March 10, 1936. H. SCHACHER 2,033,256

TOP FOR CONTAINERS

Filed Feb. 28, 1935

FIG. 1.

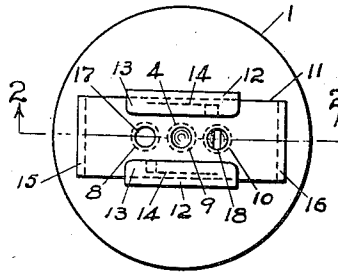


FIG. 5.

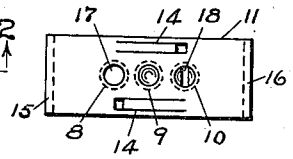
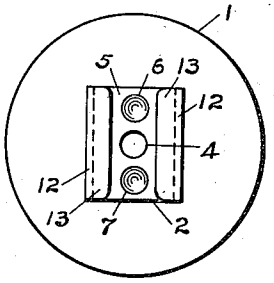


FIG. 3.



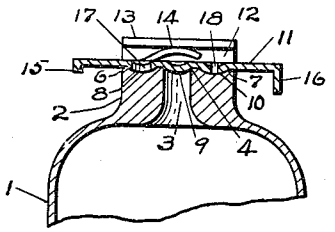


FIG. 2.

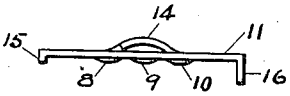


FIG. 6.

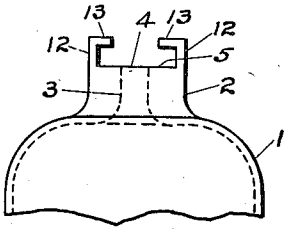


FIG. 4.

FIG. 7.

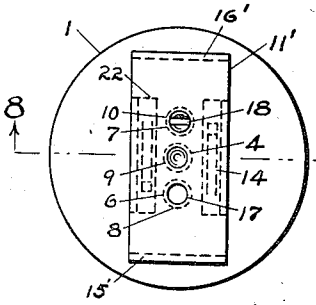


FIG. 11.

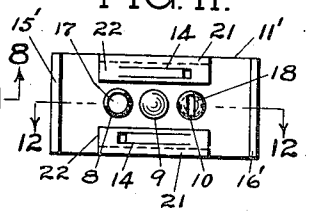
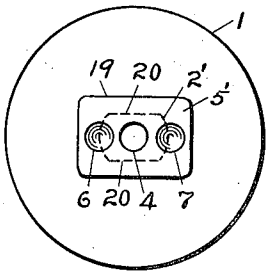


FIG. 9.



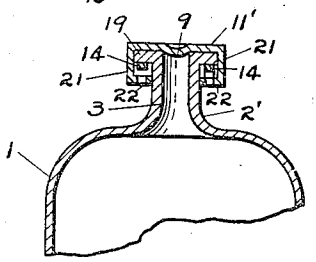


FIG. 8.

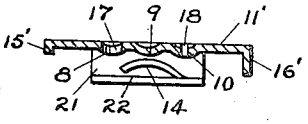


FIG. 12.

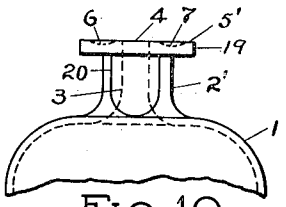


FIG. 10.

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TOP FOR CONTAINERS

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Application February 28, 1935, Serial No. 8,693

10 Claims. (Cl. 221—60)

My invention relates to a dispensing top for containers, and particularly for use on collapsible tubes containing tooth paste or shaving cream and the like, but which may be readily adapted for use on cans or other containers for dispensing powder and various other materials.

This invention is a device for eliminating the usual separate screw cap and an improvement over the various devices of stoppers, valves and the like for such tubes, and is in the nature of a sliding valve for opening and closing the discharge aperture of a container and consists of a one-piece valve which is held by the neck portion of said container.

One object of the invention resides in the construction and mounting of the sliding valve at the top of the container wherein the maximum degree of efficiency and cheapness of construction may be obtained.

Another object of my invention is to provide a sliding valve which will efficiently close and seal the discharge opening without the use of a gasket or other padding material.

Another object is to provide in one piece a sliding valve to resiliently maintain contact between the valve and container top.

Another object is to provide a sliding valve which is capable of presenting more than one form of opening to cooperate with the discharge opening of the container to deliver material from said container and also maintain a tight connection between said valve opening and discharge opening during said delivery.

Another object is to provide a sliding valve which will not be detached in open position but which can be readily assembled or disassembled without the bending of any of its parts and by simply compressing its spring parts.

With these and other objects in view, the invention consists in certain features of novelty in the construction, combination and arrangement of parts by which the said objects and certain other objects which will hereinafter appear are attained, the invention being more particularly pointed out in the claims.

In the drawing accompanying and forming a part of this specification and in which like parts are identified by the same reference characters,

Figure 1 is a plan of my container top showing the valve in closing position.

Fig. 2 is a sectional elevation of the top portion of a container with the valve in a closing position as in Fig. 1 and on line 2—2 of Fig. 1.

Fig. 3 is a plan of the container as in Fig. 1 but with the valve removed.

Fig. 4 is a side elevation of the top portion of the container of Fig. 3 without valve.

Fig. 5 is a plan of the valve of Figs. 1 and 2.

Fig. 6 is a side elevation of the valve of Figs. 1 and 2.

Fig. 7 is a plan of a container having a modification of the top shown in Fig. 1 to accommodate a modified valve.

Fig. 8 is a sectional elevation of the modified container top and valve on line 8—8 of Fig. 7.

Fig. 9 is a plan of the container of Fig. 7 without valve.

Fig. 10 is a side elevation of the container top of Fig. 9.

Fig. 11 is a bottom view of the valve of Figs. 7 and 8.

Fig. 12 is a sectional elevation of the valve of Figs. 7 and 8 and on line 12—12 of Fig. 11.

In the drawing my invention is shown in connection with a collapsible tube 1, the upper end only being illustrated and formed to accommodate my valve. 2 is the neck of the tube having therethrough a discharge passage 3 which in the present instance is cylindrical in shape and making a circular discharge opening 4 in the flat top surface 5. On opposite sides of opening 4 and in the surface 5 are formed depressions 6 and 7 in the form of a portion of a ball, which together with the opening 4 accommodate similar ball-shaped knobs 8, 9 and 10 on the bottom surface of slide valve 11. Rising from the surface 5 on two sides of the neck 2 and in line with 6, 4 and 7 are vertical walls 12 and 12 with top flanges 13 and 13 extending laterally toward each other to form a slot through which the valve 11 slides.

The slide valve 11 is preferably of metal, the various portions of which are stamped and formed from a single piece of material. 14, 14 are springs formed from, and integral with, the valve 11 by cutting on one end and the two sides and pressed up into arc shape to contact with the top flanges 13, 13 of the neck 2 and thereby hold said valve 11 down to its seat in the surface 5.

The springs 14, 14 are alike but cut in opposite directions as shown in Fig. 5 to press both ends of valve 11 evenly onto its seat. At opposite ends of valve 11 are depending lips 15 and 16 to normally act as stops against the neck 2 in sliding the valve 11 back and forth and so limits its movement to positions only slightly beyond where knob 8 or 10 is seated in opening 4. Depending lip 15, however, is only of a depth to act as a stop in normal operation and the valve 11 can be disassembled by raising the valve

end with dependent lip 15 against the springs 14 and withdrawing the valve 11 by means of the dependent lip 16 which is somewhat deeper than dependent lip 15. The assembling of valve 11 with the container top is to simply slide the valve into the groove in said container top by inserting the dependent lip 15 and sliding it into place when the springs 14 are compressed and prevent the valve from sliding out opposite to the way it is put in until the dependent lip 15 is raised sufficiently against said springs to allow said dependent lip 15 to clear the flat surface 5.

The slot formed by the flat surface 5, the walls 12, 12 and flanges 13, 13 is shown somewhat exaggerated for convenience in illustration but such slot only needs to be of such a depth as to accommodate the passage of the knobs 8, 9 and 10 and dependent lip 15. The center ball-shaped knob 9 of valve 11 operates to close and seal the discharge opening 4 by being of a size such that the ball surface contacts with the rim of opening 4. The ball shaped knobs 8 and 10 are the same size as 9 and make ball contact with the rim of opening 4 for a tight joint when in position thereon while the depressions 6 and 7 are of a size to allow knobs 8, 9 or 10 to seat in them sufficiently so the spring pressure on valve 11 will be exerted in making a tight joint on the rim of opening 4.

17 is a round opening through the valve 11 in the center of ball shaped knob 8 and 18 is a rectangular shaped opening through the valve 11 at the ball shaped knob 10 as shown.

The action of the springs 14 of the valve 11 is to keep the discharge opening 4 closed by the knob 9 when valve 11 is in a position as shown in Figs. 1 and 2 and to allow for sliding said valve 11 until knob 8 is seated over discharge opening 4 when valve opening 17 is in line therewith and cylindrical shaped paste can be squeezed from tube 1, or sliding said valve 11 until knob 10 is seated over discharge opening 4 when valve opening 18 is in line therewith and ribbon shaped paste can be squeezed from tube 1. Sliding valve 11 to the right from its closed position as in Figs. 1 and 2 knob 9 causes said valve 11 to rise against the action of springs 14 until said knob 9 clears opening 4 and when knob 8 reaches a position over opening 4 said valve 11 is forced down by said springs 14 and knob 8 is seated in opening 4. This locates valve 11 in proper position for discharging paste through valve opening 17. In the same manner the valve 11 is properly located to discharge paste from valve opening 18 when valve 11 is moved to the left. The different size and shape of 17 and 18 is illustrative of the invention when using other material, as powder, and different openings provide for discharging material in larger or smaller amounts.

In the modified form of top and valve shown in Figs. 7 to 12, 1 is the tube, 2' the tube neck, 3 the discharge passage, 4 the discharge opening through the flat top surface 5', and 6 and 7 are ball shaped depressions in surface 5'. 19 is a flat top with flanges on neck 2' which is flattened at 20, 20 to accommodate the flanges 22, 22 of valve 11'.

The valve 11' is stamped and formed from a single piece of metal and having knobs 8, 9 and 10 and dependent lips 15' and 16'. In this modified form the valve 11' has two vertical walls 21, 21 extending from the bottom of the said valve 11' and with bottom flanges 22, 22 extending inwardly toward each other to form a slot to slide said valve 11' over the flanged top 19 of neck 2'.

The springs 14, 14 in this construction are integral with and located as shown in the flanges 22, 22 and extend upward to bear against the under side of flanges 19 to hold the valve 11' down on top of said flange 19.

8, 9 and 10 are ball-shaped knobs on the bottom of valve 11', 8 and 10 having round and rectangular openings therethrough respectively.

The operation of the modified valve 11' is the same as for valve 11 and the knobs 8, 9 and 10 of valve 11' cooperate with the depressions 7 and 8 and the discharge opening 4 to close said opening 4 by means of knob 9 and to discharge paste through openings 17 and 18 in the knobs 8 and 10 respectively and in the same manner as described for said valve 11.

Valve 11' is assembled by sliding the depending lip 15' over surface 5' when the springs 14 engage below the flanges 19. The valve 11' is then limited in its movement to right or left by the dependent lips 15' and 16'. To remove valve 11' requires raising dependent lip 15' on to the surface 5' and sliding the valve to the right.

Having thus described my invention what I claim and desire to secure by Letters Patent is:

1. In a device of the character described, comprising a container with an outlet end including a top with a flat surface and a circular discharge opening in said surface, flanges extending laterally to said top, a slide valve slidably mounted to cooperate with said outlet end, a ball shaped knob on said valve to contact into the rim of, and close said discharge opening, another ball shaped knob on said valve and with an opening therethrough, to contact into the rim of said discharge opening and provide continuous passage means for discharging material from said container, and said valve providing spring means to cooperate with said flanges to make a tight joint between said discharge opening and the ball knob contacting therewith when closing or opening said discharge opening.

2. In a device of the character described, comprising a container with an outlet end including a top with a circular discharge opening, flanges extending laterally to said top, a slide valve slidably mounted at said container end and having a ball shaped knob to contact into the rim of, and close, said discharge opening, another ball shaped knob with an opening therethrough to contact into the rim of said discharge opening and provide continuous passage means for discharging material from said container, spring means integral with said valve to cooperate with said flanges to make a tight joint between said discharge opening and the ball knob contacting therewith, and depending lips on said valve to limit the movement of said valve.

3. In a device of the character described, comprising a container with an outlet end including a top having a discharge opening, flanges extending laterally to said top, a slide valve slidably mounted at said container end, said valve having a knob to contact with the rim of, and close, said discharging opening, a second knob formed from said valve to contact with the rim of said discharge opening when said valve is moved in one direction from its closing position, said second knob provided with an opening therethrough, a third knob formed from said valve to contact with the rim of said discharge opening when said valve is moved in another direction from its closing position, said third knob provided with an

opening therethrough and of a different size and shape from the opening of said second knob, spring means formed from said valve to cooperate with said flanges to make a tight joint between the rim of said discharge opening and each of said knobs, respectively, and depending lips on said valve to limit the normal movement of said valve.

4. In a device of the character described, comprising a container with an outlet end including a top with a flat surface having a discharge opening therein, flanges extending laterally to said top, a valve slidably mounted to slide over said flat surface, ball shaped knobs extending from the bottom of said valve, one of said knobs closing said discharge opening when in position thereover and another of said knobs having an opening to provide passage means from said discharge opening through said valve when said open knob is in position over said discharge opening, spring means formed from said valve to contact with said flanges and make a tight joint between the knob located over said discharge opening and said opening and a depending lip on each end of said valve to contact with the container top and prevent said valve being removed from said top during its normal movements, one of said depending lips of a depth to allow of its being raised onto the said top flat surface against the retractive action of said springs whereby said valve may be disassembled from said container top.

5. In a device of the character described, comprising a container with an outlet end including a top with a flat surface having a discharge opening, parallel flanges extending laterally to said top and connected to said flat surface by vertical walls to form a slot, a valve slidably mounted in said slot to control the closing and opening of said discharge opening, said valve provided with an opening therethrough, means on said valve to form a closure for said discharge opening and to cooperate with said discharge opening to locate said valve in its closure position, means at said valve opening to locate said valve opening over said discharge opening, springs on said valve to cooperate with the flanges of said slot to hold said valve onto its seat on said flat surface, depending lips on said valve to contact with the container top to limit the end movement of said valve, one of said depending lips of a depth less than the depth of said slot whereby said valve may be disassembled against the action of said springs.

6. In a device of the character described, comprising a container with an outlet end including a top with a discharge opening, a valve slidably mounted to contact with one part of said outlet end to control the closing and opening of said discharge opening, a knob on said valve, with an opening therethrough, to contact with the rim of said discharge opening when in position thereover to form a continuous passage through said valve and spring means contacting with a second part of said container top and said valve to hold said valve against said first part of said container top and make a tight joint between said knob and said discharge opening rim and out of contact with said second spring contacting part.

7. In a device of the character described, comprising a container with an outlet and including a top having a discharge opening, a valve with an opening therethrough and slidably mounted at said outlet end to control the closing and opening of said discharge opening, means at said valve opening to locate said valve opening over said discharge opening, a flange, and spring means between said flange and valve to press said valve against said container top and away from said flange whereby said locating means will make a tight joint between said valve and the rim of said discharge opening.

8. In a device of the character described, comprising a container with an outlet hole including a valve with an opening therethrough and slidably mounted to control the closing and opening of said hole, an offset around said valve opening to engage the rim of said outlet hole when in position thereover, said container being cut away in the direction of movement of said valve to clear said valve opening offset when said valve is in its outlet closing position, a flange to guide said valve and a spring to cooperate with said flange and valve and hold said valve in contact with said container and out of contact with said flange in its opening and closing positions.

9. In a device of the character described, comprising a container with an outlet hole, including a valve slidably mounted to control the closing and opening of said outlet hole, a flange to guide said valve and a spring to cooperate with said flange and said valve and hold said valve in contact with said container and out of contact with said flange when in its extreme opening and closing positions.

10. In a device of the character described, comprising a container with an outlet hole, including a valve with an opening therethrough and slidably mounted to control the opening and closing of said outlet hole, a flange to guide said valve, spring means to cooperate with said flange and said valve to hold said valve to its seat over said outlet hole and stops to limit the end movement of said valve, one of said stops of a size to allow the valve to be disassembled from said container when raised from its seat against the action of said spring means.

HERMAN SCHACHER.