

DOUBLE-PIPE EXTRUSION BOTTLE CAP

Technical Field

[0001] The present application relates to the technical field related to bottle caps, and particularly relates to a double-pipe extrusion bottle cap.

Background

[0002] It is commonly known that an extrusion bottle cap usually refers to a sealing part used at an open end of a bottle made of plastic or other materials, and generally comprises a lower cap with an extrusion hole and an upper cap for sealing the extrusion hole. The lower cap is connected to the open end of the bottle, and the upper cap is connected to the lower cap. When liquid in the bottle needs to be used, only the outer cap is opened, and the liquid can be discharged through the extrusion hole.

[0003] In the prior art, the bottle used can generally only hold a single liquid, so the user often needs to carry many bottles to hold different liquids, which leads to inconvenience in carrying and using. Therefore, to solve this problem, a patent with announcement number of CN111268290B and announcement date of May 17, 2024, titled "Bottle Capable of Holding Two Liquid Cosmetics", discloses a bottle capable of holding two liquid cosmetics, comprising a bottle body, an upper sealing cap and a pipe. The bottle body and the upper sealing cap are installed together by thread or by buckling, the bottom end of the pipe is extended into the bottle body, the bottom end of the bottle body is rotatably provided with a base, a sealing piece and a spacer are movably arranged in the bottle body, the spacer has a closed top and an open bottom, two arc-shaped notches are penetrated on the sealing piece, and the bottom end of the spacer is extended to the lower side of the sealing piece through the two arc-shaped notches. In the present solution, two different liquid cosmetics can be simultaneously stored in different areas of one bottle through the arrangement of various structures. Before the bottle is opened for use, the two cosmetics will not mix with each other, thereby maintaining the shelf life of the cosmetics. When required, the two cosmetics can be mixed only by rotating the base at the bottom end of the bottle body, which reduces the carrying burden on the user and is more convenient to use.

[0004] In the prior art, some liquids need to be used in combination with another liquid, but shall be mixed with another liquid immediately before use to avoid losing efficacy after a long period of mixing. Sometimes, depending on different usage scenarios, two liquids that are to be mixed need to be used separately. The above patent has the

disadvantage that the two liquids can be mixed for use but cannot be separated after mixing, and it is also impossible to use a single liquid alone.

Summary

[0005] The purpose of the present application is to provide a double-pipe extrusion bottle cap to solve the technical problems in the related art.

[0006] To achieve the above purpose, the present application provides the following technical solution:

[0007] A double-pipe extrusion bottle cap, comprising a hose and a bottle cap arranged on an open end of the hose, wherein the hose comprises an outer pipe and an inner pipe, and the outer pipe is provided with a first liquid outlet hole for liquid in the inner pipe to be discharged and a second liquid outlet hole for liquid in the outer pipe to be discharged; the bottle cap comprises a lower cap rotatably connected to the hose, the lower cap is provided with an upper cap in a flipping manner, and the lower cap is provided with a first liquid outlet and a second liquid outlet; and the following three liquid discharge modes can be achieved during a rotation stroke of the bottle cap: mode 1: when the first liquid outlet is communicated with the second liquid outlet hole, and the second liquid outlet is communicated with the first liquid outlet hole, the liquid in the inner pipe and the liquid in the outer pipe can be discharged simultaneously; mode 2: when the first liquid outlet hole is communicated with the first liquid outlet, the liquid in the inner pipe can be discharged; mode 3: when the second liquid outlet hole is communicated with the second liquid outlet, the liquid in the outer pipe can be discharged.

[0008] As described above, the upper cap is provided with a first sealing plug corresponding to the first liquid outlet and a second sealing plug corresponding to the second liquid outlet.

[0009] As described above, body parts of the outer pipe and the inner pipe are made of soft materials, and opening parts of the outer pipe and the inner pipe are made of hard materials.

[0010] As described above, three convex parts corresponding to the three liquid discharge modes are circumferentially arranged in sequence inside the lower cap, and the opening part of the outer pipe is circumferentially provided with three concave parts in sequence; and in any liquid discharge mode, the three convex parts are in one-

to-one correspondence with the three concave parts, and each convex part is inserted into the corresponding concave part.

[0011] As described above, in a rotation direction of the bottle cap, any convex part and any concave part both have a part where projections overlap, and resistance exerted by the concave part on the convex part is first increased and then decreased during an insertion stroke of any convex part and any concave part.

[0012] As described above, a toggle tab is arranged in the lower cap, the opening part of the outer pipe is circumferentially provided with three toggle notches in sequence, and during a switching stroke of the three liquid discharge modes, sound feedback is generated after the toggle tab is toggled by any toggle notch.

[0013] As described above, the upper cap is slidably provided with a button, a first elastic member is arranged between the button and the upper cap, the button is provided with an active buckle, and the lower cap is provided with a passive buckle; when the upper cap is in a closed position, the active buckle is engaged with the passive buckle under the action of the elastic force of the first elastic member; and when the upper cap needs to be opened, the active buckle is disengaged from the passive buckle under the action of a pressing force.

[0014] As described above, a second elastic member is arranged at a rotating connection position of the lower cap and the outer pipe, and resistance exerted by the second elastic member on the lower cap is gradually increased during a rotation stroke of the lower cap in any direction.

[0015] As described above, the maximum elastic force of the first elastic member is insufficient to drive any convex part to separate from the corresponding inserted concave part.

[0016] As described above, the lower cap is further provided with a trigger member, the trigger member drives each convex part to separate from the corresponding inserted concave part under the extrusion action of the upper cap during a closing stroke of the upper cap, and the liquid discharge mode is switched back to mode 1 under the action of the resilience force of the second elastic member.

[0017] The present application has the following beneficial effects: with the arrangement of the first liquid outlet hole, the second liquid outlet hole, the first liquid outlet and the second liquid outlet, three different communication methods can be achieved during a rotation process of the bottle cap, allowing the liquid in the outer pipe and the liquid in the inner pipe to be discharged simultaneously or separately, thereby

switching different liquid discharge modes according to actual usage.

Description of Drawings

[0018] To more clearly describe the technical solutions in the embodiments of the present application or in the prior art, the drawings required to be used in the embodiments will be simply presented below. Apparently, the drawings in the following description are merely some embodiments recorded in the present application, and for those ordinary skilled in the art, other drawings can also be obtained according to these drawings.

[0019] Fig. 1 is a three-dimensional structural schematic diagram of a closed state of an upper cap and a lower cap of a double-pipe extrusion bottle cap provided in an embodiment of the present application;

[0020] Fig. 2 is a sectional structural schematic diagram of a closed state of an upper cap and a lower cap of a double-pipe extrusion bottle cap provided in an embodiment of the present application;

[0021] Fig. 3 is an exploded diagram of a closed state of an upper cap and a lower cap of a double-pipe extrusion bottle cap provided in an embodiment of the present application;

[0022] Fig. 4 is a planar structural schematic diagram of an interior of a lower cap and an opening part of an outer pipe of a double-pipe extrusion bottle cap provided in an embodiment of the present application;

[0023] Fig. 5 is a three-dimensional structural schematic diagram of an open state of an upper cap and a lower cap of a double-pipe extrusion bottle cap provided in an embodiment of the present application;

[0024] Fig. 6 is a sectional structural schematic diagram of an open state of an upper cap and a lower cap of a double-pipe extrusion bottle cap provided in an embodiment of the present application;

[0025] Fig. 7 is an exploded diagram of an open state of an upper cap and a lower cap of a double-pipe extrusion bottle cap provided in an embodiment of the present application.

[0026] Reference Signs:

1. hose; 10. outer pipe; 11. inner pipe; 12. first liquid outlet hole; 13. second liquid outlet hole; 14. first sealing plug; 15. second sealing plug; 2. bottle cap; 20. upper cap; 21. lower cap; 22. first liquid outlet; 23. second liquid outlet; 24. annular ferrule; 25. annular slot; 26. convex part; 27. concave part; 28. toggle tab; 29. toggle notch; 30.

button; 31. first elastic member; 32. active buckle; 33. passive buckle; 34. second elastic member; 35. annular body; and 36. third elastic member.

Detailed Description

[0027] To better understand the technical solution of the present application for those skilled in the art, the present application will be further explained below in detail in combination with Fig. 1 to Fig. 7.

[0028] An embodiment of the present application provides a double-pipe extrusion bottle cap 2, comprising a hose 1 and a bottle cap 2 arranged on an open end of the hose 1, wherein the hose 1 comprises an outer pipe 10 and an inner pipe 11, and the outer pipe 10 is provided with a first liquid outlet hole 12 for liquid in the inner pipe 11 to be discharged and a second liquid outlet hole 13 for liquid in the outer pipe 10 to be discharged; the bottle cap 2 comprises a lower cap 21 rotatably connected to the hose 1, the lower cap 21 is provided with an upper cap 20 in a flipping manner, and the lower cap 21 is provided with a first liquid outlet 22 and a second liquid outlet 23; the following three liquid discharge modes can be achieved during a rotation stroke of the bottle cap 2: mode 1: when the first liquid outlet 22 is communicated with the second liquid outlet hole 13, and the second liquid outlet 23 is communicated with the first liquid outlet hole 12, the liquid in the inner pipe 11 and the liquid in the outer pipe 10 can be discharged simultaneously; mode 2: when the first liquid outlet hole 12 is communicated with the first liquid outlet 22, the liquid in the inner pipe 11 can be discharged; and mode 3: when the second liquid outlet hole 13 is communicated with the second liquid outlet 23, the liquid in the outer pipe 10 can be discharged.

[0029] Specifically, in the prior art, the bottle used can generally only hold a single liquid, so the user often needs to carry many bottles to hold different liquids, which leads to inconvenience in carrying and using. Therefore, to solve the problem, in the prior art, bottles for holding two liquids are integrated, and cavities for storing two pastes or liquids are arranged in a hose 1. During use, two liquids only need to be mixed. However, some liquids need to be used in combination with another liquid, but shall be mixed with another liquid immediately before use to avoid losing efficacy after a long period of mixing. Sometimes, depending on different usage scenarios, two liquids that are to be mixed need to be used separately. Therefore, to solve the above problem, in the present embodiment, the hose 1 is divided into an outer pipe 10 and an inner pipe 11, a first cavity is formed between the inner wall of the outer pipe 10 and the outer

wall of the inner pipe 11, and the first cavity is used for storing liquid A; the interior of the inner pipe 11 is a second cavity, and the second cavity is used for storing liquid B; the opening part of the inner pipe 11 is inserted into the opening part of the outer pipe 10, a radial cross-section of the opening part of the outer pipe 10 is circular, and a radial cross-section of the opening part of the inner pipe 11 is rectangular, that is, a channel for the liquid A to be discharged is located between the opening part of the inner pipe 11 and the opening part of the outer pipe 10; the opening part of the outer pipe 10 is provided with a first liquid outlet hole 12 and a second liquid outlet hole 13, wherein the first liquid outlet hole 12 is communicated with the second cavity to discharge the liquid B; the bottle cap 2 is divided into an upper cap 20 and a lower cap 21, and the lower cap 21 is rotatably arranged on the opening part of the outer pipe 10 in a clamping manner, which belongs to the prior art and is not described in detail. The upper cap 20 is arranged on the lower cap 21 in a flipping manner, the upper cap 20 is provided with an annular ferrule 24, and the lower cap 21 is provided with an annular slot 25. In a process of the upper cap 20 flipping towards a direction close to the lower cap 21, the annular ferrule 24 is gradually engaged with the annular slot 25, that is, the movement of the annular ferrule 24 is restricted by the annular slot 25 to a certain extent in an axial direction, i.e., the upper cap 20 can be flipped towards a direction away from the lower cap 21 under the action of external force, wherein the lower cap 21 is provided with a first liquid outlet 22 and a second liquid outlet 23, and the following three liquid discharge modes can be achieved through combined use of the first liquid outlet hole 12, the second liquid outlet hole 13, the first liquid outlet 22 and the second liquid outlet 23 by rotating the lower cap 21:

[0030] Mode 1: when the first liquid outlet 22 is communicated with the second liquid outlet hole 13, and the second liquid outlet 23 is communicated with the first liquid outlet hole 12, the liquid in the inner pipe 11 and the liquid in the outer pipe 10 can be discharged simultaneously; mode 2: when the first liquid outlet hole 12 is communicated with the first liquid outlet 22, the liquid in the inner pipe 11 can be discharged; and mode 3: when the second liquid outlet hole 13 is communicated with the second liquid outlet 23, the liquid in the outer pipe 10 can be discharged.

[0031] In an axial direction, the inner wall of the lower cap 21 is in sliding fit with the outer wall of the opening part of the outer pipe 10. That is, in mode 2, the second liquid outlet hole 13 is tightly sealed by the inner wall of the lower cap 21,

and the second liquid outlet 23 is tightly sealed by the outer wall of the opening part of the outer pipe 10; and in mode 3, the first liquid outlet hole 12 is tightly sealed by the inner wall of the outer cap, and the first liquid outlet 22 is tightly sealed by the outer wall of the opening part of the outer pipe 10.

[0032] The present embodiment has the following beneficial effects: with the arrangement of the first liquid outlet hole 12, the second liquid outlet hole 13, the first liquid outlet 22 and the second liquid outlet 23, three different communication methods can be achieved during a rotation process of the bottle cap 2, allowing the liquid in the outer pipe 10 and the liquid in the inner pipe 11 to be discharged simultaneously or separately, thereby switching different liquid discharge modes according to actual usage.

[0033] Preferably, the upper cap 20 is provided with a first sealing plug 14 corresponding to the first liquid outlet 22 and a second sealing plug 15 corresponding to the second liquid outlet 23. Specifically, in the three liquid discharge modes, after the upper cap 20 and the lower cap 21 are closed, the sealing effect between the upper cap 20 and the lower cap 21 is difficult to effectively seal the first liquid outlet 22 and the second liquid outlet 23 on the lower cap 21. Therefore, in the present embodiment, the upper cap 20 is provided with a first sealing plug 14 and a second sealing plug 15 at the corresponding parts, and both the first sealing plug 14 and the second sealing plug 15 have a certain elastic deformation capability. When the lower cap 21 and the upper cap 20 are closed, the first sealing plug 14 is inserted into the first liquid outlet 22, and the second sealing plug 15 is inserted into the second liquid outlet 23, so that liquid leakage can be avoided more effectively. In an optional embodiment, body parts of the outer pipe 10 and the inner pipe 11 are made of soft materials, and opening parts of the outer pipe 10 and the inner pipe 11 are made of hard materials. In this way, liquid can be discharged conveniently by extruding the hose 1. The use of hard materials at the opening parts can prevent the opening parts from being extruded which may cause a gap between the first sealing plug 14 and the first liquid outlet 22 and a gap between the second sealing plug 15 and the second liquid outlet 23.

[0034] Further, three convex parts 26 corresponding to the three liquid discharge modes are circumferentially arranged in sequence inside the lower cap 21, and the opening part of the outer pipe 10 is circumferentially provided with three concave parts 27 in sequence; in any liquid discharge mode, the three convex parts 26 are in one-

to-one correspondence with the three concave parts 27, and each convex part 26 is inserted into the corresponding concave part 27; and in a rotation direction of the bottle cap 2, any convex part 26 and any concave part 27 both have a part where projections overlap, and resistance exerted by the concave part 27 on the convex part 26 is first increased and then decreased during an insertion stroke of any convex part 26 and any concave part 27.

[0035] Specifically, when any liquid discharge mode is required, the position of the lower cap 21 needs to be restricted to prevent the problem of switching the liquid discharge modes or being unable to achieve all the three liquid discharge modes due to accidental touch of the bottle cap 2. Therefore, in the present embodiment, three convex parts 26 are circumferentially arranged in sequence inside the lower cap 21, and the opening part of the outer pipe 10 is circumferentially provided with three concave parts 27. Any convex part 26 can be inserted into any concave part 27 during a rotation stroke of the lower cap 21. A wedge-shaped fit part exists between the convex part 26 and the concave part 27 during an insertion stroke of the convex part 26 and the concave part 27, and the wedge-shaped fit part will generate a force that hinders the insertion of the convex part 26 and the concave part 27. When the convex part 26 is separated from the concave part 27, a wedge-shaped fit part also exists between the convex part 26 and the concave part 27, and the wedge-shaped fit part will hinder the separation of the convex part 26 and the concave part 27. In this way, in any liquid discharge mode, the lower cap 21 can be restricted from rotation on the outer pipe 10 to a certain extent, and resistance provided by the wedge-shaped fit part can offer the user a certain hand feeling during the rotation stroke of the lower cap 21, which determines that the liquid discharge mode is switched successfully.

[0036] In an optional embodiment, a toggle tab 28 is arranged in the lower cap 21, the opening part of the outer pipe 10 is circumferentially provided with three toggle notches 29 in sequence, and during a switching stroke of the three liquid discharge modes, sound feedback is generated after the toggle tab 28 is toggled by any toggle notch 29. Specifically, sound is generated by the toggle action between the toggle tab 28 and any toggle notch 29, which can also provide sound feedback for the user, thereby better determining the switching of the liquid discharge modes.

[0037] Further, the upper cap 20 is slidably provided with a button 30, a first elastic member 31 is arranged between the button 30 and the upper cap 20, the button 30 is

provided with an active buckle 32, and the lower cap 21 is provided with a passive buckle 33; when the upper cap 20 is in a closed position, the active buckle 32 is engaged with the passive buckle 33 under the action of the elastic force of the first elastic member 31; and when the upper cap 20 needs to be opened, the active buckle 32 is disengaged from the passive buckle 33 under the action of a pressing force.

[0038] Specifically, in the above embodiment, for the locking between the upper cap 20 and the lower cap 21 which are closed, the upper cap 20 is provided with an annular ferrule 24, the lower cap 21 is provided with an annular slot 25, and the annular ferrule 24 is gradually engaged with the annular slot 25 in a process of the upper cap 20 flipping towards a direction close to the lower cap 21, that is, in an axial direction, the movement of the annular ferrule 24 is restricted by the annular slot 25 to a certain extent. When liquid in the hose 1 needs to be used, the user exerts a force to the upper cap 20 to open the upper cap 20 and the lower cap 21. However, the upper cap 20 is accidentally touched by an external force, the upper cap 20 and the lower cap 21 may be opened. In this way, the first sealing plug 14 will be separated from the first liquid outlet 22, and the second sealing plug 15 will be separated from the second liquid outlet 23, thereby causing the liquid to flow out of the hose 1.

[0039] Therefore, based on the above problem, in the present embodiment, second locking is set between the upper cap 20 and the lower cap 21 on the basis of achieving first locking through the cooperation of the annular ferrule 24 and the annular slot 25, that is, the upper cap 20 is slidably provided with a button 30, the position of the button 30 is opposite to that of the connection of the upper cap 20 and the lower cap 21 in a radial direction, and a sliding direction of the button 30 is parallel to the radial direction. In addition, a first elastic member 31 is arranged between the button 30 and the upper cap 20 in the sliding direction. The button 30 has a trend to always extend out of the upper cap 20 in the sliding direction under the action of the elastic force of the first elastic member 31. The button 30 is provided with an active buckle 32, and the bayonet of the active buckle 32 is in a V-shaped structure. The lower cap 21 is provided with a passive buckle 33, and the structure of the passive buckle 33 is compatible with that of the bayonet of the active buckle 32. Under the action of the elastic force of the first elastic member 31, when the active buckle 32 is engaged with the passive buckle 33, the passive buckle 33 will not move in the sliding direction of the button 30. In a process of the upper cap 20 flipping towards a direction close to the lower cap 21, the active

buckle 32 and the passive buckle 33 are in wedge-shaped fit which achieves the extrusion action between the active buckle 32 and the passive buckle 33, so that the active buckle 32 drives the first elastic member 31 to increase the elastic force. That is, in a flipping direction of the upper cap 20, the extrusion action between the active buckle 32 and the passive buckle 33 causes the active buckle 32 to gradually stagger from the passive buckle 33 in the sliding direction of the button 30, so that the bayonet of the active buckle 32 can be engaged with the passive buckle 33 to achieve the second locking of the upper cap 20 and the lower cap 21. When the upper cap 20 needs to be used, the user first presses the button 30, the button 30 drives the active buckle 32 to move in the sliding direction, so that the bayonet of the active buckle 32 is disengaged from the passive buckle 33. Then, pushing the upper cap 20 to flip towards a direction away from the lower cap 21 can first release the second locking and then release the first locking. In this way, the purpose of preventing misoperation can be achieved.

[0040] Furthermore, a second elastic member 34 is arranged at a rotating connection position of the lower cap 21 and the outer pipe 10, and resistance exerted by the second elastic member 34 on the lower cap 21 is gradually increased during a rotation stroke of the lower cap 21 in any direction.

[0041] Specifically, in the above embodiment, the hand feeling and the sound feedback which are provided for the user are basically the same in a switching process of the three liquid discharge modes, and the liquid discharge mode remains the same as that for last use. In next use, the liquid discharge mode shall be adjusted to a required mode, but the hand feeling and the sound feedback which are provided for the user are basically the same, so that it is difficult for the user to switch to the desired liquid discharge mode quickly and accurately. Therefore, in the present embodiment, the second elastic member 34 is arranged between the lower cap 21 and the outer pipe 10, and the second elastic member 34 provides gradually increasing resistance for the rotation of the lower cap 21. In this way, when the initial liquid discharge mode is mode 1, and the lower cap 21 is rotated clockwise or counterclockwise, the elastic force of the second elastic member 34 is gradually increased, and the damping hand feeling provided for the user is also gradually increased, thereby enabling the user to better determine the liquid discharge mode. The maximum elastic force of the first elastic member 31 is insufficient to drive any convex part 26 to separate from the corresponding inserted concave part 27, that is, in any liquid discharge mode, the lower cap 21

shall be restrained to a certain extent (specific reasons are described in detail in the above embodiment and are not repeated here).

[0042] Furthermore, the lower cap 21 is further provided with a trigger member, the trigger member drives each convex part 26 to separate from the corresponding inserted concave part 27 under the extrusion action of the upper cap 20 during a closing stroke of the upper cap 20, and the liquid discharge mode is switched back to mode 1 under the action of the resilience force of the second elastic member 34.

[0043] Specifically, to facilitate the user in accurately switching the liquid discharge mode, the initial liquid discharge mode is set to mode 1 in the present embodiment. After each use, when the lower cap 21 and the upper cap 20 are closed, the liquid discharge mode can be switched back to mode 1, i.e., the trigger member is that the three convex parts 26 are arranged together on an annular body 35, the annular body 35 is slidably arranged on the lower cap 21 in an axial direction, and a third elastic member 36 is arranged between the annular body 35 and the lower cap 21 in the sliding direction. The passive buckle 33 is fixedly connected to the annular body 35. The annular body 35 has a trend to always drive the three convex parts 26 to be inserted into the three concave parts 27 under the action of the elastic force of the third elastic member 36. During a stroke of the upper cap 20 flipping towards a direction close to the lower cap 21, the active buckle 32 and the passive buckle 33 are staggered in the sliding direction of the button 30 due to the extrusion action. In a process of the bayonet of the active buckle 32 being engaged with the passive buckle 33, since the active buckle 32 can only move in the sliding direction of the button 30, the bayonet of the active buckle 32 will exert an axial force on the passive buckle 33, causing the passive buckle 33 to drive the annular body 35 to move, and the annular body 35 drives the three convex parts 26 to separate from the three concave parts 27. After the three convex parts 26 are completely separated from the three concave parts 27, the lower cap 21 is driven to rotate under the action of the resilience force of the second elastic member 34, so that the liquid discharge mode is switched back to mode 1. After the upper cap 20 and the lower cap 21 are opened, the annular body 35 will drive the three convex parts 26 under the action of the resilience force of the third elastic member 36 to be inserted into the three concave parts 27.

[0044] Some demonstrative embodiments of the present application are described above only through the mode of explanation. Undoubtedly, the described

embodiments can be corrected in various modes by those ordinary skilled in the art without departing from the spirit and the scope of the present application. Therefore, the above drawings and illustration are explanatory in nature and should not be interpreted as a limitation to the protection scope of the claims of the present application.

Claims

WHAT IS CLAIMED IS:

1. A double-pipe extrusion bottle cap, comprising a hose and a bottle cap arranged on an open end of the hose, wherein the hose comprises an outer pipe and an inner pipe, and the outer pipe is provided with a first liquid outlet hole for liquid in the inner pipe to be discharged and a second liquid outlet hole for liquid in the outer pipe to be discharged; the bottle cap comprises a lower cap rotatably connected to the hose, the lower cap is provided with an upper cap in a flipping manner, and the lower cap is provided with a first liquid outlet and a second liquid outlet; and the following three liquid discharge modes can be achieved during a rotation stroke of the bottle cap:

mode 1: when the first liquid outlet is communicated with the second liquid outlet hole, and the second liquid outlet is communicated with the first liquid outlet hole, the liquid in the inner pipe and the liquid in the outer pipe can be discharged simultaneously;

mode 2: when the first liquid outlet hole is communicated with the first liquid outlet, the liquid in the inner pipe can be discharged;

mode 3: when the second liquid outlet hole is communicated with the second liquid outlet, the liquid in the outer pipe can be discharged.

2. The double-pipe extrusion bottle cap according to claim 1, wherein the upper cap is provided with a first sealing plug corresponding to the first liquid outlet and a second sealing plug corresponding to the second liquid outlet.

3. The double-pipe extrusion bottle cap according to claim 1, wherein body parts of the outer pipe and the inner pipe are made of soft materials, and opening parts of the outer pipe and the inner pipe are made of hard materials.

4. The double-pipe extrusion bottle cap according to claim 3, wherein three convex parts corresponding to the three liquid discharge modes are circumferentially arranged in sequence inside the lower cap, and the opening part of the outer pipe is circumferentially provided with three concave parts in sequence; and in any liquid discharge mode, the three convex parts are in one-to-one correspondence with the three concave parts, and each convex part is inserted into the corresponding concave part.

5. The double-pipe extrusion bottle cap according to claim 4, wherein in a rotation direction of the bottle cap, any convex part and any concave part both have a part where projections overlap, and resistance exerted by the concave part on the convex part is first increased and then decreased during an insertion stroke of any convex part and any concave part.

6. The double-pipe extrusion bottle cap according to claim 3, wherein a toggle tab is arranged in the lower cap, the opening part of the outer pipe is circumferentially provided with three toggle notches in sequence, and during a switching stroke of the three liquid discharge modes, sound feedback is generated after the toggle tab is toggled by any toggle notch.

7. The double-pipe extrusion bottle cap according to claim 3, wherein the upper cap is slidably provided with a button, a first elastic member is arranged between the button and the upper cap, the button is provided with an active buckle, and the lower cap is provided with a passive buckle; when the upper cap is in a closed position, the active buckle is engaged with the passive buckle under the action of the elastic force of the first elastic member; and when the upper cap needs to be opened, the active buckle is disengaged from the passive buckle under the action of a pressing force.

8. The double-pipe extrusion bottle cap according to claim 7, wherein a second elastic member is arranged at a rotating connection position of the lower cap and the outer pipe, and resistance exerted by the second elastic member on the lower cap is gradually increased during a rotation stroke of the lower cap in any direction.

9. The double-pipe extrusion bottle cap according to claim 8, wherein the maximum elastic force of the first elastic member is insufficient to drive any convex part to separate from the corresponding inserted concave part.

10. The double-pipe extrusion bottle cap according to claim 9, wherein the lower cap is further provided with a trigger member, the trigger member drives each convex part to separate from the corresponding inserted concave part under the extrusion action of the upper cap during a closing stroke of the upper cap, and the liquid discharge mode is switched back to mode 1 under the action of the resilience force of the second elastic member.