engagement state (second engagement state). In the embodiment shown in FIGS. 6 and 7, the annular mouth member 12 is fuse-bonded to the outer peripheral surface of the container body 2 as in the embodiment shown in FIGS. 4 and 5 and, in addition, an annular recess 35, an annular projection 36 and an annular recess 37 serving as a fourth engagement portion for engagement with the rib surface 23, the annular recess 22 and the lock projection 21 provided on the inner peripheral surface of the engagement ring 8 of the lid member 3 are provided in this order from the upper side to the lower side on a lower portion of the outer peripheral surface of the annular mouth member 12.

[0035] With this arrangement, the complete engagement between the engagement ring 8 and the annular mouth member 12 can be achieved not only by the abutment between the inclined engagement surface 19 and the inclined engagement surface 24 and the engagement between the engagement groove 30 and the rib ring 25, but also by the engagement of the annular recess 35, the annular projection 36 and the annular recess 37 with the rib surface 23, the annular recess 22 and the lock projection 21. This makes it more difficult to disengage the engagement ring 8 (lid member 3) from the annular mouth member 12 (container body 2) in the complete engagement state (second engagement state). Therefore, this arrangement is advantageously highly effective in the tamper proof of the packaging container.

[0036] The present invention is not limited to the embodiments described above, but various modifications may be made within the scope of the claims.

REFERENCE SIGNS LIST

[0037]

1: Packaging container
2: Container body
3: Lid member
4: Tab
5: Tear band
6: Lid body
7: Opening/closing tab
8: Engagement ring
10: Upper edge portion of container body
11: Opening
12: Annular mouth member
13: Lower portion of annular mouth member
14: Outer peripheral surface of lower portion of annular mouth member
14a, 14b: Ribs on lower portion of annular mouth member
15: Inner peripheral surface of upper edge portion of container body
16: Upper portion of annular mouth member
17: Inclined surface of upper edge portion of annular mouth member
18: Recessed annular surface of upper portion of annular mouth member
19: Inclined engagement surface of rib of annular mouth member
20: Rib of annular mouth member
21: Lock projection of lid member
22: Annular recess of lid member
23: Rib surface of lid member
24: Inclined engagement surface of lid member
25: Rib ring on inclined engagement surface of lid member
26: Top plate of lid body
27: Outer peripheral edge defining portion of lid body
28: Gap of lid body
29: Inner annular portion of lid body
30: Engagement groove of inclined engagement surface of annular mouth member
31: Outer engagement portion of annular mouth member
33: Outer peripheral surface of upper edge portion of container body
34: Lower inner peripheral surface of annular mouth member
35: Annular recess of outer peripheral surface of annular mouth member
36: Annular projection of outer peripheral surface of annular mouth member
37: Lowermost annular recess of outer peripheral surface of annular mouth member

Claims

1. A packaging container comprising:

a container body having an opening defined by an upper edge portion thereof;
a ring-shaped mouth member fixed to the upper edge portion of the container body; and
a lid member engaged with the ring-shaped mouth member to tightly close the opening of the container body in an engaged state;
the ring-shaped mouth member including a ring-shaped first engagement portion provided on an outer peripheral surface of the upper edge portion around the opening;
the lid member including a lid body which closes the opening, and a ring-shaped engagement ring projecting downward from a periphery of the lid body;
the engagement ring including a second engagement portion provide on an inner peripheral surface thereof adjacent a lower edge thereof

away from the lid body to be engaged with the first engagement portion in a temporary engagement state, and a third engagement portion provided on the inner peripheral surface thereof adjacent the lid body to be engaged with the first engagement portion in a complete engagement state.

2. The packaging container according to claim 1,
wherein the first engagement portion includes a projection having an outwardly projecting cross section, and a groove provided in the projection as recessed from an outer side,
wherein the second engagement portion includes a recess to be engaged with the projection of the first engagement portion,
wherein the third engagement portion includes a recess and a rib ring to be respectively brought into abutting engagement with the projection and the groove of the first engagement portion.

3. The packaging container according to claim 1 or 2, wherein the ring-shaped mouth member further includes a fourth engagement portion provided below the first engagement portion to be engaged with the second engagement portion of the lid member when the third engagement portion of the lid member is engaged with the first engagement portion.

FIG. 1

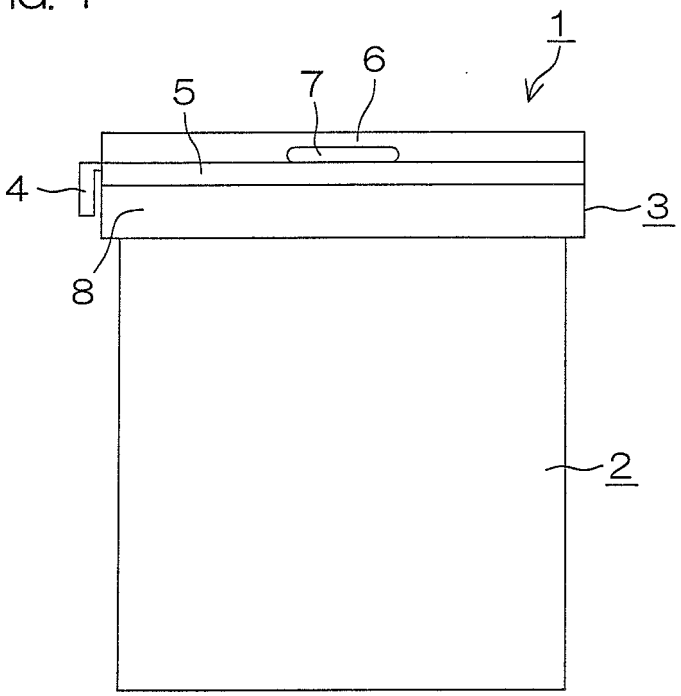

FIG. 2

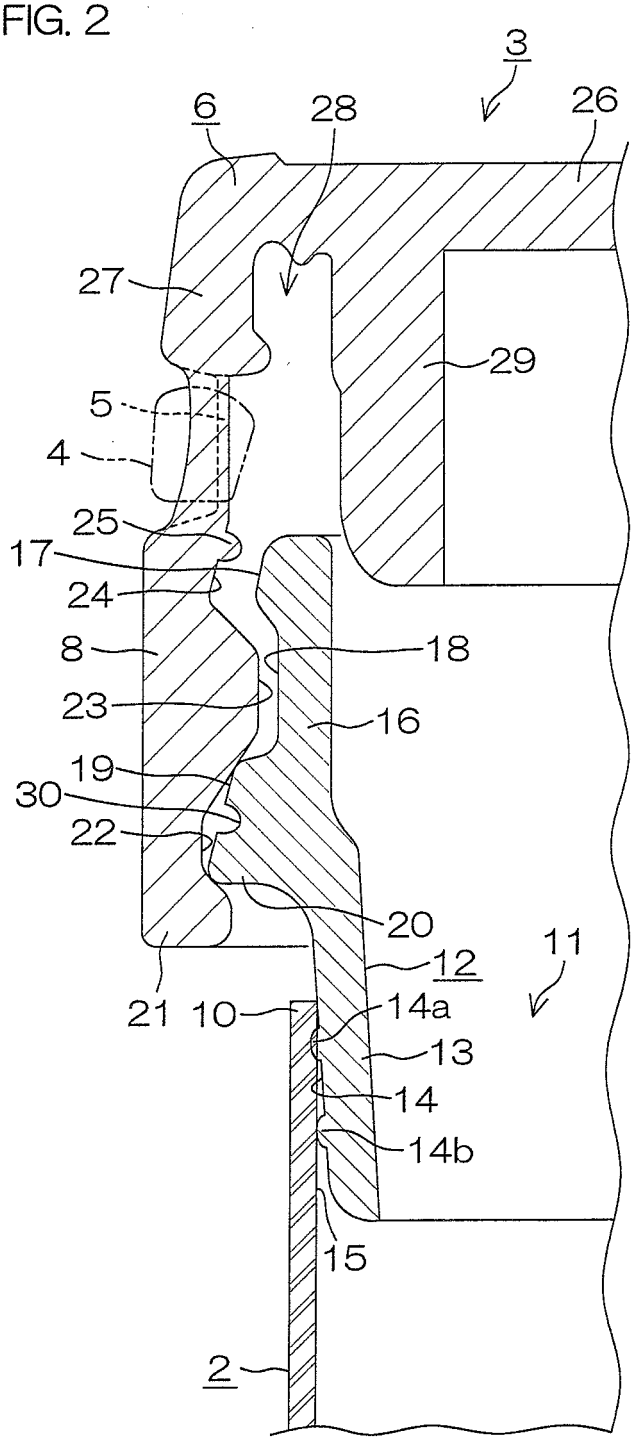
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FIG. 3

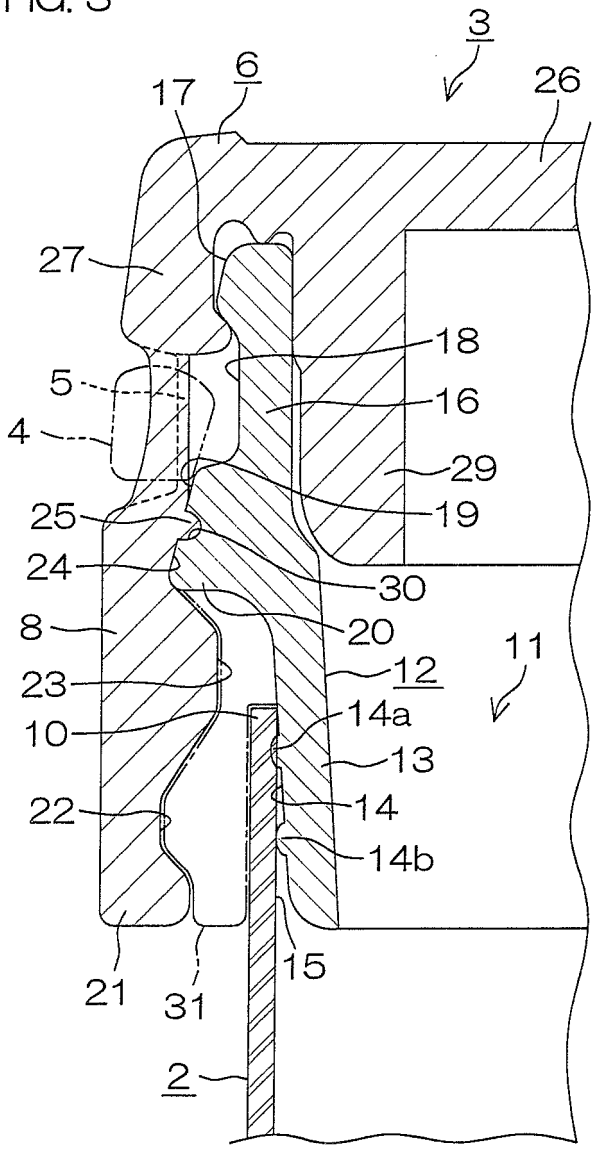
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FIG. 4

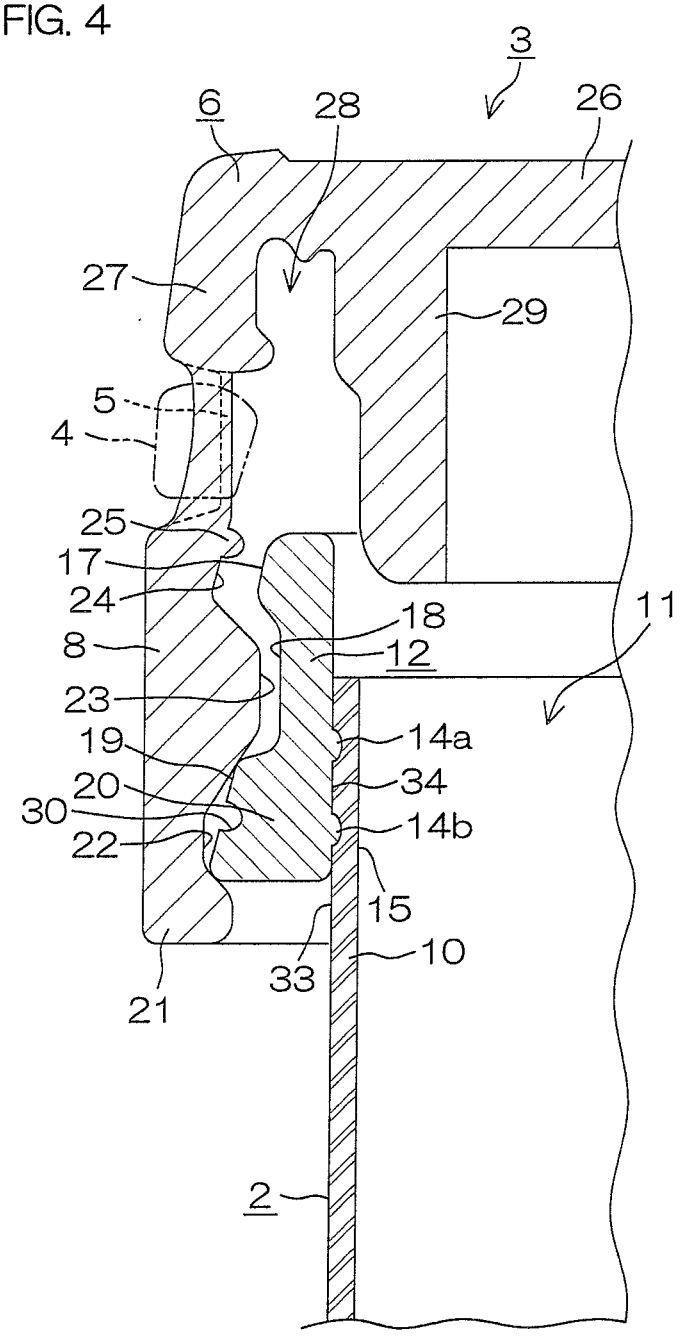
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FIG. 5

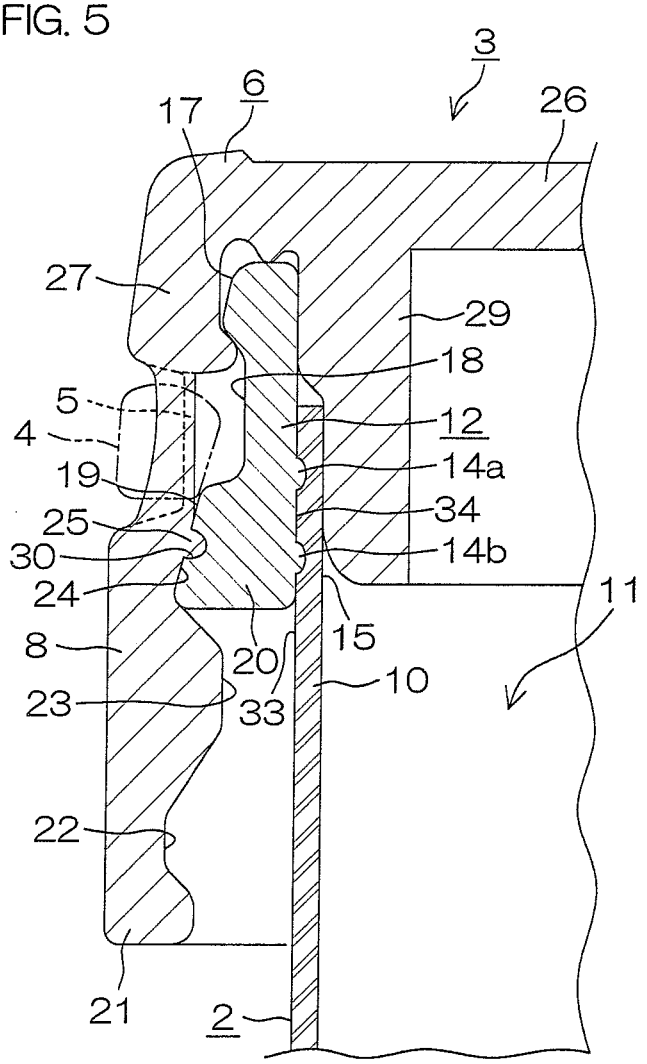
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FIG. 6

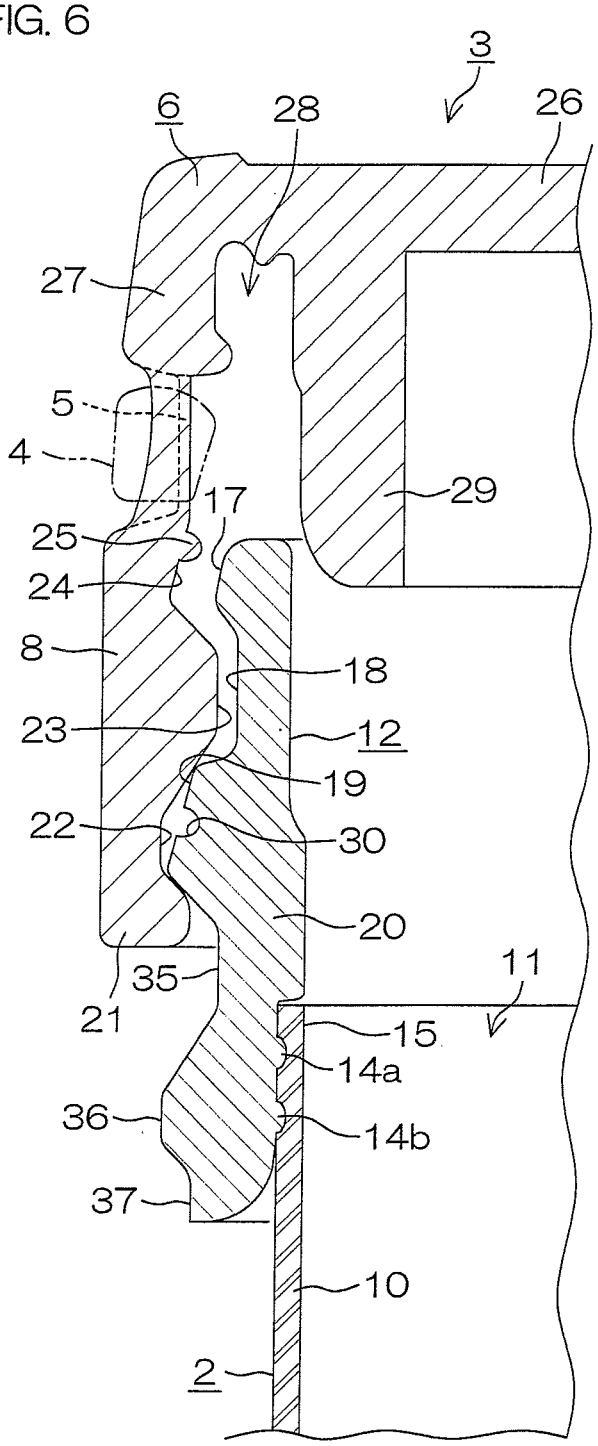
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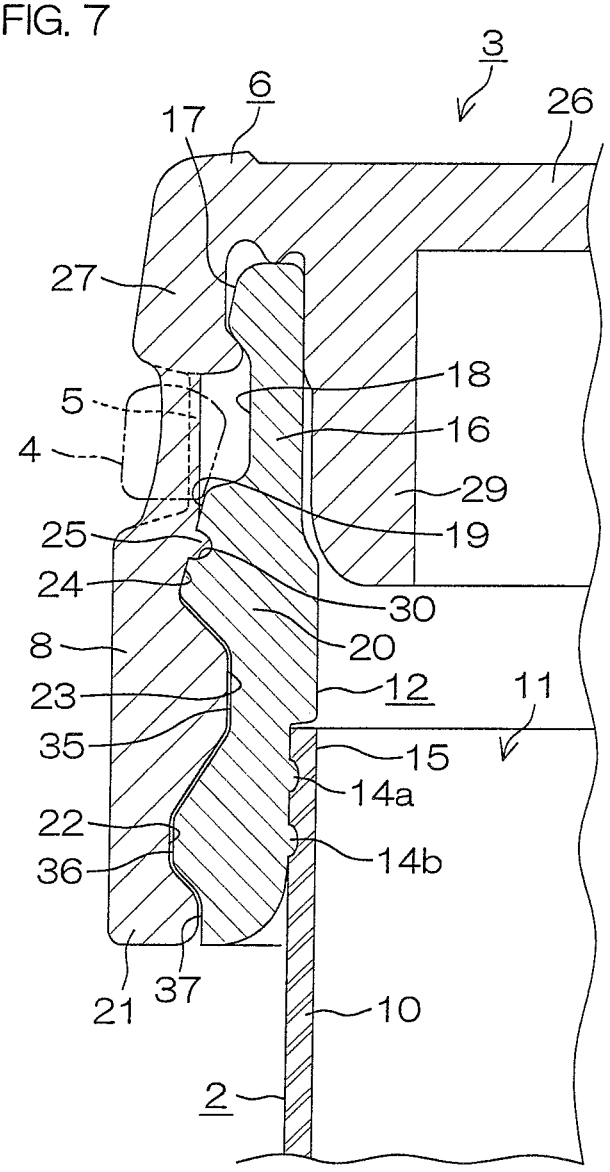
FIG. 7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INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2010/057790

A. CLASSIFICATION OF SUBJECT MATTER
B65D41/48(2006.01)i, *B65D41/16*(2006.01)i, *B65D41/18*(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65D41/48, B65D41/16, B65D41/18

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Jitsuyo Shinan Koho 1922-1996 Jitsuyo Shinan Toroku Koho 1996-2010
Kokai Jitsuyo Shinan Koho 1971-2010 Toroku Jitsuyo Shinan Koho 1994-2010

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	JP 2008-308228 A (Toppan Printing Co., Ltd.), 25 December 2008 (25.12.2008), paragraphs [0053] to [0057]; fig. 6 to 7 (Family: none)	1,3 2
Y A	JP 40-26154 Y1 (Nakano Vinegar Co., Ltd.), 06 September 1965 (06.09.1965), detailed explanation of the device; fig. 1 to 5 (Family: none)	1,3 2

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
20 May, 2010 (20.05.10)	01 June, 2010 (01.06.10)
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2010/057790

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 66219/1983(Laid-open No. 172151/1984) (Japan Crown Cork Co., Ltd.), 17 November 1984 (17.11.1984), fig. 3 (Family: none)	3
P,X	JP 2009-286403 A (Toppan Printing Co., Ltd.), 10 December 2009 (10.12.2009), paragraph [0028]; fig. 7 (Family: none)	1,2
A	DE 2911988 A1 (Brokmann, Manfred), 16 October 1980 (16.10.1980), fig. 1 to 2 (Family: none)	1-3
A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 20061/1991(Laid-open No. 115147/1992) (Dainippon Printing Co., Ltd.), 12 October 1992 (12.10.1992), fig. 7 to 8 (Family: none)	1-3

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 2008308228 A **[0004]**