

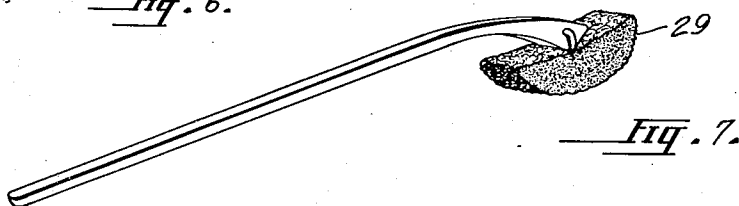
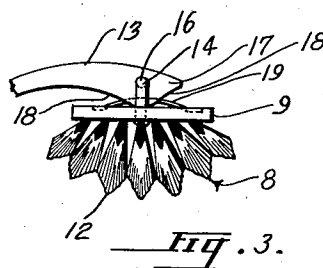
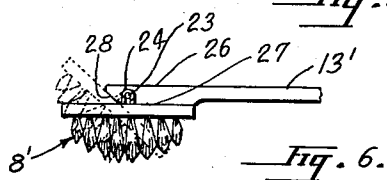
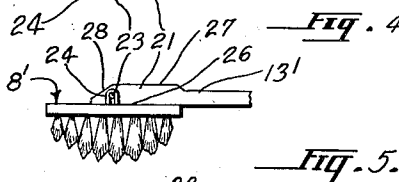
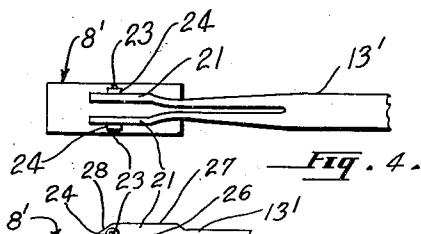
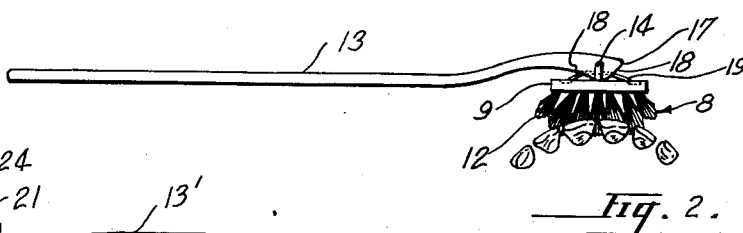
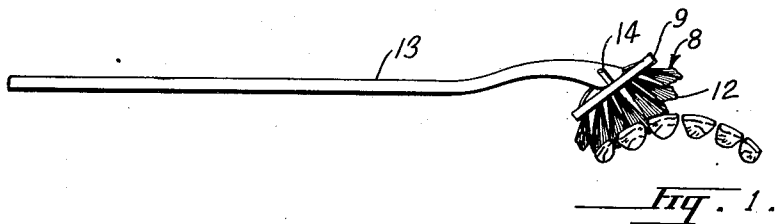
July 31, 1934.

J. F. McMATH

1,968,303

TOOTHBRUSH

Filed Oct. 12, 1931



INVENTOR.
J. F. McMATH
BY Joseph B. Gardner
ATTORNEY

UNITED STATES PATENT OFFICE

1,968,303

TOOTHBRUSH

John F. McMath, Oakland, Calif.

Application October 12, 1931, Serial No. 568,361

7 Claims. (Cl. 15-167)

The invention relates to devices for brushing, cleaning, and similarly treating the teeth and gums.

An object of the invention is to provide a device of the character described which will have all of the advantages of a full roller brush or cleaning unit and yet at the same time avoid the extreme thickness and bulk necessarily characteristic of the practical types of roller brushes, et cetera, as heretofore used.

Another object of the invention is to provide a brush which may be operated in accordance with the desire of the user, with the brush-head arranged for oscillation relative to the handle, or with such head locked against movement with respect to the handle as in the case of the ordinary one-piece brush.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of the invention which is illustrated in the drawing accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawing and description may be adopted within the scope of the invention as set forth in the claims.

Referring to said drawing:

Figures 1 and 2 are side views of a tooth brush made in accordance with my invention and showing the same in different positions assumed in brushing the teeth.

Figure 3 is an enlarged fragmentary side view of the head end of the brush.

Figure 4 is a plan view of another form of the brush.

Figure 5 is a side view of the brush shown in Figure 4, illustrating the brush head as secured to the handle against movement relative thereto.

Figure 6 is a view similar to Figure 5 showing the brush head as connected to the handle to permit movement of the former relative to the handle.

Figure 7 is a perspective view of a device embodying some of the features of my invention, and particularly designed for cleaning between the teeth.

As illustrated in Figures 1 to 3 of the drawing, the tooth brush of my invention comprises a brush head 8 formed with a back 9 to which are secured the brush bristles 12. The back 9 is pivotally connected to a handle 13 by means of a pivot rod 14 which extends through an aperture 16 in the handle and is affixed at its

ends to the back 9. As will be noted from Figure 2, the back is elongated and may lie with its longitudinal axis generally parallel or coaxial with the longitudinal axis of the handle. In order to permit a limited oscillation of the brush head with respect to the handle, the head end 17 of the latter is provided with diverging faces 18 whereby the head may move through an arc of about 30 degrees in opposed directions from the parallel position aforesaid. Preferably by means of a spring 19 which is in cooperative engagement with the handle and back, though the latter is normally and resiliently held in said latter position.

The bristles, as will be noted from the drawing, are arranged in a longitudinal row to provide a convex brushing surface from one end of the head to the other, and preferably said surface is in the form of an arc curved with the axis of oscillation of the head as the center. This convex or arcuate form of the brush surface forms an important part of the brush of my invention since by the use thereof on the oscillation of the head during movement of the brush across the teeth the bristles will have the same inward or penetrating action which characterizes the full roller brush. At the same time since in a sense only a segment of a roller is used, and practically no portion of such segment during the oscillatory movement thereof moves appreciably back of the handle, the depth of my brush need be substantially no greater than in the ordinary brush with a fixed head. And furthermore, since the brush of my invention permits the use of the backing member for anchoring the bristles, the practical difficulties attending the manufacture of a roller or cylinder brush of small diameter are avoided. It is apparent, as shown in the different embodiments of the invention, that the bristles may extend radially or parallelly as respectively illustrated in Figures 1 and 5, the main requirement being that the outer ends of the bristles combine to provide the convex or arcuate face as above set forth.

In the embodiment of my invention illustrated in Figures 4 and 5, the brush is so designed that the user may, at his option, have the brush head fixed against any movement relative to the handle, as is the case with the ordinary one piece brush, or he may have the head arranged for oscillation relative to the handle, as explained in connection with the first mentioned embodiment. As here shown, the brush head 8' is arranged for pivotal connection with the handle 13' in somewhat similar manner as in the first instance, but

in this case the brush head and handle are readily detachable so that the former may be positioned on either side of the latter to permit the different operative relations aforesaid. Preferably, as will be clear from Figure 4, the head end of the handle is bifurcated to provide a pair of spring arms 21 which carry the pivot pins 23 arranged for removable engagement in the bearings 24 fixed to the head. To reverse the handle from either of its positions it is merely necessary to slightly press the arms together whereby the pins 23 may be withdrawn from the bearings, reverse the handle relative to the head, and then reinsert the pins, the arms being so formed that on release they will assume an extended relation and thereby normally retain the pins in operative engagement. It will be noted that one side 26 of the head portion of the handle is made flat or otherwise formed to simultaneously engage the portions of the head at each side of the pivot point when the handle and head are operatively connected. In this manner when the head is connected as in Figure 5, no relative movement of the parts are permitted and the brush will function the same as the ordinary brush with a fixed head. On the other hand the side 27 of the handle at the portion beyond the pivot point is provided with a beveled face 28 so that when the head is connected with the side 27 opposing same, the former may oscillate relative to the handle between the positions indicated in Figure 6 by the dotted and full line representations of the head. It will thus be seen that by a simple arrangement of the parts, the brush may be used in either manner desired.

In order to prevent any pricking of the gums by the bristles, due to the pronounced inward movement of the bristle ends against the gums during the oscillation of the head and the movement of the brush across the teeth, I form or treat the outer ends of such bristles in such manner as to render them less liable to effect such pricking. Preferably this is accomplished by singeing or by fraying the ends of the bristles. In this manner, with all danger of cutting the gums practically eliminated, the user may without danger apply the brush with any force desired.

In the embodiment shown in Figure 7 the brush head of the type illustrated in Figure 1 is replaced by a cleaning unit 28 formed of sponge rubber. Such a unit when subjected to the oscillating action here provided for, serves as a particularly effective means for applying cleaning agents between the teeth and gums, it being noted that due to such oscillating action the cells in the sponge are successively contracted and extended to thereby correspondingly produce a suction and expelling action during the operation of the device.

I claim:

1. A tooth brush comprising a brush handle, and a brush head secured to the handle for limited oscillation relative thereto and in a plane extending through said handle, said brush head having all portions of the brushing face thereof substantially equally distanced from the center of oscillation. 80
2. A tooth brush comprising a brush handle, an elongated brush back attached to the handle in generally longitudinal relation thereto and for limited oscillation relative to a transverse axis of the handle, said oscillation being in a plane extending through said handle, and bristles extending transversely from said back in a substantially longitudinal row thereon and having the outer ends of substantially each of the bristles in said row equidistantly spaced from said axis. 85
3. A tooth brush comprising a brush head, a brush handle therefor, and connecting means between the head and handle operative to permit oscillation of the head relative to the handle or to hold the head and handle against relative movement. 90
4. A tooth brush comprising a handle, a brush head secured to the handle for oscillation relative thereto, and means cooperating with the handle and head resiliently resisting oscillation of the head from a normal position relative to the handle. 95
5. In a device of the character described, a handle, a flexible spongy cleaning unit secured to said handle for limited oscillation relative thereto and in a plane passing through and being disposed at substantially right angles to said handle, said unit having an outer cleaning surface extending generally longitudinally with the handle and substantially in the form of an arc with the axis of oscillation of the unit as the center. 100
6. A tooth brush comprising, a handle, a brush head having pivotal connection with said handle and mounted for oscillation in a plane passing through said handle, and bristles carried by said head and radially extending with respect to said connection. 105
7. A tooth brush comprising an elongated handle provided adjacent an end thereof with an outstanding portion defined between a pair of transverse surfaces convergent in a direction away from the handle, a brush head having a substantially planar back side and pivoted to said handle adjacent and along an axis extending transversely through said outstanding portion at substantially the intersection of normals raised from said surfaces whereby on oscillation of said brush about said axis said back side will be engaged by said surfaces to limit the amplitude of said oscillation. 110

JOHN F. McMATH.

60

135

65

140

70

145

75

150