United States Patent [19]

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[11] **3,896,978**

[45] **July 29, 1975**

[54] **CLOSURE FOR COLLAPSIBLE TUBES**

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[22] Filed: **July 23, 1973**

[21] Appl. No.: **381,608**

[52] **U.S. Cl.** **222/517;** 222/556; 220/334

[51] **Int. Cl.**[2] **B67D 3/00**

[58] **Field of Search** 220/38.5, 30, 32, 60; 222/556, 517

[56] **References Cited**

UNITED STATES PATENTS

2,001,627	5/1935	Nenstieht	222/556 X
2,113,501	4/1938	Baxter	222/556 X
2,558,314	6/1951	O'Keefe et al.	222/517
3,295,726	1/1967	Hanson	220/38.5 X

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[57] **ABSTRACT**

The invention relates to a closure for collapsible tubes, particularly for those containing tooth paste, the closure being designed to dispense toothpaste directly onto a tooth brush. The new closure comprises an elongated body having a longitudinal bore which is provided with an internal screw thread fitting onto the screw threaded neck of a tube, the said bore being curved and ending in a branch the axis of which is substantially normal to the axis of the main bore, a hinged lid being provided to close onto the opening in the said branch of the bore. In a preferred embodiment of the invention the said branch of the bore ends in the center of a wart like protrusion, while the said lid had a depression into which the said wart like protrusion can enter. The lid is urged into closing position by means of a spring.

4 Claims, 3 Drawing Figures

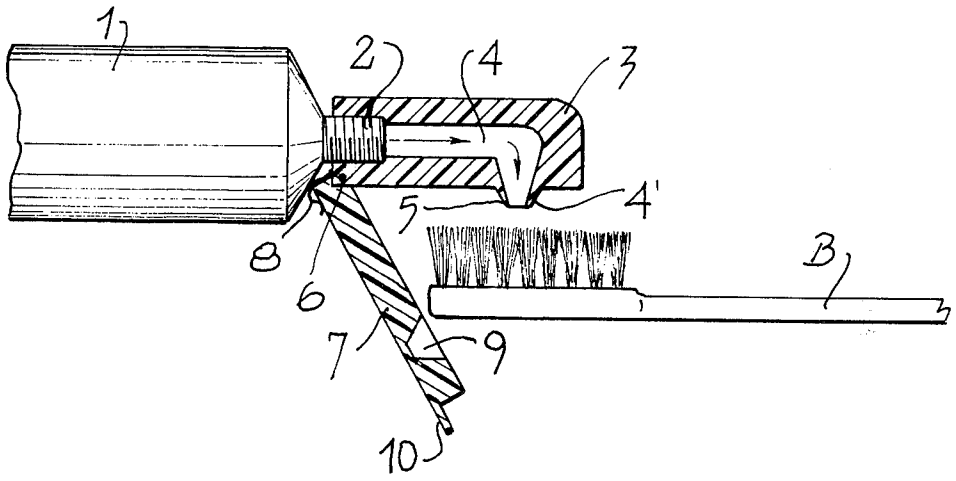
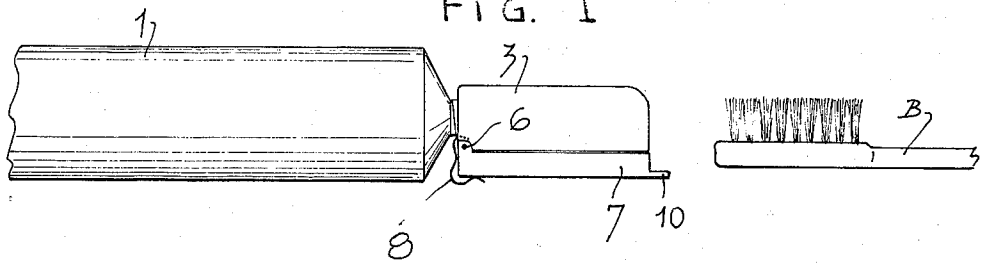


FIG. 1



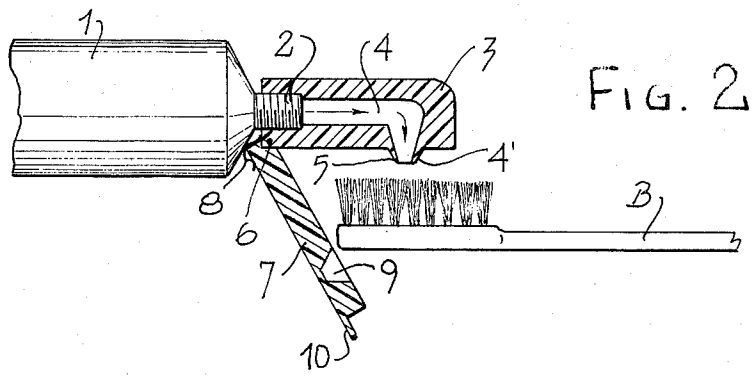


FIG. 2

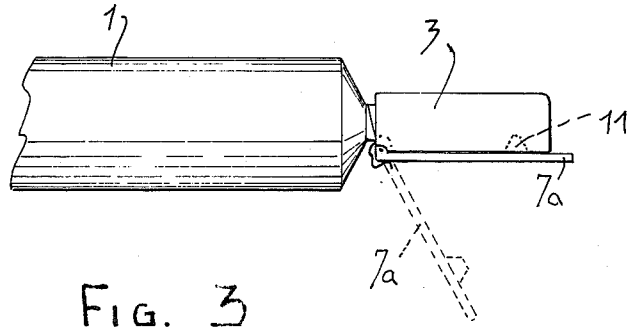


FIG. 3

CLOSURE FOR COLLAPSIBLE TUBES

BACKGROUND OF THE INVENTION

The conventional tubes in which toothpaste is contained are usually closed by means of a screw cap. In order to dispense a quantity of toothpaste onto the tooth brush the screw cap has to be removed and the end of the tube is squeezed so that a quantity oozes out from the screw threaded neck. It is a commonly known disadvantage that the screw caps are usually loose, so that a tube remains open and the toothpaste dries. It is a further disadvantage of the conventional tubes that quantities of toothpaste ooze from the open neck and when the screw cap is screwed on this quantity is displaced within the screw cap and emerged at the open edge thereof. This frequently dries around the screw cap and makes the removal of the cap difficult.

OBJECT OF THE INVENTION

It is an object of the invention to create a closure for collapsible tubes, especially those containing toothpaste which can be opened easily by means of pressure exerted through the toothpaste into the toothbrush itself. It is a further object of the invention to create such a closure which automatically closes upon removal of the toothbrush. Yet another object of the invention is to create a closure which prevents toothpaste from accidentally emerging from the opening of the closure and thus creating a dried residue around the opening making it difficult to open the closure. Finally it is an object of the invention to create a pleasant closure which may be used also for advertising purposes or carrying inscriptions concerning the use of the contents of the tube.

SHORT DESCRIPTION OF DRAWINGS

FIG. 1 illustrates a tube with the new closure in closed position and a toothbrush being brought near to the closure in instant of opening it. FIG. 2 is a like view, partly in section showing the new closure in open position and held in this position by means of a toothbrush. FIG. 3 illustrates a slightly varied construction of the new closure.

SPECIFIC DESCRIPTION OF THE INVENTION

A collapsible tube of metal or plastic of conventional design has a screw threaded neck **2** as is commonly provided on such tubes. This screw threaded neck has a central opening through which -under pressure- the contents of the tube can be dispensed. Instead of the conventional screw cap there is screwed onto the neck **2** a block shaped body **3** in which extends a longitudinal bore **4**, the end of which is constituted by a branch **4'** extending substantially at right angles to the main portion of the bore **4**. The open end of the branch **4'** lies in the center of a nipple **5**. The under side of the body **3** is entirely flat and smooth except for the nipple **5**. To the body **3** is hingedly connected at **6** a lid **7** which is urged into closing position by means of a leaf spring **8** exerting pressure onto the underside of the lid **7**. In the inner face of lid **7** is provided a depression **9** of a shape corresponding to that of nipple **5**. The forward end of lid **7** has an outwardly extending nose **10**.

The new closure functions as follows:

A toothbrush indicated by the letter B which is held in one hand of the person using it, while the tube is held in that person's other hand, is applied to the nose **10** and the lid is urged to swing open. Now the brush can be brought into position underneath the nipple **5**, at the same time holding the lid **7** in open position. Slight pressure on the tube will cause a quantity of toothpaste to be dispensed right onto the bristles of the brush being used, as indicated by the arrows in FIG. **2**. When a sufficient quantity has been deposited on the bristles of the brush, the latter is removed whereupon the lid **7** snaps shut under the urging of the spring **8**.

It will be seen that in this way the exact quantity of toothpaste can be deposited right onto the toothbrush, that the opening is performed quickly and easily without screwing and without the danger of losing the screw cap being present. Finally, after use, it is not required to screw on a closure, the lid closing automatically. The nipple **5** entering into the depression **9** has a certain depth, the lid **7** must have a certain thickness. It is possible to have the bore **4** end within a depression in the face of the body **3**, as indicated by broken lines, in FIG. **3**, where such depression is designated **11**. In that case, the lid, indicated by the numeral **7a** may be a thin plate having a wart like protrusion **12** on its upper side, which protrusion is designed to enter the depression **11** within which the bore **4** terminates. In this case, too the closure is fully tight and the deposition of residue at the opening is prevented.

What is claimed is:

1. A closure for collapsible tubes consisting of:

an elongated body having a flat side and first and second ends and a main portion therebetween, said body having a bore extending therethrough, said bore having internal screw threads at the end thereof corresponding to said first end of said body, the opposite end of said bore being bent off the direction of the main portion of said bore and opening into said flat side;

a lid hingedly attached at one end thereof to said body at said first end thereof, said lid closing to cover only said flat side, and sealing the opening of said bore in said flat side, the only surface of said lid contacting said body being a flat surface corresponding to said flat side of said body;

spring means for urging said lid into the shut position; and

a nose extending from the other end of said lid to beyond said second end of said body.

2. The closure according to claim **1**, wherein the opening of said bore in said flat said of said body is positioned in the center of a nipple on said flat side, and said lid has a recess into which said nipple fits in the shut position of said lid.

3. The closure according to claim **1**, wherein the opening of said bore in said flat side of said body is positioned in the center of a depression in said flat side; and said lid has a wart-like protrusion which fits into said depression when said lid is in the shut position.

4. The closure of claim **1** wherein said flat side extends substantially parallel to the longitudinal axis of said internal screw threads of said end of said bore.

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