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54 Toothbrush structure.

57 The invention relates to a toothbrush structure comprising a brush handle (1) and a bristle-carrying head (7), which latter is mounted to rock relatively to the brush handle (1). This arrangement enables the friction of the bristles to be evenly distributed over the teeth, thereby the removal of the bacterial film from the teeth themselves is improved through automatic mutual fitting of the sliding movement planes. Also afforded is adequate protection against traumatic shocks of the gum groove, while different color heads and handles may be assembled, where desired.

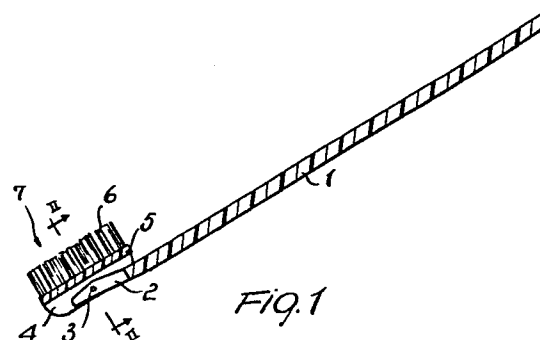


Fig. 1

This invention relates to a toothbrush structure.

As is known, various attempts have been made heretofore to find a rational answer, through particular configurations of the brush handle and
5 bristles, to meet formal requirements of toothbrushes in order to achieve more uniform and rational cleaning capabilities.

More specifically the need is presently felt of providing a rational answer in agreement with the
10 indications given by Brass, whose technique, pursuant to tissue, chromatic, and photographic analyses, has shown to be by far the most commendable.

According to that technique, it is necessary for the brush bristles to engage in the gum groove,
15 regardless of whether the latter happens to be in a healthy or pathological condition, to remove the organic film which forms over that wall of the tooth which protrudes into the oral cavity.

Said film provides basic support for the growth
20 of a bacterial blotch, which undoubtedly favors the development of those substances which are the cause of decay erosion and destructive and regressive processes affecting the tooth supporting tissues, and specifically the bone.

25 To prevent such pathological situations, the only currently effective action is represented by a careful removal of the viscous membrane and, to this end, the toothbrush and infratooth silk or thread still constitute the most effective instruments.

30 However, it has been found in actual practice that a

wrong use of the toothbrush by its user plays a very importante role, since it may cause irritation of the gum rim surface tissues and affect the integrity of the outer surface and root.

5 This danger is mainly the outcome of the impossibility to spread and balance the pressure from the whole active face of the brush, whether the latter is provided with natural or artificial bristles.

10 It is confirmed, and by statistical data as well, that the regions of the tooth which are more liable to such damage are those of the canines and premolars, which are located at a smaller radius arc and are subjected to greater and more uneven friction.

15 This is mainly due to an incorrect relationship between the positioning of the cleaning surface and the angle taken by the user's arm, which has generally a fixed posture.

20 Briefly stated, the arc covered by the lever arm of an ordinary rigid toothbrush will never match the elliptical arc of the dental arch.

25 Indeed, it has been shown statistically that there is a specific correlation between people who operate the toothbrush with their right hand and the damage caused to the front area of the upper set of teeth and left side lower set, as there exists a reversed correlation in the case of left-handed people.

30 Accordingly the task of the invention is that of overcoming the aforesaid drawbacks, by providing a toothbrush which allows a degree of freedom in the bristle-carrying head seating, such as to make it virtually independent

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of the handle, and accordingly free to dispose itself parallel to the area to be cleaned, thus achieving a balanced spreading of the frictional force.

5 Within this task it is an object of the invention to provide a toothbrush structure which is highly reliable and safe to use, while being extremely easy and convenient to operate.

10 The aforesaid task and object as well as yet other objects, such as will be apparent hereinafter, are achieved by a toothbrush structure comprising a handle element and bristle-carrying head, characterized in that said bristle-carrying head is mounted to rock with respect to said handle element.

15 Further features and advantages will become more apparent from the following description of a preferred, but not limitative, embodiment of a toothbrush structure, as illustrated by way of example and not of limitation in the accompanying drawing, where:

20 Figure 1 shows diagrammatically, partly in section, a toothbrush according to the invention; and

Figure 2 is a sectional view taken along the line II-II of Figure 1.

25 With reference to the cited Figures, the toothbrush structure according to the invention comprises a handle element 1 which is terminated at one end with a yoke element 2 carrying, offset with respect to its own axis, a pin 3, where to a bristle-carrying head, generally indicated at 7, is articulated for a rocking movement.

30 More in detail, the bristle-carrying head 7 has two side fins 4 which carry a small bridge or middle

part 5, wherefrom the bristles 6 extend.

The cited fins 4 are arranged such that they are positioned externally of the yoke part 2 of the handle element 1.

5 With this arrangement, owing to the clearance or play between the bridge 5 of the toothbrush, as afforded by the eccentric pin 3, the bristle-carrying head 7 is free to orient itself, within limits, such as to always lay in a parallel plane to the reaction
10 surface which, in this specific case, is comprised of the para-elliptical surface of the tooth arches.

It results from this arrangement that, without exerting any special skill or care, but rather in an almost automatic way, the user will always cause the
15 distal plane of the bristles to coincide with the solid and irregular body represented by the tooth arch.

With the toothbrush just described, an evenly spread application is obtained of the frictional effort across the entire outer surface of the bristles 6,
20 since the bristle-carrying head of the toothbrush can take a free attitude with respect to the handle inclination, at any location on the dental arch, both the lower one and upper, and regardless of whether the toothbrush is held in the right or left hand.

25 It will be appreciated from the foregoing description that the invention achieves its objects, and in particular that by swingably coupling the bristle-carrying head and handle a uniform distribution of the brushing forces can be obtained on account of the bristle-carrying head
30 adjusting itself automatically.

Another aspect, of a purely commercial nature,
is that the bristle-carrying head may have a different
color than the handle, thus allowing all of the
chromatic and shape combinations which are judged to
5 be fitting.

The invention so conceived is susceptible to many
modifications and variations all of which fall within
the scope of the inventive concept.

Thus, for example, the yoke element and handle
10 element 1 may be modified, and the same may apply to
the bristle-carrying head owing to the conformation
of the bristle-carrying head, seeing that the invention
inspiring concept is based on the fact of allowing
the free oscillation of the area where the bristles
15 are provided with respect to the handle.

Moreover, all of the constructional details may
be replaced with other technically equivalent elements.

In practice, the materials employed, as well as
the dimensions and contingent shapes, may be any ones
20 depending on requirements.

CLAIMS

1 1. A toothbrush structure comprising a handle
2 element (1) and a bristle-carrying head (7), characterized
3 in that said bristle-carrying head (7) is mounted
4 to rock with respect to said handle element (1).

1 2. A toothbrush structure according to the
2 preceding claim, characterized in that said handle
3 element (1) defines, at one end thereof, a yoke element
4 (2) wherewith a pin (3) engages for connecting said
5 bristle-carrying head (7).

1 3. A toothbrush structure according to one or more
2 of the preceding claims, characterized in that said pin
3 (3) extends eccentrically and substantially perpendicularly
4 with respect to the longitudinal extension of said
5 handle element.

1 4. A toothbrush structure according to one or more
2 of the preceding claims, characterized in that said
3 bristle-carrying head (7) is comprised of side fins (4)
4 united together by a small bridge or middle part (5)
5 on which bristles (6) are provided, said fins being
6 engageable with said pin (3) and accommodated externally
7 of said yoke element (2).

1 5. A toothbrush structure according to one or more
2 of the preceding claims, characterized in that said
3 bristle-carrying head (7), owing to its free oscillation
4 with respect to said handle element (1), is adapted to
5 uniformly distribute the friction effort over the entire
6 plane of the bristles (6), and hence of the teeth,
7 independently of the angling of said handle element (1).

1 6. A toothbrush structure, substantially as herein
2 described and illustrated.

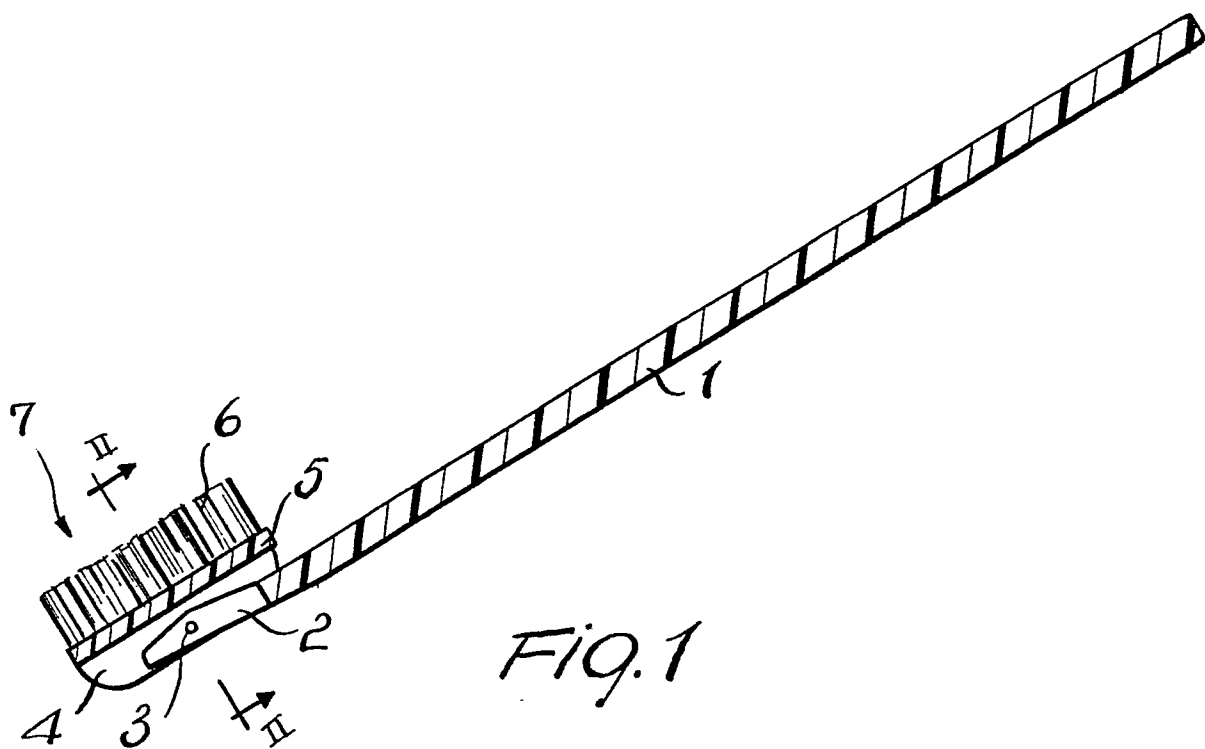


Fig. 1

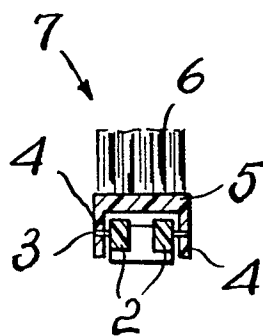


Fig. 2