



(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
30.01.2013 Bulletin 2013/05

(51) Int Cl.:
B65D 83/40 (2006.01) **B05B 9/04** (2006.01)
B65D 47/34 (2006.01) **B65D 83/76** (2006.01)

(21) Application number: **10847473.5**

(86) International application number:
PCT/JP2010/062495

(22) Date of filing: **26.07.2010**

(87) International publication number:
WO 2011/111244 (15.09.2011 Gazette 2011/37)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR

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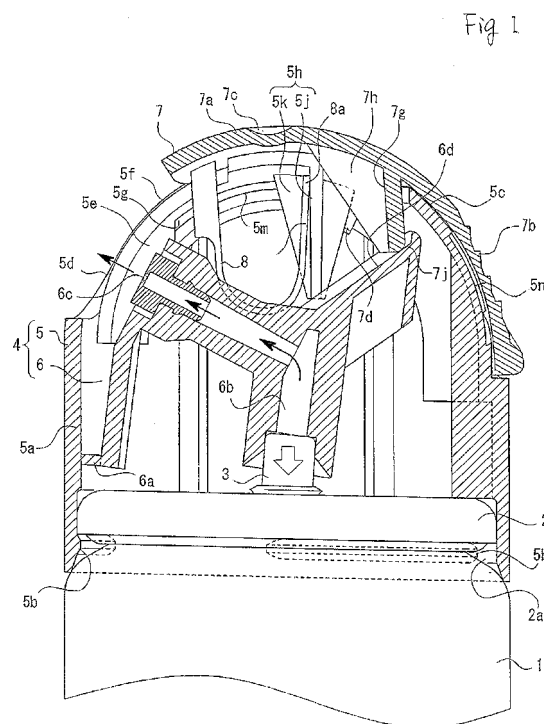
(30) Priority: **12.03.2010 JP 2010056440**

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(54) **CONTAINER COVER AND AEROSOL TYPE PRODUCT PROVIDED WITH CONTAINER COVER**

(57) Provided is a contained cover for an aerosol type product and a pump type product a content injection port is covered and by an operation member in a stationary so that a malfunction of the operation can be prevented, the effect of protecting the content injection port, etc. can be assured. The operation member (7) for covering and protecting the content injection port in the stationary is a and upon releasing a sliding operation, the operation member automatically and certainly returns to the stationary by elastic action of a leaf spring (8). Further, in the stationary mode, the shape of the entirety of the container cover outer surface including the operation member has a single dome shaped appearance. When the operation member is slid toward the right in the drawing, the content injection port is exposed to the external space, and thereafter, a pressing action portion is on an inclined portion (6d) of a content injection unit (6). By this pressing action, a stem (3) integrated the content injection is moved downward to transfer to an operation mode, and the contents in the container pass through an injection path (61b) and is discharged from the content injection port.



Description

TECHNICAL FIELD

[0001] The present invention relates to a container cover of an aerosol-type product or a pump-type product. More particularly, the invention pertains to a container cover including a tubular actuator member having a content discharging passage which connects to a stem under conditions where the actuator member is attached to a container, and an operating member which is biased frontward by an elastic member to cover an upper opening of the actuator member and is slid rearward, overwhelming a biasing force of the elastic member, to expose a discharging port of the content discharging passage to an external space when content discharging operation is performed.

[0002] To be more specific, the container cover is configured such that the slidable operating member is biased frontward by an elastic force to cover the content discharging port, etc. in a stationary mode, and when the operating member is slid rearward, overwhelming the elastic force, the container cover is set to an activated mode in which the content discharging port, etc. are exposed. When sliding operation is terminated, the operating member automatically returns to a position to be taken in the stationary mode owing to an elastic action.

[0003] In expressing a front/rear positional relationship in this Specification, "front" refers to a side of the content, discharging port and "rear" refers to a side opposite thereto, or a side where a later-described arrow is formed, for example.

Specifically, "front" refers to a left side and "rear" refers to a right side as illustrated in FIGS. 1 and 3.

BACKGROUND ART

[0004] A conventionally proposed container cover is such that an operating member covers a content discharging port, etc. in a stationary mode, and when the container cover is set to an activated mode, the operating member is moved, causing the content discharging port, etc. to be exposed and a stem to move downward to a position to be taken in the activated mode (refer to Patent Document 1).

[0005] This container cover is configured in such a manner that a downward pushing action exerted on a manipulating part of the operating member located on a rear side thereof causes a frontal portion of the operating member covering the content discharging port, etc. to swing upward, thereby exposing the content discharging port, and a rear portion of the operating member which has been pushed downward forces against a rear plate-like portion of a content passage member (which is provided with the content discharging port), causing the stem which is integrally configured with the content passage member to move downward to the position to be taken in the activated mode.

[0006] Then, when a user ceases to exert the downward pushing action, the stem moves upward and returns to a position to be taken in the stationary mode as a result of a conventionally known (stem biasing) action of a coil spring.

[0007] At this time, the content passage member which is integrally configured with the stem also moves upward and returns to a position to be taken in the stationary mode. On the other hand, as the content passage member moves upward, the rear portion of the operating member which is in contact with the platelike portion of the content passage member is lifted upward and swings toward a position to be taken in the stationary mode. Meanwhile, there is not provided an elastic member or the like for positively returning the operating member to the position to be taken in the stationary mode.

Prior Art Document

[0008]

Patent Document 1: Japanese Patent Application Publication No. 1999-156251

SUMMARY OF THE INVENTION

TECHNICAL PROBLEM

[0009] The aforementioned container cover has an advantage in that the content discharging port is covered and protected by the operating member in the stationary mode.

[0010] The operating member which protects the content discharging port is of a swing motion type that works as a result of the downward pushing action but is not provided with any elastic member for reliably, or automatically, returning the operating member back to the position to be taken in the stationary mode when the downward pushing action is terminated.

[0011] Thus, with the aforementioned conventional container cover, there may arise a situation in which the operating member is inadvertently forced downward, unintentionally transferring the container cover to the activated mode, when the user suddenly or carelessly moves his or her hand downward or when an object falls from above, for example. There may also arise a situation in which the operating member does not return to the correct position to be taken in the stationary mode when the downward pushing action exerted for setting the container cover to the activated mode is terminated. The conventional container cover therefor has room for improvement.

[0012] Accordingly, it is an object of the present invention to configure an operating member serving as a constituent element of a container cover that covers and protects a content discharging port in a stationary mode as a sliding member which automatically returns to a position to be taken in the stationary mode in a reliable fashion

owing to a direct elastic action of the operating member when sliding operation performed thereon is terminated, thereby reducing the possibility of a malfunction of the operating member as much as possible and achieving an effect of secure protection of the content discharging port, etc. in the stationary mode

[0013] It is another object of the invention to configure an overall external shape of the container cover including the sliding operating member in the stationary mode and an upper part of a tubular main body portion attached to a container that supports and guides the operating member to have a single domelike external appearance, thereby providing the container cover with a high-quality, easy-to-operate image.

[0014] It is another object of the invention to configure the container cover including also an elastic member for returning the operating member to the position to be taken in the stationary mode with a first one-piece molded member located on a side of the sliding operating member and a second one-piece molded member located on a side of an actuator member which comprises a content discharging portion interconnecting the tubular main body portion attached to the container and a stem, thereby achieving a reduction in the number of components of the container cover and a cost reduction thereof.

[0015] It is a further object of the invention to indicate a direction of the sliding operation for transferring the container cover from the stationary mode in which the content discharging port is invisible from outside to an activated mode, thereby facilitating operation for setting the container cover to the activated mode.

SOLUTION TO PROBLEM

[0016] The present invention provides a solution to the aforementioned problems by use of a below-described container cover.

(1) A container cover includes a tubular actuator member (e.g., a later-described actuator member 4) provided with a content discharging passage (e.g., a later-described ejecting passage 6b) which connects to a stem (e.g., a later-described stem 3) under conditions where the actuator member is mounted on a container (e.g., a later-described container body 1), and an operating member (e.g., a later-described operating member 7) which is biased frontward by an elastic member (e.g., later-described leaf springs 8) to cover an upper opening (e.g., a later-described upper opening area 5e) of the actuator member and is slid rearward to expose a discharging port (e.g., a later-described orifice 6c) of the content discharging passage to an external space, overwhelming a biasing force of the elastic member, when content discharging operation is performed. The actuator member includes a tubular main body portion (e.g., a later-described tubular main body portion 5) in which the upper opening and a guiding part (e.g., later-de-

scribed guiding stage parts 5m) for guiding a rearward sliding action of the operating member are formed, the tubular main body portion being configured to engage with the container, and a content discharging portion (e.g., a later-described content ejecting portion 6) in which the content discharging passage and a driven part (e.g., a later-described slanted surface 6d) that is driven to an activated mode in response to the sliding action are formed, the content discharging portion being integrally formed with the tubular main body portion swingably thereabout. The operating member includes a shutter portion (e.g., a later-described shutter portion 7a) which is slidable relative to the upper opening, a sliding operation surface (e.g., a later-described sliding operation surface 7b) used for the content discharging operation, the sliding operation surface constituting part of the shutter portion, a guided part (e.g., later-described guided stage parts 7e) which is guided by the guiding part, and an activated mode setting part (e.g., later-described curved surface portions 7j) which drives the driven part as a result of the rearward sliding action so as to move the stem connected to the actuator member to an activated mode position.

(2) In (1) above, the guiding part of the content discharging portion is an arc-shaped guiding part.

(3) In (1) or (2) above, the shutter portion of the operating member has an external shape which forms a single domelike external appearance together with an upper part of the tubular main body portion in a stationary mode in which the upper opening of the actuator member is covered.

(4) In (1), (2) or (3) above, the actuator member is a one-piece molded component including the tubular main body portion and the content ejecting portion, and the operating member is a one-piece molded component including the elastic member.

(5) In (1), (2) or (3) above, the elastic member is a cantilever-type leaf spring (e.g., later-described leaf springs 8) integrally formed with one of the operating member and the actuator member wherein a free end of the elastic member is retained by the other of the operating member and the actuator member.

(6) In (1), (2), (3), (4) or (5) above, the actuator member has a sliding direction indicating part (e.g., later-described arrow mark 5n) in an externally exposed area of the tubular main body portion when the shutter portion covers the upper opening.

[0017] The container cover configured as described above as well as an aerosol-type product including the container cover and containing latex-described gas and content and a pump-type product including the container cover and containing a later-described content are items of subject matter of the present invention.

ADVANTAGEOUS EFFECTS OF THE INVENTION

[0018] The present invention employing the aforementioned problem-solving means provides the following advantages:

(11) It is possible to reduce the risk of incorrect operation of the operating member to a maximum possible level and achieve a reliable effect of protecting a content discharging port, etc. in the stationary mode.

(12) It is possible to provide the container cover with a high-quality, easy-to-operate image.

(13) It is possible to achieve a reduction in the number of components of the container cover and a cost reduction thereof.

(14) It is possible to facilitate operation for setting the container cover to the activated mode.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019]

FIG. 1 is an explanatory diagram depicting a stationary mode (i.e., a state in which an upper opening area of an actuator member is closed by a slidable operating member) of a container cover configured with two components, or the actuator member and the slidable operating member;

FIG. 2 is an explanatory diagram providing a perspective view of the actuator member and the slidable operating member of the container cover;

FIG. 3 is an explanatory diagram depicting a state (an activated mode) in which a content ejecting port is exposed with the operating member of FIG. 1 slid rearward; and

FIG. 4 is an explanatory diagram providing a perspective rear view of the stationary mode of FIG. 1 showing an arrow mark indicative of a sliding direction of the operating member.

DESCRIPTION OF EMBODIMENTS

[0020] A best mode for carrying out the present invention is described with reference to FIGS. 1 to 4.

[0021] Although the present invention is intended to provide either an aerosol-type product, or a pump-type product as described in the foregoing, the following discussion is based on a case where the invention provides an aerosol-type product simply for the sake of explanation.

[0022] Meanwhile, a constituent element (e.g., a cylindrical portion 5a) denoted by an alphanumeric symbol indicates in principle that this constituent element constitutes part of a constituent element (e.g., a tubular main body portion 5) denoted by a numeric part of the alphanumeric symbol.

[0023] Referring to FIG. 1 to 4, denoted by 1 is a con-

tainer body of the aerosol-type product accommodating a later-described content and ejection gas, denoted by 2 is a mounting cap attached to an open end of the container body 1, denoted by 2a is an annular recessed part formed below an outer peripheral part of the mounting cap with later-described protruding parts 5b firmly fitted in the annular recessed part, and denoted by 3 is a stem which is biased in an upward direction by an elastic force exerted by a coil spring (not shown) serving as a constituent element of a conventionally known valve mechanism (not shown),

[0024] Regarding a one-piece molded actuator member (i.e., a combination of the tubular main body portion and a content ejecting portion) attached to the container body 1, denoted by 4 is the actuator member including the tubular main body portion 5 and the content ejecting portion 6 which are described later, denoted by 5 is the tubular main body portion which is directly attached to the container body 1, denoted by 5a is the cylindrical portion on a lower side, denoted by 5b are the plurality of protruding parts which are formed along a circumferential direction on a curved inside surface of a lower end part of the cylindrical portion and are fitted in the annular recessed part 2a formed in the mounting cap, denoted by 5c is a rear spherical surface portion (part of a spherical surface) which is shaped to form a descending surface (recessed surface) continuously upward from an imaginary rear upper end part of the cylindrical portion, the rear spherical surface portion having generally the same width in left and right directions, denoted by 5d are a pair of left and right spherical surface portions (parts of a spherical surface) which are formed continuously upward from imaginary left and right upper end parts of the cylindrical portion, denoted by 5e is an upper opening area defined by respective edges of the rear spherical surface portion 5c and the left and right spherical surface portions 5d, for instance, denoted by 5f are a pair of arc-shaped guide portions (parts of a spherical surface) which are formed in such a manner that front and rear parts of the arc-shaped guide portions are located at the left and right ends of the upper opening area respectively in a state to be adjacent to the right and left spherical surface 5d so as to exert an effect to guide a later-described operating member 7 during sliding action thereof, denoted by 5g are a pair of arc-shaped openings in which later-described downward extending guided tabs 7c are fitted, the arc-shaped openings 5g being formed between the left and right spherical surface portions 5d and the respective arc-shaped guide portions 5f, denoted by 5h are downward extending platelike portions each of which is formed generally in the middle of a front-rear extension of a large-width part of the arc-shaped guide portions located adjacent to the arc-shaped opening 5g along an inside edge thereof, the downward extending platelike portions 5h having a function to go into contact with and hold free end portions 8a of later-described leaf springs 8, denoted by 5j are left-right extending plate portions of the downward extending platelike portions, denoted by

5k are front-rear extending plate portions located adjacent to the respective arc-shaped openings 5g, denoted by 5m are arc-shaped guiding stage parts which are formed immediately outside the arc-shaped openings 5g individually along upper ends of curved inside surfaces of the left and right spherical surface portions 5d so as to exert an effect to guide the later-described downward extending guided tabs 7d, denoted by 5n is an arrow mark (refer to Fig. 4) formed in that part of the rear spherical surfaces portion 5c which is exposed in a stationary mode to indicate a direction of the sliding operation of the later-described operating member 7, denoted by 6 is the swing-motion-type content ejecting portion connected to a curved inside surface of the tubular main body portion 5 on a front side thereof generally at a vertically middle part, denoted by 6a is a deformable connecting element which serves, so to speak, the function of a pivoting shaft of the content ejecting portion, denoted by 6b is a ejecting passage having an L-shaped cross section along a longitudinal direction that is connected to the stem 3, denoted by 6c is an orifice at the anterior end of the ejecting passage (content ejecting port), and denoted by 6d is a slanted surface which is a portion extending obliquely upward to the rear from an L-shaped bend of the ejecting passage and is displaced downward when forced by the later-described operating member 7 (curved surface portions 7j) during the sliding operation thereof for transferring to an activated mode.

[0025] Regarding the slidable operating member (one-piece molded part including the leaf springs) disposed against the swing-motion-type content ejecting portion 6, denoted by 7 is the swing motion type operating member used when transferring to the activated mode in which the content of the container body 1 is ejected from the orifice 6c to an external space, denoted by 7a is a shutter portion comprising an upper spherical surface part (part of a spherical surface) having generally the same width as the rear spherical surface portion 5d and extending along a front-rear direction to cover the entirety of the upper opening area 5 in the stationary mode (refer to Fig. 1), denoted by 7b is a sliding operation surface which is formed in a rear part of an upper surface of the shutter portion in a manner that a cross section taken along the front-rear direction has a serrate shape, denoted by 7c is a dimplelike circular recess which is formed in a frontal part of the upper surface of the shutter portion to indicate a front side of the actuator member 4 (i.e., the side of the content ejecting port 6c) to the user, denoted by 7d are a pair of downward extending guided tabs which are formed at left and right ends of the operating member generally at middle parts of the respective ends along the front-rear direction and are guided by the arc-shaped guiding stage parts 5m during the sliding operation, denoted by 7e are arc-shaped guided stage parts constituting elements of the downward extending guided tabs that move along the guiding stage parts 5m during the sliding operation, denoted by 7f are slanted surfaces constituting elements of the downward extending guided

tabs that go into contact with upper end parts of the left and right spherical surface portions 5d and slightly deform inward when the downward extending guided tabs are inserted into and mounted in the arc-shaped openings 5g, thereby facilitating mounting operation, denoted by 7g is a pushing portion formed on a ceiling part of the operating member in the middle of a left-right extension (i.e., the middle along a widthwise direction) of the pair of downward extending guided tabs 7d, the pushing portion 7g serving to push against the slanted surface 6d when moving rearwardly downward as a result of the sliding operation, thereby moving the stem 3 downward to transfer to the activated mode depicted in FIG. 3, denoted by 7h are a pair of downward extending triangular portions constituting elements of the pushing portion that extend individually downward from the ceiling part of the operating member, denoted by 7j are the curved surface portions formed at left and right extending free ends of rearward connecting parts of the pair of downward extending triangular portions for exerting a pushing action, denoted by 8 are a pair of cantilever-type C-shaped leaf springs which are formed individually between the downward extending guided tabs 7d at left and right ends and the pushing portion 7f at the middle of the left-right extension for biasing the operating member 7 toward a stationary mode position depicted in FIG. 1, or in a frontward direction, and denoted by 8a are the free end portions of the leaf springs 8 which go into contact with the downward extending platelike portions 5h of the arc-shaped guide portions 5f and become held thereby under conditions where the operating member 7 is assembled in the actuator 4.

[0026] The stem 3, the actuator member 4 (i.e., a combination of the tubular main body portion 5 and the content ejecting portion 6), the operating member 7 and the leaf springs 8 are components made of plastics, such as polypropylene, polyethylene, polyacetal, nylon or polybutylene terephthalate, The container body 1 and the mounting cap 2 are metallic components, for example.

[0027] As described in the foregoing, two components, or the actuator member 4 including the tubular main body portion 5 and the content ejecting portion 6 and the operating member 7 associated with the leaf springs 8, are individually formed by one-piece molding..

[0028] A container cover illustrated is a product configured by assembling these two one-piece molded components together, the container cover having below-described basic features, for example:

(21) The container cover employs the slidable operating member 7 as an operating member for transferring to the activated mode that is biased in the frontward direction by the leaf springs 8 to cover the entirety of the upper opening area 5e of the tubular main body portion 5 so that the content ejecting portion 6 is not exposed to the exterior in the stationary mode depicted in FIG. 1.

(22) As a result of a rearward sliding operation per-

formed on the operating member 7 in the stationary mode, the arc-shaped guided stage parts 7e of the operating member slide rearwardly downward, overwhelming an elastic force of the leaf springs 8, while being guided by the arc-shaped guiding stage parts 5m of the tubular main body portion 5.

(23) During a latter half of the sliding operation, the slanted surface 6d of the content ejecting portion 6 is pushed by the curved surface portions 7j of the operating member 7 (pushing portion 7g), causing the stem 3 which is integrally configured with the content ejecting portion to move downward to an activated mode position.

(24) When the sliding operation for transferring to the activated mode is terminated, the operating member 7 automatically returns from an activated mode position depicted in FIG. 4 back to the stationary mode position depicted in FIG. 1 owing to the frontward elastic biasing force of the leaf springs 8.

(25) The external shape of the operating member 7 forms a single domelike external appearance together with an upper spherical surface portion (i.e., the rear spherical surface portion 5c and the left and right spherical surface portions 5d, for example) of the tubular main body portion 5 located above the cylindrical portion 5a in the stationary mode depicted in FIG. 1. This means that the entirety of the operating member and the upper spherical surface portion has a shape constituting part of a single spherical surface.

[0029] In the stationary mode depicted in FIGS. 1 and 4, the free end portions 8a of the leaf springs 8 integrally formed with the operating member 7 are in contact with the downward extending platelike portions 5h (left-right extending plate portions 5j) of the tubular main body portion 5, with the leaf springs acting in an entirety thereof against their own elastic force, thus assuming, so to speak, an inwardly warped state as compared to an initial state.

[0030] At this time, the operating member 7 is biased in the frontward direction up to a forwardmost position by an elastic action of the leaf springs 8.

[0031] The operating member 7 located at this forwardmost position covers the entirety of the upper opening area 5e of the tubular main body portion 5, so that the content ejecting portion 6 can not be seen from the exterior.

[0032] Also, in the stationary mode a lower part of most of the rear spherical surface portion 5c is exposed and the arrow mark 5n indicating the direction of the sliding operation is formed in the relevant part as depicted in FIG. 4.

[0033] In order to set the illustrated container cover to the activated mode, the user should just slide the operating member 7 in a rearward direction suggested by the arrow mark 5n.

[0034] This sliding operation in the rearward direction

is associated with the below-described actions:

(31) The pair of arc-shaped guided stage parts 7e of the operating member 7 are guided by the pair of guiding stage parts 5m of the tubular main body portion 5, respectively;

(32) The free end portions 8a of the leaf springs 8 go into contact with the left-right extending plate portions 5j of the tubular main body portion 5, become displaced in the upward direction, and further warp than in the stationary mode;

(33) The slanted surface 6d of the content ejecting portion 6 is finally pushed by the curved surface portions 7j of the operating member 7 (pushing portion 7g); and

(34) The content ejecting portion 6 and the stem 3 integrally configured therewith move downward while inclining rearward, overwhelming an elastic force of a conventionally known stem returning coil spring (not shown), due to a pushing action exerted on the slanted surface 6d by the operating member 7.

[0035] As a result of this downward movement of the stem 3, a conventionally known valve acting part (not shown) is brought into an open state, whereby the content of the container body 1 is ejected from the orifice 6c into the external space through "the stem 3 and the ejecting passage 6b of the content ejecting portion 6."

[0036] When the user terminate the sliding operation to slide the operating member 7 to the activated mode position depicted in FIG. 4, the operating member 7 automatically returns to the stationary mode position depicted in FIG. 1 by moving in the frontward direction due to the elastic action of the leaf springs 8 with the arc-shaped guided stage parts 7e of the operating member 7 guided along the arc-shaped guiding stage parts 5m of the tubular main body portion 5.

[0037] Also, the content ejecting portion 6 and the stem 3 integrally configured therewith automatically return to the initial positions, or stationary mode positions depicted in FIG. 1, like the operating member due to elastic action of the conventionally known stem returning coil spring (not shown).

[0038] Meanwhile, movements of the free end portions 8a of the pair of leaf springs 8 in the left and right directions are restricted by the pair of front-rear extending plate portions 5k (parts of the downward extending platelike portions 5h of the tubular main body portion 5) located outside the free end portions 8a and, so to speak, the right and left edges of the common content ejecting portion 6 located inside the respective free end portions 8a.

[0039] The illustrated one-piece molded component including the operating member 7 and the leaf springs 8 can be assembled into the one-piece molded component including tubular main body portion 5 and the content ejecting portion 6 by

(41) shifting the free end portions 8a of the leaf

springs 8 toward the left-right extending plate portions 5j of the downward extending platelike portions 5h after inserting the free end portions 8a individually from a front side large-width part of an opening formed between the pair of arc-shaped guide portions 5f;

(42) so to speak, forcing the operating member 7 whose leaf springs 8 are shifted as mentioned above against the tubular main body portion 5, passing the downward extending guided tabs 7d of the operating member through the arc-shaped openings 5g in the tubular main body portion, and setting the guided stage parts 7e of the downward extending guided tabs to engage with the guiding stage parts 5m of the tubular main body portion as indicated by arrows in FIG. 2.

[0040] It is needless to say that the present invention is not limited to the illustrated container cover but may employ, for example, an arrangement to

(51) use any of various kinds of elastic members instead of the leaf springs 8;

(52) orient the content ejecting port upward and use an operating member which is slid generally in a linear motion;

(53) form the leaf springs 8 integrally with the content ejecting portion 6 in such a manner that the free end portions 8a of the leaf springs 8 rest on the side (e.g., a ceiling surface) of the operating member 7;

(54) form the leaf springs 8 as discrete components, not integrally with but independently of the operating member 7 or the like;

(55) use a tilt-type valve which is brought into an open state by just tilting the stem in a lateral direction; or

(56) use a push-down valve which moves generally in a downward direction only without causing the stem 3 to tilt during operation for transferring to the activated mode.

[0041] Pump-type products and aerosol-type products in which the present invention can be implemented include products for various kinds of applications, such as those containing a detergent, a cleaning agent, an antiperspirant, a coolant, an anti-inflammatory agent, a hair styling agent, a hair treatment agent, a hair dye, a hair tonic, shaving foam, a food, a liquid droplet product (e.g., vitamin), a medical supply, a quasi drug, paint, a horticultural agent, a repellent (insect pesticide), a cleaner, an air freshener, laundry starch, urethane foam, a fire extinguisher, a bonding agent and a lubricant.

[0042] The content to be accommodated in the container body may be of any of various forms, such as liquid, cream or gel types. Additionally, ingredients that may be mixed in the content may be products like powders, oil components, alcohols, surfactants, high molecular compounds, any of components effective for individual appli-

cations and water, for example.

[0043] Powder products that may be used are a metal salt powder, an inorganic powder, a resin powder and the like. The usable powder products include talc, kaolin, aluminum hydroxychloride (aluminum salt), calcium alginate, gold dust, silver dust, mica, carbonate, barium sulfate, cellulose, and a mixture thereof, for example..

[0044] The oil components that may be used include silicone oil, palm oil, eucalyptus oil, camellia oil, olive oil, jojoba oil, paraffin oil, myristic acid, palmitic acid, stearic acid, linoleic acid and linolenic acid, for example.

[0045] The alcohols that may be used include monohydric lower alcohols like ethanol, monohydric higher alcohols like lauryl alcohol, and polyalcohols like ethylene glycol, glycerin and 1, 3-butylene glycol, for example.

[0046] The surfactants that may be used include an anionic surfactant like sodium lauryl sulfate, a nonionic detergent like polyoxyethyleneoleyl ether, an amphoteric surfactant like lauryl dimethyl aminoacetic acid betaine, and a cationic surfactant like alkyl trimethyl ammonium chloride, for example.

[0047] The high molecular compounds that may be used include methyl cellulose, gelatin, starch, casein, hydroxyethyl cellulose, xanthan gum and carboxyvinyl polymer, for example.

[0048] The components effective for individual applications that may be used include anti-inflammatory analgesics like methyl salicylate and indomethacin, sterilization chemicals like sodium benzoate and cresol, insect repellents like pyrethroid and diethyltoluamide, an antiperspirant like zinc oxide, refreshments like camphor and menthol, antiasthmatic drugs like ephedrine and adrenaline, sweeteners like sucralose and aspartame, bonding agents and paints like epoxy resin and urethane, dyes like paraphenylenediamine and aminophenol, and fire extinguishing compositions like ammonium dihydrogen phosphate and sodium/potassium bicarbonate, for example..

[0049] Furthermore, it is possible to use, besides the aforementioned contents, a suspending agent, an ultraviolet, absorbed, an emulsifier, a moisturizing agent, an antioxidant and a sequestering agent, for example,

[0050] A content discharging gas to be used in the aerosol-type product may be any of such compressed gases as carbon dioxide gas, nitrogen gas, compressed air, oxygen gas and noble gas and combination gas thereof, or such liquefied gases as liquefied petroleum gas, dimethyl ether and fluorocarbon.

REFERENCE SIGN LIST

[0051]

- 1: Container body of aerosol-type product
- 2: Mounting cap
- 2a: Annular recessed part
- 3: Stem
- 4: Actuator member (= tubular main body portion 5

	+ content ejecting portion 6)	
5:	Tubular main body portion	
5a:	Lower cylindrical portion	
5b:	Protruding parts	
5c:	Rear spherical surface portion (part of a spherical surface)	5
5d:	Pair of left and right spherical surface portions (parts of a spherical surface)	
5e:	Upper opening area	
5f:	Pair of arc-shaped guide portions (parts of a spherical surface)	10
5g:	Pair of arc-shaped openings	
5h:	Downward extending platelike portions (= left-right extending plate portions 5j + front-rear extending plate portions 5k)	15
5j:	Left-right extending plate portions	
5k:	Front-rear extending plate portions	
5m:	Arc-shaped guiding stage parts	
5n:	Arrow mark indicating the direction of sliding operation (refer to FIG. 4)	20
6:	Content ejecting portion	
6a:	Connecting element	
6b:	Ejecting passage	
6c:	Orifice (content ejecting port)	
6d:	Slanted surface	25
7:	Slidable operating member	
7a:	Shutter portion	
7b:	Sliding operation surface	
7c:	Circular recess	
7d:	Pair of downward extending guided tabs (= guided stage parts 7e + slanted surfaces 7f)	30
7e:	Arc-shaped guided stage parts	
7f:	Slanted surfaces	
7g:	Pushing portion (= downward extending triangular portions 7h + curved surface portions 7j)	35
7h:	Pair of downward extending triangular portions	
7j:	Curved surface portions for exerting pushing action	
8:	Pair of leaf springs	
8a:	Free end portions	40

Claims

1. A container cover comprising a tubular actuator member provided with a content discharging passage which connects to a stem under conditions where said actuator member is mounted on a container, and an operating member which is biased frontward by an elastic member to cover an upper opening of said actuator member and is slid rearward to expose a discharging port of the content discharging passage to an external space, overwhelming a biasing force of the elastic member, when content discharging operation is performed, said actuator member including:

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a tubular main body portion in which the upper

opening and a guiding part for guiding a rearward sliding action of said operating member are formed, the tubular main body portion being configured to engage with the container; and a content discharging portion in which the content discharging passage and a driven part that is driven to an activated mode in response to the sliding action are formed, the content discharging portion being integrally formed with the tubular main body portion swingably thereabout; and

said operating member including:

a shutter portion which is slidable relative to the upper opening;
a sliding operation surface used for the content discharging operation, the sliding operation surface constituting part of the shutter portion;
a guided part which is guided by the guiding part; and
an activated mode setting part which drives the driven part as a result of the rearward sliding action so as to move the stem connected to said actuator member to an activated mode position.

2. The container cover according to claim 1, wherein the guiding part of the content discharging portion is an arc-shaped guiding part.
3. The container cover according to claim 1 or 2, wherein the shutter portion of said operating member has an external shape which forms a single domelike external appearance together with an upper part of the tubular main body portion in a stationary mode in which the upper opening of said actuator member is covered.
4. The container cover according to one of claims 1 to 3, wherein said actuator member is a one-piece molded component including the tubular main body portion and the content ejecting portion, and said operating member is a one-piece molded component including the elastic member.
5. The container cover according to one of claims 1 to 3, wherein the elastic member is a cantilever-type leaf spring integrally formed with one of said operating member and said actuator member with a free end of the elastic member retained by the other of said operating member and said actuator member.
6. The container cover according to one of claims 1 to 5, wherein said actuator member has a sliding direction indicating part in an externally exposed area of the tubular main body portion when the shutter portion covers the upper opening.

7. An aerosol-type product comprising the container cover according to one of claims 1 to 6 and containing ejection gas and a content.
8. A pump-type product comprising the container cover according to one of claims 1 to 6 and containing a content.

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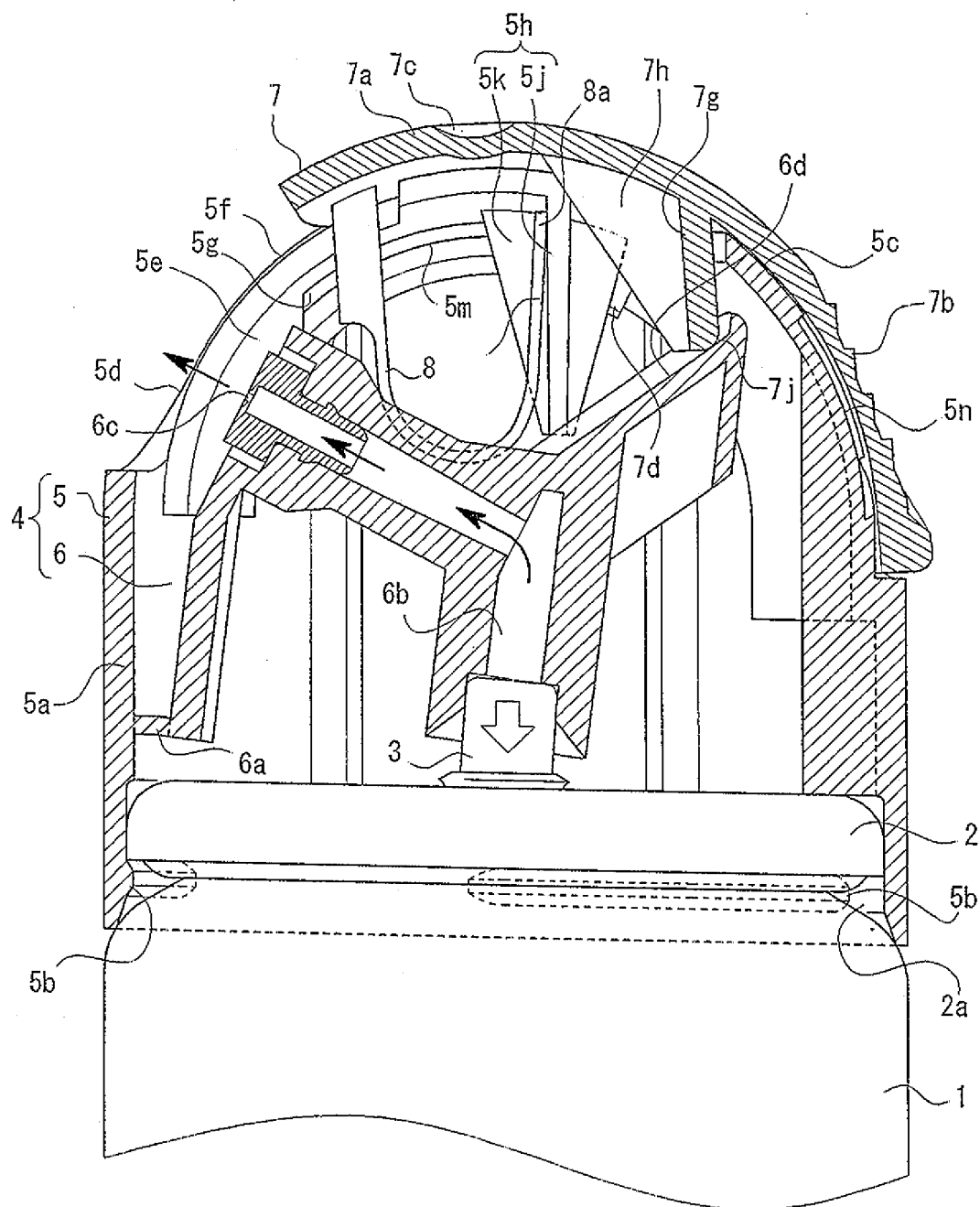
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Fig. 1



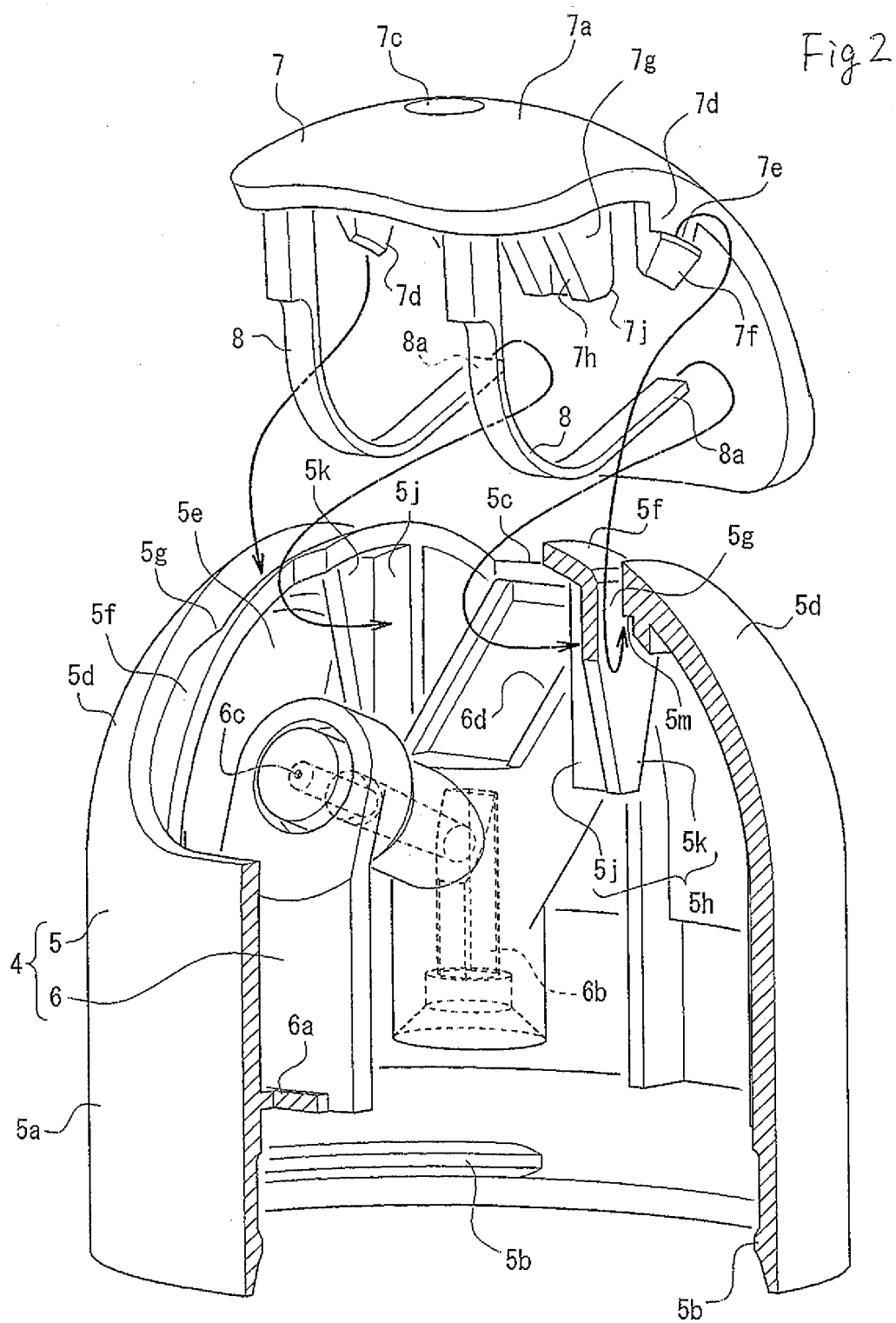


Fig 3

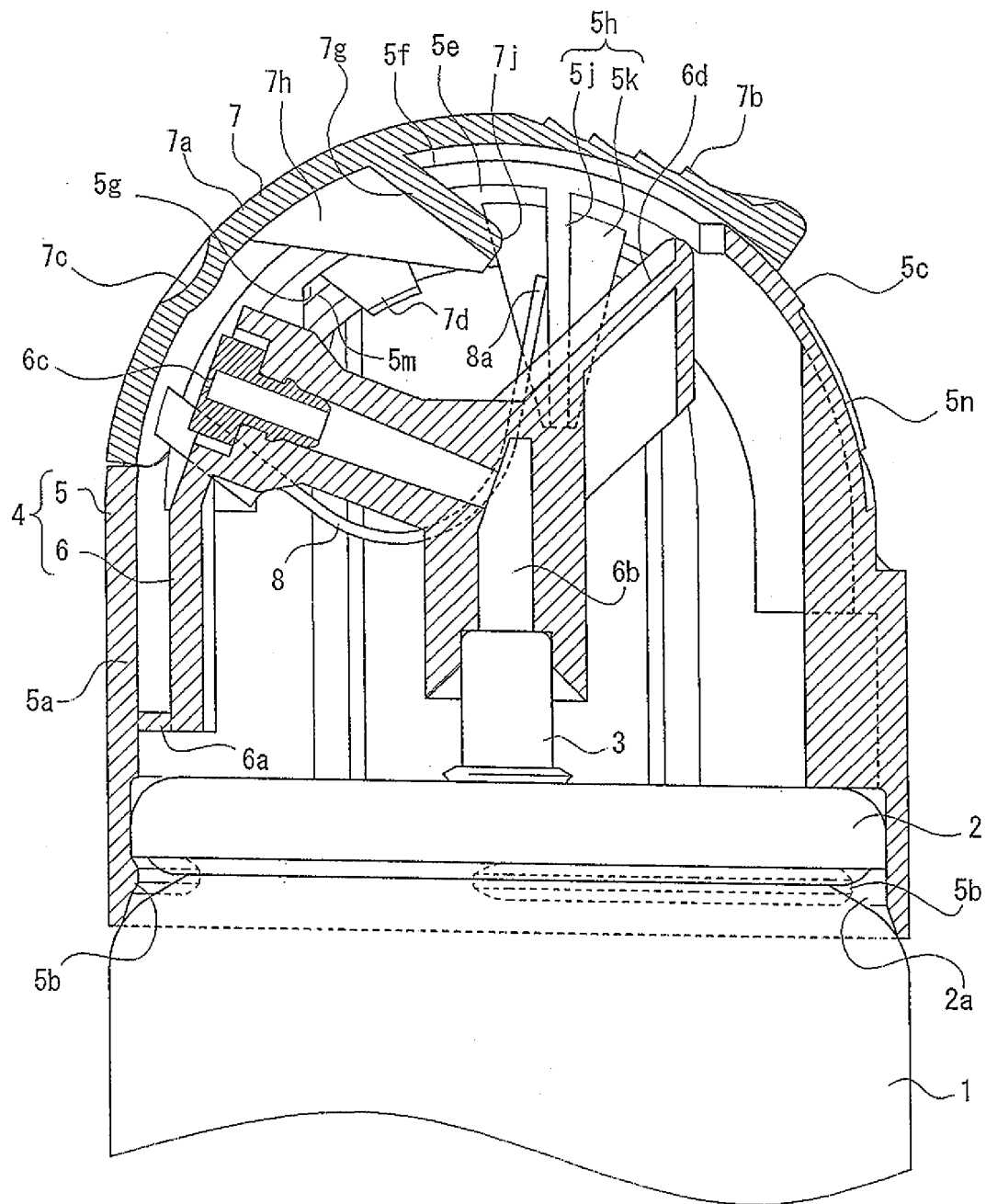
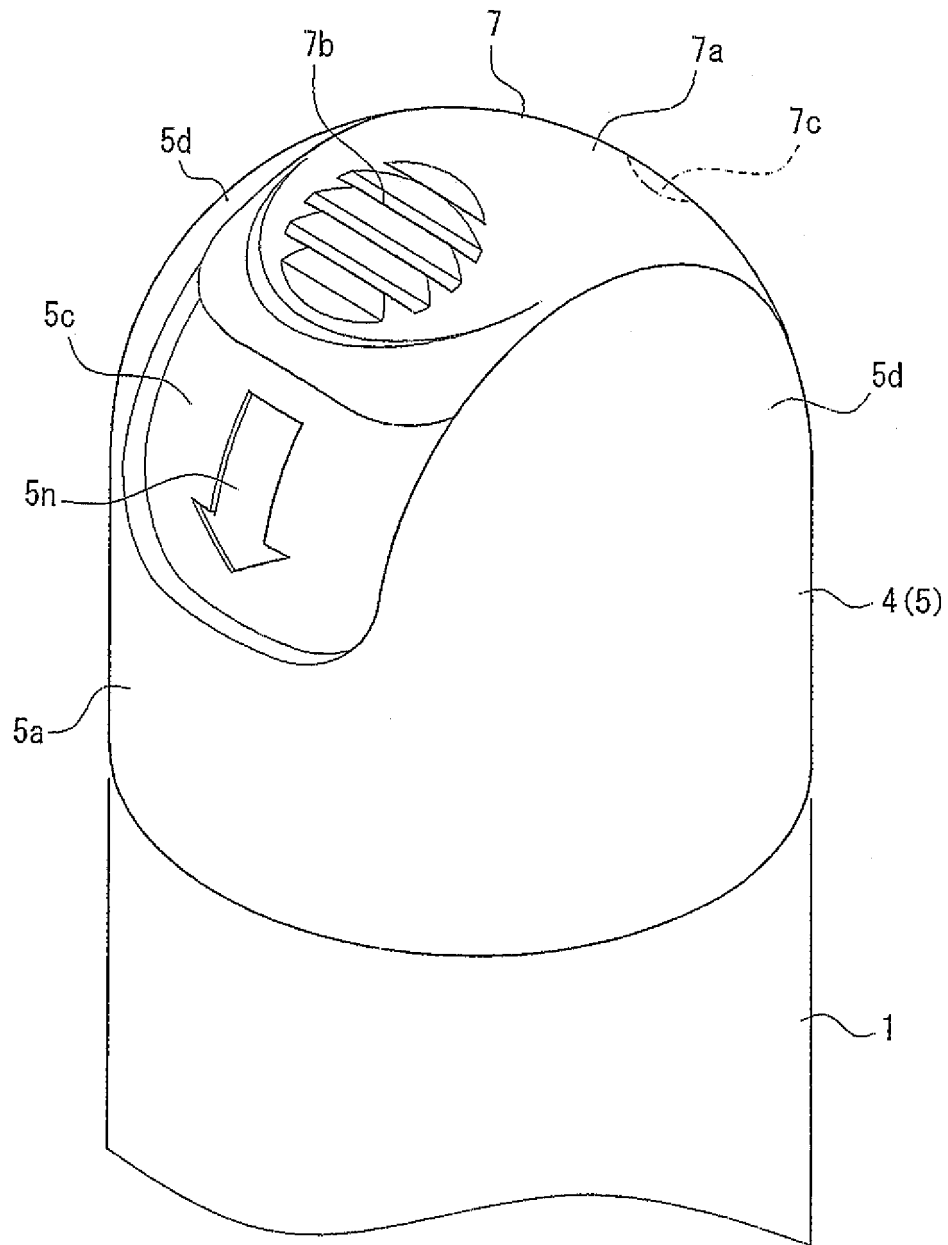


Fig. 4



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2010/062495

A. CLASSIFICATION OF SUBJECT MATTER

B65D83/40 (2006.01) i, B05B9/04 (2006.01) i, B65D47/34 (2006.01) i, B65D83/76 (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)

B65D83/40, B05B9/04, B65D47/34, B65D83/76

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	JP 2002-284261 A (Mitani Valve Co., Ltd.), 03 October 2002 (03.10.2002), paragraphs [0007] to [0017]; fig. 4 to 6 (Family: none)	1-8
Y	JP 2003-522693 A (Unilever N.V.), 29 July 2003 (29.07.2003), paragraphs [0068], [0071] to [0072]; fig. 3 to 4 & AR 029797 A & AT 275074 T & AU 2849601 A & BR 108262 A & CN 1423612 A & DE 60105263 T & EP 1255682 A1 & ES 2227241 T & GB 2359116 A & HU 204358 A & US 2002/0008119 A1 & WO 2001/060714 A1 & ZA 200205885 A	1-8

☒ 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
04 November, 2010 (04.11.10)Date of mailing of the international search report
16 November, 2010 (16.11.10)Name and mailing address of the ISA/
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2010/062495

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 11-156251 A (Mitani Valve Co., Ltd.), 15 June 1999 (15.06.1999), paragraph [0017]; fig. 2 (Family: none)	4

Form PCT/ISA/210 (continuation of second sheet) (July 2009)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 11156251 A [0008]