Oct. 29, 1940. T. W. SEGUIN 2,219,753

TOOTHBRUSH

Filed May 21, 1938

Fig. 1

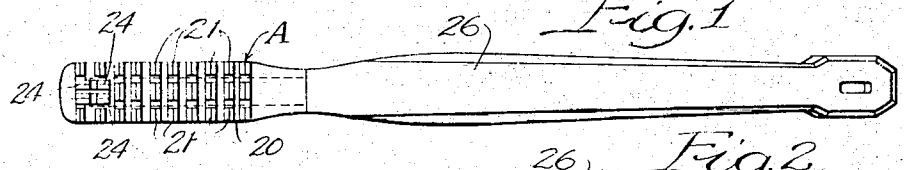


Fig. 2

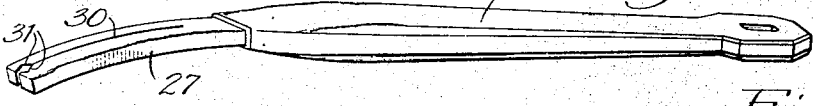


Fig. 3

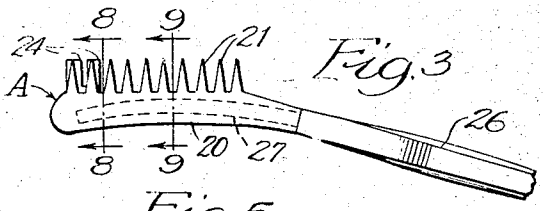


Fig. 4

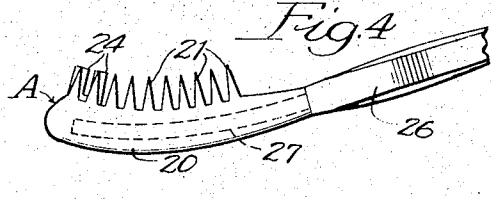


Fig. 5

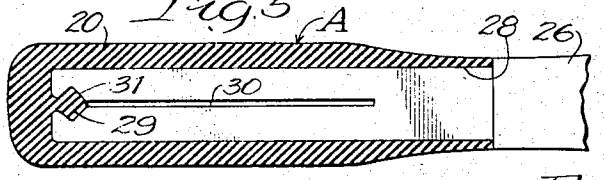


Fig. 6

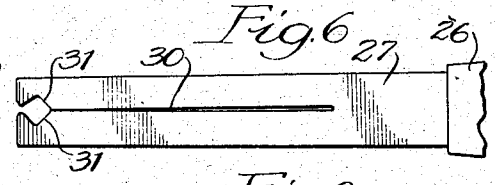


Fig. 7

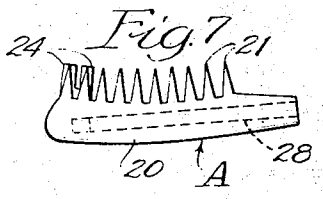


Fig. 8

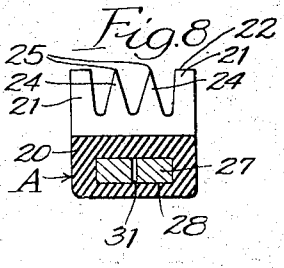


Fig. 9

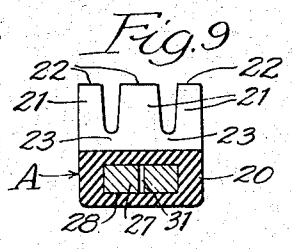


Fig. 10

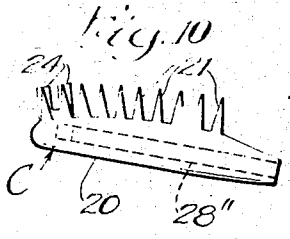


Fig. 11

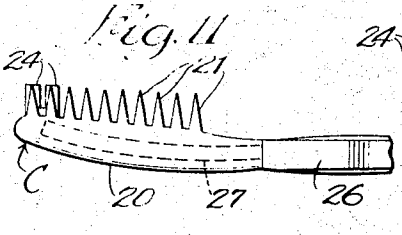
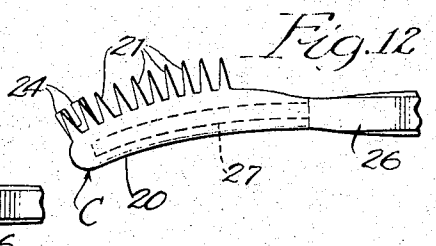


Fig. 12



Inventor:

Ted W. Seguin,

By Fisher, Clapp, Soans & Ford,

Attorneys.

Witnesses:

E. E. Anderson,

D. I. Peterson.

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UNITED STATES PATENT OFFICE

2,219,753

TOOTHBRUSH

Ted W. Seguin, Homewood, Ill., assignor of sixty per cent to Walter C. Mayland, Chicago, Ill.

Application May 21, 1938, Serial No. 209,191

3 Claims. (Cl. 15—188)

This invention relates to the general art of toothbrushes, and has reference more particularly to a known type of toothbrush that employs a rubber head with integral rubber bristles. This type of toothbrush possesses numerous practical advantages over the common bristle toothbrush. It does not scratch the surface enamel of the teeth, it permits gum massage of the most sensitive gums without lacerating or affecting the soft tissues around the teeth, it does not retain food particles, bacteria or infectious germs, is highly durable and will not lose its cleansing power or effectiveness after long use. Yet, despite the above and other advantages which it possesses over the ordinary bristle brush, it has not, so far as I am aware, hitherto met with any appreciable amount of public favor, due, as I believe, to poor and ill designed structural features which severely limit its usefulness for its intended purpose.

The object of my present invention has been to provide an improved rubber toothbrush possessing a high degree of effectiveness for cleaning and polishing the teeth, and which shall be thoroughly sanitary and capable of being easily cleansed and sterilized. Another object has been to provide a toothbrush, including a rubber head and a separable handle that may be engaged with the head in different ways so as to provide straight, concave or convex brushing surfaces, as may be preferred by the individual user. Still another object has been to provide a toothbrush outfit which may comprise a plurality of specifically different heads and a single handle interchangeable with the several heads so as to afford a considerable variety of different styles, such as the Dr. West style, the Prophylactic style, the so-called Dentists straight style, etc.

Still other objects and attendant advantages of the invention will be apparent to persons skilled in the art from the following detailed description, taken in connection with the accompanying drawing wherein I have illustrated forms of the invention employing specifically different heads using a common handle, and in which—

Fig. 1 is a plan view of the brush shown as lying on its back and employing the form of rubber head shown in Fig. 7.

Fig. 2 is a perspective view of the handle.

Fig. 3 is a side elevation showing the head of Fig. 7 associated with the handle in one position of the latter.

Fig. 4 is a view similar to Fig. 3 showing the same head associated with the handle in the inverted position of the latter.

Fig. 5 is a longitudinal section through the head or backing, showing the tenon of the handle inserted and yieldably locked therein.

Fig. 6 is a fragmentary view of the handle tenon as it appears when withdrawn from the head.

Fig. 7 is a side elevation of the head shown in Figs. 1, 3 and 4, which, for convenience of description, I shall hereinafter refer to as the A head.

Figs. 8 and 9 are enlarged cross-sections on the lines 8—8 and 9—9 respectively of Fig. 3.

Fig. 10 is a side elevation of a third form of head which, for convenience of description, I shall hereinafter refer to as the C head.

Fig. 11 is a side elevation showing the handle engaged in one position thereof with the head of Fig. 10; and

Fig. 12 is a view similar to Fig. 3 showing the handle in inverted position engaged with the head of Fig. 10.

Referring first to the form of the invention illustrated in Figs. 1 to 9 inclusive, the A head shown therein comprises a mounting or backing 20 of flexible, vulcanized rubber that carries on its upper surface a plurality of upstanding prongs 21 that are preferably arranged in longitudinal and transverse rows. In Fig. 1 I show three parallel longitudinal rows of prongs and ten transverse rows. All of the prongs in the two outside rows and eight of the prongs in the intermediate row are tapered on their front and rear sides so as to present on their free ends narrow and practical line tips 22 (Fig. 9) that lie crosswise of the head. It will also be observed by reference to Fig. 9 that the other two sides of the prongs are slightly tapered so that the openings between adjacent prongs in both the longitudinal and transverse rows are widest at the outer or free ends of the prongs. This greatly facilitates the expulsion from the brush of matter that may collect between the prongs during the use of the brush, and renders the subsequent cleaning and sterilizing of the brush very easy and simple. Also, the base portions of adjacent prongs in each transverse row are connected and braced by integral fillers 23.

The last two prongs at the head end of the intermediate longitudinal row are preferably replaced by four prongs 24 that are similar to the other prongs except they are turned to an angle of 90 degrees so that they present narrow line tips 25 (Fig. 8) lying lengthwise of the head. These auxiliary prongs 24 are functionally useful

in cleaning the cracks between adjacent front teeth, applying the brush vertically to the teeth.

The A head above described, as well as the C head to be later described, is useful when permanently mounted on any ordinary handle. But to enlarge the capacity and usefulness of the brush, I preferably associate it with a removable handle such as that shown in Fig. 2, the same comprising a handle proper 26 and a longitudinally curved tenon 27 continuous with one end of the handle 26 and adapted to enter a longitudinal socket such as the socket 28 formed in the mounting or backing of head A. By reference to Fig. 7 it will be observed that the socket 28 of the unflexed head is straight but is inclined downwardly and forwardly from its neck end relatively to a straight line connecting the bases of the front and rear prongs. It will also be observed that the tips of the prongs 21 lie in a concave plane. Now, when the tenon of the handle 26 is inserted into the socket 28 of head A, as shown in Fig. 3, the head is so flexed that the tips of the prongs lie in a flat or horizontal plane. But when the handle is inverted and then inserted into the same socket 28 in the manner shown in Fig. 4, the head is flexed in the reverse direction and the tips of the prongs lie in a concave plane more pronounced than the concave plane of the head when the latter is separated from the handle.

Figs. 10, 11 and 12 show the C head and its applications to the handle. When this head is separated from the handle the tips of its prongs lie in a slightly convex plane, as shown in Fig. 10, and the longitudinal socket 28'' of the unflexed head is inclined upwardly and forwardly from its neck end relatively to a straight line connecting the bases of the front and rear prongs. When the handle tenon is inserted in the manner shown in Fig. 11, the head is flexed downwardly, bringing the tips of the prongs into a flat, horizontal plane; and when the handle is inverted and its tenon inserted, the head is flexed upwardly and its forward portion is thrown downwardly, bringing the tips of the prongs into a downwardly and forwardly pitched convex plane, simulating what is known as the "Dr. West" type of brush head. The form shown in Fig. 4 presents what is known as the "Prophylactic" type of head, while the forms shown in Figs. 3 and 11 present what is known as the "Dentists type" of head.

It will thus be seen that the invention, when employing only a single head, affords two different types or styles of head by merely inverting the handle relatively to the head. And where a plurality of specifically different heads, such as heads A and C, are associated with a single handle, a larger variety of styles of head is obtainable.

The tenon 27 of the handle 26 may be so related in size to the sockets of the heads that it will have a sufficiently tight frictional engagement to insure the cooperation of the head and handle when using the brush; but, to insure against the handle pulling out during the use of the brush, I preferably provide a yieldable lock. This is shown in Figs. 5 and 6, wherein the closed end wall of the recess of the head is provided with an integral button 29, and the tenon 27 is split longitudinally as shown at 30 and near its free end is formed with opposed notches 31 which, under a relative inward thrust of the handle and head, snap over and grip the button 29, the engagement being effected partly by the stretching of the side walls of the recess and partly by the compression of the button. This insures against separation of the handle and head when the brush is being used, but permits a ready separation of said parts to change the form of the brush or for cleaning and sterilizing the parts.

The handle may, of course, be formed of any suitable or adaptable material, but I preferably use therefor a material known under the trade name "Baltic," which consists of a semi-hard rubber fiber mixture that will stand a boiling temperature substantially above that required for ordinary sterilizing purposes.

While I have herein shown and described practical and preferred embodiments of the principle of the invention, I do not limit the latter to the specific forms and materials hereinabove specified, but reserve all such variations, modifications and mechanical equivalents as fall within the spirit and purview of the claims.

I claim:

1. A toothbrush of the class described, comprising a flexible rubber head having in its unflexed form integral scrubbing prongs the tips of which from end to end of the head lie in a curved plane, said head formed with a straight longitudinal socket inclined relatively to a straight line connecting the bases of the front and rear prongs, a handle having continuous with one end thereof a longitudinally curved tenon insertible either side up into said socket, and cooperating means on said head and tenon for yieldably locking the former to the latter adapted to interlock with each other under a relative inward thrust on said head and handle.

2. A toothbrush of the class described, comprising a flexible rubber head having in its unflexed form integral scrubbing prongs the tips of which from end to end of the head lie in a concave plane, said head formed with a straight longitudinal socket inclined downwardly and forwardly from its neck end relatively to a straight line connecting the bases of the front and rear prongs, a handle having continuous with one end thereof a longitudinally curved tenon insertible either side up into said socket, and cooperating means on said head and tenon for yieldably locking the former to the latter adapted to interlock with each other under a relative inward thrust on said head and handle.

3. A toothbrush of the class described, comprising a flexible rubber head having in its unflexed form integral scrubbing prongs the tips of which from end to end of the head lie in a slightly convex plane, said head formed with a straight longitudinal socket inclined upwardly and forwardly from its neck end relatively to a straight line connecting the bases of the front and rear prongs, a handle having continuous with one end thereof a longitudinally curved tenon insertible either side up into said socket, and cooperating means on said head and tenon for yieldably locking the former to the latter adapted to interlock with each other under a relative inward thrust on said head and handle.

TED W. SEGUIN.