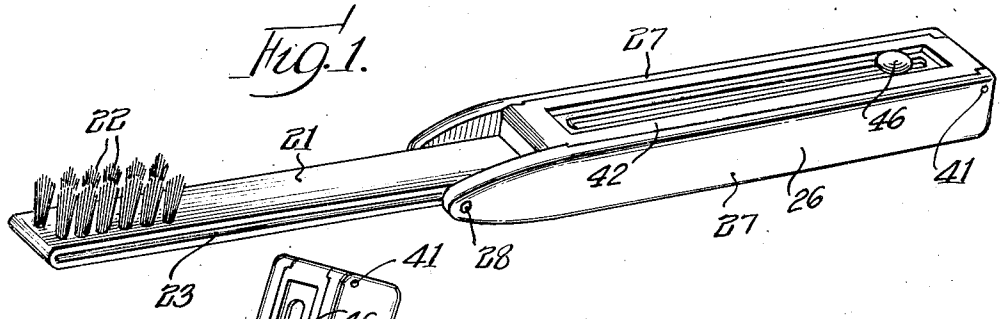
July 20, 1948. L. L. FUSTON 2,445,571

TOOTHBRUSH

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Fig. 1.



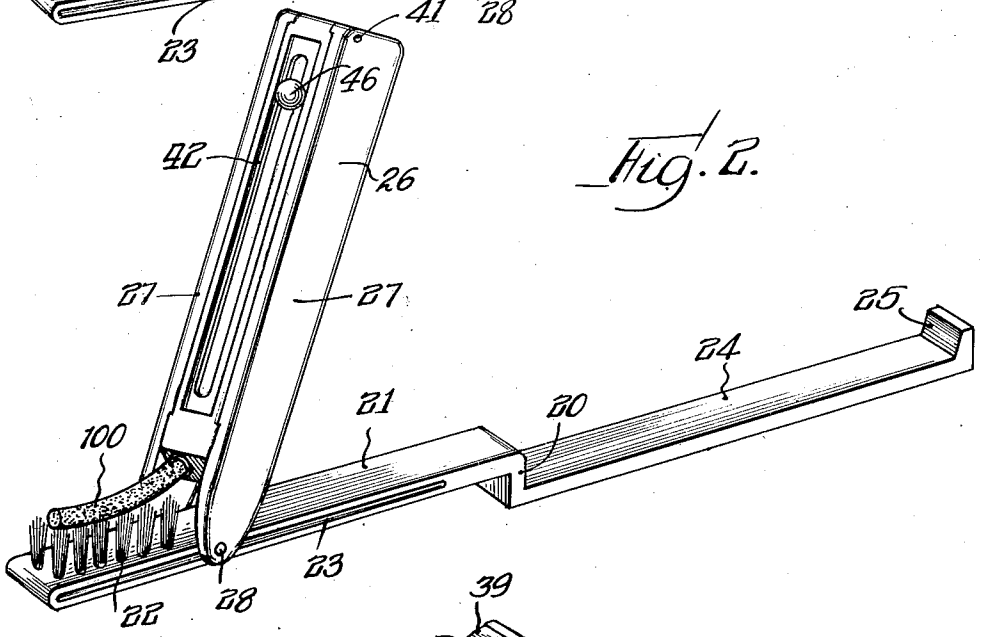


Fig. 2.

Fig. 3.

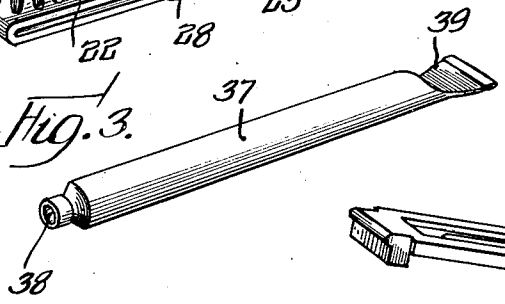
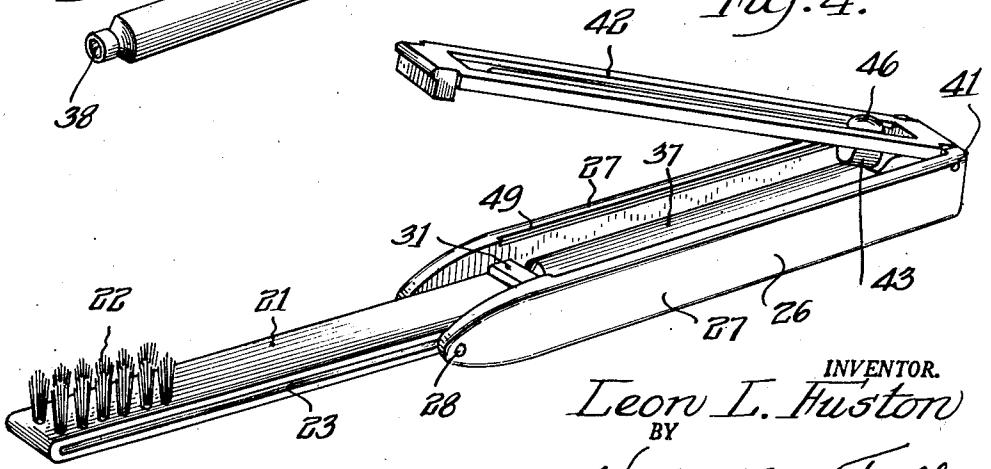


Fig. 4.



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Fig. 5.

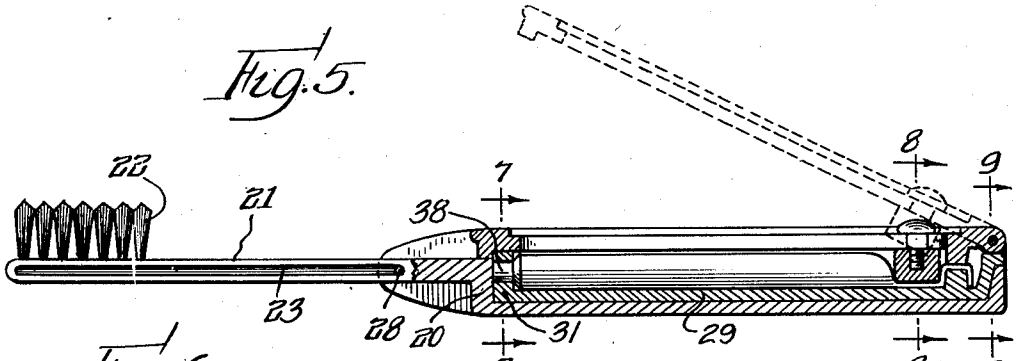


Fig. 6.

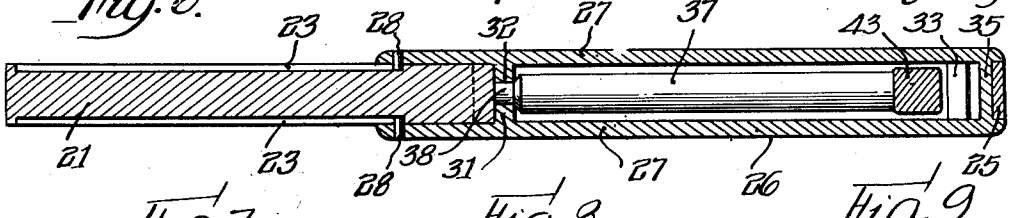


Fig. 7.

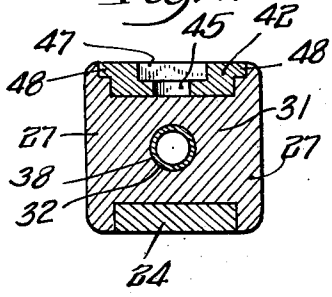


Fig. 8.

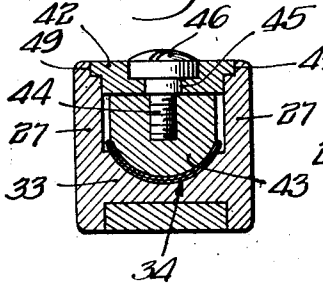


Fig. 9.

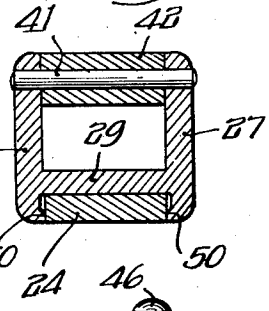
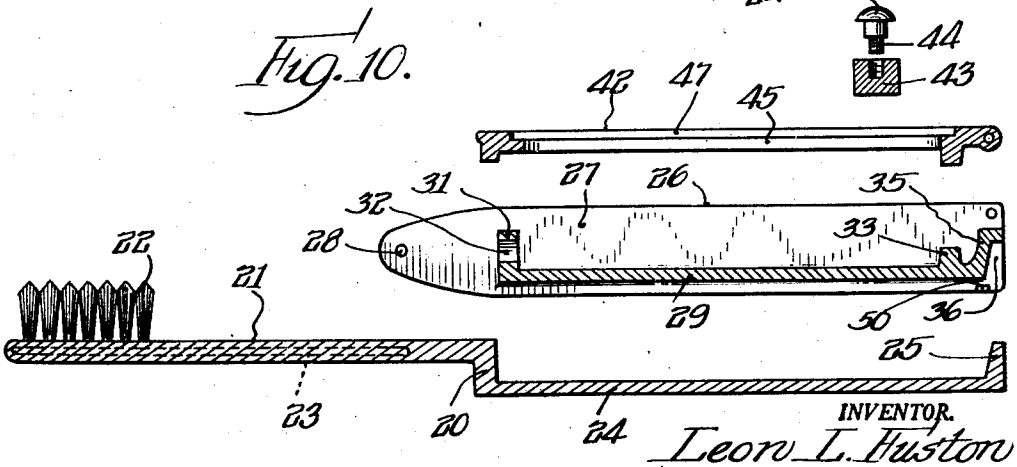


Fig. 10.



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Fig. 11.

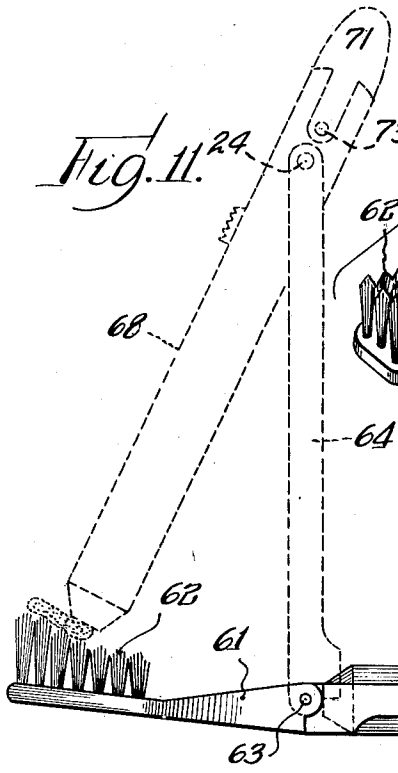
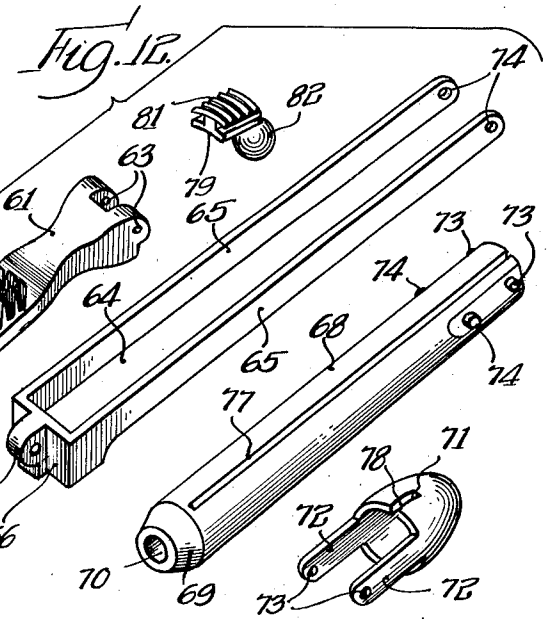


Fig. 12.



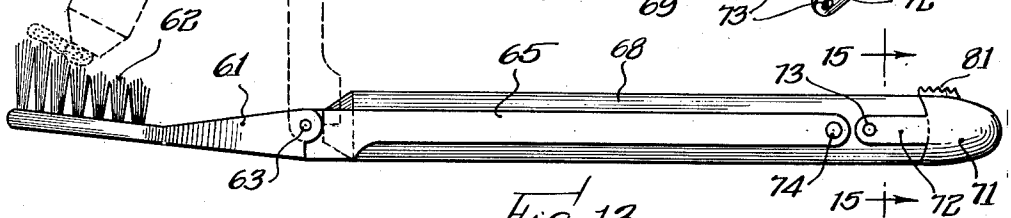


Fig. 13.

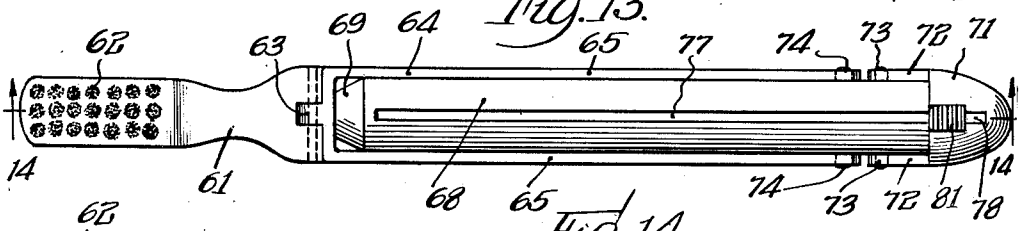


Fig. 14.

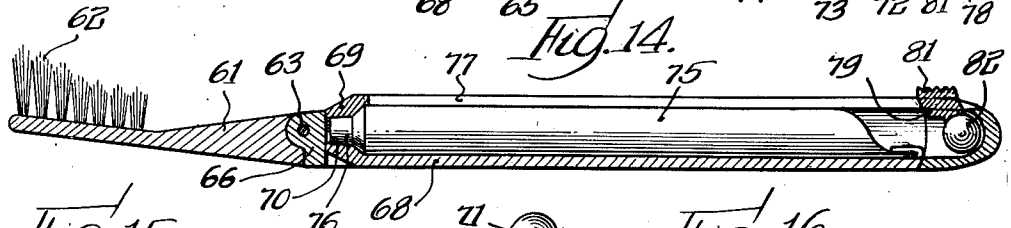


Fig. 15.

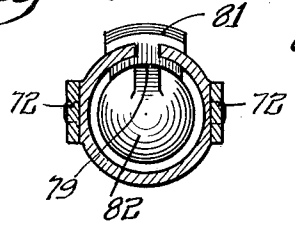
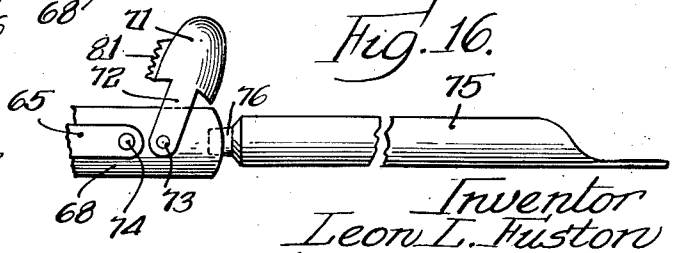


Fig. 16.



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2,445,571

TOOTHBRUSH

Leon L. Fuston, Oak Park, Ill.

Application August 21, 1946, Serial No. 691,930

2 Claims. (Cl. 132—84)

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The present invention pertains to tooth-brushes, its main or primary aim or object being to provide a dentrifice, ordinarily but not necessarily, in a collapsible tube in the body of the tooth-brush in such a manner as to allow it, without removal from the tooth-brush, to be applied to the surface of the brush ready for use so that there is no necessity for removing the cap from a collapsible dentifrice-tube each time the tooth-brush is used with danger of dropping it or losing it, such tube in the tooth-brush containing enough of the dentifrice for several applications to the teeth.

This new and improved type and style of tooth-brush is of especial value to travelers, but it is in no sense to be understood as limited to such specific employment.

A further design of the tooth-brush is to supply one of this general form and style which is simple in structure, which is economical to manufacture, which is easily and efficiently employed and which is unlikely to become damaged or injured in ordinary service, the device having adequate strength for performing its intended functions.

In order that those acquainted with this art may understand the features and novel attributes of the invention, both from structural and functional standponts, two present preferred embodiments thereof in physical form have been illustrated in the accompanying drawings forming a part of this specification to which reference should be had and which have been described in detail below.

For the sake of clarity and simplicity, like reference numerals have been employed in such drawings for the same elements throughout the several views of the drawings.

In these drawings—

Figure 1 presents a perspective view of one form of the tooth-brush;

Figure 2 shows the same structure with the dentifrice being applied to the surface of the brush;

Figure 3 portrays the dentifrice containing tube;

Figure 4 depicts the tooth-brush with the cover of the handle portion thereof raised disclosing the dentifrice-tube;

Figure 5 is a partial, vertical, longitudinal section through the tooth-brush showing the cover in partially raised position in dotted lines;

Figure 6 is a horizontal, lengthwise section through the tooth-brush;

Figures 7, 8 and 9 are enlarged transverse sections on lines 7—7, 8—8 and 9—9, respectively, of Figure 5;

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Figure 10 is a longitudinal section through the tooth-brush with its individual members separated and not incorporating the dentifrice-tube;

Figure 11 is a side view of a modified type of tooth-brush embodying the invention;

Figure 12 depicts some of the separate parts of the brush of Figure 11 in perspective;

Figure 13 is a top view of the tooth-brush;

Figure 14 is a longitudinal section through the structure of Figure 11;

Figure 15 is an enlarged cross-section on line 15—15 of Figure 11; and

Figure 16 is a partial longitudinal section on line 16—16 of Figure 13 showing the manner of introducing a dentifrice-tube into the brush-handle.

The innovatory tooth-brush illustrated in Figures 1 to 10 inclusive may be made of any suitable material, such as plastic or other appropriate substance, and includes a stiff, rigid, elongated, rectangular portion 21 equipped near one end with a brush 22 composed of groups of upstanding bristles or their synthetic equivalents, such parts 21 having parallel, lengthwise grooves 23, 23 in its opposite edges for a purpose hereinafter indicated.

In addition, the tooth-brush includes a handle extension 24 rigid with the portion 21, such element 24 constituting in part a flat, narrow, depressed section with an upstanding terminal cross-wall or stud 25 of the shape depicted in the drawings, and with another wall 20 at a right-angle to the parts 21 and 24, all of these sections 21, 20, 24 and 25 being an integral rigid body.

The structure includes also a dentifrice housing and conveyor, characterized as a whole 26, constituting part of the handle and including a pair of parallel, spaced-apart, side-walls 27, 27 normally just outside of the edges of the main body of the tooth-brush as is clearly portrayed in the drawings, the front end portions of such parts 27, 27 having inwardly extended lugs 28, 28 occupying and slidable lengthwise in the grooves 23, 23 (Fig. 6), whereby such element 26 may be slid forwardly and reawardly and may be rocked about such lugs acting as its fulcrum at any location along the length of the grooves 23, 23 (Fig. 2).

Between its side-walls 27, 27 member 26 has an elevated bottom-wall 29, an upstanding, cross, front-wall 31 with a central aperture 32 therethrough (Figs. 5 and 10), a rear, transverse wall 33 with a curved top 34 (Figs. 8 and 10), and an

end-wall 35 outwardly recessed at 36 to receive the terminal wall 25 of the base 24 (Fig. 10).

This slidable and rockable member 26 is designed and adapted to house or accommodate a replaceable, collapsible, dentifrice-containing tube 37 having a (Fig. 3) hollow cylindrical discharge-nozzle 38 at one end of a size and shape to snugly occupy the aperture 32, as illustrated in Figures 5 and 6.

This structure 26 has hinged thereto at 41 a longitudinally-slotted cover 42 equipped internally with a lengthwise slidable compressor 43 over the dentifrice-tube 37 and held in place by a screw 44 occupying the slot 45 of the cover, the manually accessible, enlarged head 46 of the screw, by means of which the compressor 43 may be slid along to discharge the dentifrice, occupying a lengthwise depression 47 in the cover, the latter having longitudinal ribs 48, 48 (Fig. 7) fitting in lengthwise spaces 49, 49 (Fig. 8) in the tops of the side-walls 27, 27.

When the tooth-brush is not in use and all parts are closed, as presented in full lines in Figures 1 and 5, the lugs 28, 28 are in the ends of the grooves 23, 23, the nozzle of the collapsible dentifrice-tube is closed by the fixed wall 20 of the handle, the bottom wall 29 rests on its underlying wall 24, the lug 25 occupies the cavity 35, and the parts 26 and 24 snugly fit each other and are held against accidental displacement or separation by the snug fit of the part 25 in the space 36, or if desired the inner surfaces of walls 27, 27 may have slight protuberances 50, 50 (Fig. 9) to grasp the sides of the part 24 to assist in this holding action.

Also cover 42 is closed and held manually releasably by the snug and confining fit of the ends of the cover wall with the side walls 27, 27 of member 26.

In order to insert the dentifrice-tube 37 in the handle portion of the tooth-brush, cover 42 is rocked upwardly, thus opening the top of element 26, and the tube 37 is introduced thereinto with its nozzle 38 inserted in aperture 32 in which position the hole of the nozzle is closed by wall 20, and the tube's originally unfilled end portion 39 overlying the transverse projection 33.

Then with the depresser 43 at the outer or lower end of cover-slot 45, the cover is rocked down to closed position and frictionally held within as shown in full lines in Figure 5.

In this condition the unloaded end portion 39 (Fig. 3) of tube 37 is firmly clamped and grasped between the upper concave surface of element 33 and the under convex surface of member 43 (Fig. 8) so that the tube cannot move in the direction of its opposite nozzle end.

Assuming that the teeth are to be brushed and cleaned, the user swings the portion of the handle comprising the parts 26 and 42 as a unit upwardly and forwardly with the lugs 28, 28 rocking and sliding toward the brush end of the device, as shown in Figure 2, until the now open mouth of the tube is in a position to discharge dentifrice onto the front end portion of the surface of the brush 22 and then by simultaneously pushing the knob 46 and its depresser or extractor 43 forwardly, thus collapsing a portion of the tube, and retracting the tube-container 26—43 a strip 100 (Fig. 2) of dentifrice of approved length is delivered onto the face of the brush.

Continued complete withdrawal of the tube container and its rocking down to normal locked relation with fixed part 24, as shown in Figure 5, renders the tooth-brush and its dentifrice ready for ordinary employment by the user who holds the handle of the same in his hand, such handle comprising the parts 24, 26, 42, 43, 44, 46 and the dentifrice-tube.

Turning now to the modified brush structure presented in Figures 11 to 16 inclusive it will be perceived that the part 61 of the tooth-brush provided with the bristles 62 has hinged to it at one end at 63 a frame, designated as a whole 64, including a pair of elongated, parallel arms 65, 65 connected together at one end only by a cross-wall 66 fitted with a projecting apertured lug 67 forming part of the hinge 63 (Figs. 11 and 12).

Such frame accommodates between its two arms 65, 65 a hollow, cylindrical holder 68 fitted at one end with an externally and internally tapered, centrally apertured wall 69 (Fig. 12), such hole being characterized 70, and equipped at its other end with a hollow cap 71 having a pair of spaced-apart arms 72, 72 rigid therewith and hinged at 73, 73 to the exterior of the housing 68, such cap 71 therefore providing means whereby its end of the holder 68 may be closed as presented in Figures 11, 13 and 14 or opened as portrayed in Figure 16, the complete tubular holder 68 being hinged at 74, 74 to the main frame arms 65, 65.

Such container or housing 68 is adapted to accommodate a collapsible dentifrice-tube 75 introduced thereinto at one end by temporarily opening closure 71 so that the apertured tip 76 of the tube snugly fits in the passage 70 through wall 69, as illustrated in Figure 14, the mouth of such tip being closed by such wall 66 when the container 75 is in the position depicted in Fig. 14.

In order that the contents of the tube 75 may be expelled from the tube in small doses, the tops of holder 68 and of its cap 71 are provided with aligned or registered slots 77 and 78 respectively in which fits a slide 79 with an accessible, external, roughened head 81 and an internal, ball-shaped part 82.

Obviously, by sliding this member 79 lengthwise in the slots the ball 82 will progressively collapse the tube 75 and expel its dentifrice.

When the tooth-brush, normally when not in use, presents the appearance shown in full lines in Figure 11, is to be used for brushing the teeth, its handle including frame 64, holder 68 and its contained tube are rocked up to the position of the frame 64 shown in dotted lines in Figure 11, whereupon the holder 68 and its enclosed tube are swung forwardly around the hinge 74 to bring its free end over the brush and then retract it, during which latter movement a small amount of the dentifrice is applied to the bristles by a short, manually-actuated movement of the ball by manipulation of its finger-piece 81, whereupon the parts are rocked back into normal position as depicted in full lines in Figure 11, and the tooth-brush is then used in the customary manner, the interfitted parts 64, 68 and 71 being grasped and employed as the handle of the tooth-brush.

If preferred, the dentifrice, of course, could be applied to the bristles while the part 68 is being rocked forwardly rather than rearwardly.

When it becomes necessary to replace an exhausted dentifrice-tube with a filled one, this is easily accomplished by pushing the expeller ball 82 back into the cap 71 and then rocking such cap on its hinge to open the corresponding end of the holder 68 thus permitting removal of the exhausted tube and replacing it with a filled one

and then rocking the cap 71 down into closed position.

The parts 64, 68 and 71 may be held in their normal interfitted relation by adequate friction between the relatively movable elements so the members maintain their interfitted relations except when they are to be moved with respect to one another.

Those skilled in this art will readily understand that the present invention, as defined by the following claims, is not necessarily limited and restricted to the precise and exact details herein mentioned and that reasonable modifications may be resorted to without departure from the heart and essence of the invention and without the loss or sacrifice of any of its material benefits and advantages.

I claim:

1. In a dentifrice-dispensing tooth-brush having a brush-equipped portion and a handle, the novel combination of an element comprising at least a portion of said handle constructed to accommodate a collapsible dentifrice-tube having a discharge-aperture at one end, means movably mounting said element on the tooth-brush to temporarily convey the dentifrice-tube to discharge position with relation to the surface of the brush, means to discharge some of the dentifrice from the tube onto the brush when so positioned, whereupon said element and tube are returned to tooth-brush handle position, said dentifrice-tube conveying means having a rocking and sliding connection with the brush-equipped portion of the tooth-brush.

2. In a dentifrice-dispensing tooth-brush having a brush-equipped portion, a handle and a collapsible dentifrice-tube having a discharge-aperture at one end, the novel combination of an element comprising at least a portion of said handle constructed to accommodate said tube and normally close said discharge-aperture, means normally mounting said element on the tooth-brush adapted when manually moved to temporarily open said aperture and convey the dentifrice-tube to discharge position with relation to the surface of the brush, and manual means to discharge some of the dentifrice from the tube onto the surface of the brush when so positioned, whereupon said element and tube may be returned to tooth-brush handle position with such aperture closed.

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