Oct. 9, 1934. S. V. LAUB 1,975,852

TOOTHBRUSH

Filed April 11, 1932

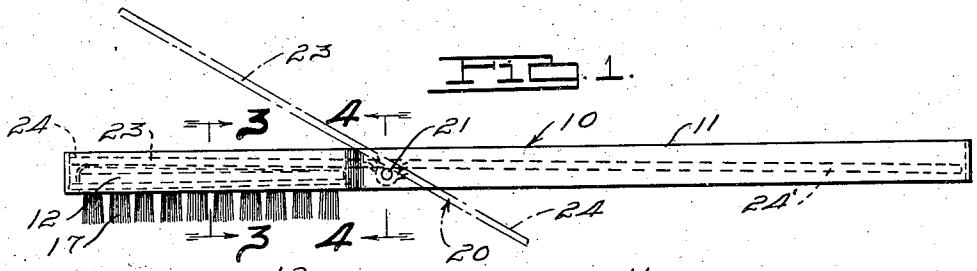


Fig. 1.

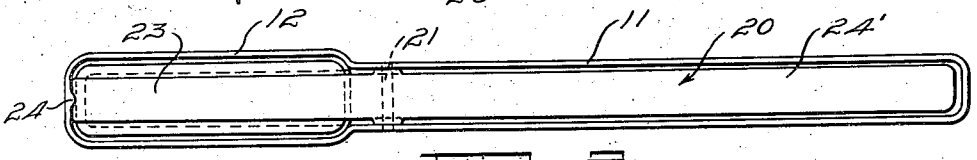


Fig. 2.

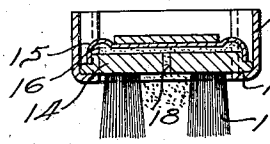


Fig. 3.

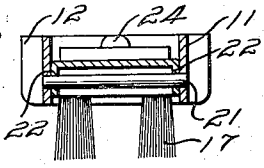


Fig. 4.

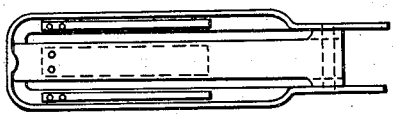


Fig. 6.

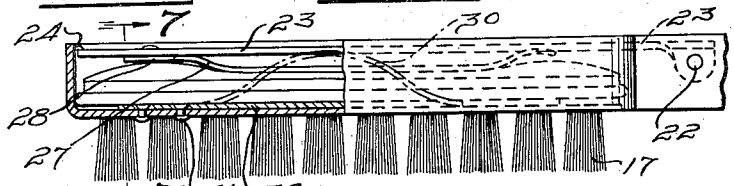


Fig. 5.

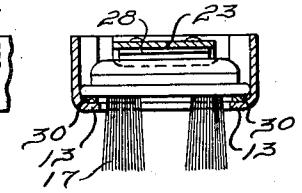


Fig. 7.

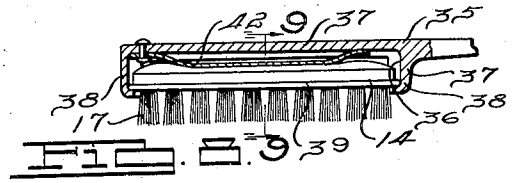


Fig. 8.

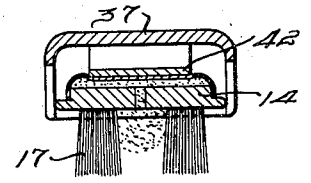


Fig. 9.

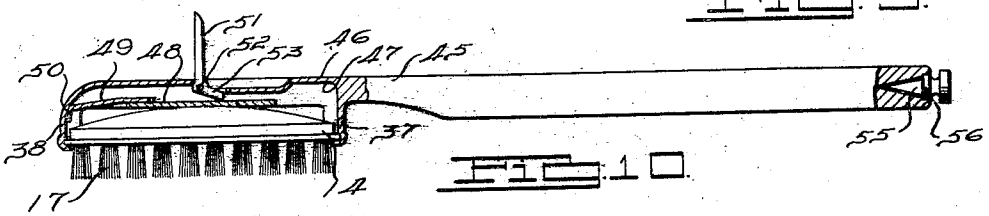


Fig. 10.

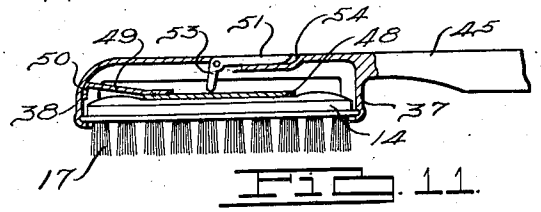


Fig. 11.

INVENTOR
Stanley V. Laub.
BY
Hamner Dickey & Rust Hamm
ATTORNEYS.

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UNITED STATES PATENT OFFICE

1,975,852

TOOTHBRUSH

Stanley V. Laub, Detroit, Mich.

Application April 11, 1932, Serial No. 604,399

12 Claims. (Cl. 15—135)

This invention relates to toothbrushes and it has particular relation to a brush in which interchangeable bristle heads may be employed.

One object of the invention is to provide a toothbrush in which a unitary bristle head and toothpaste receptacle are so associated releasably with a handle, that the paste may be extruded from the receptacle and into the bristle area, in a simple, positive and efficient manner.

Another object of the invention is to provide a toothbrush of the above designated character, in which manually operable means are provided for causing extrusion of the paste in the aforesaid manner, after the bristle head has been associated with the handle.

Another object of the invention is to provide a brush of the last mentioned character, in which a manually operable arm is mounted on the handle for extruding the paste into the area of the bristles, whenever the user of the brush desires to employ the brush for teeth cleansing purposes.

Another object of the invention is to provide a toothbrush having a releasable bristle head, in which ejecting means are provided for facilitating releasing the head from the handle.

Another object of the invention is to provide a toothbrush having a bristle head and toothpaste receptacle associated therewith, in which the paste may automatically be extruded into the area of the bristles in a gradual manner, after the parts are assembled in their normally operative relation.

Another object of the invention is to provide a toothbrush provided with improved means for puncturing a toothpaste receptacle normally to be associated with a releasable bristle head.

Other objects of the invention will be apparent from the following description taken in conjunction with the drawing and from the claims hereinafter set forth.

For a better understanding of the invention, reference may be had to the accompanying drawing, forming a part of the specification, wherein:

Figure 1 is a longitudinal view illustrating in side elevation, a toothbrush constructed according to one form of the invention;

Figure 2 is a plan view of the construction shown by Figure 1;

Figure 3 is a cross-sectional view on a larger scale, taken substantially along the line 3—3 of Figure 1;

Figure 4 is a cross-sectional view on a larger scale, taken substantially along the line 4—4 of Figure 1;

Figure 5 is a fragmentary view, on a larger scale and partly in cross section, illustrating a toothbrush constructed according to another form of the invention;

Figure 6 is a plan view on a smaller scale, of the construction shown by Figure 5;

Figure 7 is a cross-sectional view taken substantially along the line 7—7 of Figure 5;

Figure 8 is a fragmentary, longitudinal and cross-sectional view illustrating a brush constructed according to another form of the invention;

Figure 9 is a cross-sectional view on a larger scale, taken substantially along the line 9—9 of Figure 8;

Figure 10 is a longitudinal, partly cross-sectional view, of a brush constructed according to another form of the invention and illustrating a bristle head and toothpaste receptacle in initially associated relation with respect to the handle;

Figure 11 is a fragmentary longitudinal view of the construction shown in Figure 10, illustrating the manner in which the toothpaste is extruded into the bristle area.

Referring to Figure 1, the handle of the brush is indicated at 10 and as best shown by Figure 2, it comprises an endless strip of metal, rubber, solidified plastics, compressed paper, or other suitable material so formed as to provide an open handle portion 11, and an open head portion 12, the latter being somewhat wider than the handle portion. As best shown by Figure 3, the head portion 12 has around its side and end walls an inturned flange 13 adjacent its lower edge, and this flange serves as a support for a bristle head 14 having a flexible cover 15 on its upper side for housing toothpaste 16. Such head may be composed of metal, solidified plastics, compressed paper or the like, and the cover 15 may be composed of waterproof flexible cellophane, metal foil, rubber, elastic plastics, and the like. The lower surface of the head 14 has bristles 17 which project below the head portion 12 of the handle so as to enable brushing the teeth. The bristle head 14 with the cover 15 housing the toothpaste 16, may be constructed as more particularly described and illustrated in my copending application for patent Ser. No. 583,936, filed December 30, 1931, and in this connection, it might be noted that the head 14 may have one or more openings 18, for allowing the toothpaste 16 to be extruded into the area of the bristles 17. The openings may be sealed with material soluble in water such as gelatin, or they may be sealed with other suitable material which may be forced out

of the openings when the cover 15 is compressed, or they might be filled with toothpaste which solidifies when exposed to the air. Again the head 14 instead of having openings, might be composed of material which may be punctured readily.

The head as associated with the paste housing means, is deposited in the upper and open part of the head portion 12, until edge portions thereof of rest on the inturned flange 13, and as so positioned, the end wall of the head portion 12 and the restricted portion of the handle at the junction of the portions 11 and 12, serve to prevent endwise movement of the bristle head during the teeth cleansing operation, and the side walls of the head portion 12 prevent any lateral movement. Now for extruding the toothpaste into the bristle area, a scissors lever 20 is provided which is disposed between the side portions of the handle 10 so as to rock between the sides thereof. This scissors lever is pivoted as indicated at 21 to the handle portion 11 adjacent the head portion 12, and preferably downwardly turned lugs 22 are provided at opposite sides of the lever for better accommodating the pivot pin 21. One part of the scissors lever as indicated at 23 in Figure 1, is adapted to move downwardly and engage the cover 15 housing the paste and to cause extrusion of the paste through the openings 18 into the bristle area, while another part of the lever indicated at 24' is adapted to be gripped by the hand of the user in conjunction with the handle portion 11 in the manner of gripping scissors for cutting purposes. In other words when the user desires to extrude paste into the bristle area, he merely manipulates the lever 20 and handle 11 in the manner of a pair of scissors which causes the portion 12 of the lever to compress the cover 15 and extrude the paste. It may be desirable to have means for holding the lever in position after it is so operated without depending upon the manual grip on the handle, and for this purpose the head portion 12 of the handle may have a small bead 24 on its inner surface adjacent the top thereof, for engaging the end of the portion 23 of the lever. This bead is so constructed that the end of the lever may without difficulty ride thereover and into its operative position, and be released therefrom without any great degree of binding. Other suitable means of holding the scissors lever in position may be used, although such means is not essentially necessary because of the hand grip on the scissors lever and handle.

In the construction shown by Figure 5, instead of using a full scissors lever, only the portion 23 is used, although of course, the entire scissors lever may be employed if this is desired. Also the lower surface of the portion 23 is provided with a leaf spring 27 riveted thereto as indicated at 28, and the free end of the spring is loose to allow the spring to expand and contract. When the member 23 is moved down into its operative position, it is apparent that the spring 27 may be flattened but that it will tend to expand and extrude the paste into the bristle area, and if the openings 18 are filled with material which will be forced out thereof upon pressure applied to the cover 15, the spring 27 may serve as a means for initially forcing this material out of the openings 18 and finally extruding the paste. Also it might be stated in this connection that it would not be necessary to puncture the head 14 in case puncturing was necessary, prior to moving the part 23 into its operative position, because the spring 27 would stay flattened until the wall was punctured and this also would be true in the event the openings 18 were sealed with some material soluble in water for example, until the material was dissolved by holding the brush under water, because the part 23 could be moved into its operative position and the spring flattened before holding the brush under the water.

Also as illustrated in Figure 5, leaf springs 30 are mounted on the upper surface of the flanges 13 by means of rivets 31 for example, and such springs normally tend to eject the bristle head from the handle. Accordingly when the bristle head is disposed in the handle and the part 23 is brought down into its operative position, the leaf springs 30 will normally tend to eject the bristle head and after the teeth cleansing operation and release of the part 23, the bristle head will automatically be ejected from the handle. This construction of the springs for ejecting the bristle head may also be employed in the construction shown by Figure 1.

In the construction shown by Figures 8 and 9, a handle 35 is provided which has a pocket 36 in its head portion as indicated at 37, for receiving the bristle head 14. At opposite ends of this pocket, the handle is provided with flexible, laterally rounded portions 37 and 38 having grooves in their adjacent side surfaces indicated at 33 for receiving end portions of an annular rib 39 on the bristle head and preventing lateral or longitudinal movement of the latter. The head may be inserted in the pocket 36 by flexing one or both of the flanges 37 and 38 until the head may freely pass upwardly into the pocket and then by releasing one or both flanges, the latter will grip the rib 39 and hold the bristle head in position. The upper wall of the head is provided with a leaf spring 42 which, similarly to the leaf spring 27, previously described, serves as a means for extruding the paste into the bristle area.

In the construction shown by Figures 10 and 11, a handle 45 is provided having a head portion 46 provided with a pocket 47 for receiving the bristle head 14, and this head portion may be substantially similar to that shown by Figure 8 in which end flanges 37 and 38 are provided for holding the bristle head in place. Instead of using the spring 42 for extruding the paste, a plate 48 is mounted on a spring element 49, secured as by welding 50, for example, to the flange 48, so that the plate 48 may be brought down against the cover 15 housing the paste. For moving the plate 48 downwardly in this manner, an arm 51 is provided which is pivoted as indicated at 52 to the upper wall of the head portion 46, and such arm has a portion 53 adapted to have cam engagement with the plate 48 to move it downwardly against the cover of the bristle head. Preferably when the arm 51 has so been operated to extrude the toothpaste into the bristle area as shown by Figure 11, the upper wall of the head portion 46 provides a recess 54 for receiving the handle 51 in a concealed position so that it will not interfere with the teeth cleansing operation. In this construction also, the handle has at its free end a puncturing element 55 which is screw threaded as indicated at 56, into the end of the handle. This element serves as a means for puncturing the bristle head 14 whenever it is so constructed that puncturing is necessary to permit extrusion of the paste to the bristle area.

From the foregoing description it will be seen that novel and useful forms of toothbrushes have been provided for facilitating use of refills com-

prising bristle heads provided with housing means for toothpaste, and that any user of toothbrushes of this character may readily insert a refill in the brush, and use it, and then readily discard it while retaining the handle for use in conjunction with additional refills. As stated in my co-pending application, the bristle head and toothpaste housing means thereon may be manufactured very inexpensively so that the user of the brush may well afford to use a bristle head only for a single teeth cleansing operation. The handle preferably will be constructed of durable material so that it may be permanently used. It is apparent that the several types of brushes illustrated may be used with refills in which, for example, the bristle head may either be punctured, or provided with openings filled either with material soluble in water or material which may be forced from the openings by pressure against the cover for the toothpaste. Any of the constructions provided may be easily manipulated so that little difficulty will be encountered in placing a refill in the brush and removing it after the teeth cleansing operation and these factors are of considerable importance for the reason that no one likes to have much difficulty in manipulating an article of this character prior to any operation such as cleaning the teeth. The invention serves efficiently like the constructions illustrated in my copending application, to increase sanitation in connection with teeth cleansing operations, as it avoids unsanitary conditions prevalent in connection with the ordinary type of toothbrush used repeatedly.

Although more than one form of the invention has been illustrated and described in detail, it will be apparent to those skilled in the art that various modifications may be made without departing from the scope of the appended claims.

I claim:

1. A toothbrush comprising a handle, a bristle head having a compressible receptacle for toothpaste, means on the handle for receiving the head, and pivoted means on the handle for compressing the receptacle.

2. A toothbrush comprising a handle, a removable bristle head having a compressible toothpaste receptacle on its side opposite the bristles and adapted to discharge paste thereon, means on the handle for holding the head, and movable means on the handle for compressing the receptacle to discharge the paste.

3. A toothbrush comprising a handle having a pocket, a bristle head in said pocket and having a toothpaste receptacle defined at least partially by a movable wall and which is adapted to discharge paste to the bristles, and an arm pivoted on the handle and having a part adapted to move said wall to discharge the paste, and a part to move in gripping the handle.

4. A toothbrush comprising a handle, a bristle head on said handle, deformable toothpaste housing means at that side of the head opposite the bristles and adapted to discharge paste to the latter, and pivotal means on the handle for deforming the housing means to discharge the paste.

5. A toothbrush comprising a handle, a unitary bristle head and toothpaste housing means releasably mounted on the handle, said housing means being defined at least partially by a movable wall and being adapted to discharge paste to the bristles, and movable means on the handle for moving said wall to discharge the paste, said means comprising a spring.

6. A toothbrush comprising a handle, a toothpaste receptacle releasably mounted in the handle at one end thereof, said receptacle being defined at least partially by a movable wall and being adapted to discharge paste to the bristles, and an arm pivoted on the handle and adapted to move said wall upon manual manipulation, to discharge the paste.

7. A toothbrush comprising a handle having a pocket, a bristle head and toothpaste housing means, mounted in said pocket, the latter being defined at least partially by a movable wall, manually operable means for moving said wall to compress the paste in the housing means, and means for ejecting the bristle head upon release of the manually operable means.

8. A toothbrush comprising a handle having a pocket, a bristle head and toothpaste housing means having a movable wall, mounted on said pocket, and resilient means for causing movement of said wall and extrusion of the paste upon formation of an opening in the paste housing.

9. A toothbrush comprising a handle having a pocket, a bristle head in said pocket, deformable toothpaste cover on the back of the head for housing paste, and resilient means for causing deformation of the cover and extrusion of the paste upon formation of an opening in the paste housing.

10. A toothbrush comprising a handle having an opening extending therethrough at one end, a bristle head insertable into the opening so that the bristles project from that side of the opening opposite the side in which the head is inserted, and means on the handle and including means movable over that side of the opening from which the head is inserted for releasably holding the head in the pocket.

11. A toothbrush comprising a handle having an opening extending therethrough at one end, a bristle head insertable into the opening from one side so that the bristles project from the other side of the opening, and means for releasably holding the head in the opening.

12. A toothbrush comprising a handle having an opening extending therethrough at one end, a bristle head insertable into the opening from one side so that the bristles project from the other side of the opening, and means for releasably holding the head in the opening, said means including a member pivoted on the handle and movable over the opening at that side from which the head is inserted.

STANLEY V. LAUB.