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(54) **Dispenser for sucking back contents remaining in the nozzle outlet**

Spender zum Zurücksaugen von in der Düsenöffnung übriggebliebenem Inhalt

Distributeur avec réaspiration du contenu restant dans l'orifice de la buse

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Description

Technical Field

[0001] The present invention relates to a dispenser for sucking back contents, and more particularly to a dispenser for sucking back contents which makes it possible to prevent over consumption of contents in such a way to suck back the contents remaining at an end portion of a nozzle of a button of a dispenser after the contents are discharged and used, and also makes it possible to prevent a container body from being contaminated by contents.

Background Art

[0002] Common liquid or sticky liquid type cosmetic is stored in a dispenser container and is used as it is discharged by a certain amount. The dispenser container is equipped with a dispenser at the top of a container which stores contents. The above dispenser is pumped when a button with a nozzle is pressed for thereby discharging contents from the dispenser container.

[0003] In case of the above mentioned dispenser, when a user presses the button so as to discharge contents, the contents remains at an end portion of the nozzle after the contents is discharged. In this event, the contents remaining at the end portion of the nozzle may move down and contaminate the container and may be spoiled as it directly contact with air. In worse case, the contents may be hardened and block the nozzle. When such situation occurs, the user first needs to remove the hardened and stuck contents when in use. The contents may be over consumed.

[0004] Under the above described problems in the conventional art, many researchers are strongly interested in developing various dispensers which are capable of sucking back the contents remaining at the end portion of the nozzle in an attempt to prevent the container from being contaminated.

[0005] On the other hand, US 5,482,188A, US 6,390,338 B1 and CN 101,973,431 A commonly disclose a dispenser. However, with a conventional pump-type cosmetics container as the above, there still remains concern that the content in the interior of the nozzle can be spoiled and also a problem that the content left in the fore-end of the nozzle contaminates the nozzle cover.

Disclosure of Invention

[0006] Accordingly, it is an object of the present invention to provide a dispenser for sucking back contents which makes it possible to prevent over consumption of contents in such a way to suck back the contents remaining at an end portion of a nozzle of a button of a dispenser after the contents are discharged and used, and also makes it possible to prevent a container body from being contaminated by contents.

[0007] To achieve the above objects, there is provided a dispenser for sucking back contents, comprising a body which is engaged to the top of a container body; an engaging body which is engaged to the body and fixes a cylinder and is hollow; a cylinder which is engaged to the bottom of the engaging body and has a content input hole formed at the bottom for inputting contents and a valve member which is opened and closed by the pressure of contents in the content input hole; a stem which passes through the hollow interior of the engaging body and has a support shoulder at an inner surface; a piston rod which is engaged to the stem, the bottom of which piston rod is equipped with a spring support part, and the top of which has a spring engaging protrusion which protrudes in an upward direction; a sealing cap which is installed at the bottom of the stem, the outer surface of the sealing cap coming into close contact with an inner surface of the cylinder; a first spring which is installed in the interior of the cylinder and serves to provide an elastic force to the piston rod; a second spring which is installed surrounding the spring engaging protrusion of the piston rod, the bottom of which second spring is supported by the piston rod, and the top of which is supported by the support shoulder of the stem for thereby providing an elastic force in an upward direction; and a button which is engaged to the top of the stem and has a nozzle for discharging contents.

[0008] In addition, the second spring is contracted by a support shoulder when the stem descends and recovers for thereby allowing the stem to ascend, so the contents remaining at an end portion of the nozzle is sucked back as much as the distance defined as the support shoulder of the stem and the spring engaging protrusion of the piston rod are spaced apart.

[0009] In addition, the sealing cap is made from an elastic material and is contracted by a pressure of the stem when the stem descends and recovers, so the stem is allowed to ascend by a change of the length of the sealing cap, for thereby sucking back the contents remaining at an end portion of the nozzle.

Advantageous effects

[0010] The present invention is advantageous because it is possible to prevent over consumption of contents in such a way to suck back the contents remaining at an end portion of a nozzle of a button of a dispenser after the contents are discharged and used, and also makes it possible to prevent a container body from being contaminated by contents.

Brief Description of Drawings

[0011]

Figure 1 is a cross sectional view illustrating a construction of a dispenser for sucking back contents according to a preferred embodiment of the present

invention.

Figures 2 to 5 are views for explaining a suck-back procedure of contents of a dispenser for sucking back contents according to a preferred embodiment of the present invention.

Figure 6 is a cross sectional view illustrating a state that a dispenser for sucking back contents is engaged to a container body according to a preferred embodiment of the present invention.

Best modes for carrying out the invention

[0012] The preferred embodiments of the present invention will be described with reference to the accompanying drawings.

[0013] Figure 1 is a cross sectional view illustrating a construction of a dispenser for sucking back contents according to a preferred embodiment of the present invention. Figures 2 to 5 are views for explaining a suck-back procedure of contents of a dispenser for sucking back contents according to a preferred embodiment of the present invention. Figure 6 is a cross sectional view illustrating a state that a dispenser for sucking back contents is engaged to a container body according to a preferred embodiment of the present invention.

[0014] As best seen in Figures 1 to 6, the dispenser for sucking back contents according to the present invention comprises a body 100, an engaging body 200, a cylinder 300, a stem 400, a piston rod 500, a sealing cap 600, a first spring 700, a second spring 800 and a button 900.

[0015] The body 100 is engaged to the top of the container body 10 which is filled with contents "a" for thereby closing the open top of the container body 10, and the body 100 has an engaging shoulder 110 at its inner side for an engagement to the engaging body 200.

[0016] The engaging body 200 is engaged to the body 100 for thereby fixing the cylinder 300 and has an engaging protrusion 210 at its portion which comes into contact with the engaging shoulder 110, for the engaging protrusion 210 to be fixedly mounted at the engaging shoulder 110 of the body 100.

[0017] The engaging body 200 is formed in a hollow shape for the stem 400 to pass through.

[0018] The cylinder 300 is engaged to the bottom of the engaging body 200 and has a content input hole 310 at its lower side for the content stored in the container body 100 to input. It is preferred that a valve member 320 is installed at the content input hole 310 for the purpose of preventing a reverse flow of contents as it is opened and closed by the pressure of the contents.

[0019] The stem 400 passes through the hollow portion of the engaging body 200 and is formed in a cylindrical shape the top and bottom of which communicate with each other for the contents to pass through. In the present invention, at an inner surface of the stem 400 is provided a support shoulder 410 supporting the top of the second spring 800. When the stem 400 descends by the pressure

of the button 900, the second spring 800 pressurizes the second spring 800 and moves down and comes into contact with the top of the spring engaging protrusion 520 of the piston rod 500 for hereby transferring a pressure to the piston rod 500, so the piston rod 500 moves downward.

[0020] The piston rod 500 is inserted into the bottom of the stem 400. A certain space is formed in the longitudinal direction for the sake of the movement of the contents. At the bottom of the piston rod 500 is provided a spring support part 510 supporting the top of the first spring 700 for the piston rod 500 to ascend by means of an elastic force of the first spring 700.

[0021] In the present invention, at the top of the piston rod 500 is provided a spring engaging protrusion 520 which protrudes in the upward direction for the sake of the installation of the second spring 800. The spring engaging protrusion 520 serves to prevent the distortion of the second spring 800 and to guide the movements when the second spring 800 contracts and releases as the stem 400 descends and ascends.

[0022] Coming into contact with the support shoulder 410 of the stem 400, the spring engaging protrusion 520 helps generate a vacuum pressure in the interior of the stem 400 as much as the distance spaced apart from the support shoulder 410 when the stem 400 ascends by means of an elastic force of the second spring 800 for thereby sucking back the contents remaining at the end portion of the nozzle 910.

[0023] Surrounding the stem 400 and the piston rod 500, the sealing cap 600 is installed at the bottom of the stem 400.

[0024] In the present invention, the sealing cap 600 is made from an elastic material, the top of which is supported by the stem 400, the bottom of which is supported by the piston rod 500, so when the stem 400 descends, it is pressurized by the pressure of the stem 400 and then recovers for thereby allowing the stem 400 to ascend. A vacuum pressure is generated in the interior of the stem 400 as much as the length changed by a change in the length of the sealing cap 600 which occurs when the sealing cap 600 is compressed and recovers for thereby sucking back the contents remaining at the end portion of the nozzle 910.

[0025] The first spring 700 is installed in the interior of the cylinder 300, the bottom of which first spring is mounted at the spring mounting shoulder 330 formed at the bottom of the inner side of the cylinder 300, the other side of which is supported by the spring support part 510 of the piston rod 500 for thereby generating and transferring an elastic force to the piston rod 500 during the pumping operations.

[0026] The second spring 800 surrounds the spring engaging protrusion 520 of the piston rod 500, the bottom of which second spring is supported by the piston rod 500, the top of which is supported by the support shoulder 410 of the stem 400 for thereby providing an elastic force in the upward direction during pumping operation, so the

stem 400 ascends.

[0027] In the present invention, the second spring 800 is contracted by the support shoulder 410 when the stem 400 descends by a pressure of the button 900 and recovers when the pressurization of the button 900 is removed for thereby allowing the stem 400 to ascend, so the support shoulder 410 of the stem 400 and the spring engaging protrusion 520 of the piston rod 500 becomes spaced apart. The stem 400 ascends by an elastic force of the second spring 800, and a vacuum space is generated in the interior of the stem 400 as much as the distance "H" defined as the support shoulder 410 and the spring engaging protrusion 520 are spaced apart for thereby sucking back the contents remaining at the end portion of the nozzle 910.

[0028] The button 900 is engaged to the top of the stem 400 and transfers a pressure to the stem 400 as a user pressurizes and has a nozzle 910 through which the contents moving through the stem 400 are discharged outside.

[0029] As the present invention may be embodied in several forms without departing from the scope of the appended claims, it should also be understood that the above-described examples are not limited by any of the details of the foregoing description, unless otherwise specified, but rather should be construed broadly within its scope as defined in the appended claims, and therefore all changes and modifications that fall within the scope of the appended claims are therefore intended to be embraced by the appended claims.

Claims

1. A dispenser capable of sucking back the contents remaining at an end portion of a nozzle (910), comprising:

- a body (100) which is engaged to a top of a container body (10);
- an engaging body (200) which is engaged to the body (100) and fixes a cylinder (300) and is hollow;
- the cylinder (300) which is engaged to a bottom of the engaging body (200) and has a content input hole (310) formed at the bottom for inputting the contents and a valve member (320) which is opened and closed by the pressure of contents in the content input hole (310);
- a stem (400) which passes through the hollow interior of the engaging body (200) and has a support shoulder (410) at an inner surface;
- a piston rod (500) which is engaged to the stem (400), a bottom of the piston rod (500) being equipped with a spring support part (510), and a top of the piston rod (500) having a spring engaging protrusion (520) which protrudes in an upward direction;

- a sealing cap (600) which is installed at the bottom of the stem, the outer surface of the sealing cap (600) coming into close contact with an inner surface of the cylinder (300);
- a first spring (700) which is installed in the interior of the cylinder (300) and serves to provide an elastic force to the piston rod (500);
- a second spring (800) which is installed surrounding the spring engaging protrusion (520) of the piston rod, a bottom of the second spring (800) being supported by the piston rod (500), and a top of the second spring (800) being supported by the support shoulder (410) of the stem (400) for thereby providing an elastic force in an upward direction;
- a button (900) which is engaged to the top of the stem (400) and has the nozzle (910) for discharging contents; and
- wherein the second spring (800) is contracted by the support shoulder (410) when the stem (400) descends and then recovers, thereby allowing the stem (400) to ascend; the contents remaining at the end portion of the nozzle (910) being thereby sucked back as much as the distance (H) defined as the support shoulder (410) of the stem (400) and the spring engaging protrusion (520) of the piston rod (500) are spaced apart; and
- wherein the sealing cap (600) is made from an elastic material and is contracted by a pressure of the stem (400) when the stem (400) descends and then recovers, the stem (400) ascending thereby by a change of the length of the sealing cap (600), thereby sucking back the contents remaining at the end portion of the nozzle (910).

Patentansprüche

1. Spender, der zum Zurücksaugen von in dem Endabschnitt einer Düse (910) übriggebliebenem Inhalt imstande ist, umfassend

- einen Körper (100), der in Eingriff mit dem oberen Bereich eines Behälterkörpers (10) ist;
- einen eingreifenden Körper (200), der mit dem Körper (100) in Eingriff ist und einen Zylinder (300) fixiert und hohl ist;
- den Zylinder (300), der in Eingriff mit einem unteren Bereich des eingreifenden Körpers (200) ist und ein Inhaltseingangsloch (310), das an dem unteren Bereich gebildet ist, um den Inhalt einzugeben, und ein Ventilelement (320) aufweist, das durch den Druck des Inhalts in dem Inhaltseingangsloch (310) geöffnet und geschlossen wird;
- einen Schaft (400), der das hohle Innere des eingreifenden Körpers (200) passiert und an ei-

ner Innenfläche Halteschultern (410) aufweist;
 ◦ eine Kolbenstange (500), die in Eingriff mit dem Schaft (400) ist, wobei ein unterer Bereich der Kolbenstange (500) mit einem Federhalteteil (510) ausgestattet ist, und ein oberer Bereich der Kolbenstange (500) einen in die Feder eingreifenden Vorsprung (520) aufweist, der in einer Aufwärtsrichtung vorspringt;
 ◦ eine Verschlusskappe (600), die am unteren Bereich des Schafts eingebaut ist, wobei die Außenfläche der Verschlusskappe (600) in engen Kontakt mit einer Innenfläche des Zylinders (300) kommt;
 ◦ eine erste Feder (700), die im Inneren des Zylinders (300) eingebaut ist und dazu dient, der Kolbenstange (500) eine elastische Kraft bereitzustellen;
 ◦ eine zweite Feder (800), die so eingebaut ist, dass sie den in die Feder eingreifenden Vorsprung (520) der Kolbenstange umgibt, wobei ein unterer Bereich der zweiten Feder (800) von der Kolbenstange (500) gehalten wird und ein oberer Bereich der zweiten Feder (800) durch die Halteschulter (410) des Schafts (400) gehalten wird, um dadurch eine elastische Kraft in einer Aufwärtsrichtung bereitzustellen;
 ◦ einen Knopf (900), der in Eingriff mit dem oberen Bereich des Schafts (400) ist und die Düse (910) zum Ausgeben von Inhalt aufweist; und
 ◦ wobei die zweite Feder (800) durch die Halteschulter (410) kontrahiert wird, wenn der Schaft (400) sich nach unten bewegt und dann erholt, wodurch der Schaft (400) sich nach oben bewegen kann; wobei der an dem Endabschnitt der Düse (910) übriggebliebene Inhalt dadurch um so viel wie die Distanz (H), die als der Abstand zwischen der Halteschulter (410) des Schafts (400) und dem in die Feder eingreifenden Vorsprung (520) der Kolbenstange (500) definiert ist, zurückgesaugt wird; und
 ◦ wobei die Verschlusskappe (600) aus einem elastischen Material gefertigt ist und durch einen Druck des Schafts (400) kontrahiert wird, wenn sich der Schaft (400) nach unten bewegt und dann erholt, wobei der Schaft (400) sich dadurch um eine Änderung der Länge der Verschlusskappe (600) nach oben bewegt, wodurch der Inhalt zurückgesaugt wird, der an dem Endabschnitt der Düse (910) übrigbleibt.

Revendications

1. Distributeur pouvant réaspirer le contenu restant au niveau d'une partie d'extrémité d'une buse (910), comprenant :

un corps (100) qui est en prise avec une partie

supérieure d'un corps de récipient (10) ;
 un corps de mise en prise (200) qui est en prise avec le corps (100) et fixe un cylindre (300) et est creux ;
 le cylindre (300) qui est en prise avec une partie supérieure du corps de mise en prise (200) et a un trou d'entrée de contenu (310) formé dans la partie inférieure pour entrer le contenu et un élément de soupape (320) qui est ouvert et fermé par la pression du contenu dans le trou d'entrée de contenu (310) ;
 une tige (400) qui traverse l'intérieur creux du corps de mise en prise (200) et a un épaulement de support (410) au niveau d'une surface intérieure ;
 une tige de piston (500) qui est en prise avec la tige (400), une partie inférieure de la tige de piston (500) étant équipée d'une partie de support de ressort (510), et une partie supérieure de la tige de piston (500) ayant une saillie de mise en prise de ressort (520) qui fait saillie dans une direction ascendante ;
 un capuchon d'étanchéité (600) qui est installé dans la partie inférieure de la tige, la surface extérieure du capuchon d'étanchéité (600) venant en contact étroit avec une surface intérieure du cylindre (300) ;
 un premier ressort (700) qui est installé à l'intérieur du cylindre (300) et sert à fournir une force élastique à la tige de piston (500) ;
 un second ressort (800) qui est installé autour de la saillie de mise en prise de ressort (520) de la tige de piston, une partie inférieure du second ressort (800) étant supportée par la tige de piston (500), et une partie supérieure du second ressort (800) étant supportée par l'épaulement de support (410) de la tige (400) pour fournir ainsi une force élastique dans une direction ascendante ;
 un bouton (900) qui est en prise avec la partie supérieure de la tige (400) et qui a la buse (910) pour décharger le contenu ; et
 le second ressort (800) étant contracté par l'épaulement de support (410) lorsque la tige (400) descend puis se redresse, permettant ainsi à la tige (400) de remonter ;
 le contenu restant au niveau de la partie d'extrémité de la buse (910) étant ainsi réaspiré autant que la distance (H) définie alors que l'épaulement de support (410) de la tige (400) et la saillie de mise en prise de ressort (520) de la tige de piston (500) sont écartés ; et
 le capuchon d'étanchéité (600) étant en un matériau élastique et étant contracté par une pression de la tige (400) lorsque la tige (400) descend puis se redresse, la tige (400) montant ainsi par une modification de la longueur du capuchon d'étanchéité (600), réaspirant ainsi le con-

tenu restant dans la partie d'extrémité de la buse
(910).

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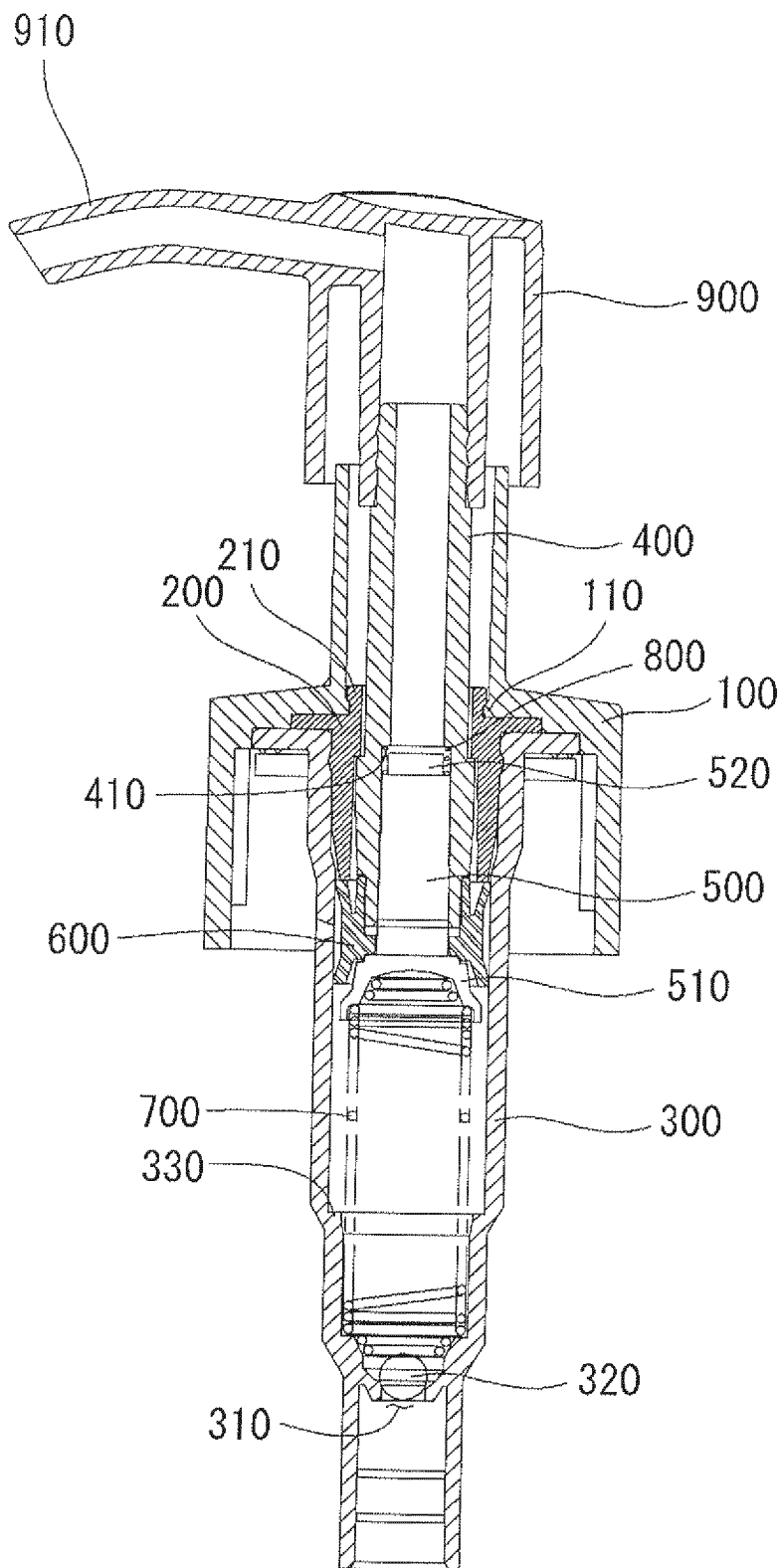


Figure 1

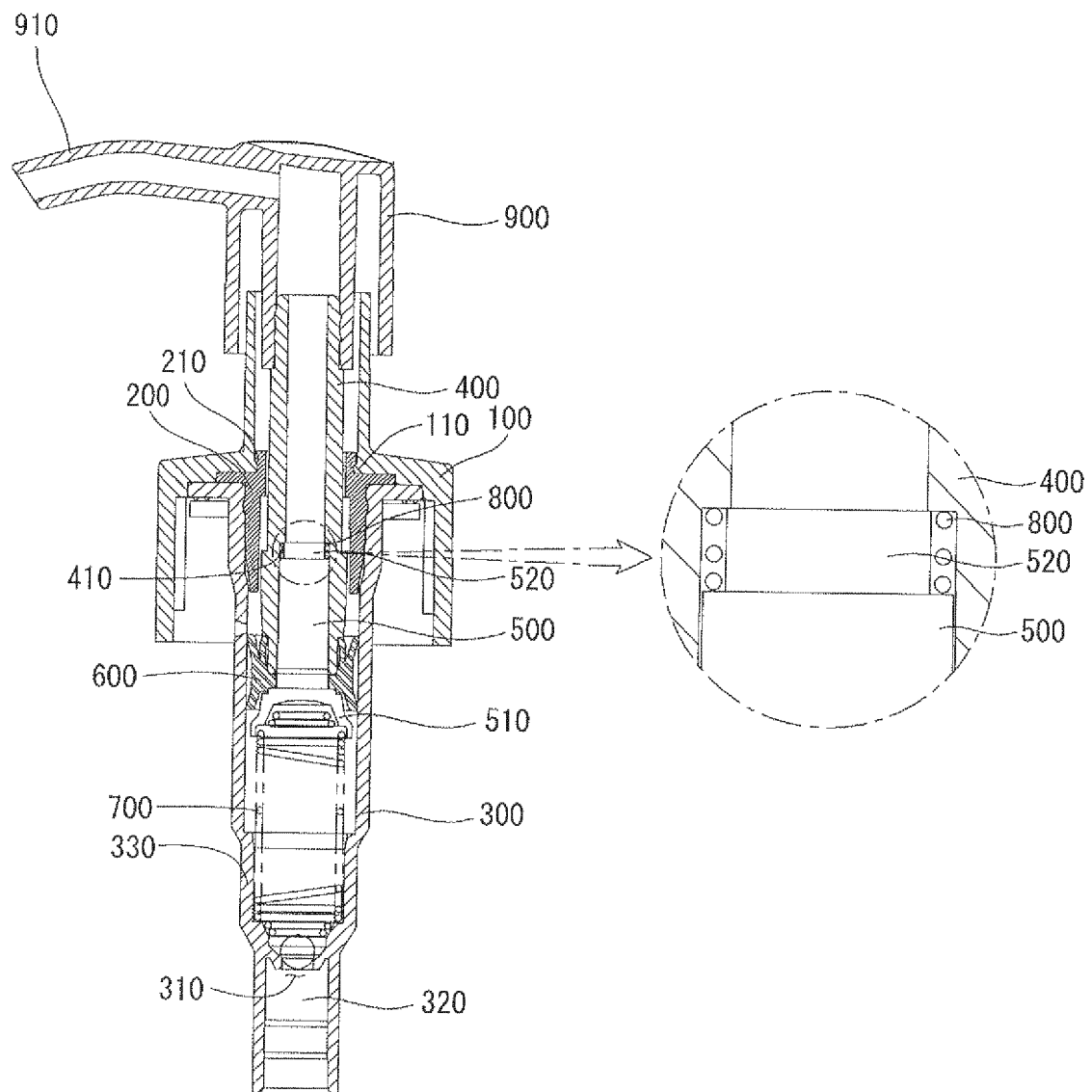


Figure 2

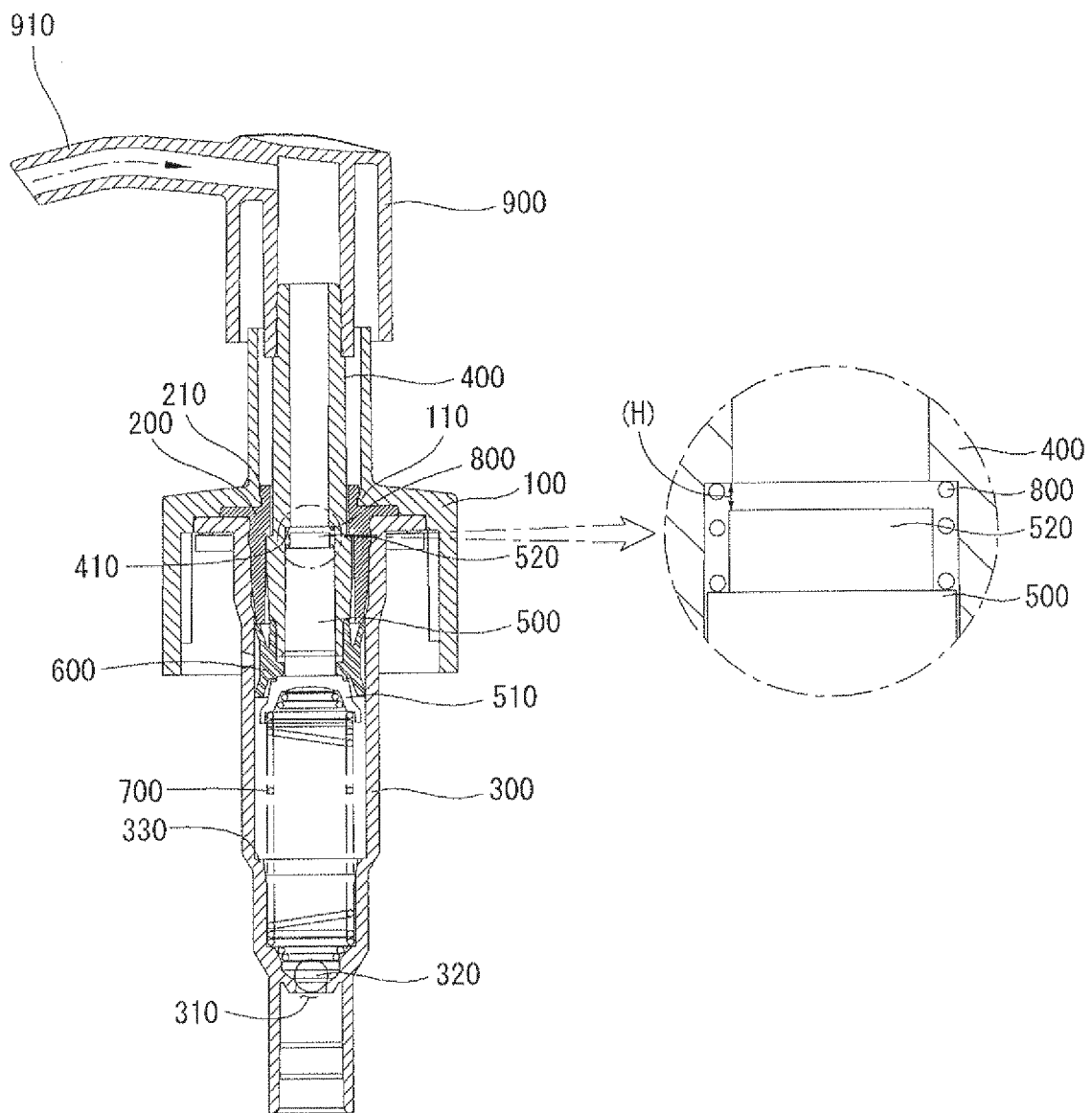


Figure 3

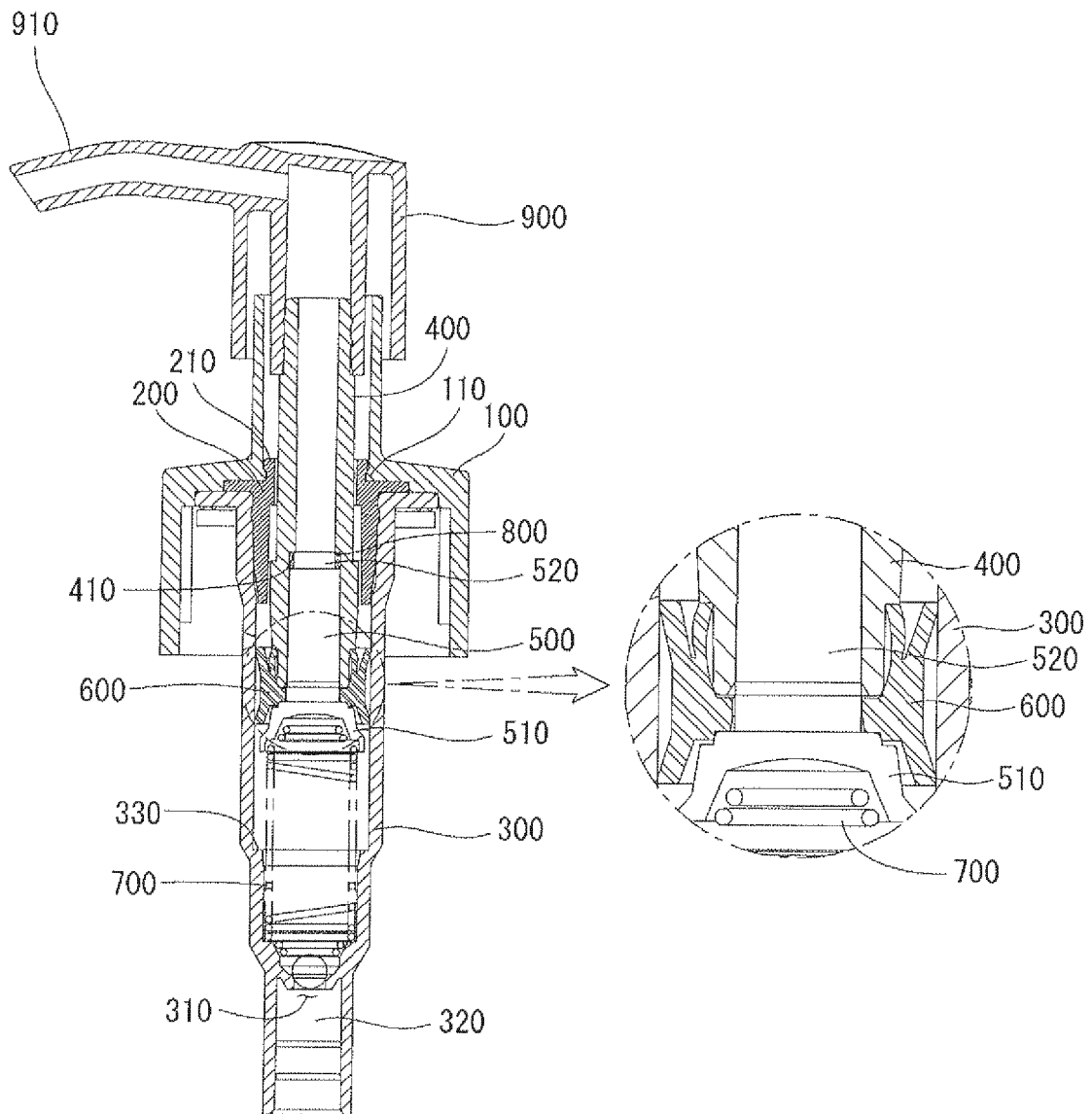


Figure 4

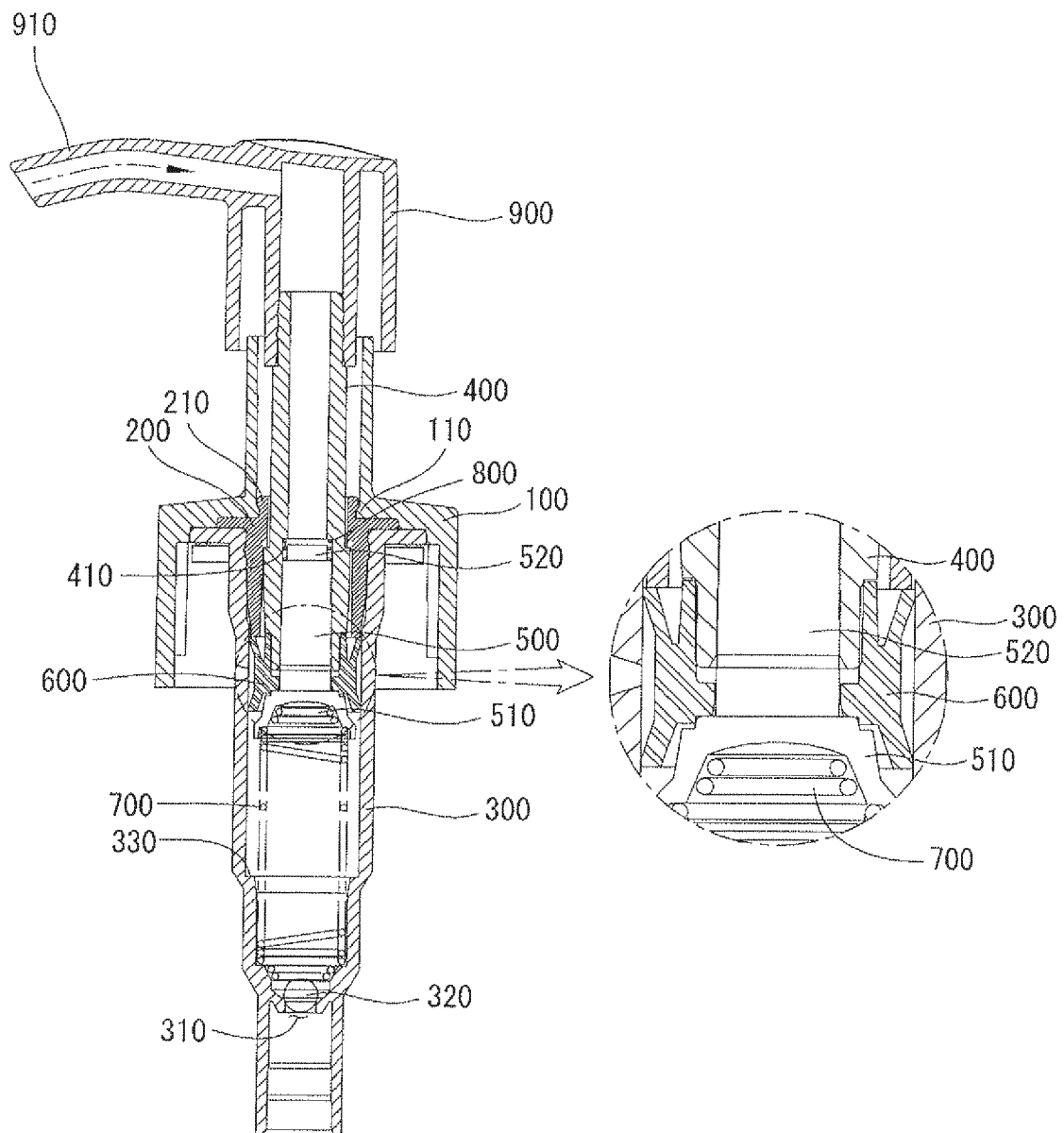


Figure 5

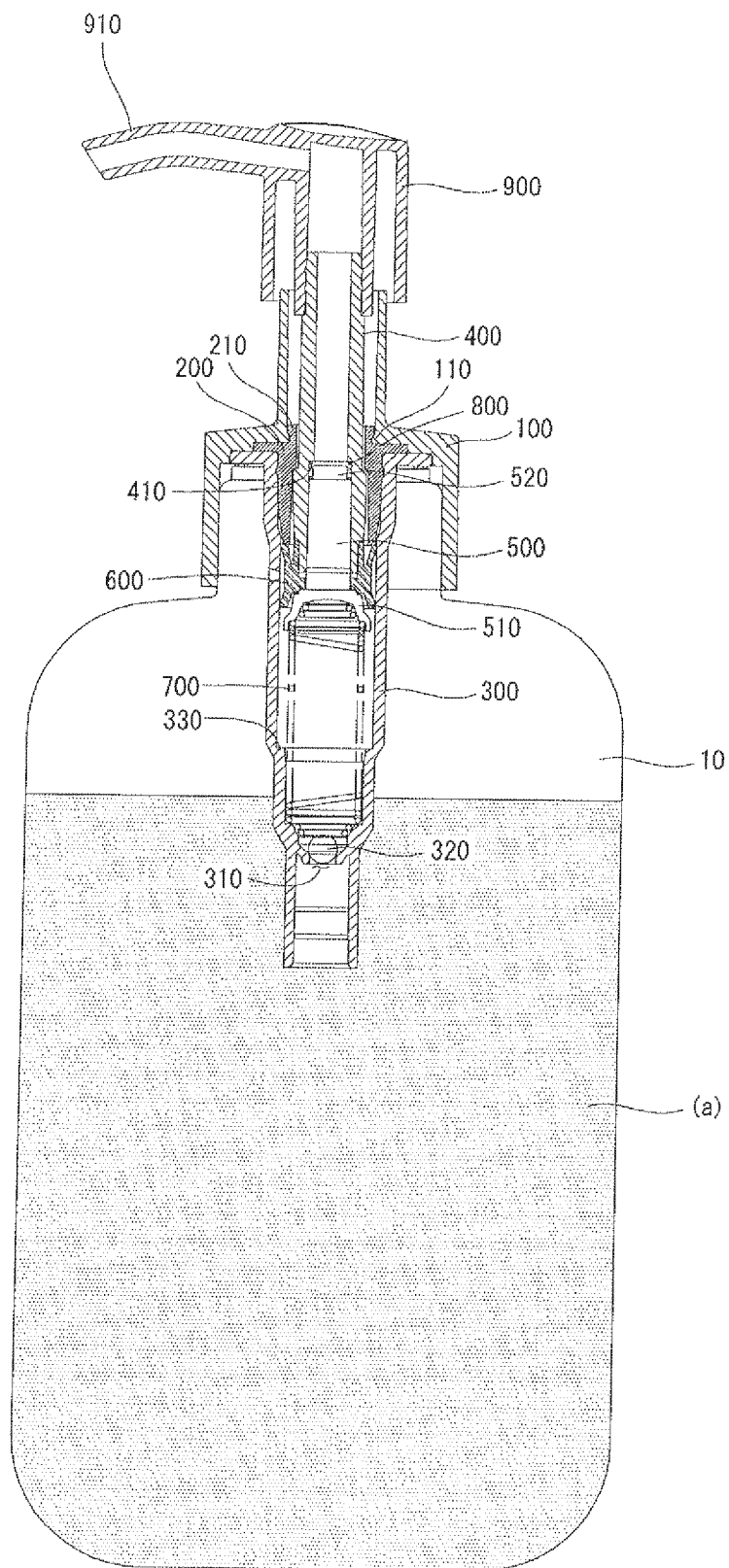


Figure 6

REFERENCES CITED IN THE DESCRIPTION

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