April 1, 1952 V. POPOFF 2,591,465

DISPENSING CAP HAVING CAM ACTUATED CLOSURE

Filed Sept. 14, 1949

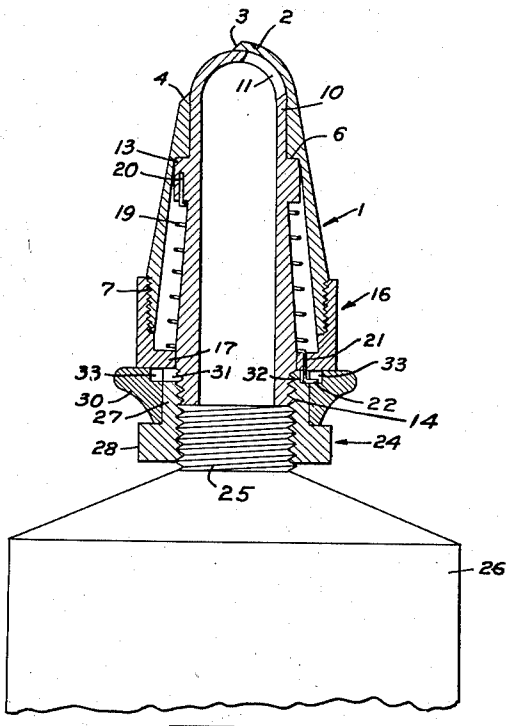


Fig. 1.

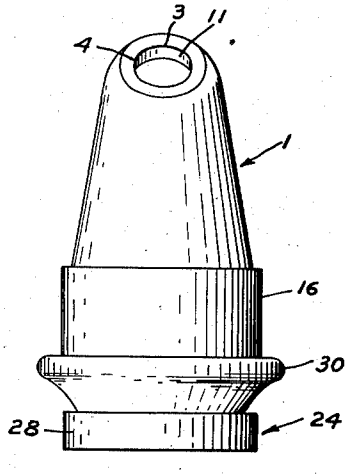


Fig. 2.

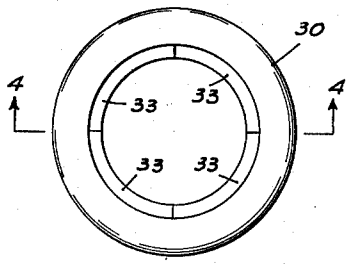


Fig. 3.

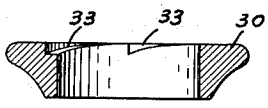


Fig. 4.

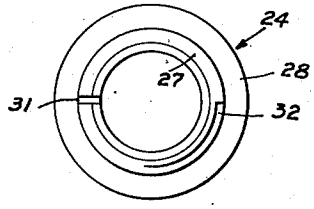


Fig. 5.

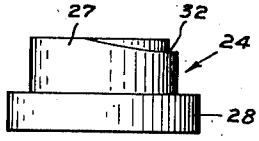


Fig. 6.

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DISPENSING CAP HAVING CAM ACTUATED CLOSURE

Vladimir Popoff, San Francisco, Calif.

Application September 14, 1949, Serial No. 115,663

3 Claims. (Cl. 222—513)

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This invention relates to a dispensing cap for a tooth paste container and has for its purpose to provide a cap for a tooth paste tube, or the like, which could be easily opened and closed, and which upon being closed will stay closed.

Another object of this invention is to provide a dispensing cap which is open by rotation of a closure member, and which stays open until a special closing nut is operated.

Another object of this invention is to provide a dispensing cap of the type described which securely closes the discharge opening and which does not permit an accidental extrusion of material therethrough.

Other objects and advantages will appear as the specification proceeds and the novel features of the device will be particularly pointed out in the claims hereto annexed.

In this specification and the annexed drawing, the invention is illustrated in the form considered to be the best but it is understood, that the invention is not limited to such form; and it is also to be understood that in and by the claims following the description, it is desired to cover the invention in whatsoever form it may be embodied.

This specification is accompanied by a drawing forming a part of this specification, in which:

Fig. 1 is an enlarged vertical cross-section of a dispensing cap constructed in accordance with the teaching of this invention showing a portion of a paste tube to which the cap is attached.

Fig. 2 is an enlarged elevation of the dispensing cap showing the same in open position.

Fig. 3 is a top view of a special release ring.

Fig. 4 is a vertical cross-section of the release ring as taken along the line 4—4 of Fig. 3.

Fig. 5 is a top view of a special nut, and

Fig. 6 is a side view of said nut.

In detail, my dispensing cap consists of a cone-shaped closure 1 having a round top 2 and an open bottom. An opening 3 is provided in the top 2 by cutting said top by a plane surface at an angle to the central longitudinal axis of said closure, forming sharp edge 4 surrounding said opening.

The closure 1 is hollow and is formed with an inner annular shoulder 6 and has its bottom outwardly threaded at 7.

A hollow tube 10 is located inside of the closure 1, which tube extends beyond the open end of said closure a certain distance. The upper end of the tube 10 is rounded to fit snugly the upper portion of the closure 1, and has an opening 11 therein, which is adapted to register with

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the closure opening 3. A circular rib 13 is provided on the outer surface of the tube 10, and the latter is externally threaded at its lower end, as shown at 14.

The lower threaded portion 7 of the closure 1 is screwed into a cup 16 which is internally threaded and has a bottom 17, through which the tube 10 extends.

A coil spring 19 is provided around the tube 10 and between the same and the closure 1, the upper end 20 of which spring is secured in the rib 13, and the lower end 21 extends through the bottom 17 of the cup 16 and is bent outwardly as at 22. The tube 10 is affixed by a nut 24 to a neck 25 of a tooth paste container 26. The nut 24 has an extension 27 which extends beyond the neck 25 of the container and into which the tube 10 is securely threaded. The nut 24 has also an outer circular flange 28, between which flange and the cup 16 is provided an operating ring 30, which is free to rotate around the extension 27 of said nut 24.

On the upper surface of the extension 27 there are a radial slot 31, extending all the thickness thereof to a certain depth, and a cam 32. The ring 30 is provided with four cams 33 in the top thereof in the portion immediately adjoining the extension 27.

The end 22 of the spring 19 rests in the lowest portion of the cams 32 and 33, as shown in Fig. 1. When the closure 1 is rotated in clockwise direction, the end 22 of the spring 19 travels along the cam 32 and is lifted thereby to the top surface of the extension 27. Further rotation brings the end 22 into registry with the slot 31 whereupon the end 22 drops thereinto. At this moment the opening 11 of the tube 10 registers with the opening 3 of the closure 1 and the user may squeeze a desired amount of tooth paste from the container onto a tooth brush. The closure 1 and the tube 10 are held in that position until the spring end 22 is lifted out of the slot 31, thus permitting the closure 1 to be rotated about the tube 10 by the torsional tension of said spring. To lift the end 22 out of the slot 31, the ring 30 is rotated in counterclockwise direction. One of the cams 33 on said ring lifts the end 22 of the spring 19 out of the slot 31, and said spring rotates the cup 16 and the attached thereto closure 1 in counterclock-wise direction 180°, thus bringing the closure to its normal position, as shown in Fig. 1, and closing the opening 11. The sharp edge 4 of the opening 3 makes a clean cut through the material extruded from the container and leaves the dis-

tributing cap clean. The spring 19 not only rotates the cup 16 and the closure 1 about the tube 10, but also constantly presses the tube 10 against the inner surface of the closure 1, thus insuring a good closure for the opening 11 in the tube 10.

I claim:

1. A dispensing cap for a paste container having a neck, said cap comprising a tube having an opening on the top thereof, a nut for fixedly attaching said tube to the neck of said container, a closure on said tube adapted to be rotated thereabout and having an opening in the top thereof registrable with the first mentioned opening; a spring, the upper end of which is connected to the tube and the lower end being operatively connected with the closure, said spring yieldably forcing said tube against said closure, said nut having a slot and a cam on the top surface thereof, said lower end of the spring being normally retained by the cam and adapted to be retained by the slot when the closure is rotated to affect the registry of the above mentioned openings, and means for releasing said lower end of the spring from said slot.

2. A dispensing cap for a paste container having a neck, said cap comprising a tube having an opening on the top thereof, a nut for fixedly attaching said tube to the neck of said container, a closure on said tube adapted to be rotated thereabout and having an opening in the top thereof registrable with the first mentioned opening; a spring, the upper end of which is connected to the tube and the lower end being operatively connected with the closure, said spring yieldably forcing said tube against said closure, said nut having means for retaining said closure

in closed position and means for retaining said closure in open position; and a cam element provided on the nut below said closure having a freedom of motion in relation to said nut and closure, said cam element releasing the closure from its open position when moved in relation to said nut and closure.

3. A dispensing cap for a paste container having a neck, said cap comprising a tube having an opening on the top thereof, a nut for fixedly attaching said tube to the neck of said container, a closure on said tube adapted to be rotated thereabout and having an opening in the top thereof registrable with the first mentioned opening; a spring, the upper end of which is connected to the tube and the lower end being operatively connected with the closure, said spring yieldably forcing said tube against said closure, said nut having means thereon for normally retaining the lower end of said spring, and second means on said nut for retaining the lower end of the spring when the closure is rotated to affect the registry of the above mentioned openings; and a cam element on said nut for releasing the lower end of the spring from the second means by moving said element in relation to said nut.

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The following references are of record in the file of this patent:

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