Oct. 11, 1932. L. DAVIDSON ET AL 1,882,180

CAP OR CLOSURE FOR RECEPTACLES

Filed Jan. 28, 1932

Fig. 1.

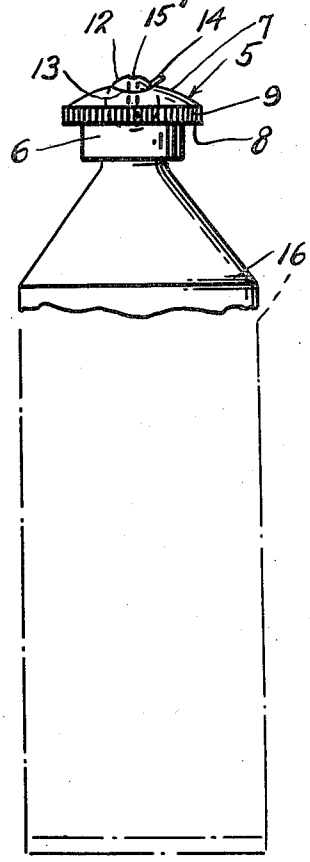


Fig. 2.

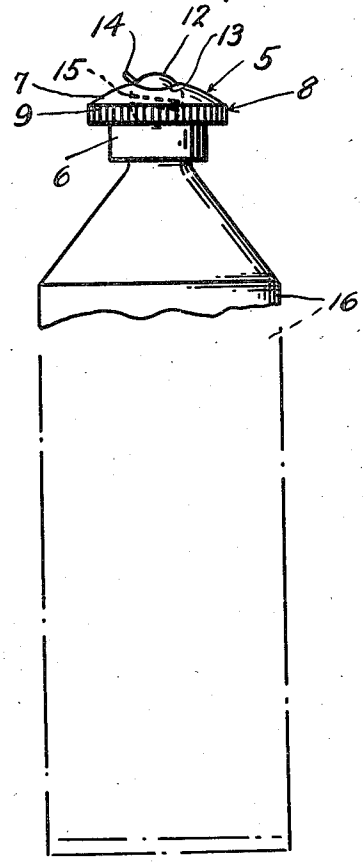
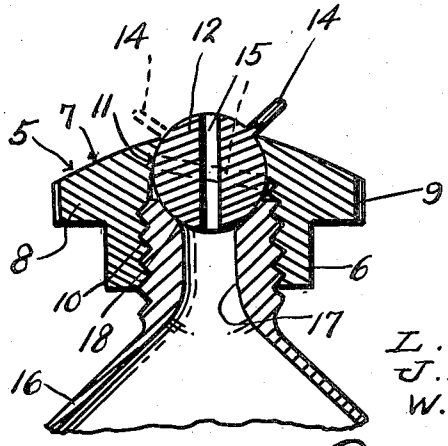


Fig. 3



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UNITED STATES PATENT OFFICE

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CAP OR CLOSURE FOR RECEPTACLES

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This invention relates to caps or closures for receptacles having particular reference to such caps or closures as are usually provided for flexible tubes, such as are now commonly used for holding tooth-paste, shaving soap, etc., and for glass bottles for liquid, although it is to be understood that the cap or closure may be used with any type of receptacle within reason and as might be found desirable.

In accordance with the present invention, our improved cap or closure may be used with any such of the receptacles above mentioned, without requiring material alterations in the construction of the receptacle.

In accordance with the present invention, the cap is provided with a shiftable valve member for controlling discharge of the contents of the receptacle.

The invention together with its many objects and advantages will be best understood from a study of the following description, taken in connection with the accompanying drawing, wherein:

Figure 1 is a side elevational view of our improved cap, the same being shown as applied to a conventional commercial flexible tube.

Figure 2 is a view similar to Figure 1, and showing the valve of the cap in closed condition.

Figure 3 is a fragmentary vertical sectional view through the cap and neck portion of the tube illustrating the two positions of the valve member.

With reference more in detail to the drawing, it will be seen that our improved cap designated generally by the reference character 5 consists generally of a substantially cylindrical body 6 having at its upper end a convex surface 7 continuing to the peripheral edge of a flange 8 formed integral with the body 6 and extending thereabout. The peripheral edge of the flange 8 is knurled or otherwise formed as at 9 to facilitate placing the cap on the neck of the receptacle, and removing it therefrom.

The body 6 of the cap has an opening extending centrally therethrough and provided preferably for a portion of its length with threads 10 continuing towards the body remote from the flange 8. The wall of the bore or opening at the upper end of the cap is concaved to provide a recess 11 within which is arranged a ball valve 12 for universal movement.

The valve member 12 has a portion of the periphery thereof extending through a slot 13 provided therefor in the upper end of the body of the cap and is also equipped with a step 14 readily accessible and serving to facilitate shifting of the ball valve.

The ball 12 also has extending therethrough a diametrically elongated bore or passage 15 through which the contents of the receptacle with which the cap is associated must pass upon discharge of such contents.

In the present instance we have shown our improved cap used in connection with a conventional and well known type of commercial flexible tube or receptacle 16, the neck 17 of which is preferably, but not necessarily, provided adjacent the free end of its bore with a concave recess 18 forming a seat for the valve member 12.

In using the cap with this form of receptacle, it will be seen that the improved cap may be arranged on the neck 17 of the receptacle as a unit, the threads 10 of the cap engaging with the external threads provided on the neck 17, and the ball valve 12 being confined in the recess 11 seats or engages the seat 18 provided on the neck 17.

Obviously with the cap and its associated parts so engaged with the neck of the receptacle, the body 6 of the cap may be screwed downwardly on the neck to increase or release pressure on the ball valve 12 thus controlling the ease of movement of the valve 12 and also providing means for taking up wear on the parts.

When it is desired to discharge the contents or portion thereof the ball valve 12 may be swung from the right to the left in Figure 1 thereby alining the passage 15 with the bore of the neck 17. For closing the neck 17 the ball valve 12 is swung from the left to the right in Figure 2 so that the passage 15 thereof will be disposed somewhat obliquely

with respect to the bore of the neck 17 so that a wholly solid portion of the ball valve 12 bridges or closes the bore of the neck.

As before stated and as is thought apparent, our improved cap may be used without altering the construction of the mouth of the bottle to the extent of forming a seat such as the seat 18 herein shown, with the result that our improved cap is susceptible to use on many well known types of flexible tubes, bottles and similar receptacles without requiring any alterations in the construction of such receptacle nor requiring any material alteration or departure from the principles of our invention other than for example a substitution of means such as slots and lug means in lieu of screw threads for effecting a positive engagement of the cap body with the neck of the receptacle. Heretofore, as far as we are aware, receptacle caps employing a ball valve structure have required that the receptacle with which it is used should be equipped with a particular type of neck in order to be properly and effectively associated with such type of cap.

Even though we have shown and described the preferred embodiment of the invention, it is to be understood that we do not wish to limit ourselves to the precise details of construction, combination and arrangement of elements as herein particularly shown and described and accordingly claim all such forms of the invention to which we are entitled in view of the requirement of the prior art and the scope of the appended claim.

Having thus described our invention, what we claim as new is:

A valve cap for flexible tubes and analogous receptacles comprising a body portion and a neck integral therewith and of a diameter materially less than the diameter of said body portion, said body portion having a substantially semi-spherical recess provided therein in substantial alinement with said neck, and also having in the top thereof an opening concentric to said recess; a ball valve revolubly arranged in the recess and having a portion thereof projecting through said opening, said ball valve being also provided with a passage extending diametrically therethrough, and also having on the projecting portion thereof a manipulating pin extending at an acute angle to the longitudinal axis of said passage; and said neck also having an internal diameter substantially equal to the largest internal diameter of said recess, and provided with internal screw threads terminating inwardly of said recess at the largest diameter of the latter.

In testimony whereof we affix our signatures.

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