March 24, 1931. E. EICHEL 1,797,946

TOOTHBRUSH

Filed Jan. 8, 1930

Fig. 1.



Fig. 3.

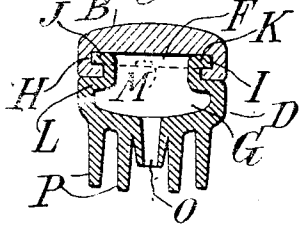


Fig. 2.

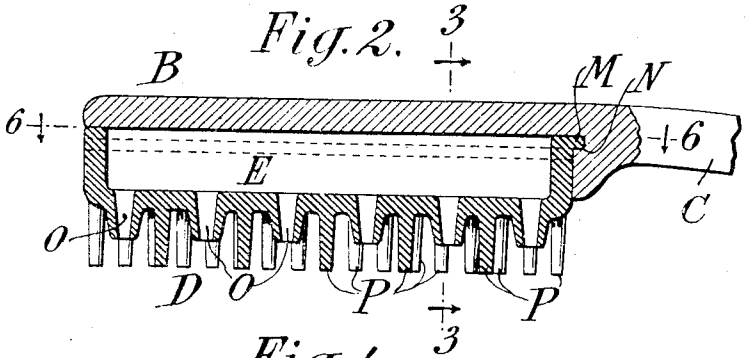


Fig. 5.

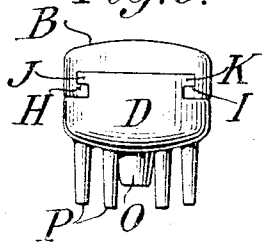


Fig. 4.

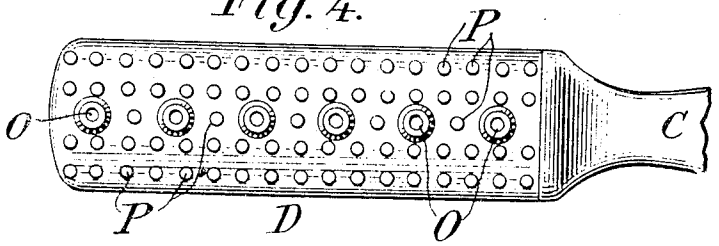


Fig. 7.

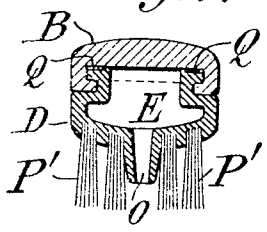


Fig. 6.

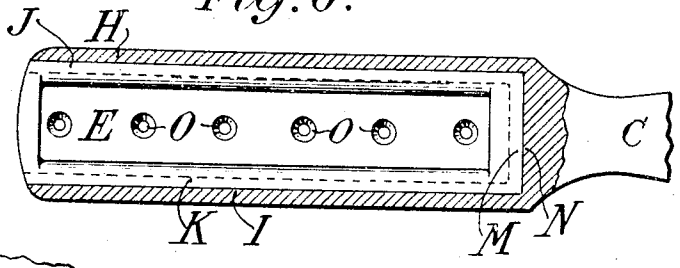


Fig. 8.

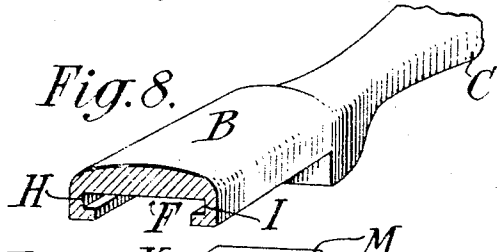
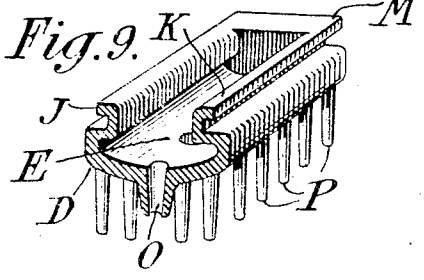


Fig. 9.



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UNITED STATES PATENT OFFICE

EMIL EICHEL, OF NEW YORK, N. Y.

TOOTHBRUSH

Application filed January 8, 1930. Serial No. 419,266.

This invention relates to tooth brushes, and aims to provide certain improvements therein.

The invention is particularly directed to the production of a tooth brush especially designed for the application to the teeth or gums of medicaments which may be especially indicated for tooth or gum diseases. Members of the dental profession frequently have occasion to prescribe certain remedial agencies to be applied, particularly at the gum line, and the ordinary tooth brushes of commerce have not been appropriate for such application. The principal aim of the present invention is to provide an applicator especially designed for this purpose, which if desired may contain a certain fixed dosage of the remedial agent, and which is adapted to apply the latter directly to the teeth, and in quantities directly under the control of the patient. Frequently in the use of such remedies a cleaning and light massaging operation is also indicated, and by preference the brush provided by my invention is constructed with elongated rubber projections in lieu of the ordinary bristles. The latter, however, may be utilized if desired.

My invention also has a wider application than that hereinbefore indicated, being useful in the application of ordinary dentifrices, such as pastes and powders, in either of which cases the application of the dentifrice is directed to the areas desired and may be continuously fed during the entire brushing operation. In this respect there is a very considerable superiority over the ordinary brushes in that with the latter the paste or other dentifrice is initially deposited upon the brush and the bulk of it very shortly becomes distributed throughout the entire mouth in diluted form, so that at the end of the brushing operation the teeth last brushed receive a much smaller proportion of the dentifrice than they properly should. The invention has other features of novelty which will be hereinafter more fully described.

Referring to the drawings,—

Figure 1 is a side elevation of one form of the invention.

Fig. 2 is an elongated or longitudinal section of the head of the brush.

Fig. 3 is a cross section on the line 3—3 in Fig. 2.

Fig. 4 is an under side view.

Fig. 5 is an end view.

Fig. 6 is a section taken on the line 6—6 in Fig. 2.

Fig. 7 is a cross section of the head of a tooth brush embodying my invention and employing the ordinary bristles.

Fig. 8 is a perspective view, partly in section, showing the construction of the head portion of the brush detached, and

Fig. 9 is a perspective view, partly in section, showing the cap portion detached.

Referring first to Figs. 1 to 6, 8 and 9, of the drawing, let A indicate the brush or applicator as a whole comprising a head portion B and a handle portion C. These may be of any shape desired, that shown conforming to the conventional type of brush.

The head portion B of the brush carries a cap portion D, and according to the invention between these two portions is formed a reservoir E for the reception of the medicament, dentifrice or the like. This reservoir E may be formed in the head portion B or in the cap portion D, but it is preferably formed in each, that in the head portion being indicated by the latter F in Fig. 3, and that in the cap portion being indicated by the letter G.

Means are provided for rendering the reservoir accessible for filling, and for this purpose I prefer to make the cap portion removable from the head portion. This also affords an opportunity for thoroughly cleansing each portion when and if desired. Various methods of connection of the two portions may be adopted, but I prefer one of the type which may be called self-locking, such as that indicated in the drawing, wherein the head portion is provided with undercut channels H and I on opposite sides, and the cap portion is provided with flanges J and K which slide in such channels. Preferably, as indicated in Fig. 3, the wall of the cap portion will be carried around the flanged section of the head, as indicated at L, so that the width of the cap portion will be increased to substantially that

of the head portion. As the particular construction of cap thus described is designed to be slid into the head portion, it is best provided with a flange M which fits in a corresponding groove N in the head portion. The frictional grip throughout the entire area is sufficient to cause the parts to remain in their adjusted positions during the operation of cleaning the teeth and no additional catch or guard is required. However, it is to be understood that any suitable means may be provided if desired to hold the parts together. I prefer to avoid such means in order to provide a smooth and substantially unbroken front edge to the brush, as indicated in Fig. 5.

Feed openings O O are provided in the under side of the cap portion through which the medicament or dentifrice reaches the teeth. While the invention may be utilized without the provision of brushing projections, it is obviously desirable that they be provided, and in the figures now being described these projections preferably are formed of rubber, as shown at P P, and are connected at their bases to the under wall of the cap portion. In Fig. 7 the usual bristles P′ P′ are utilized.

An important feature of the invention is the provision of means whereby the degree of application of the dentifrice or medicament shall be under the control of the patient, and this is best secured by constructing at least the lower wall of the cap, and preferably the entire cap, of a flexible material, such as rubber. In this case the material is moulded to proper form and tends inherently to preserve its original dimensions, while it is capable of being compressed by pressure of the brush against the gums or teeth. In this compression operation the rubber projections or bristles assist to transmit the pressure from the teeth or gums to the wall of the cap. By employing moulded rubber the walls of which are sufficiently yielding for the purpose, I am also enabled to introduce a suitable frictional grip on the head of the brush to hold the cap in place thereon. If desired, the upper or open part of the cap can be given a greater degree of hardness, so that the interlocking flanges do not tend to release themselves under use. Or I may vulcanize an endless sheet steel plate, such as is shown in Figure 7, at Q, which will reinforce the edge of the cap and render it stiffer; if desired this plate may extend entirely around the margin of the upper flange of the cap and may have one or several perforations. The use of a rubber cap also enables me to provide the projections P, when such are used, as integral members of the cap, or if bristles are used, as shown in Fig. 7, the bristles may be vulcanized directly in the cap.

The feed openings O are preferably six in number and are arranged along the central line of the cap with interspersed projections or bristles.

In the use of the preferred form, the cap is slid wholly or partly out of the head and the medicament introduced. The brush may then be dipped in water, and as the teeth are progressively cleaned, a desired pressure against the gums will cause the medicament to feed gradually so that with one dosage it may be brought into contact with all of the teeth or gum surfaces, and substantially to an equal extent. For medication purposes the reservoir E may be as small as desired. For ordinary use with a tooth paste or dentifrice the proportions of the reservoir may be increased, and one filling will suffice for a number of uses. After each use the brush may be cleansed in the usual way by holding it under running water without materially interfering with the remaining dentifrice.

By preference the cap will make a snug and close fit with the head so that the reservoir will constitute a substantially closed and preferably somewhat air-tight chamber, so that the air within the reservoir will assist in the feed.

While I have shown and described several forms of the invention, it will be understood that I do not wish to be limited thereto, since various changes may be made therein without departing from the invention within the scope of the following claims.

What I claim is:

1. A tooth brush having a handle and a head portion, a flexible wall constituting a part of the head portion, feed openings in said wall, and a dentifrice reservoir formed between the wall and the head portion, said reservoir being closed except for the feed openings whereby the dentifrice is fed through said feed openings by the pressure of said flexible wall as it is moved inwardly when the brush is pressed against the teeth and gums.

2. A tooth brush having a flexible chamber provided with cleaning projections, a reservoir for dentifrice or the like arranged above said projections, and feed openings interspersed with said projections, said reservoir being closed except for the feed openings whereby the dentifrice is fed through said feed openings by the pressure of said flexible wall as it is moved inwardly when the brush is pressed against the teeth and gums.

In witness whereof, I have hereunto signed my name.

EMIL EICHEL.