Aug. 9, 1960 F. TANGUAY 2,948,007

FOUNTAIN TOOTHBRUSH

Filed Sept. 28, 1959

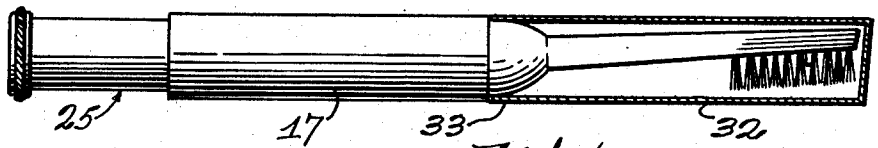


Fig. 1

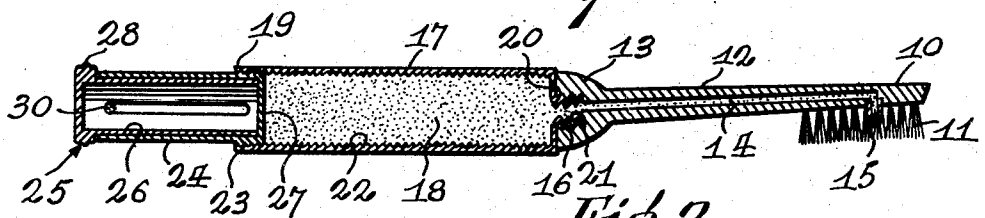


Fig. 2

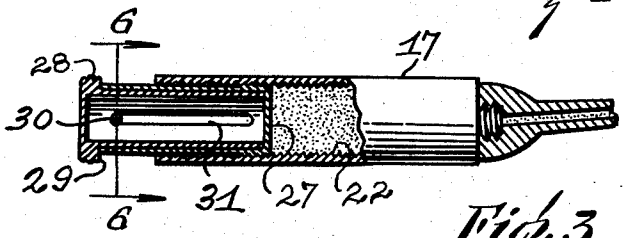


Fig. 3

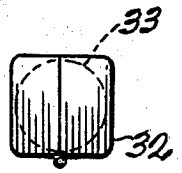


Fig. 4

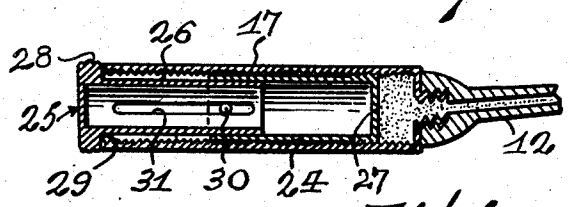


Fig. 5

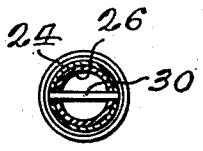


Fig. 6

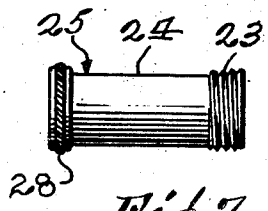


Fig. 7

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FOUNTAIN TOOTHBRUSH

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The present invention relates to a toothbrush, and more particularly to a fountain toothbrush in which the handle forms a reservoir for the toothpaste, the latter being fed to the bristles of the brush by flowing through a bore made in the handle and head of the brush.

The general object of the present invention consists in a brush of the character described hereinabove which is so designed as to have a minimum length compared to the quantity of toothpaste contained therein and so that the brush can be easily carried in one's pocket.

Still another important object of the present invention is the provision of a fountain toothbrush of the character described in which the toothpaste is positively ejected by means of a piston made of at least two telescopic parts arranged in such a manner that the piston can be extended at least up to practically twice its minimum length such that when the reservoir is full of toothpaste, the piston will project externally of said reservoir only half the distance of a conventional piston.

Yet another important object of the present invention resides in the provision of a fountain toothbrush of the character described which is highly hygienic and positively prevents access of air to the toothpaste and thus prevents drying of said paste when the brush is not in use.

Still another important object of the present invention resides in the provision of a fountain toothbrush of the character described in which the handle itself is detachably connected to the reservoir such that the latter can be discarded after use and replaced by a full reservoir.

Yet another important object of the present invention resides in the provision of a fountain toothbrush of the character described in which the brush itself is enclosed and protected by a cap when not in use.

The foregoing and other important objects of the present invention will become more apparent during the following disclosure and by referring to the drawings, in which:

Figure 1 is a side elevation of the toothbrush showing the cap in longitudinal section;

Figure 2 is a longitudinal section of the toothbrush;

Figure 3 is a partial section showing the piston in an intermediary position;

Figure 4 is an end view of the cap for the brush itself;

Figure 5 is a longitudinal partial section similar to that of Figure 3, but illustrating the piston at practically the end of its stroke;

Figure 6 is a cross-section along line 6—6 of Figure 3; and

Figure 7 is an elevation of telescopic piston.

In the drawings, like reference characters indicate like elements throughout.

The toothbrush of the present invention comprises a head 10 having bristles 11 fixed thereto in conventional manner. The head 10 is an integral part of one end of a handle 12 which is provided at its other end with an enlarged end portion 13. A bore 14 is made longitudinally within the handle 12 and the head 10 and communicates

with a right angular short tube 15 extending to mid-length of the bristles 11. The other end of the bore 14 opens within a threaded hole 16 made within enlarged section 13.

A reservoir 17 which contains toothpaste 18 forms a cylinder which is completely opened at its end 19 and is provided with an end wall 20 at its other end, said end wall 20 having itself an externally threaded nipple 21 which can be screwed into the threaded hole 16 of handle 12. The base of the enlarged end section 13 has a diameter slightly smaller than the diameter of the cylindrical reservoir 17.

The internal surface of the cylinder 17 is threaded over substantially the entire length thereof as indicated at 22 whereby the threads 23 made at one end of the external part 24 of the piston 25 can be screwed within threads 23. The piston 25 is formed of two telescopic parts, namely external part 24 which receives internal part 26.

The external part 24 is constituted by a cylindrical element opened at one end and formed at its other end with an end wall 27 which forms the head of the piston. The end wall 27 is disposed adjacent thread 23.

Internal part 26 of the telescopic piston 25 is also of cylindrical form and is closed at its outer end; it can slide longitudinally within the external part 24. Part 26 is provided at its outer end with a knurled collar 28 defining a shoulder 29 against which the free outer end of the external part 24 is adapted to abut.

The two parts of the piston slide freely one within the other but cannot rotate one relative to the other because a transverse rod 30, which is fixed to the external part 24 adjacent its free end and is disposed along a diameter thereof, passes through two longitudinally extending diametrically opposite slots 31 made in the internal part 26 of the piston 25.

A cover or cap 32 which can be made of transparent plastic material is adapted to cover the brush proper consisting of the brush head 10, the bristles 11 and the handle 12, for protecting the brush when not in use. The opened end of the cap 32 forms a cylindrical portion 33 adapted to tightly fit the base of the enlarged end section 13 and abut against the end of the reservoir 17 as indicated in Figure 1.

In order to prevent the accumulation of the toothpaste at the base of the bristles 11, short tube 15 terminates at approximately mid-length of said bristles as clearly indicated in Figures 1 and 2.

The toothbrush in accordance with the present invention is used as follows: When the reservoir is full of toothpaste, the piston is at the outer end of its stroke as shown in Figures 1 and 2. In this position the two parts 24 and 26 of the piston are in complete telescopic engagement such that the piston will have a minimum length.

In order to feed toothpaste to the bristles 11 it is only necessary to rotate and thus screw the piston within the cylinder or reservoir 17 as indicated in Figure 3. The fact that the piston is in threaded engagement with the inside surface of the reservoir positively prevents escape of the toothpaste between said piston and reservoir and also prevents drying of the toothpaste due to the fact that air access is prevented. When about half of the toothpaste has been used, the collar 28 is adjacent the end 19 of reservoir 17 but the remainder of the toothpaste can still be dispensed by further rotating collar 28 which causes rotation of the two parts of the piston and longitudinal movement of the external part 24 because the latter is threaded within cylinder 17; thus all the toothpaste can be finally utilized.

Cap 32 is used for maintaining the brush in hygienic

condition and also to prevent evaporation and drying up of the paste within short tube **15**.

It is to be noted that because the piston is screwed within the cylinder **17** a fluid tight joint is obtained between the piston and the reservoir and therefore toothpaste is prevented from drying up by evaporation through this joint.

Reservoir **17** together with piston **25** can be made of inexpensive materials such that this assembly can be discarded after use while retaining the toothbrush proper which can be easily unscrewed and re-used with another reservoir full of toothpaste.

Although a preferred embodiment in accordance with the present invention has been illustrated and described, it is understood that various modifications may be resorted to without departing from the spirit and scope of the appended claims.

What I claim is:

1. A fountain toothbrush comprising a head having bristles, a handle for said head, said head and handle having a bore for feeding toothpaste to said bristles, said bore opening within said bristles and at the free end of said handle, a reservoir having a nipple at one end secured to said handle and in communication with said bore, said reservoir being fully opened at its other end and having a threaded cylindrical internal surface extending substantially the entire length of said reservoir, a piston formed of at least two telescopic cylindrical parts, namely an external part and an internal part, said external part having external threads in threaded engagement with the threaded internal surface of said reservoir and forming a piston head to force the paste contained within said reservoir through said bore and into said bristles, said internal part slidably fitting and capable of longitudinal movement within the external part of said piston, means to prevent relative rotation between said two parts of said piston, said internal part having an outer end projecting outwardly from said reservoir and a collar formed on said outer end of said internal part and adapted to abut against said other end of said reservoir.

2. A fountain toothbrush as claimed in claim 1, wherein said means consist of two longitudinal slots diametrically opposed and made in said internal part of said piston, and a transverse rod fixed to said external part and passing through said slots.

3. A fountain toothbrush as claimed in claim 1, wherein said reservoir is detachably and threadedly connected to the free end of said handle.

4. A fountain toothbrush as claimed in claim 1, wherein said bore communicates with a right angularly disposed short tube opening at mid-length of said bristles.

5. In a fountain toothbrush, a reservoir for toothpaste, a brush, a handle securing said brush to said reservoir, and having a passageway for the discharge of said toothpaste from said reservoir to the bristles of said brush, said reservoir having a cylindrical internal shape with internal threads extending substantially the entire length of said reservoir, a piston made of at least two telescopically engaged cylindrical hollow parts, namely an external part and an internal part, said external part having threads threadedly engaging the internal threads of said reservoir, said internal piston part longitudinally slidable within said external piston part, means for preventing relative rotation between said two piston parts, said internal piston part projecting outwardly of said reservoir and having a collar adapted to abut said reservoir.

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