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D. K. KUSKIN

COLLAPSIBLE TUBE

Filed Jan. 28, 1924

Fig. 1,

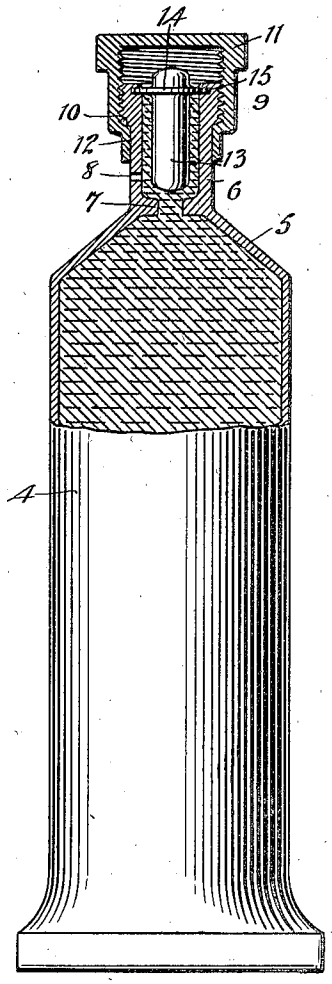


Fig. 2,

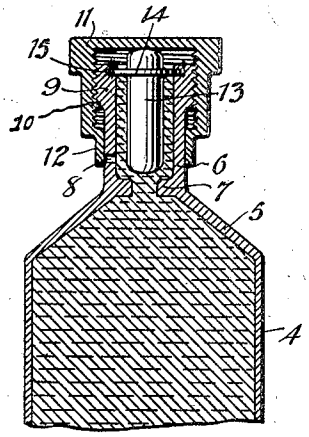
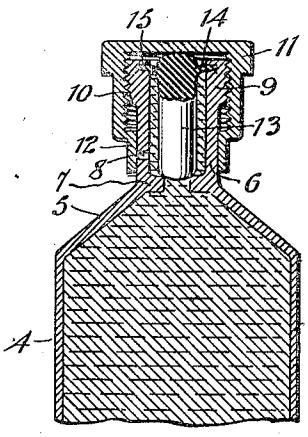


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

DAVID K. KUSKIN, OF NEW YORK, N. Y.

COLLAPSIBLE TUBE.

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To all whom it may concern:

Be it known that I, DAVID K. KUSKIN, a citizen of the United States, and a resident of the city of New York, borough of Bronx, in the county of Bronx and State of New York, have invented a new and Improved Collapsible Tube, of which the following is a full, clear, and exact description.

This invention relates to improvements in containers, and has particular reference to a collapsible receptacle, such as used for containing tooth paste, shaving cream and other viscous substances.

An object of the invention is to provide an improved closure for the container in which the closure cap is so mounted as to preclude the possibility of its loss and to control the discharge of material from the container in such manner that very little, if any, of the material will leak from the container and accumulate about the cap.

Another object is to effectively close the container when not in use by the actuation of a valve member controlled by a movement of the closure cap.

The above and other objects will appear more clearly from the following detailed description when taken in connection with the accompanying drawing, which illustrates a preferred embodiment of the inventive idea.

In the drawing—

Figure 1 is a fragmentary longitudinal section through a container constructed in accordance with the invention and showing the closure in its opened position;

Figure 2 is a similar view showing the closure in a partially closed position; and

Figure 3 is a similar view showing the closure in its closed position.

The closure of the present invention is particularly designed for use in connection with a container 4 made of any flexible material which will permit of the body of the container being collapsed to force the material therefrom. The container is tubular for a major portion of its length and at its outer end is reduced or tapered, as indicated at 5, to form a neck 6 which, in accordance with the present invention, is provided at its inner end with an annular flange 7 forming a valve seat. At a point adjacent the seat 7 the neck 6 is provided in the wall thereof with an outlet opening 8 through which the material is discharged. At the outer end of the neck 6 the same is enlarged, as indicated at 9, to form an annular shoulder 10 and the enlarged portion is externally screw threaded to receive thereon the internally screw threaded closure cap 11, which is movable longitudinally of the neck 6 to open and close the outlet 8. For the purpose of limiting the outward movement of the closure cap 11 on the neck 6 to its opened position the cap at its inner end is reduced, as indicated at 12, so as to contact the smaller portion of the neck 6, said reduced portion 12 being thereby engageable with the shoulder when the cap is in the position shown in Figure 1 so as to limit the outward movement of said cap. By reason of this construction it will be obvious that after the cap has been mounted upon the neck the same is prevented from becoming detached and thereby lost.

The flow of material from the container is controlled by a valve member 13 of elongated cylindrical formation and preferably made of any suitable flexible material, such as rubber. Adjacent the outer end of the valve member 13 the same is formed with an annular flange 14 which is relatively thin so as to impart thereto a degree of flexibility which will permit of longitudinal movement of the valve member in the neck 6. The valve member is secured in position by forming the outer extremity of the neck 6 with an annular groove 15 into which the periphery of the flange 14 is inserted, the material forming the outer extremity of the neck portion being then pressed down tightly into engagement with the flange 14 to securely hold it in place. The valve member assumes a normal position in the neck 6 with its outer end spaced from the end of the cap member 11 and its inner end spaced from the valve seat 7, this normal position of the valve member being effected when the closure cap is moved to its opened position, as in Figure 1.

After the material has been discharged from the container by squeezing the body 4 and forcing said material through the opening 8, the container is closed by threading the cap 11 inwardly upon the neck portion. This inward movement of the cap longitudinally of said neck portion continues until the cap engages the outer end of the valve member. At this time the parts are in the position shown in Figure 2 with the inner reduced end 12 of the cap in a position covering the outlet opening 8 so that sub-

sequent inward movement of the valve member will fail to force any material through said opening. Continued movement of the cap 11 then forces the valve member 13 inwardly until the same engages the seat 11 to close communication between the body and the outlet 8. In thus moving the valve member 13 inwardly a part of the material which has entered the neck 6 when discharging said material from the container is caused to re-enter the body through the valve seat. As the valve member 13 is moved inwardly by pressure thereagainst from the cap 11 the flange 14 of said valve member is flexed, as shown in Figure 3, so that when the cap 11 is again moved outwardly to uncover the outlet opening 8 the resiliency of the flange 14 will restore the valve member 13 to the position shown in Figure 1 to again permit of the material being discharged from the container. When the valve member 13 starts to move outwardly from its closing position a slight vacuum will be created by reason of the material which has been displaced upon the inward movement of the valve member and this vacuum will have a tendency to draw a small portion of the material from the body into the neck previous to the body being squeezed to discharge the material through the outlet opening.

What is claimed is:

1. In a container, a collapsible body portion having a neck at one end provided with a valve seat at its inner end and an annular groove adjacent its outer end, a valve in said neck having a flexible flange the periphery of which is engageable in said groove, and a closure cap movable longitudinally of said neck to engage said cap with said valve to flex the same so as to cause it to engage said valve seat to close communication between said body portion and neck.

2. In a container, a collapsible body portion having a neck at one end provided at its inner end with a valve seat and at its opposite end with an outlet opening, a valve in said neck having a flexible flange, the periphery of which is operatively held in said neck, and a closure cap movable longitudinally of said neck and engageable with said valve to flex the same to closing position on said seat and to close said outlet opening when said valve is in closing position.

3. In a container, a collapsible body portion having a neck at one end provided at its inner end with a valve seat and at its opposite end with an outlet opening, a valve in said neck having a flexible flange, the periphery of which is operatively held in said neck, and a closure cap movable longitudinally of said neck and engageable with said valve to flex the same to closing position on said seat and to close said outlet opening when said valve is in closing position, said neck and closure cap having cooperating means for limiting the outward movement of said cap on said neck.

DAVID K. KUSKIN.