

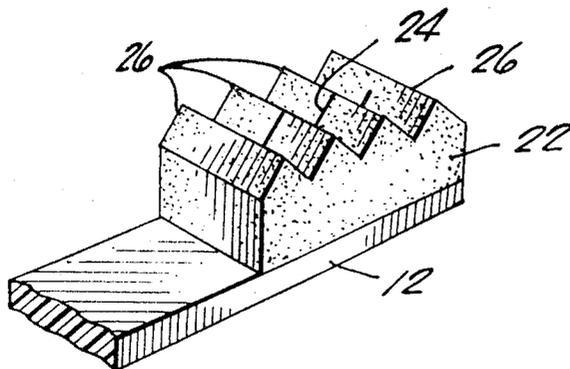
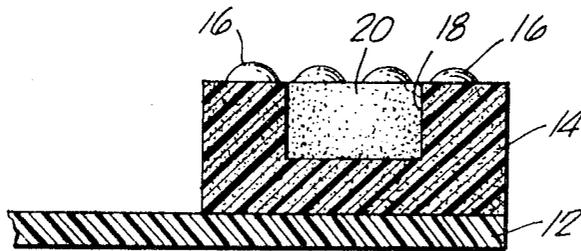
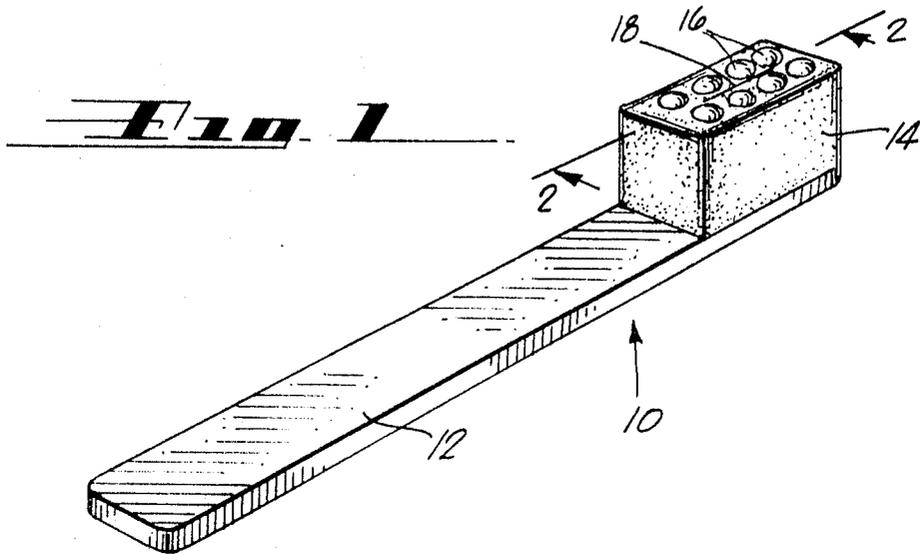
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3,458,268

DISPOSABLE TOOTHBRUSH

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3,458,268

DISPOSABLE TOOTHBRUSH

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1 Claim

ABSTRACT OF THE DISCLOSURE

A disposable toothbrush comprising a rigid handle integrally jointed to a readily deformable sponge head portion, with the head portion including a slit therein to retain a dentifrice and permit secretion thereof during use.

Background of the invention

It is well known that proper oral hygiene constitutes for a person to brush his teeth after every meal. However, because of the transient nature of the populace, it becomes rather inconvenient for a person to brush after every meal. It would be highly desirable if there were a disposable toothbrush which cost but a few cents and could be readily accessible to the public through either vending machines or normal retail over-the-counter sales. Also, if the cost were sufficiently minimized, such a toothbrush could be provided in all hotels and motels around the country the same as bars of soap are provided.

Heretofore, there have been many attempts to design such a disposable toothbrush. Common such attempts of the prior art are shown in Patent Nos. 3,103,935 and 3,165,776. In both of these types of disposable toothbrushes, the cost of manufacture would preclude selling these toothbrushes for a few cents. Actually, such brushes like these are sold between 25c and 50c through a vending machine or in a retail store. However, it has been discovered that most people will refuse to pay such a relatively large amount for a toothbrush which is to be used only once.

In the design of the disposable toothbrushes of the prior art it is believed by applicants that little effort has been expended toward maintaining the cost of the disposable toothbrush at a minimum. All such toothbrushes must have a handle and a head portion which is to come in contact with the user's teeth to facilitate cleaning. The handle should be designed of a rigid material and just be of a sufficient cross-sectional area to permit use of the brush, and the head should be of a flexible material which can be deformed and enter the crevices of a person's teeth but yet not so flexible as to not clean the crevices.

In the prior art the head portions of the toothbrushes are usually a small bristle brush or a plastic head with a plurality of protuberances thereon resembling in appearance a brush. To place a brush or brush-like object on the head of a handle is actually too expensive of a manufacturing procedure to make such a toothbrush disposable after a single use. Additionally, toothbrushes that employ a brush-like head, the connection of the head to the handle is not accomplished in the simplest and most inexpensive manner. Further, if dentifrice is included as a portion of the combined apparatus, the dentifrice is not associated with the toothbrush in the most efficient manner to facilitate the lowest manufacturing cost or the lowest packaging cost.

Summary of the invention

The toothbrush of this invention constitutes the employment of a rigid plastic handle of a simple rectangular

configuration and a head portion connected at one extremity of a foam or foamlike material which is to come in contact with the user's teeth. The head of the toothbrush is likewise rectangular and has sufficient depth to give the desired flexibility. The head has been designed to include some type of formation thereon such as knobs or ridges to facilitate the cleaning of teeth. The head has been attached to the handle either through a thermal connection or a pastetype of connection. The head has also been designed to include a slit therein in which is to be included either the powder or paste dentifrice, the design of the slit being such that upon use the dentifrice will readily flow out of the slit.

The basic advantage of applicants' invention is to design a toothbrush which is fabricated to be so inexpensive that a person can use the device once and dispose of it easily without creating the feeling of extravagance. A second object of applicants' invention is to design a toothbrush which encourages proper oral hygiene. Further, the toothbrush of applicants' invention has been so designed to be substantially unfit for use a second time, thereby promoting sanitation.

Other objects and advantages thereof will undoubtedly appear as the description of applicants' invention proceeds. The invention consists of certain novel details of construction and combination of parts, hereinafter more fully described and pointed out in the appending claim, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

Brief description of the drawing

FIGURE 1 is a perspective view of the toothbrush of applicants' invention showing the relative size arrangement of the head portion to the handle portion.

FIGURE 2 is a cutaway sectional view taken along lines 2—2 of the head portion in FIGURE 1; and

FIGURE 3 is a perspective view of a modified form of the head portion shown in FIGURE 1.

Description of the shown embodiment

Referring specifically to the drawing, FIGURE 1 shows a toothbrush 10 having a handle portion 12 and a head portion 14. Handle portion 12 is shown of a longitudinal length sufficient to facilitate the gripping by a person's hands. Head portion 14 is depicted of rectangular configuration and securely fixed to one of the flat sides of the handle adjacent one of the extremities of the handle portion 12. The connection of the head portion 14 to the handle 12 can be accomplished in an extremely efficient manner as by thermal setting or it is contemplated that the connection could be by adhesive, press molding or by injection molding. It is only desirable that the means employed permits the most inexpensive manufacture of the device.

The head portion 14 is shown composed of a non-metallic material and particularly some form of polyurethane or polyethylene foam, open or closed cell type. However, any material which is non-toxic and sufficiently deformable to facilitate the cleaning of the area between the teeth of a human being would be most satisfactory, such as sponge rubber, foam rubber or the like. However, the material must be rigid enough to facilitate cleaning as does a firm or extra firm bristle brush.

Head portion 14 is shown to include a plurality of knobs 16 thereon. It has been found through experimentation that knobs 16 facilitate the cleaning of one's teeth. Head portion 14 is shown to include a slit 18 therein which in size is about 1/2 the longitudinal length of head portion 14, spaced centrally therein, and is in depth about 2/3 or 3/4 the thickness of head portion 14.

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Slit 18 functions to permit the insertion of a powdered or paste-like dentifrice 20. It has been found through experimentation that upon use of this type of apparatus, once the brush has come into contact with an aqueous solution in combination with a vigorous rubbing action, the dentifrice 20 will be secreted from the slit 18 thereby facilitating the cleaning of the user's teeth.

In FIGURE 3 there is shown a modified form of the head portion 22. Head portion 22 is shown to include a slit 24 which is substantially identical in size to slit 18 and functions in substantially the same manner. Head portion 22 includes a different configuration comprising a series of ridges 26 which are analogous to the knobs 16. It is known that the ridge configuration 26 does an equally satisfactory job of facilitating the cleaning of one's teeth as does the knob configuration 16.

It has been found that with the handle of applicants' invention formed of a polyethylene type of plastic and the head portion being of a polyurethane or polyethylene type of foam as aforementioned, the cost of material is held at a minimum but yet of a type of material which accomplishes the intended result. However, it is to be considered within the scope of applicants' invention that any other type of material for the handle could be employed from which the desired rigidity can be obtained, for example, the handle can be formed of polyvinyl or polycarbonate plastic.

It should be understood, of course, that the foregoing disclosure relates to only a preferred embodiment of the invention and that it is intended to cover all changes and modifications of the example of the invention heretofore chosen for the purposes of the disclosure, which do not constitute departures from the spirit and scope of the invention.

We claim:

1. A device to facilitate cleaning of teeth comprising: a longitudinal handle element being of sufficient length to facilitate manual grasping;
- a head portion being integrally secured to said handle element adjacent one extremity thereof, said head

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portion being formed of a flexible plastic foam material, said head portion including rows of knobs to facilitate the cleaning of teeth; and means included within said head portion to retain dentifrice, said means comprising a slit being substantially centrally located within said head portion and between said rows, said slit being approximately one-half the length of said head portion and two-thirds the depth of said head portion wherein said slit is confined by said plastic foam material of said head portion and open only on the side of said head portion adjacent said knobs, the dimensioning of said slit being such to prevent removal of said dentifrice during non-use, but permitting easy removal during use thereof.

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