Nov. 27, 1956 L. E. CHIRCOP 2,772,027

DISPENSING CAPS FOR COLLAPSIBLE TUBES

Filed Nov. 10, 1954

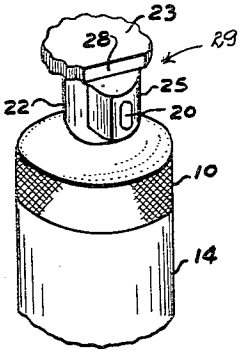
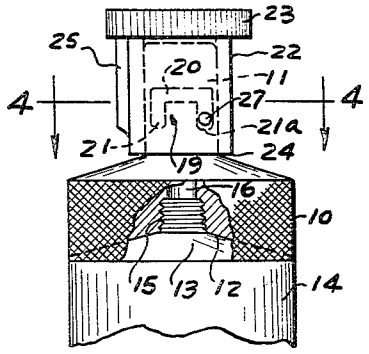


Fig. 1

Fig. 2



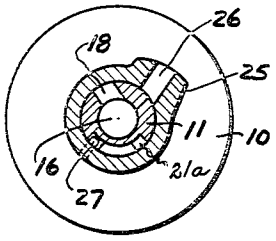


Fig. 3

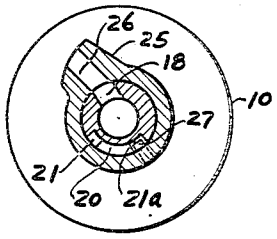


Fig. 4

Fig. 7

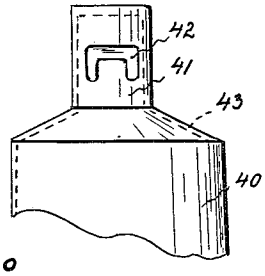
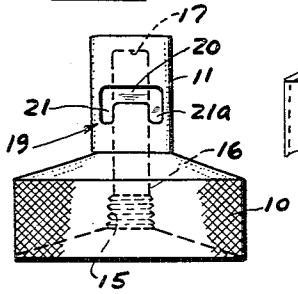


Fig. 5



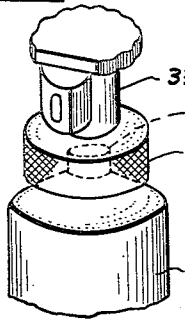


Fig. 6

INVENTOR.
LAWRENCE E. CHIRCOP.
BY Louis Chayka
ATTORNEY

United States Patent Office 2,772,027 Patented Nov. 27, 1956

2,772,027

DISPENSING CAPS FOR COLLAPSIBLE TUBES

Lawrence E. Chircop, Mount Clemens, Mich.

Application November 10, 1954, Serial No. 468,021

1 Claim. (Cl. 222—92)

My improvement pertains to caps adapted for use with collapsible tubes containing tooth paste, shaving cream, lotions, and similar commodities which are to be dispensed at intervals and in small quantities.

The object of my improvement is to provide a cap which, once applied to a tube, will not have to be removed until the contents of the tube have been exhausted, but which will include means for release of the contents of the tube or for blocking such release, as desired.

A more specific object of the improvement is to provide a cap having no parts which will have to be detached for the purpose of releasing the contents of said tube.

A further object of the improvement is to provide a dispensing cap having a radially-extending spout and a crown thereabove, this structure making it possible to operate the cap without touching the spout at that portion which is provided with an outlet port for the contents of the tube.

Another object of the invention is to provide a dispensing cap including a rotary closure which is provided with means for locking the closure in one of the selective operative positions, specifically, either in a dispensing position or in a closed position.

I shall now describe my improvement with reference to the accompanying drawings in which:

Fig. 1 is a perspective view of the dispensing cap as applied to the upper portion of a collapsible tube;

Fig. 2 is an enlarged side elevational view of the cap with parts broken off in order to disclose the manner of connection of the cap to said collapsible tube;

Fig. 3 is a sectional view on line 4—4 of Fig. 2;

Fig. 4 is also a sectional view on line 4—4 of Fig. 2, the view disclosing elements of the cap in different operative positions than those shown in Fig. 3;

Fig. 5 is a side elevational view of the cap without a rotary closure which is normally seated thereon;

Fig. 6 is a modified species of the cap as applied to a collapsible tube;

Fig. 7 is a fragmentary side elevational view of a collapsible tube with a dispensing neck for use with a rotary closure as improved by me.

Similar numerals refer to similar parts throughout the several views.

The dispensing cap of my invention consists of three principal elements, a base **10**, a neck **11**, and a circular cylindrical closure **29** in a telescopic engagement with the neck. The base, in its preferred form, has the shape of a solid disk the undersurface of which is depressed into a funnel-like form, as shown at **12**, to conform with the top portion **13** of a conventional collapsible tube **14**. The funnel-like formation terminates with an axially-disposed socket **15**. The socket is threaded internally and opens into an axial bore **16** of a restricted diameter. It will be noted that the diameter of the base **10** is substantially the same as that of the tube **14**, and that the outer surface of the base is knurled for a better manual grip thereon.

Rising axially from the base is said tubular neck **11**

which is closed at the top by a cross-wall **17** but which has an outlet port **18** in its side wall and opens, at its lower end, into said bore **16**. It is said neck which is also provided with a double bayonet slot **19**. The slot, as shown in Fig. 5, has the shape of an inverted letter U, including a transverse groove **20** and two downwardly-extending legs **21** and **21***a*, respectively, the legs being in a spaced relation to each other. The slot, as a whole, has the form of a depression or recess in the body of the neck, without penetrating said wall.

Telescopically fitting over said neck is a closure **29**, including a cylindrical skirt portion **22** and a flat crown **23** of a diameter exceeding that of the skirt. The latter is of such a length that when axially seated upon said neck its lower rim **24** will touch or will closely come to the upper surface of base **10**. Radially extending from the closure is a spout **25** provided with a duct **26**.

Located in the wall of the closure, in a position diametrically opposed to said spout, is a pin **27** which projects inwardly from said wall into the slot **19**. Normally, the position of the closure on said neck is such that the pin will fit into the lower portion of one of the legs **21** or **21***a* of the slot **19**, as shown in Fig. 2.

The closure, as already mentioned, is capable of a limited rotary movement about the axis of the neck to the extent permitted by the length of the transverse groove **20** of the slot. By reason of the structure, the closure may be brought either in register with the outlet port **18** in said neck, as shown in Fig. 4, or out of register therewith, as shown in Fig. 3.

Attention is invited to the fact that the crown **23** of the closure is cut off along a line **28**, that is, along the line of a chord with respect to the circumference of said crown.

The species of the dispensing cap shown in Fig. 6 differs from the cap shown in the preceding figures of the drawings only in this respect—that the base **30** of the cap is just large enough to contain a threaded socket for application to the top portion **31** of the collapsible tube **32**. Otherwise, the cap is identical with that shown in said preceding figures of the drawings.

The drawing shown in Fig. 7 discloses the upper portion of a collapsible tube **40** with an integrally-formed neck **41** which is provided with a U-shaped slot **42**. The neck is, in all respects, like the neck **11** shown in Fig. 1, and is adapted for use with a rotary closure identical with the closure **29** shown in Fig. 1. The difference lies in the fact that said neck **41** is a part of the tube and not a part of a removable cap as shown in other figures of the drawings.

The manner in which the dispensing cap may be used is quite obvious. The dispensing cap is applied over the conventional threaded dispensing end of a conventional collapsible tube in place of a small cap which serves as a closure for the orifice of the tube.

It will now be assumed that the rotary closure of my cap will be in a closed position. This means that the lower rim of the closure will be in touch, or almost so, with the upper surface of the base **10**, that the pin **27** will be within the lower portion of leg **21** of the slot **19**, and that the spout will be out of register with the outlet port in the neck **11**. This position is shown in Fig. 3.

Assuming now that a quantity of the contents of the tube is to be squeezed out, the base **10** is held by the fingers of one hand when the closure **29** will be pulled outwardly, that is, away from the base **10**, then turned about the axis of the tube in the direction of an arrow, the pin moving toward the other leg **21***a*. Thereupon, the closure will be pushed towards the base **10** until the pin will reach the lower portion of the last-named leg **21***a*. This change of the position of the closure will bring the inner duct of the spout in register with the outlet in the neck **11**, as shown in Fig. 4.

In order to close the outlet, the movement of the closure will be reversed and the closure will be returned to the initial position described herein.

The closure may be operated by means of the crown alone, so that the spout need not be touched by hand, the cut-off portion of the crown affording space for use of a finger above the upper surface of the spout **25**.

After having described my improvement, what I wish to claim is as follows:

A dispensing cap for collapsible tubes, the cap comprising a base having a threaded socket therein for application to the orifice portion of a collapsible tube the base being of a diameter equal to that of the tube, a tubular neck axially rising from the base and opening at the lower end into the socket of the base, but being closed at the top, the neck having in its side wall an outlet port and having in said wall, in a diametrical position to said port, a slot in the shape of an inverted letter U, a cylindrical closure telescopically seated over the neck, the closure

being provided with a radially-extending spout, the spout being normally out of register with said outlet port, but being adapted to be brought into register therewith by a partly rotary movement of the closure about the axis of said neck, and an integrally-formed crown at the top of the closure, the crown being of a diameter in excess of that of the closure, but having a portion cut off on a line of chord above the said spout.

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