Jan. 13, 1942. J. A. BORN ET AL 2,269,513

TOOTHBRUSH

Filed April 6, 1940

Fig. 1

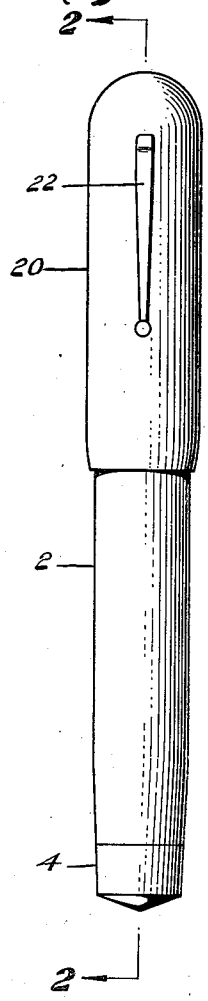



Fig. 2

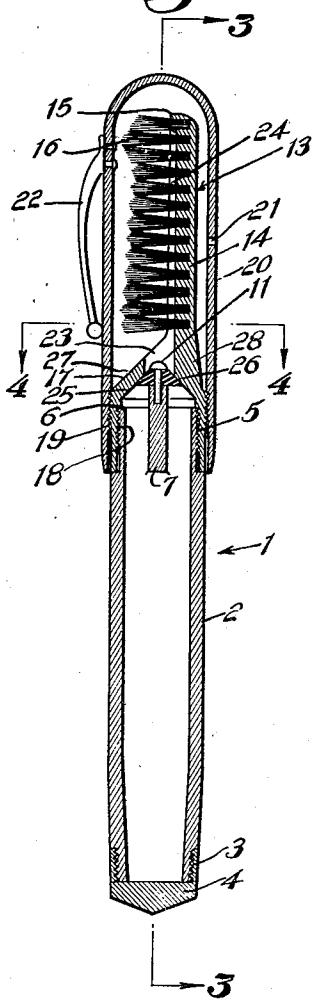



Fig. 3

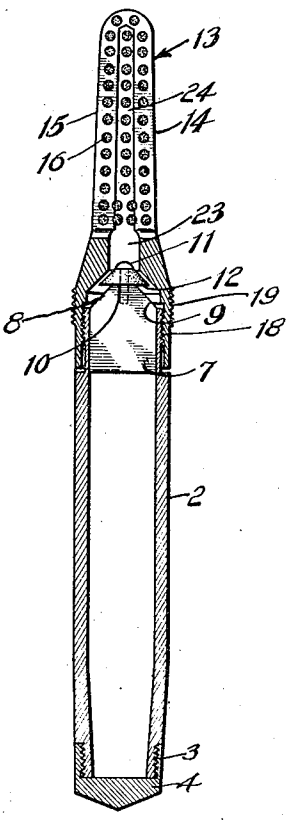
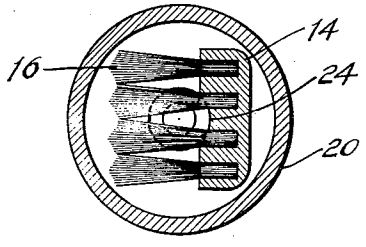



Fig. 4




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## TOOTHBRUSH

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Los Angeles, Calif.

Application April 6, 1940, Serial No. 328,290

1 Claim. (Cl. 15—138)

This invention relates to a tooth brush.

The invention has for an object the provision of a tooth brush wherein a liquid dentifrice may be carried in the handle portion to in turn be dispensed upon the brush in regulated amounts when desired, by the operator of said brush.

The inventors are aware that various types of so-called fountain tooth brushes are on the market, but so far as the inventors are aware, there is no tooth brush of this type upon the market wherein positive means are provided for directing the flow of a liquid dentifrice to the bases of the bristles of the brush so that said dentifrice, in actual use and practice, may flow over said bristles for contact with the working faces thereof to properly clean teeth.

Another object of the present invention is to provide a tooth brush of the character stated wherein a liquid dentifrice of any character may be held within the handle of the brush and disposed upon the bristles in such a manner that the dentifrice is conserved and waste eliminated. With respect to this last object, most fountain tooth brushes that the inventors are familiar with may permit a dentifrice to contact the bristles, but the construction is such that great waste of the dentifrice occurs.

Another object of the invention is the provision of a tooth brush which may be conveniently carried in the pocket, slightly in appearance, resembling a fountain pen, which is readily useful, foolproof in operation and construction, holds sufficient liquid dentifrice to cover the average trip of say two weeks, using the brush three times a day, which is sanitary, wherein the bristles may be readily sterilized or washed without loss of dentifrice, which is fluid-tight when the dentifrice is not being used, and wherein the device may provide several different types of head holding bristles so that any character of bristle, such as soft, medium, and hard may be readily utilized.

At the present time, it is customary to provide a brush and in addition, provide a tube of paste or a bottle of liquid, all of which must take up space, and the brush must be left out so that the bristles may dry, and when this is done, the bristles are often contaminated. In the present invention, the bristles are protected at all times, even during a drying, and the brush may be put away with assurance that wet bristles will not harm any article against which they touch, in that the bristles of the present invention are enclosed and out of object engagement.

Another object of the invention is the provision of a brush of the fountain type, wherein the liquid may be readily replenished within the handle quite easily and without muss, spill or any soiling.

Another object of the invention is the provision of a tooth brush, which is inexpensive in cost of manufacture, may be sold at retail as cheaply as the average first grade brush now on the market, and which as to result to be obtained is generally superior to brushes now known to the inventors.

With the above mentioned and other objects in view, the invention consists in the novel and useful provision, formation, construction, association, and relative arrangement of parts, members and features, all as depicted in a certain embodiment in the accompanying drawing, described generally, and more particularly pointed out in the claim.

In the drawing:

Figure 1 is an elevation of the improved brush as an entirety,

Figure 2 is a sectional view on the line 2—2 of Figure 1,

Figure 3 is a sectional view on the line 3—3 of Figure 2, and,

Figure 4 is a sectional view on an enlarged scale, taken on the line 4—4 of Figure 2.

Referring now with particularity to the drawing, the improved brush is designated as an entirety and in one embodiment by the numeral 1. The said brush includes a barrel 2, which also forms the handle member. This barrel is provided adjacent one end with screw threads 3 adapted to receive a threaded cap 4. The opposite end of the barrel is reduced in diameter and screw-threaded at 5. Within the barrel and extending partly outwardly from the end 6 thereof, is a diametrically disposed web or wall 7. This web or wall is held in any suitable manner within the confines of the barrel and in fact may be molded in position during a molding or other fabrication of the barrel. For convenience of construction, that portion of the web 7 extending outwardly from the barrel end 6 has the sides thereof convergently tapered, as indicated at 8 and 9, with a flat portion 10 communicating with the tapered sides. The flat portion 10 is adapted to have secured thereto, as by means of a pin 11, a frusto-conical valve 12 formed of rubber, rubber composition, or other suitable material. The brush head is designated as an entirety as 13, and includes a back 14 within which is embedded and likewise has extending from a surface 15 thereof bunches or tufts of bristles 16. The bristles may be of any composition, such as hair, rubber or other material. In general, therefore, the back

with its brush portion resembles to a considerable extent any of the ordinary tooth brushes now on the market, and wherein certain groups of the bristles are of different heights above the surface 15 to readily accommodate and best clean different tooth area, all as illustrated in Figure 2.

The brush head or back is provided with a valve seat member 17, constituting a sleeve or collar internally and externally threaded at 18 and 19, respectively. The internal threads of said collar are adapted to have threaded engagement with the threads 5 of the barrel and the external threads of said collar are adapted to receive the threaded area of a cap 20 adapted to encase the brush head, and to maintain the same out of contact with external objects. This cap resembles the common fountain pen cap, and is provided with a transverse bore 21 providing an air opening. The usual clip 22 may be secured to the cap, whereby the brush as an entirety may be held upright within the pocket.

Said collar forms a continuation, as stated, of the back and said collar is provided with a central bore 23. This bore is in direct communication with an elongated channel or groove 24 extending substantially the length of and centrally of the back in the zone of the bristles.

The collar is provided with an internal conical wall 25, the angle thereof relative to the axis being the same as the angle of the conical sides of the valve to its axis, thus providing a valve seat for said valve at 26. The outer surface of the collar may have a curvedly tapered wall 27, which adds to the appearance and attractiveness of the device. The part of the collar at 28 may be thickened as to cross-section to provide strength of construction, particularly when the brush is being used and any bending stress occurs due to pressure exerted by the operator against the bristles while brushing the teeth.

The operation, uses and advantages of the invention are as follows:

The threads at 18 and 19 are of opposite pitch, which is to say, one may be a left hand thread and the other a right hand thread, to the end that when the cap 20 is rotated, the same may be unscrewed from the collar without releasing the said collar from the barrel 2. Ordinarily the collar is screw-threaded tightly upon the barrel so that the valve is closed against its seat. The barrel may be readily filled with a liquid dentifrice by removing the cap 4 and filling the said barrel. This is readily accomplished when the valve is seated. Having removed the cap from the barrel, a slight turn in the proper direction, depending upon the character of the threads, whether left or right, will unseat the valve, as illustrated in Figure 3 at 29. To use the brush, the operator may then tip the device downwardly so that the liquid dentifrice will flow past the valve through the bore 23 and into the channel 24 at the base of the bristles. If the liquid dentifrice is viscous, a slight shaking of the device is sufficient to cause the liquid to move past the valve and into the channel 24. It is evident that when the liquid dentifrice is received in the channel, and possibly throughout the length of the channel, that the valve may be seated upon a slight turn of the collar, whereupon the brush is ready for use by turning the bristles in position so that the dentifrice may flow from the groove or channel onto the bristles. However, it is often advisable to first wet the bristles by holding the bristles under running water of a spigot and to thereafter open the valve to allow the dentifrice to readily pass therethrough and within the channel 24, of course, closing the valve after the dentifrice has been ejected. Most liquid dentifrices become foamy or frothy when mixed with water, and the arrangement shown readily allows the brush to take full advantage of a dentifrice of this character during a brushing of the teeth.

After the brush has been used, the bristles thereof may be held under running water to clean the same, whereupon there may be a slight shaking of the device to remove excess water from the bristles, and the cap 20 again secured in position, as illustrated in Figures 1 and 2. The air hole 21 will allow air to contact with the bristles to air dry the same.

The average liquid dentifrice is contained in a bottle, the neck of which has a small opening. When it is desired to use this dentifrice, the bottle is turned upside down over the bristles of a brush, which bristles have previously been wetted with water. Generally, such a dentifrice is rather viscous and does not readily flow, which necessitates the shaking of the bottle, and any shaking of this character usually results in a splash in the distributing of the dentifrice elsewhere than on the bristles, unless great care is exercised. Most of these dentifrices are also colored with some form of dye and this dye is difficult to remove from clothing. With the present invention, the dentifrice is restricted as to its flow or movement by regulating the opening of the valve, and a slight shaking only serves to deposit the dentifrice in the channel 24 if the brush is properly held by the user. Hence, waste of the dentifrice is prevented, with the result that the dentifrice is conserved.

It is obvious that various changes and modifications and variations may be made in the practice of the invention in departure from the particular showing thereof without, however, departing from the spirit of the said invention or the scope of the appended claim.

We claim:

A fountain tooth brush comprising a barrel open at one end, a web extending diametrically across said open end of said barrel, a valve secured on the outer end of said web, a valve-seat member formed with a valve seat and a bore leading outwardly therefrom, said valve-seat member being threaded on the outer end of said barrel, whereby said valve seat may be moved against or away from said valve to shut off or provide communication past said valve, and a tooth brush extending outwardly from said valve-seat member with the bore of said valve-seat member leading to the bristles of said brush.

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