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TOOTHBRUSH WITH OSCILLATING HEAD

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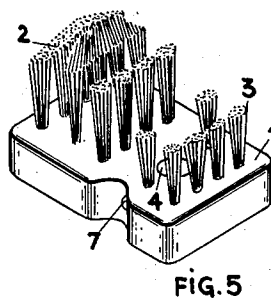
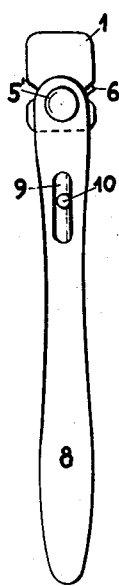
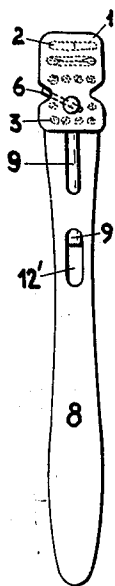
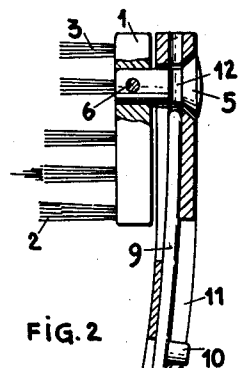
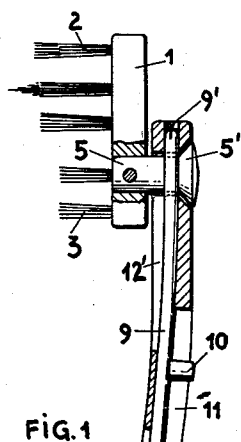


FIG. 3

FIG. 4

FIG. 5

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TOOTHBRUSH WITH OSCILLATING HEAD

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3 Claims. (Cl. 15—22)

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This invention relates to tooth brushes.

An earlier invention of the present inventor, disclosed some years ago, consisted in a tooth brush in which the bristles were mounted on two small oblong heads or holders pivotally mounted on the brush handle in eccentric position and operatively interconnected by toothed gear. In use, when the brush was moved along the teeth, the bristle holders oscillated about their pivots whereby the cleaning action was enhanced. In particular, the bristles were enabled to get at such places as are difficultly accessible by a mere rectilinear cleaning movement, as with conventional tooth brushes. In addition, the rectilinear brushing repeated day after day is apt to weaken the enamel, while the tooth brush with oscillating heads provides a greater variety of points of attack of the bristles whereby the enamel is better preserved.

My present invention has the object to provide an improved tooth brush of a similar kind but presenting some features that were absent from the tooth brush according to my earlier invention, namely: an arrangement of the bristles in such a manner as to enable gum massage during the tooth-cleaning operation, and a locking arrangement allowing the bristle holder to be immobilized relative to the handle for alternative use in the manner of a conventional tooth brush, if and when this is required by particular circumstances.

According to the present invention, two groups of bristles, one longer and one shorter, are mounted on a bristle holder, being an oblong plate secured near one of its ends to an axle turnable in the head end of the brush handle, the group of shorter bristles being nearer to said axle than the group of longer bristles; and a tongue or the like locking member is slidably arranged in the brush handle and adapted to be shot into a recess provided in the turning axle of the bristle holder in order to immobilize the latter.

By a further feature of the invention, the bristle holder may be made detachable from the axle so that it can be replaced by another one, thus enabling one and the same tooth brush to be used with different heads for different purposes.

The invention is illustrated, by way of example only, in the accompanying drawings in which:

Fig. 1 is an enlarged side elevation, partly in median longitudinal section, of a tooth brush according to the invention with the bristle holder immobilized;

Fig. 2 is a corresponding view of the head portion of the tooth brush with the bristle holder free to oscillate;

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Figs. 3 and 4 are a top plan view and bottom plan view, respectively, of the same tooth brush on a smaller scale;

Fig. 5 is a perspective view of the bristle holder on a larger scale.

The tooth brush here shown by way of example comprises a bristle holder 1 in which a group of longer bristles 2 and a group of shorter bristles 3 are anchored. A gap separates the two groups but this may also be filled with bristles. The bristle holder is an oblong, substantially rectangular plate of Celluloid or other plastics, wood or other suitable material. Near one of its ends, where the shorter bristles are located, it has a round hole 4. In this hole an axle 5 is inserted, either with a tight fit or, preferably, with a slight play and secured to the holder 1 by a pin or screw 6 passing through a hole 7 of the bristle holder and entering a corresponding recess of the axle. In this latter case, the bristle holder may be detached for replacement when worn off, or for exchange against another kind of brush head for alternative use, e. g. one having rubber staffs instead of bristles.

The brush handle has at its head end a hole in which the axle 5 is turnably inserted. The axle widens at its end opposite the bristle holder into a head 5' which is lodged in a corresponding recess on the back side of the brush handle.

In a longitudinal channel provided in the head portion of the brush handle a tongue 9 is slidably inserted. A protuberance or knob 10 of the tongue projects on the back side of the handle through a slot 11. By means of this knob the tongue can be moved to and fro between the position shown in Fig. 2 in which the tongue stays clear of the axle 5, and that shown in Fig. 1 in which the head end 9' of the tongue is shot through a transverse bore 12 of the axle. The bristle holder is in this latter case immobilized relative to the handle. Such use of the tooth brush can be desired, for example, in the neighborhood of gaps between the teeth. When, however, the tongue is withdrawn from the axle of the bristle holder the latter is free to oscillate during the cleaning operation. While it does so the longer bristles do the cleaning while the shorter bristles provide a massage of the gums.

The tongue 9 is made of an elastically flexible material, e. g. Celluloid or other plastics, so it can follow the curvatures of the handle both at rest and in motion. A slot 12' in the front side of the handle serves for inserting the tongue in the channel of the handle at the time of manufacturing the latter.

Obviously, the bristle holder need not have the

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exact shape shown by way of example only in the annexed drawing.

I claim:

1. A tooth brush comprising in combination an elongated handle having a transverse hole therethrough, an oblong bristle plate having a transverse hole therethrough eccentrically positioned in the longitudinal axis of the plate, a group of short bristles and a group of long bristles, the group of short bristles being positioned adjacent to said plate hole and the group of longer bristles being positioned at the end of the plate distal to said plate hole, a pivot pin loosely fitted in the handle hole and having on one end an enlarged head for retaining the pin in the said hole, the other end of said pin being removably fitted in said hole of the bristle plate, fastening means removably securing the plate upon the pin, the portion of the handle juxtaposed to the bristle plate being substantially parallel thereto to provide for an unimpeded rotary movement of the plate relative to the handle during a cleansing operation, said pivot pin having a transverse hole therethrough positioned in the portion of the pin within the body of the handle when the pin is fitted through the handle hole, said handle further including a longitudinal bore extending from both sides of the handle hole, and an elongated locking member slidably fitted in said handle bore and shaped to be passed through said pin hole when the same is placed in axial alignment with the handle bore for fixing the bristle plate relative to the handle, a portion of said locking member being accessible from the outside of the handle for manipulating the said member.

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2. A tooth brush as defined in claim 1, wherein said fastening means include a second transverse hole in said pivot pin angularly displaced relative to said first pin hole, a second hole in said bristle plate at an angle of 90° to said first plate hole, and a pin inserted in the second plate hole and the second pin hole.

3. A tooth brush as defined in claim 1, wherein the said handle includes a longitudinally elongated recess opening into said longitudinal bore, and wherein said locking member is in form of a tongue having thereon said portion accessible from the outside of the handle, the said portion laterally extending into the said recess to permit sliding of the tongue in the bore and being in form of a knob integral with said tongue.

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