April 7, 1953 J. HAUSNER 2,634,025

DISPENSING MEANS FOR FOUNTAIN TOOTHBRUSHES

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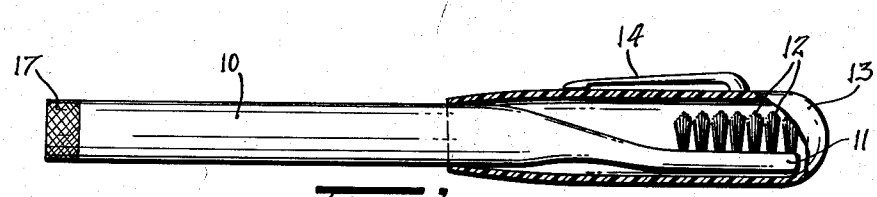


Fig. 1.

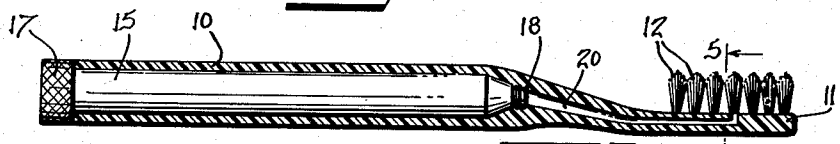


Fig. 2.

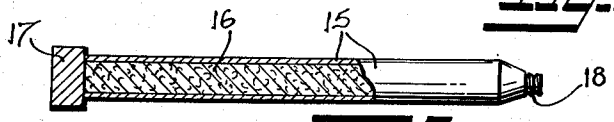


Fig. 3.

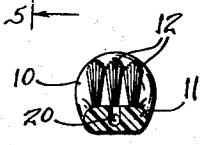


Fig. 5.

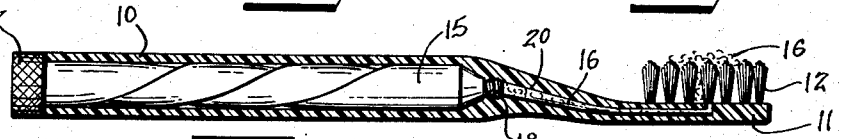


Fig. 4.

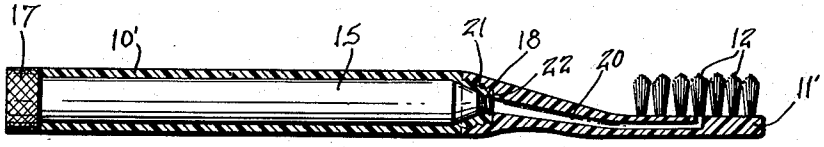


Fig. 6.

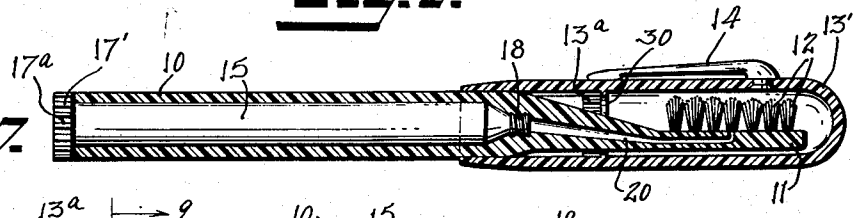


Fig. 7.

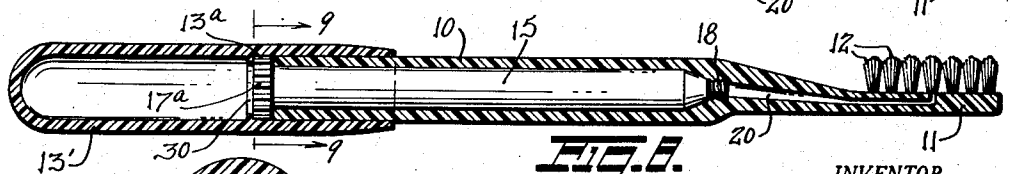


Fig. 8.

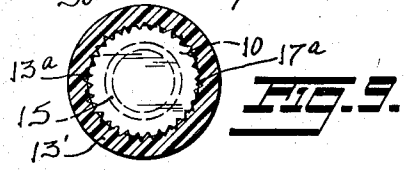


Fig. 9.

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DISPENSING MEANS FOR FOUNTAIN TOOTHBRUSHES

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3 Claims. (Cl. 222—104)

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This invention relates to new and useful improvements in toothbrushes, and, more particularly, relates to an improved toothbrush having a self-contained supply of toothpaste.

One object of the invention is the provision of a toothbrush having a self-contained supply of toothpaste, said brush thus being adapted to be carried about for use away from home at the appropriate times.

Another object of the invention is the provision of a protective cap for said brush having a clip device whereby the brush can be carried in the pocket in the same manner as a fountain pen.

Still another object of the invention is to construct and arrange said brush so that the supply of toothpaste is located in a removable and replaceable tubular container.

A still further object of the invention is to construct the container and to secure it in place in the brush so that the paste therein can be ejected onto the bristles of the brush by applying torsional pressure to a projecting portion of the container.

A preferred form of the invention has for its object to provide means in the protective cap to be engaged on the projecting portion of a container in a manner to facilitate the exertion of torsional pressures on the tube.

It is a further object of the present invention to construct the protective cap and the projecting portion of the container so that those parts have interengageable portions which become interengaged when the cap is slipped into position over the handle end of the toothbrush in a manner so that a mechanical advantage is achieved for twisting the container to collapse the same to eject the contents therefrom.

The invention further proposes new and improved toothbrushes which are simple and durable, which are efficient in operation and which can be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a side elevation of the brush of the invention with its protective cap partially broken away.

Fig. 2 is a longitudinal sectional view of the brush of Fig. 1.

Fig. 3 is a view partly in section of the toothpaste container of the brush.

Fig. 4 is a view similar to Fig. 2 but illustrating the container after torsional pressure has been applied thereto to eject the toothpaste.

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Fig. 5 is a sectional view on line 5—5 of Fig. 2, and illustrates also the shaping from round to rectangular of the bristle portion of the brush.

Fig. 6 is a sectional view similar to Fig. 2 but of a modified brush.

Fig. 7 is a longitudinal sectional view of the toothbrush constructed in accordance with a still further modification of the invention.

Fig. 8 is a view similar to Fig. 7, but with the cap in operative position on the handle end of the toothbrush for applying torsional pressure on the toothpaste container.

Fig. 9 is an enlarged transverse sectional view taken on the line 9—9 of Fig. 8.

The toothbrush, according to the first form of the invention shown in Figs. 1 to 5, includes a hollow circular handle portion 10 which tapers at its one end into a rectangularly cross-sectioned head portion 11 from which the bristles 12 project. A protective cap 13 having a familiar clip 14 fits over the said head portion and engages frictionally on the handle portion 10. A round, replaceable toothpaste tube 15 filled with a suitable paste 16 and having a knurled, solid base 17 of a greater diameter is fitted into the handle 10 and has the threaded neck portoin 18 thereof screwed into a threaded portion of the handle near its head end. When the tube 14 is thus secured in the handle 10, the base 17 thereof substantially abuts the butt end of the handle.

The head portion 11 of the brush is provided with a bore 20 which at one end registers with the neck 18 of tube 15 and at the other end opens out between the bristles 12 at substantially the center of the head 11. Thus if the paste 16 be ejected from tube 15 through bore 20 it will come into engagement with the said bristles and the brush is ready to be used for cleaning the teeth.

The parts thus far described are preferably formed of plastic, that of the tube 15 being thin and elastic.

To eject the toothpaste 16 from tube 15 the base 17 of the latter is twisted, applying torsion to the tube, which as it twists also projects the paste through the bore 20 as shown in Fig. 4.

It will be seen therefore that there has been provided a simple toothbrush which can be carried on the person for use away from home.

In a modified form of the invention illustrated in Fig. 6, the head portion 11' of the brush is made separable from the handle 10' so that the latter is replaceable along with the tube 15 when the latter has been emptied. To this end the head end of handle 11 is threaded as at 21 to be screwed into a threaded cavitly 22 in the head. In other respects this form of the invention is identical with that described above. When purchased, the combined handle 10 and tube 15 are provided with a suitable cap screwed onto the threads 21 rather than on the threaded neck 18 of the tube as is the usual case.

In the modification of the invention shown in Figs. 7 to 9, the cap 13' is constructed so that it can be used to obtain a mechanical advantage for turning the solid base 17' of the toothpaste tube 15 to apply torsional pressure thereto to collapse the tube to discharge the contents therefrom.

In this form of the invention, the solid base 17' is formed about its periphery with serrations 17a which are extended parallel to the longitudinal axis of the tube 15. The interior of the cap 13', inward of its open end, is formed with a band of serrations 13a complementary to the serrations 17a. The inner ends of the serrations 13a are bounded by an inwardly extended lip 30, see Figs. 7 and 8, which acts as a stop to limit engagement of the cap 13' upon the handle portion 10.

Normally, the protective cap 13' is in position over the bristled head portion 11 of the toothbrush. However, when the brush is to be used, the cap 13' is slipped off the head portion 11 and is slipped over the free end of the handle portion 10 of the toothbrush. Engagement of the cap 13' upon the handle portion 10 will be arrested when the lip 30 engages the outer face of the solid base 17', as shown in Fig. 8. In that position of the cap 13', the same can be used, with a great mechanical advantage, to turn the solid base 17' to apply torsional pressure to the tube 15 for collapsing the same to discharge the contents therefrom. After the toothbrush has been used, the cap 13' is removed from the handle portion 10 and then slipped into position over the head portion 11, as shown in Fig. 7, to again take up its duty of protecting the bristled head portion of the toothbrush.

In other respects the form of the invention shown in Figs. 7 to 9 is similar to that shown in Figs. 1 to 5 and like reference numerals identify like parts in each of the several views.

In each of the three modifications of the invention, the bases 17 or 17' are always turned, for applying torsional pressure to the tube 15, in the same direction in which the tube 15 was turned for threading the neck portion 18 of the tube into the threaded portion of the handle 10 near its head end. This is important, when turning the bases for torsional purposes, to insure that the neck portion 18 is not unscrewed from the handle 10.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. In a toothbrush adapted to be carried on the person, dispensing means comprising a hollow handle, a head portion projecting from said handle, a replaceable toothbrush tube secured at its neck end in said handle with the base thereof projecting from the handle, a bore in said head portion to provde a paste passage, one end of which registers with the neck of said tube and the other of which opens out on substantially the center of the surface of said head portion, a protective cap fitted over said head portion and frictionally engaged on said handle portion, whereby on removal of said cap and the twisting of the projecting base portion of said tube the contents of the latter are ejected through said bore and means on said projecting base portion of said tube and on said cap to become interengaged when said cap is slipped onto the free end of said handle portion, whereby said cap may be used for obtaining a mechanical advantage for turning said base.

2. In a toothbrush adapted to be carried on the person, dispensing means comprising a hollow handle, a head portion projecting from said handle, a replaceable toothpaste tube secured at its neck end in said handle with the base thereof projecting from the handle, a bore in said head portion to provide a paste passage, one end of which registers with the neck of said tube and the other of which opens out on substantially the center of the surface of said head portion, a protective cap fitted over said head portion and frictionally engaged on said handle portion, whereby on removal of said cap and the twisting of the projecting base portion of said tube the contents of the latter are ejected through said bore and means on said projecting base portion of said tube and on said cap to become interengaged when said cap is slipped onto the free end of said handle portion, whereby said cap may be used for obtaining a mechanical advantage for turning said base, said means comprising complementary serrations formed on said base and within said cap.

3. In a toothbrush adapted to be carried on the person, dispensing means comprising a hollow handle, a head portion projecting from said handle, a replaceable toothpaste tube secured at its neck end in said handle with the base thereof projecting from the handle, a bore in said head portion to provide a paste passage, one end of which registers with the neck of said tube and the other of which opens out on subtantially the center of the surface of said head portion, a protective cap fitted over said head portion and frictionally engaged on said handle portion, whereby on removal of said cap and the twisting of the projecting base portion of said tube the contents of the latter are ejected through said bore and means on said projecting base portion of said tube and on said cap to become interengaged when said cap is slipped onto the free end of said handle portion, whereby said cap may be used for obtaining a mechanical advantage for turning said base, said means comprising complementary serrations formed on said base and within said cap, and means limiting engagement of said cap onto the free end of said handle portion after said serrations have become completely engaged.

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