March 6, 1945. A. A. HEIDEMAN 2,370,626

FOUNTAIN TOOTHBRUSH

Filed Oct. 19, 1942

Fig. 1. Fig. 2. Fig. 3. Fig. 4.

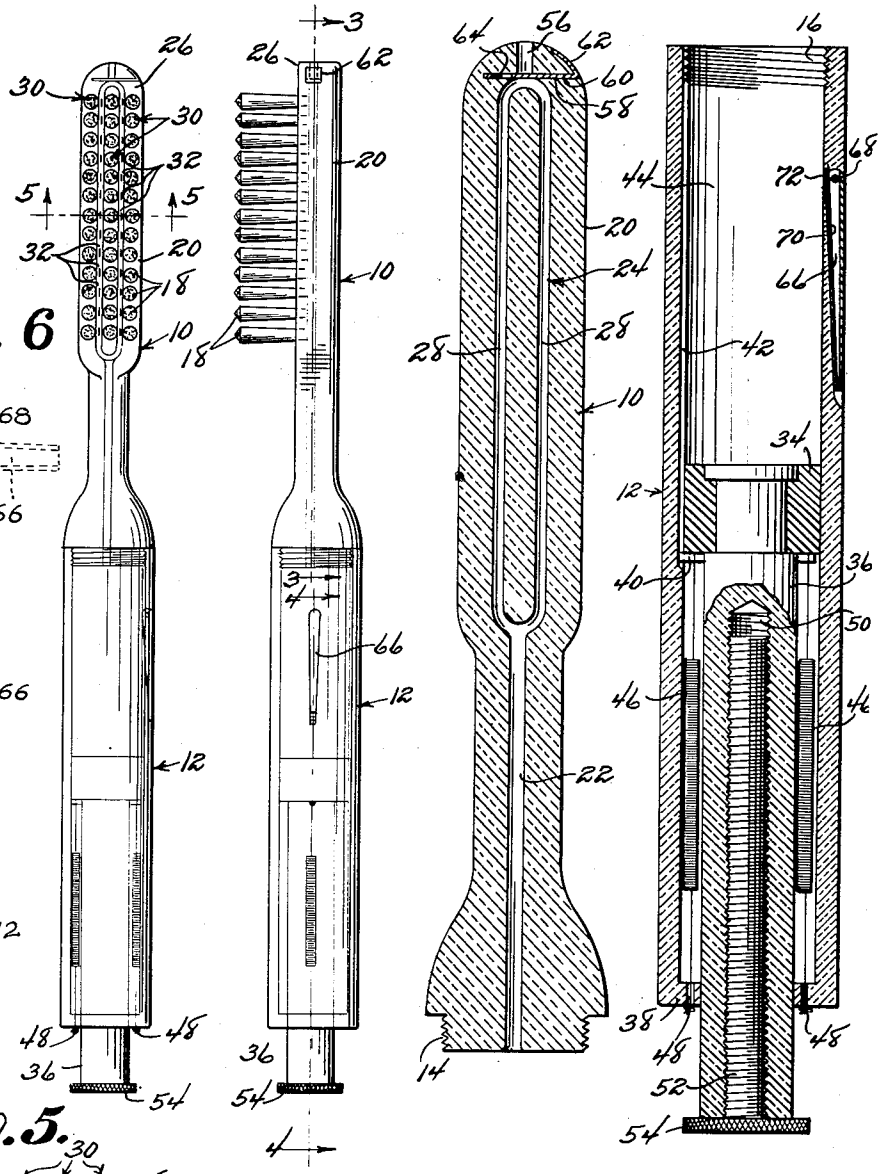


Fig. 6

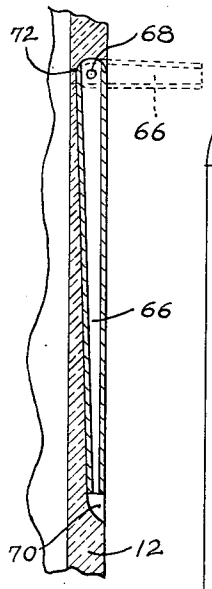
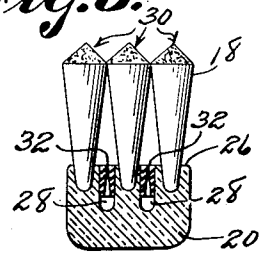


Fig. 5.



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FOUNTAIN TOOTHBRUSH

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Application October 19, 1942, Serial No. 462,604

2 Claims. (Cl. 15—137)

My invention relates to tooth brushes, and has among its objects and advantages the provision of an improved fountain brush suitable for dispensing paste as well as liquid dentifrice.

In the accompanying drawing:

Figure 1 is a front view of a brush in accordance with the invention;

Figure 2 is a side view;

Figure 3 is an enlarged sectional view taken along the line 3—3 of Figure 2;

Figure 4 is an enlarged sectional view taken along the line 4—4 of Figure 2;

Figure 5 is a sectional view taken along the line 5—5 of Figure 1.

Figure 6 is an enlarged fragmentary sectional view through the handle portion of the device.

In the embodiment selected for illustration, the tooth brush comprises a head section 10 and a handle section 12, the section 10 being provided with a threaded neck 14 threaded into the bore 16 of section 12 to connect the parts as a unit. Conventional bristles 18 are anchored in the head 20 of the section 10.

In Figure 3, the section 10 includes an axial bore 22 and a loop-shaped slot 24 communicating therewith and lying inside the head 20. The slot 24 opens through the bristle face 26 of the head 20, which slot is elongated to provide branches 28 positioned between but paralleling the bristle rows 30 extending longitudinally of the head. Normally the slot 24 is closed by reason of a rubber valve 32 which opens in response to dentifrice under pressure in the slot 24 for feeding the dentifrice to the bristles of the brush.

The bore 16 in the handle 12 is unthreaded throughout its greater length and is of smooth and uniform diameter. Inside the bore 16 is positioned a piston 34 having close fitting engagement with the wall of the bore but adapted to be moved longitudinally therein. This piston is attached to a stem 36 slidable through the annular flange 38 at the bottom end of the handle 12. While the piston 34 is slidable in the bore 16, the piston is keyed against relative rotation inside the handle by reason of a key 40 riding in a groove 42 in the handle. The key 40 has close fitting engagement with the wall of the groove so as to prevent the escape of dentifrice thereby. The dentifrice is contained in the chamber 44 of the handle, which chamber is located between the piston and the section 10.

To the piston 34 are connected two tension springs 46 anchored at 48 to the annular flange 38. The springs 46 are of sufficient tension to normally hold the piston 34 in the position of Figure 4, further movement in a downward direction being restrained by reason of the key 40 in its engagement with the lower end of the groove 42.

The stem 36 is provided with a threaded bore 50 in which is threaded a screw 52 having a knurled flange 54 to facilitate rotation thereof. To fill the chamber 44, an opening 56 is provided in the end of the head 20, which opening has communication with the slot 24 and is normally closed by a plate 58 slidable in an opening 60 in the head. A flange 62 is formed at one end of the plate 58 to facilitate an effective grasp thereon. Communication is established between the opening 56 and the slot 24 by pulling the plate 58 outwardly sufficiently far to bring its opening 64 into registration with the opening 56. With the plate 58 in its open position, the chamber 44 may be filled by advancing the piston 34 in the chamber and placing the end of the head 20 in the dentifrice and releasing the piston. The springs 46 return the piston to its normal position, although a pull may be necessary when filling the chamber with dentifrice in paste form.

Dentifrice is extruded into the bristles by merely applying pressure to the piston 34 to advance it the necessary distance. While the stem 36 is not sufficiently long to permit the piston to be advanced the full distance in the chamber 44, the screw 52 may be threaded outwardly to provide further extension, as when there is a small quantity of dentifrice in the chamber 44. A brush in accordance with my invention is entirely suitable for liquid dentifrice. The rubber valve 32 affords a complete closure so as to prevent leakage of the liquid when the brush is laid aside. The plate 58 also provides a leakproof seal.

In lieu of filling the chamber 44 through the opening 56, a tubular member 66 is pivoted at 68 to the handle 12 and normally lies in a groove 70 in the handle. A small opening 72 communicates with the groove 70, which opening may be placed in communication with the tubular member 66 by pivoting the member outwardly. Thus the free end of the tubular member 66 may be submerged in the dentifrice and the chamber 44 filled by exerting a pull on the piston 34 for permitting the piston to be returned by the springs 46. The springs 46 insure return of the piston 34 to its normal position.

Without further elaboration, the foregoing will so fully illustrate my invention, that others may, by applying current knowledge, readily

adapt the same for use under various conditions of service.

I claim:

1. In a fountain tooth brush, a head having bristles extending laterally from one side thereof, a dentifrice containing chamber connected with the inner end of the head, said head being provided with a feed passage in the form of a loop elongated longitudinally of the head for feeding dentifrice to the bristles, a supply passage in the inner end portion of the head providing communication between the chamber and the looped passage and having an inlet passage in its outer end portion opening from the outer extremity of the head into the looped passage, a transversely slidable valve member mounted in the outer end portion of the head for controlling the inlet of dentifrice therethrough, and a plunger slidable in the chamber for drawing dentifrice thereinto through the inlet passage and for forcing the dentifrice to the bristles through the feed passage.

2. In a fountain brush, a bristle carrying head, a dentifrice chamber connected to one end of the head, said head having a passage therein for supplying dentifrice from the chamber to the bristles, a plunger slidably mounted in the chamber, the said chamber having an inlet port in the wall thereof, a filler tube pivotally connected with the chamber wall and open at each end, the inner pivoted end of said tube being disposed so that the opening thereat registers with the port for filling the chamber when said tube is swung to laterally projecting position and to close said port when the tube is swung to a position substantially parallel with the chamber wall.

ALBERT A. HEIDEMAN.