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Amended claims in accordance with Rule 137(2) EPC.

(54) A COSMETIC PACKAGING BOTTLE RESTRICTING BACKFLOW

(57) The invention relates to a cosmetic packaging bottle restricting backflow, includes a soft tube packaging bottle and a liquid discharge head, and also includes a non-return valve sheet, which is placed within the liquid discharge head. The non-return valve sheet has a one-way flow restriction function, so that contents of the soft tube packaging bottle are squeezed out in one direction and cannot flow back. A cosmetic packaging bottle restricting backflow in the invention has a one-way flow restriction function, so that contents of the soft tube packaging bottle are squeezed out in one direction and cannot flow back, preventing contents from flowing back and causing contamination of contents of the soft tube packaging bottle.

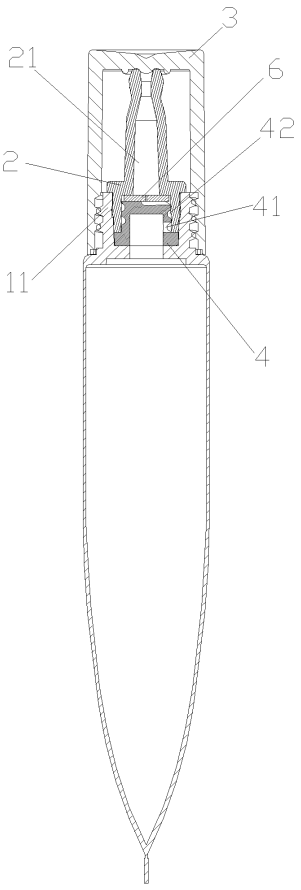

Fig. 1

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Description

REFERENCE TO PRIOR APPLICATION

[0001] This application claims priority to Chinese Patent Application 202223284958.7, filed on December 06, 2022.

TECHNICAL FIELD

[0002] The invention relates to the field of cosmetic packaging bottles, and in particular, to a cosmetic packaging bottle restricting backflow.

TECHNICAL BACKGROUND

[0003] With the improvement of living standards, more and more people attach importance to skin care and are in need of more volume of cosmetics. There are usually lotion-like and viscous products. Many lotion-like and viscous contents using soft tube packaging bottles. In the usage, contents of cosmetics in the bottle are squeezed out. With the increase in demand for comfort in use, the bottle seat outlet of the soft tube packaging bottle is usually equipped with a massage head, and accessories such as heating and vibration are placed in the bottle seat to assist in massage absorption. Therefore, the bottle seat outlet has a long passage, and lotion from the massage head tends to flow back into the passage when used, and lotions may be sucked back into the bottle by the soft tube packaging bottle, resulting in contamination of the cosmetic lotion inside the bottle by microorganisms or bacteria.

SUMMARY

[0004] In order to overcome the aforementioned problems, the invention provides a cosmetic packaging bottle restricting backflow, with a one-way flow restriction function, so that the contents of the soft tube packaging bottle are squeezed in one direction and cannot flow back, preventing the contents from flowing back and causing contamination of the contents of the soft tube packaging bottle.

[0005] The technical solution adopted by the invention to solve the technical problems is: a cosmetic packaging bottle restricting backflow, including a soft tube packaging bottle and a liquid discharge head, and also including a non-return valve sheet, which is placed within the liquid discharge head. The non-return valve sheet has a one-way flow restriction function, so that contents of the soft tube packaging bottle are squeezed out in one direction and cannot flow back.

[0006] Preferably, a middle part of the non-return valve sheet is provided with a cross-shaped cutout, the non-return valve sheet is normally closed, the non-return valve sheet is squeezed by the contents to open upward and discharge the contents. The flow restriction seat is placed on the mouth of the soft tube packaging bottle, and the non-return valve sheet is attached to the upper part of the flow restriction seat, and the flow restriction channel is placed in the flow restriction seat; the bottom of the liquid discharge head has a concave cavity, and the liquid discharge head is placed on the flow restriction seat and pressed against the circumference of the non-return valve sheet, and a liquid discharge cavity is placed in a middle part of the liquid discharge head, and the cross-shaped cutout of the non-return valve sheet can be opened in the direction of the liquid discharge cavity.

[0007] Preferably, at least one section of the flow restriction channel of the flow restriction seat is a non-linear channel.

[0008] Preferably, the bottom of the flow restriction seat is a concave cavity structure, and the flow restriction channel includes a through-port placed in the side wall of the flow restriction seat, a side groove channel placed between the outer side wall of the flow restriction seat and the liquid discharge head, and an upper groove channel placed in the upper end of the flow restriction seat; the through-port, side groove channel, and upper groove channel are connected to each other in turn.

[0009] Preferably, the side groove channel is a spiral structure. The spiral flow restriction channel makes contents enter from the side and exit from the upper part, which can limit the outflow rate of contents, to accurately use the squeeze volume, to prevent contents from splashing and spilling due to excessive force when squeezing, to avoid waste.

[0010] Preferably, the upper groove channel extends from the middle to the edge and is connected to the side groove channel.

[0011] Preferably, the upper part of the liquid discharge head is a liquid discharge column, and the inner cavity of the liquid discharge column forms the aforementioned liquid discharge cavity, and the liquid discharge cavity is connected to the outside of the liquid discharge column.

[0012] Preferably, the mouth of the soft tube packaging bottle is provided with a threaded holder, the bottom surface of the threaded holder is provided with a limit platform, a middle part of the limit platform is provided with an opening corresponding to the open concave cavity structure of the bottom surface of the flow restriction seat, the flow restriction seat and the liquid discharge head are placed inside the threaded holder, and the outer wall of the liquid discharge head is close to the inner wall of the threaded holder.

[0013] Preferably, there is a slot and a convex ring between the outer wall of the liquid discharge head and the inner wall of the threaded holder, and the slot and the convex ring are correspondingly clamped to each other.

[0014] Preferably, it also includes an outer cover, which is screwed to the threaded holder, and a raised plunger is placed in a middle part of the outer cover, and the plunger closes the upper end of the liquid discharge cavity after the outer cover is installed.

[0015] The beneficial effect of the invention is: a cos-

metic packaging bottle restricting backflow, with a one-way flow restriction function, so that the contents of the soft tube packaging bottle can be squeezed in one direction and cannot flow back, to prevent the contents of the backflow of the soft tube packaging bottle from causing contamination of the contents. The non-return valve sheet has a one-way valve role, the middle is provided with a cross-shaped cutout. The non-return valve sheet is normally closed. When the contents are squeezed out, the non-return valve sheet squeezed by the contents will open upward, the contents are discharged. After the stopping of squeezing, the soft tube packaging bottle has a tendency to reset and will suck back the contents, the contents tend to flow back. At this time, the non-return valve sheet is sucked downward against the upper surface of the flow restriction seat to keep it closed and prevent contents from flowing back.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] The invention is further described hereinafter in conjunction with the accompanying drawings and embodiments.

FIG. 1 is a schematic diagram of a cross-sectional structure of a cosmetic packaging bottle restricting backflow in the invention;
FIG. 2 is an exploded view of a cosmetic packaging bottle restricting backflow in the invention;
FIG. 3 is a schematic diagram of a partially enlarged structure in FIG. 1 of a cosmetic packaging bottle restricting backflow in the invention;
FIG. 4 is a schematic diagram of the structure of a flow restriction seat of a cosmetic packaging bottle restricting backflow in the invention; and
FIG. 5 is a schematic diagram of the side view structure of the flow restriction seat of a cosmetic packaging bottle restricting backflow in the invention.

DETAILED DESCRIPTION OF EMBODIMENTS

[0017] The invention is now described in further details in conjunction with the accompanying drawings. These drawings are simplified schematic diagrams that illustrate the basic structure of the invention in a schematic manner only, and therefore show only the components related to the invention.

Description of embodiments

[0018] As shown in FIGS. 1 and 2, the cosmetic packaging bottle restricting backflow consists of a soft tube packaging bottle 1 and a liquid discharge head 2, and a non-return valve sheet 6 is installed in the liquid discharge head 2. The non-return valve sheet 6 has a one-way flow restriction function, so that the contents of the soft tube packaging bottle 1 are squeezed out in one direction and cannot flow back, preventing the contents from flowing back and causing contamination of the contents of the soft tube packaging bottle 1.

[0019] Refer to FIG. 2. A middle part of the non-return valve sheet 6 is provided with a cross-shaped cutout 61, the non-return valve sheet 6 is closed in the normal state, the non-return valve sheet 6 is squeezed by the contents to open upward and discharge the contents. The flow restriction seat 4 is placed on the mouth of the soft tube packaging bottle 1, and the non-return valve sheet 6 is attached to the upper part of the flow restriction seat 4, the flow restriction seat 4 is provided with a flow restriction channel, and the non-return valve sheet 6 covers the outlet of the flow restriction channel; the bottom of the liquid discharge head 2 has a concave cavity, and the concave cavity part of the liquid discharge head 2 is placed on the flow restriction seat 4, and the inner wall surface of the concave cavity of the liquid discharge head 2 is close to the outer side wall of the flow restriction seat 4. The top surface of the concave cavity of the liquid discharge head 2 is pressed against the circumference of the non-return valve sheet 6, and a liquid discharge cavity 21 is provided in a middle part of the liquid discharge head 2, and the cross-shaped cutout 61 of the non-return valve sheet 6 can be opened in the direction of the liquid discharge cavity 21. Among them, the outer diameter of the liquid discharge cavity 21 is larger than the flow restriction channel, and the cross-shaped cutout 61 of the non-return valve sheet 6 cannot be opened in the direction of the flow restriction channel, which has a one-way flow restriction effect.

[0020] In this embodiment, at least one section of the flow restriction channel of the flow restriction seat 4 is a non-linear channel. The process of the contents passing through the flow restriction channel needs to pass through a number of bends, which can slow down the speed of its outflow.

[0021] Specifically, by referring to FIGS. 4 and 5, the bottom of the flow restriction seat 4 is a concave cavity structure, and the flow restriction channel includes a through-port 41 placed in the side wall of the flow restriction seat 4, a side groove channel 42 placed between the outer side wall of the flow restriction seat 4 and the liquid discharge head, and an upper groove channel 43 placed in the upper surface of the flow restriction seat 4; the through-port 41, the side groove channel 42, and the upper groove channel 43 are connected to each other in turn.

[0022] In this embodiment, the side groove channel 42 is a spiral structure. The side groove channel 42 is a groove structure placed on the side wall of the flow restriction seat 4, which is combined with the inner wall surface of the concave cavity of the liquid discharge head 2 to form a complete threaded pipe type channel.

[0023] The upper groove channel 43 extends from the middle to the edge and is connected to the side groove channel 42. The width of the upper groove channel 43, in a groove structure, is much smaller than the outer diameter of the liquid discharge cavity 21. The width of the

upper groove channel 43 is not wide enough to allow the cross-shaped cutout 61 of the non-return valve sheet 6 to open downward, and when the non-return valve sheet 6 is under suction, the cross-shaped cutout 61 presses downward against the upper surface of the flow restriction seat 4 in a closed state.

[0024] The non-return valve sheet 6 is made of silicone with a hardness of 70 degrees and good flexibility, and the cross-shaped cutout 61 opens and closes reliably.

[0025] The upper part of the liquid discharge head 2 is the liquid discharge column 5, and the inner cavity of the liquid discharge column 5 forms the aforementioned liquid discharge cavity 21, and the liquid discharge cavity 21 is connected to the outside of the liquid discharge column 5.

[0026] The mouth of the soft tube packaging bottle 1 is provided with a threaded holder 11, the bottom surface of the threaded holder 11 is provided with a limit platform 12, and a middle part of the limit platform 12 is provided with an opening 121 corresponding to the open concave cavity structure of the bottom surface of the flow restriction seat 4, and the opening 121 is connected to the flow restriction seat 4 and the soft tube packaging bottle.

[0027] Refer to FIG.3. The flow restriction seat 4 and the liquid discharge head 2 are placed inside the threaded holder 11, and the liquid discharge head 2 is placed on the flow restriction seat 4 and then fitted into the threaded holder 11, and the outer wall of the liquid discharge head 2 is tightly pressed against the inner wall of the threaded holder 11. In order to further stabilize the combination between the outer wall of the liquid discharge head 2 and the threaded holder 11, a convex ring 22 and a slot 12 are provided between the outer wall of the liquid discharge head 2 and the inner wall of the threaded holder 11. After the liquid discharge head 2 is installed in the threaded holder 11, the slot 12 and the convex ring 22 are correspondingly clamped to each other for a more stable installation, and the slot 12 and the convex ring 22 have an arc-shaped structure for easy installation.

[0028] Refer to FIG. 1. There is an outer cover 3 attached to the outside of the liquid discharge head 2, and the outer cover 3 is screwed to the threaded holder 11. A middle part of the outer cover 3 is provided with a raised plunger 31, and after the outer cover 3 is installed, the plunger 31 closes the outlet port at the upper end of the liquid discharge column 51.

[0029] In the detailed description of embodiments, before the non-return valve sheet 6 is used, the cross-shaped cutout 61 is in the bonding state, gas on both sides is sealed. In the first usage, the pressure in the content squeezing process flushes out the cross-shaped cutout 61, ending its bonding state.

[0030] When the contents are filled, the contents are filled from the bottom of the soft tube packaging bottle 1. The time required for the contents to enter the through-hole 41, the side groove channel 42, and then the upper groove channel 43 is greater than the time required for the entire cosmetic can to be completed, so the non-return valve sheet not 6 is opened, and its closed state can maximize the effective isolation of the air on the other side of the non-return valve sheet 6 to avoid direct contact between the cosmetic contents and the air and prevent microbial or bacterial contamination. It prevents microbial or bacterial contamination and effectively protects the quality of cosmetics.

[0031] Specifically, the groove channel 42 is a semi-circular groove, and the diameter of the groove channel 42 and the through-hole 41 is between 1.3 and 1.34 mm, forming a flow channel with a narrow diameter and a certain resistance. The threaded pipe-type channel formed between the groove channel 42 and the liquid discharge head 2 has more than two coils, with a total length of 50.4 mm. The length of the upper groove channel 43 is 5.09 mm, the length of the through-hole 41 is 2.07 mm, i.e., the total length of the flow restriction channel is 57.56 mm, the length of the threaded pipe channel is similar to the length of the soft tube packaging bottle 1, the contents are filled from the bottom of the soft tube packaging bottle 1, filling the whole soft tube packaging bottle 1 first, and then flowing into the threaded pipe channel. In the filling process, the time for the contents to enter the flow restriction channel and reach the non-return valve sheet 6 is much longer than the time to fill the whole soft tube packaging bottle 1, with enough time to adjust or stop filling, so the non-return valve sheet 6 is not open in the filling process, isolating the air on the other side, avoiding direct contact between the cosmetic contents and air, preventing microbial or bacterial contamination and effectively protecting the quality of cosmetics.

[0032] The side groove channel 42 is placed between the outer side wall of the flow restriction seat 4 and the liquid discharge head, and the upper groove channel 43 is placed on the upper surface of the flow restriction seat 4; the through-port 41, the side groove channel 42, and the upper groove channel 43 are connected to each other in turn.

[0033] A cosmetic packaging bottle restricting backflow described in the invention has a one-way flow restriction function, so that the contents of the soft tube packaging bottle 1 are extruded in one direction and cannot flow back, preventing the contents from flowing back and causing contamination of the contents of the soft tube packaging bottle 1. The non-return valve sheet 6 has a one-way valve role, the middle is provided with a cross-shaped cutout 61. The non-return valve sheet 6 is normally closed. When the contents are squeezed out, the non-return valve sheet 6 squeezed by the contents will open upward, the contents are discharged. After the stopping of squeezing, the soft tube packaging bottle 1 has a tendency to reset and will suck back the contents, the contents tend to flow back. At this time, the non-return valve sheet 6 is sucked downward against the upper surface of the flow restriction seat 4 to keep it closed and prevent the contents from flowing back. With a spiral flow restriction channel, the contents enter from the side and exit from the top, which can limit the outflow rate of the

contents, to squeeze accurately and prevent the contents from splashing and spilling due to excessive force during squeezing, to avoid waste.

[0034] With the aforementioned ideal embodiment of the invention as the inspiration, the relevant staff can make various changes and modifications without deviating from the scope of the technical idea of the invention. The technical scope of the invention is not limited to the contents of the specification, but must be determined according to the scope of the claims.

Claims

1. A cosmetic packaging bottle restricting backflow, including a soft tube packaging bottle and a liquid discharge head, wherein: and also including a non-return valve sheet, which is placed within the liquid discharge head, the non-return valve sheet has a one-way flow restriction function, so that contents of the soft tube packaging bottle are squeezed out in one direction and cannot flow back.

2. The cosmetic packaging bottle restricting backflow according to claim 1, wherein: a middle part of the non-return valve sheet is provided with a cross-shaped cutout, the non-return valve sheet is closed in the normal state, the non-return valve sheet is squeezed by the contents to open upward to discharge contents.

3. The cosmetic packaging bottle restricting backflow according to claim 2, wherein: the mouth of the soft tube packaging bottle is provided with a flow restriction seat, the non-return valve sheet is attached to an upper part of the flow restriction seat, and the flow restriction seat is provided with a flow restriction channel; the liquid discharge head has a concave cavity at the bottom, the liquid discharge head is capped on the flow restriction seat, pressed against the circumference of the non-return valve sheet, a middle part of the liquid discharge head is provided with a liquid discharge cavity, and the cross-shaped cutout of the non-return valve sheet can be opened in the direction of the liquid discharge cavity.

4. The cosmetic packaging bottle restricting backflow according to claim 3, wherein: the bottom of the flow restriction seat is a concave cavity structure, the flow restriction channel includes a through-port placed at the side wall of the flow restriction seat, a side groove channel placed between an outer side wall of the flow restriction seat and the liquid discharge head, and an upper groove channel placed in an upper surface of the flow restriction seat; the through-port, side groove channel, and upper groove channel are connected to each other in turn.

5. The cosmetic packaging bottle restricting backflow according to claim 4, wherein: the side groove channel is a spiral structure.

6. The cosmetic packaging bottle restricting backflow according to claim 5, wherein: the upper groove channel extends from the middle to the edge and is connected to the side groove channel.

7. The cosmetic packaging bottle restricting backflow according to claim 6, wherein: the upper part of the liquid discharge head is a liquid discharge column, the inner cavity of the liquid discharge column forms the liquid discharge cavity, and the liquid discharge cavity is connected to the outside of the liquid discharge column.

8. The cosmetic packaging bottle restricting backflow according to claim 7, wherein: the mouth of the soft tube packaging bottle is provided with a threaded holder, the bottom surface of the threaded holder is provided with a limit platform, a middle part of the limit platform is provided with an opening corresponding to the open concave cavity structure of the bottom surface of the flow restriction seat, the flow restriction seat and the liquid discharge head are placed inside the threaded holder, and the outer wall of the liquid discharge head is close to the inner wall of the threaded holder.

9. The cosmetic packaging bottle restricting backflow according to claim 8, wherein: an outer wall of the liquid discharge head and the inner wall of the threaded holder are provided with a slot and a convex ring, respectively, and the slot and the convex ring correspond to each other.

10. The cosmetic packaging bottle restricting backflow according to claim 9, wherein: and also includes an outer cover, the outer cover is screwed onto the threaded holder, and a raised plunger is placed in a middle part of the outer cover, and the plunger closes the upper end of the liquid discharge cavity after the outer cover is installed.

Amended claims in accordance with Rule 137(2) EPC.

1. A cosmetic packaging bottle (1) restricting backflow, including a soft tube packaging bottle (1) and a liquid discharge head (2), and also including a non-return valve sheet (6), which is placed within the liquid discharge head (2), the non-return valve sheet (6) has a one-way flow restriction function, so that contents of the soft tube packaging bottle (1) are squeezed out in one direction and cannot flow back, a middle part of the non-return valve sheet (6) is provided with

a cross-shaped cutout (61), the non-return valve sheet (6) is closed in the normal state, the non-return valve sheet (6) is squeezed by the contents to open upward to discharge contents, the mouth of the soft tube packaging bottle (1) is provided with a flow restriction seat (4), the non-return valve sheet (6) is attached to an upper part of the flow restriction seat (4), and the flow restriction seat (4) is provided with a flow restriction channel; the liquid discharge head (2) has a concave cavity at the bottom, the liquid discharge head (2) is capped on the flow restriction seat (4), pressed against the circumference of the non-return valve sheet (6), a middle part of the liquid discharge head (2) is provided with a liquid discharge cavity (21), and the cross-shaped cutout (61) of the non-return valve sheet (6) can be opened in the direction of the liquid discharge cavity (21), **characterised in that** the bottom of the flow restriction seat (4) is a concave cavity structure, the flow restriction channel includes a through-port (41) placed at the side wall of the flow restriction seat (4), a side groove channel (42) placed between an outer side wall of the flow restriction seat (4) and the liquid discharge head (2), and an upper groove channel (43) placed in an upper surface of the flow restriction seat (4); the through-port (41), side groove channel (42), and upper groove channel (43) are connected to each other in turn.

2. The cosmetic packaging bottle (1) restricting backflow according to claim 1, wherein: the side groove channel (42) is a spiral structure.

3. The cosmetic packaging bottle (1) restricting backflow according to claim 2, wherein: the upper groove channel (43) extends from the middle to the edge and is connected to the side groove channel (42).

4. The cosmetic packaging bottle (1) restricting backflow according to claim 3, wherein: the upper part of the liquid discharge head (2) is a liquid discharge column (5), the inner cavity of the liquid discharge column (5) forms the liquid discharge cavity (21), and the liquid discharge cavity (21) is connected to the outside of the liquid discharge column (5).

5. The cosmetic packaging bottle (1) restricting backflow according to claim 4, wherein: the mouth of the soft tube packaging bottle (1) is provided with a threaded holder (11), the bottom surface of the threaded holder (11) is provided with a limit platform (12), a middle part of the limit platform (12) is provided with an opening (121) corresponding to the open concave cavity structure of the bottom surface of the flow restriction seat (4), the flow restriction seat (4) and the liquid discharge head (2) are placed inside the threaded holder (11), and the outer wall of the liquid discharge head (2) is close to the inner wall of the threaded holder (11).

6. The cosmetic packaging bottle (1) restricting backflow according to claim 5, wherein: an outer wall of the liquid discharge head (2) and the inner wall of the threaded holder (11) are provided with a slot (12) and a convex ring (22), respectively, and the slot (12) and the convex ring (22) correspond to each other.

7. The cosmetic packaging bottle (1) restricting backflow according to claim 6, wherein: and also includes an outer cover (3), the outer cover (3) is screwed onto the threaded holder (11), and a raised plunger (31) is placed in a middle part of the outer cover (3), and the plunger (31) closes the upper end of the liquid discharge cavity (21) after the outer cover (3) is installed.

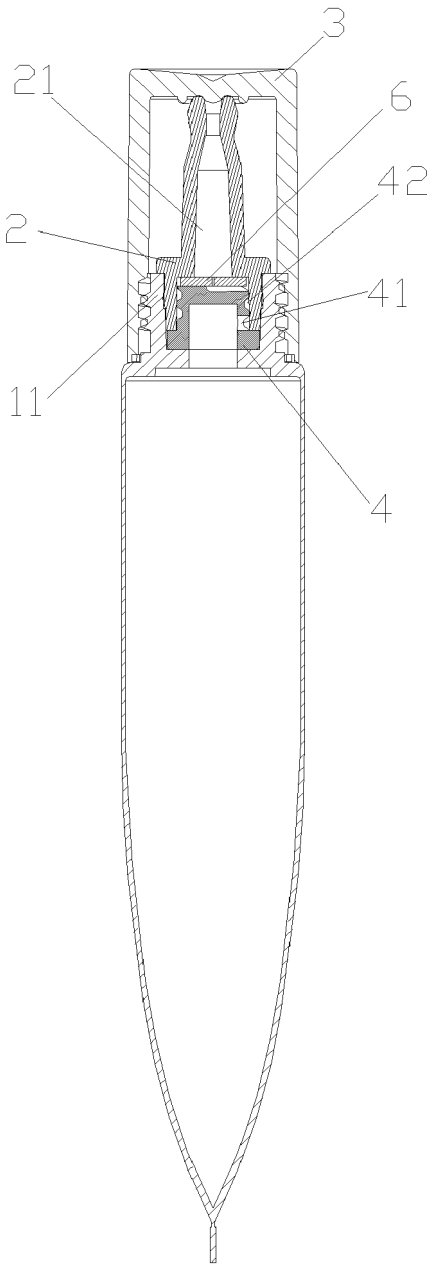

Fig. 1

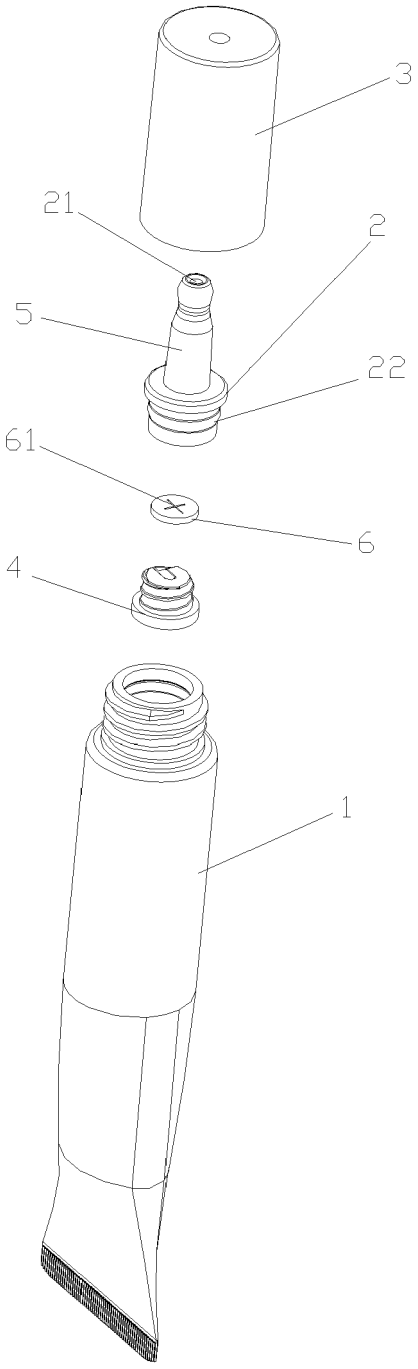

Fig. 2

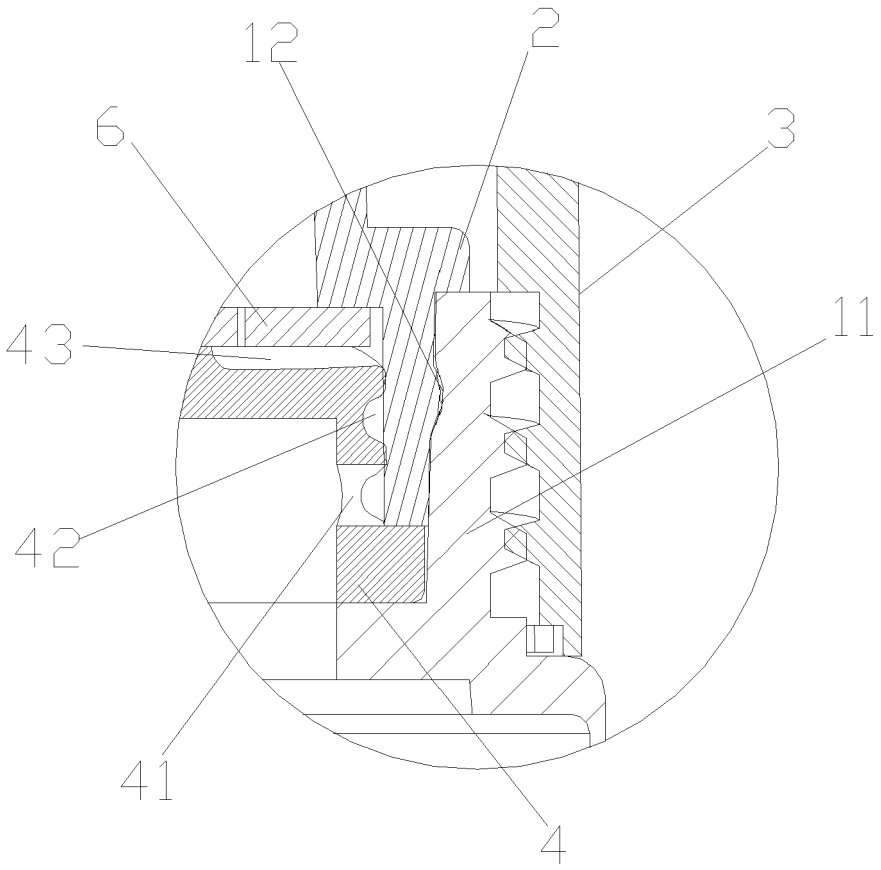

Fig. 3

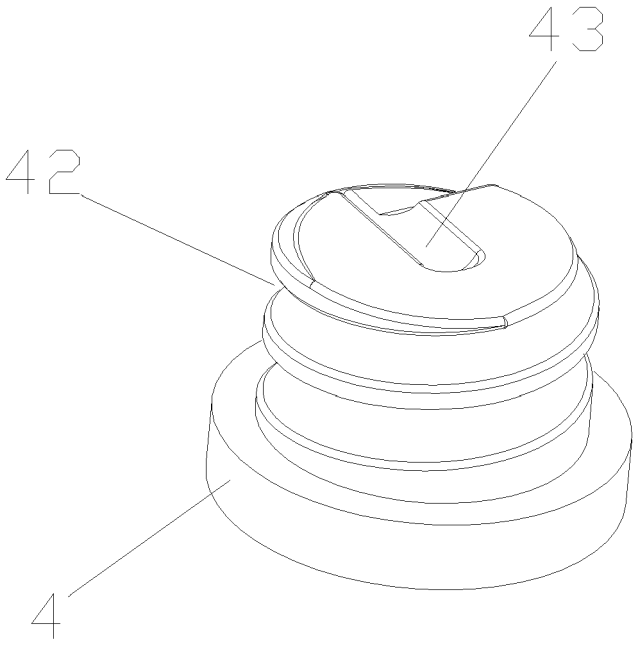

Fig. 4

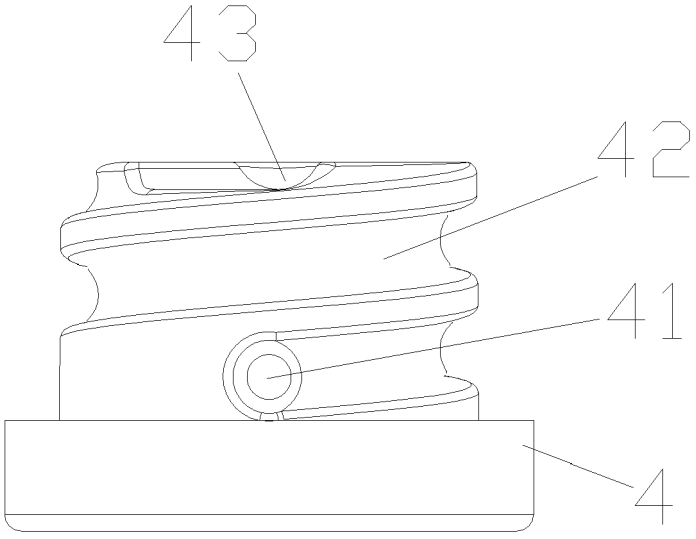

Fig. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 23 15 0003

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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A	* paragraphs [0035] - [0071]; figures *	4-10	
X	CN 212 830 185 U (SHIJIAZHUANG XIANGYUE CULTURAL COMMUNICATION CO LTD) 30 March 2021 (2021-03-30) * the whole document *	1,2	

TECHNICAL FIELDS SEARCHED (IPC)

A45D
B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	11 August 2023	Dinescu, Daniela

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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11-08-2023

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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