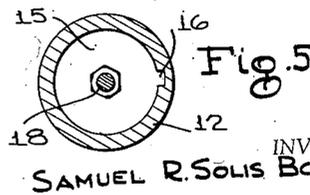
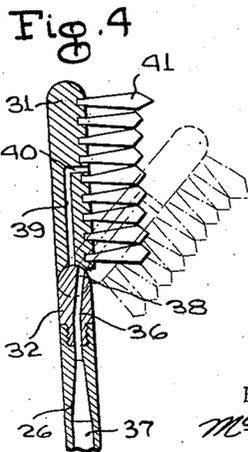
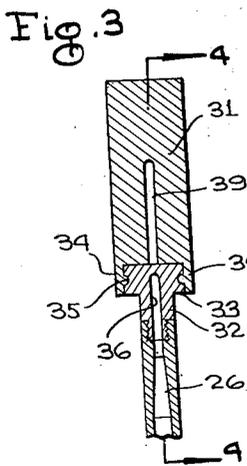
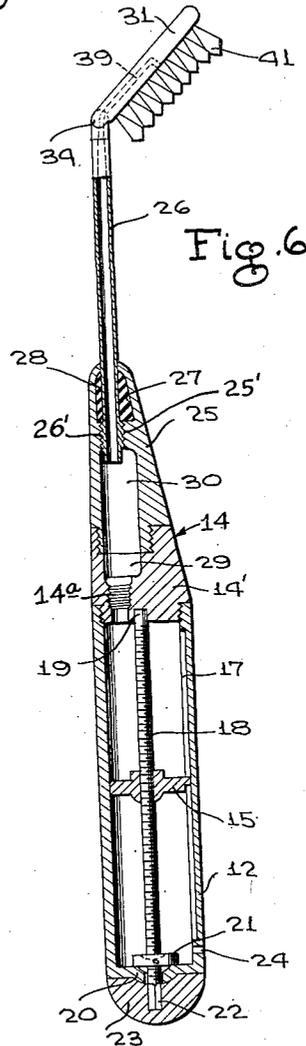
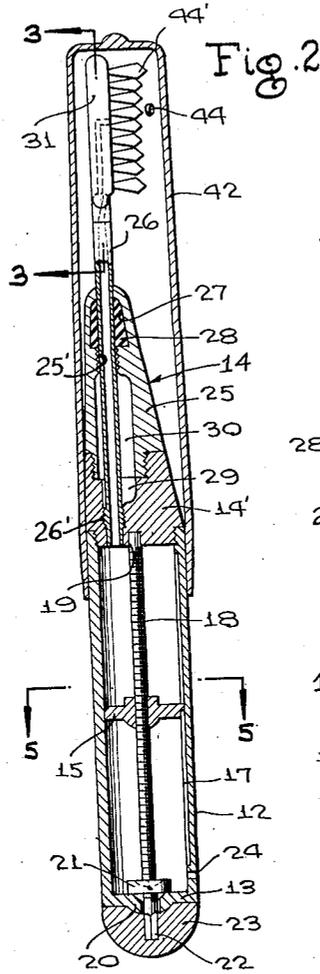
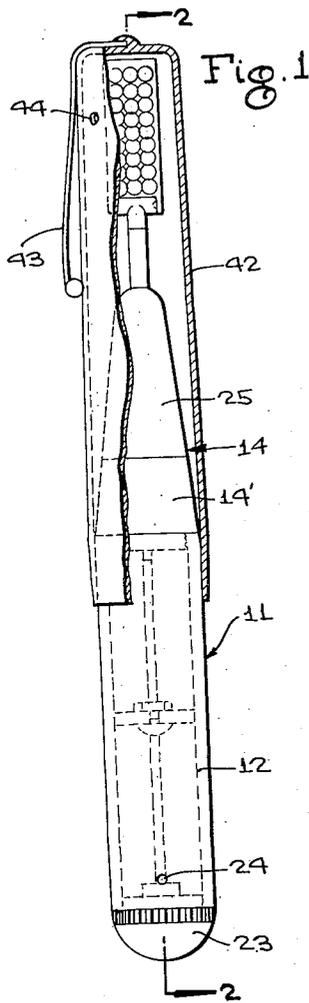


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S. R. SOLIS BONILLA  
FOUNTAIN TOOTH BRUSH

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## FOUNTAIN TOOTH BRUSH

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1 Claim. (Cl. 15—137)

This invention relates to fountain toothbrushes, and more particularly to an improved fountain toothbrush provided with novel means for discharging toothpaste or similar material onto the head portion of the toothbrush.

A main object of the invention is to provide a novel and improved fountain toothbrush which is simple in construction, which is compact in size and which is easy to use.

A further object of the invention is to provide an improved fountain toothbrush which is inexpensive to manufacture, which is rugged in construction, which is easy to manipulate, and which may be readily taken apart for cleaning and refilling.

Further objects and advantages of the invention will become apparent from the following description and claim, and from the accompanying drawings, wherein:

Figure 1 is a side elevational view, partly in cross section, of an improved fountain toothbrush constructed in accordance with the present invention.

Figure 2 is a vertical longitudinal cross sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a cross sectional detail view taken on the line 3—3 of Figure 2.

Figure 4 is a cross sectional view taken on the line 4—4 of Figure 3.

Figure 5 is an enlarged horizontal cross sectional view taken on the line 5—5 of Figure 2.

Figure 6 is a longitudinal vertical cross sectional view similar to Figure 2 but showing the head portion of the brush in an inclined position whereby toothpaste may be discharged from the main body of the brush onto the head portion thereof, and also the tube extended.

Referring to the drawings, and more particularly to Figures 1 to 5, the brush is generally designated at 11 and comprises an elongated, substantially cylindrical handle 12 having a bore entering one end which defines with the opposite end of the handle an end wall 13. Threadedly engaged with screw threads adjacent its opposite end is the plug member 14' of a neck designated generally 14. Slidably positioned in the bore in the handle 12 is piston 15, said piston being circular in shape and being provided at its periphery with a lug 16 which slidably engages in a longitudinal groove 17 formed in the interior wall of the bore, whereby the piston member 15 is held against rotation but is free to move longitudinally in the bore in the handle 12. Designated at 18 is a screw threaded shaft which threadedly engages the piston 15 and enters a recess 19 formed in the neck 14 when the neck is coupled to the handle 12. The end of the shaft 18 remote from the neck 14 extends through an opening which extends axially through the cupped central portion 20 of the end wall 13, and secured to the shaft 18 and bearing on the end wall 13 is a collar 21 which serves as a thrust bearing for the shaft 18. As shown in Figure 2, the end of the shaft 18 projecting outside the handle 12 is squared, as is indicated at 22 and rigidly secured to the squared portion 22 is a knob 23

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by which the shaft 18 may be rotated. The handle 12 is formed with a vent 24 located in spaced relation to the end wall 13.

Threadedly engaged with the plug member 14' of the neck 14 is a neck extension 25, and mounted to slide through the neck extension 25 and into the opening which extends through the plug member 14' is a rigid tube 26 which lies parallel to the axis of the shaft 18 but which is laterally offset therefrom. The tube 26 communicates with the bore in the handle 12, as shown in Figure 2. The plug extension 25 is provided adjacent its top end with an annular cavity 27 containing deformable packing 28 which sealingly engages the tube 26. The plug member 14' and the plug extension 25 are formed with registering cavities 29 and 30 which combine to define a space through which may move the external screw threads 26' carried by the tube 26 adjacent the inner end thereof, and formed in the plug member 14' is an internally screw threaded recess 14a for threadedly receiving the threads 26' when the tooth brush is collapsed. A similar internally screw threaded recess 25' is formed in the neck extension 25 for receiving the threads 26' and holding the tooth brush extended.

Designated at 31 is the toothbrush head which is pivotally secured to a short extension member 32 which is in turn threadedly engaged with the end of the tube 26 in the manner clearly shown in Figures 3 and 4. As shown in Figure 3 the extension member 32 is provided with the opposed laterally extending arm portions 33, 33 and the head 31 is provided with depending lug elements 34, 34 which engage over the ends of the laterally extending arms 33, 33, said lug portions 34 having projections 35 which engage in central recesses formed in the ends of the laterally projecting arms 33, 33, providing a pivotal connection of the head 31 to the extension member 32. From Figure 4 it will be seen that the head 31 may be rotated from a position wherein it is substantially aligned with the conduit 26 clockwise to the dotted line position thereof.

The extension element 32 is formed with a passage 36 which communicates with the bore 37 of the conduit 26, the extension passage 36 being inclined relative to the axis of bore 37 and terminating laterally of said axis at 38, as shown in Figure 4. The head 31 is provided with a passage 39 which leads to a discharge opening 40 located centrally of the bristle tufts 41 carried by the head 31. As shown in Figure 4, the passage 39 is substantially in alignment with the axis of the tube 26 when said head is in its normal position and the end 38 of passage 36 is closed off by the head 31. However, when the head 31 is rotated to its dotted line position shown in Figure 4, the passage 39 registers with the passage 36 and paste material may be discharged from bore 37 into passage 39 and thence through the discharge opening 40.

As shown in Figures 1 and 2, a cover cap 42 is provided which engages over the brush head 31 and frictionally engages with the exterior surface of the handle 12. The cap 42 is provided with a resilient pocket clip 43, and is also formed with a ventilation opening 44.

To use the device, the cap 42 is removed and the handle 12 is unscrewed from the neck. The piston member 15 is retracted to its lowermost position in the bore in the handle 12 by rotating the knob 23. The threads on the handle are then engaged with the threads on a collapsible tube containing the paste material to be dispensed, and upon squeezing the tube the paste will be discharged into the bore in the handle, it being understood that any air trapped in the bore will be discharged through the vent 24. When the bore has been filled to the desired extent, the collapsible tube is disengaged from the handle and

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the neck 14 is connected thereto by threadedly engaging the plug member 14 with the handle 12. The device is now ready for use. Upon re-connecting the neck 14 with the handle 12, the threads 25' may be disengaged from the threaded recess 14a and the tube 26 moved longitudinally through the packing 28 in the cavity 27 and the threads 26' are engaged with the threads in the recess 25' to hold the tube 26 extended. The user then deposits toothpaste on the bristles 41 by rotating the head 31 to the position shown in dotted lines in Figure 4 and then rotating the knob 23 to advance the piston member 15, causing pressure to be built up in the handle 12 above the piston member, as viewed in Figure 2, whereby the paste material is forced through the tube 26, and thence through the passage 36 into the passage 39, whereby the paste material is discharged between the bristles 41. The head 31 may then be rotated to its full line position, shown in Figure 4, whereupon the head is then in proper position for use in brushing the teeth. When it is desired to dispense additional paste material, the above procedure is repeated, namely, the head 31 is rotated to the dotted view position, shown in Figure 4, and the knob 23 is rotated to still further advance the piston member 15. This operation may be continued until the supply of toothpaste in the handle 12 is exhausted, at which time the handle 12 may be detached from the plug member 14', and the parts may be suitably washed, after which the handle 12 may be refilled with the toothpaste material.

While further specific embodiments of an improved fountain toothbrush have been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claim.

What is claimed is:

A fountain toothbrush which includes a handle hav-

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ing a dentifrice receiving bore opening thereinto through one end thereof, means within the bore and operable from the exterior of the handle for expelling dentifrice from said bore, a neck closing the open end of the bore and having an opening extending longitudinally there-through, longitudinally spaced internal screw threads carried by the neck and extending thereinto adjacent opposite ends of the opening, a tube carried by the neck for movement longitudinally through one end of said opening, a fountain brush head carried by the tube and extending outwardly therefrom adjacent the end thereof remote from the handle, and screw threads carried by the tube remote from the brush head for longitudinal movement in the opening and selective engagement with the internal screw threads to hold the tube retracted or extended.

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