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DISPENSING CLOSURE FOR COLLAPSIBLE CONTAINERS WITH DELAYED-ACTION, SELF-CLOSING VALVE

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DISPENSING CLOSURE FOR COLLAPSIBLE CONTAINERS WITH DELAYED-ACTION, SELF-CLOSING VALVE

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1 Claim. (Cl. 222—92)

This invention relates to new and useful improvements in a sanitary closure for containers.

More particularly, the invention proposes a new and improved closure adapted to be used on a collapsible container having a discharge neck. The new closure is characterized by a valve body integral with the discharge neck, or removably mounted thereon. It is proposed that the valve body have a discharge orifice controlled by a valve head manually movably mounted in said body. It is proposed that said valve head have a passage through which the contents of the collapsible container may be squeezed when the valve head is in an open position. An arrangement is proposed whereby the material of the collapsible tube which is in the valve head connects with the material in the collapsible tube when the valve head is closed so as to prevent drying out.

The invention also proposes the provision of a cork or other stopper for closing the passage in the valve head for sealing the collapsible container. It is proposed that the factory supply the collapsible container sealed, and that the public pick out the closure before starting use of the contents.

It is contemplated to construct the closure of plastic or other materials.

Another object of the invention is the construction of a device as mentioned which is simple and durable and which may be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claim in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a perspective view of a collapsible container provided with a sanitary closure constructed in accordance with this invention.

Fig. 2 is a sectional view of a sanitary closure in accordance with another form of the invention.

Fig. 7 is a sectional view of a sanitary closure in accordance with another form of this invention.

Fig. 8 is a fragmentary enlarged detailed view of a portion of Fig. 7.

Fig. 9 is a fragmentary enlarged sectional view taken on the line 9—9 of Fig. 7.

Fig. 10 is a fragmentary sectional view taken on the line 10—10 of Fig. 7.

Fig. 11 is a fragmentary sectional view taken on the line 11—11 of Fig. 9.

Fig. 12 is a sectional view similar to Fig. 7 but illustrated with the parts in a different position.

Fig. 13 is a sectional view of a sanitary closure in accordance with still another form of the invention.

Fig. 14 is a sectional view taken on the line 14—14 of Fig. 13.

The sanitary closure for containers, in accordance with this invention, is used in combination with a collapsible container 15 for holding tooth paste, shaving cream and other creams. The collapsible container 15 is provided with a discharge neck 16 which continues into a valve body 17. The valve body 17 has a top discharge orifice 18 which is of oblong shape so that the collapsible tube will discharge a ribbon of cream. However, the shape of the orifice is optional and other shapes may be used.

A valve head 19 is mounted in the valve body 17 for controlling the orifice 18. The valve head 19 is in the form of a cylinder turnably supported by a stem 20 at one end and another stem 21 coaxial with the stem 20 but located at the other end of the cylinder forming the valve head. The stem 21 is provided with a small handle 22 by which the valve may be turned. The stem 20 is provided with a radial pin 23 disposed within a 90° arcuate recess 24 formed in the side wall of the valve body 17 for limiting turning of the valve head through 90°.

The valve head 19 is formed with a T-shaped passage 25. When the valve is closed the stem of the T-shaped passage 25 is aligned with the neck 16 so that the contents of the tube communicate with the passage 25 and prevents drying out and hardening of material within the passage. When the valve head 19 is turned to its open position the head of the passage 25 aligns with the opening in the neck 16. The factory supplies the collapsible tube with a small stopper or seal 26 in the top end of the head of the passage 25 by which the collapsible tube is sealed closed. When the valve head 19 is in its open or closed position the contents of the tube is protected. A purchaser merely picks out the seal 26 with a needle or other sharp instrument, and then the tube is ready to be used.

In Figs. 5 and 6 a modified form of the invention is shown which is very similar to the prior
form, distinguishing merely in the fact that the valve body 17' is separate from the neck 16' of the collapsible tube 15'. The neck 16' is formed with threads and the bottom portion of the valve body 17' is formed with complementary threads so that the sanitary closure is removable from the collapsible tube. For this reason only one sanitary closure is required for engagement on any number of collapsible tubes.

In other respects this form of the invention is identical to the previous form and like parts are identified by like reference numerals.

In Figs. 7-12 still another form of the invention is shown which distinguishes from the prior form in the provision of means for automatically closing the sanitary closure a short period of time after it has been opened. With this construction it is impossible for a user to be annoyed by discovering that he left the tube open so that the contents has dried. More specifically, the improved sanitary closure includes a valve body 30 provided with a bottom threaded socket 31 by which it may be threadedly engaged upon the threaded neck of a collapsible tube. A valve head 32 is axially and slidably mounted on the valve body 30.

The valve head 32 has a stem 33 at one end which connects with an air dashpot 34 acting to normally urge the stem 33 in one direction. This air dashpot includes a perforated disc 35 connected with the stem 33. A flexible rubber air control disc 36 is mounted upon the disc 35 and has small bleed openings 33 through which the air may slowly leak. A spring 38 normally urges the disc 35 in one direction. The disc 35 is slidable in a chamber 39 which is supplied with air through an opening 40. The valve head 32 is also provided with a stem 41 projecting from the valve body 30. This stem is provided with a handle 42 by which it may be manipulated. The stem 41 is also provided with a radially projecting pin 43 which engages an L-shaped groove 44 formed in the wall of a chamber 45 formed in the valve body 30. The stem 41 is provided with a small square section 46. A disc 47 is slidable mounted on the square section 45. A spiral spring 48 has one end connected with the disc 47 and has its other end connected with the wall of the chamber 45. This spiral spring 48 urges the valve 32 into a closed position. The valve 32 is provided with a T-shaped control passage 49.

The operation of this form of the invention is as follows:

The sanitary closure is shown in its closed position in Fig. 7. It may be opened by first turning the handle 42 through 90° so that the pin 43 moves along the arcuate portion of the groove 44. Then the handle 42 may be pushed inwards so that the pin 43 moves along the longitudinal portion of the groove 44. This latter motion forced the disc 35 against the action of the spring 38. The air quickly passes through the perforations of the disc 35 and around the edges of the flexible rubber disc 36. The closure is now opened and some of the contents of the collapsible tube may be squeezed out at the user's convenience. However, after a short period of time, for example a half minute, the spring 38 will have moved the disc 35 back to its original position. By this time the pin 43 reaches the arcuate portion of the groove 44 and then the spiral spring 48 turns the valve 32 into its closed position.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claim.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

In combination with a collapsible container having a discharge neck, a valve body on said discharge neck and having a discharge orifice, a valve head mounted in said valve body for controlling said orifice, a stem for controlling said valve head, resilient means urging said valve head into its closed position, and means for delaying operation of said resilient means for a short period of time, comprising a dashpot for holding the valve in its open position, a pin connected with said valve, said valve body having a groove in which said pin works for controlling the operation of said resilient means in conjunction with the position of the valve head as controlled by said dashpot.

LOUIS GOLDBERG.

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