

Jan. 18, 1927.

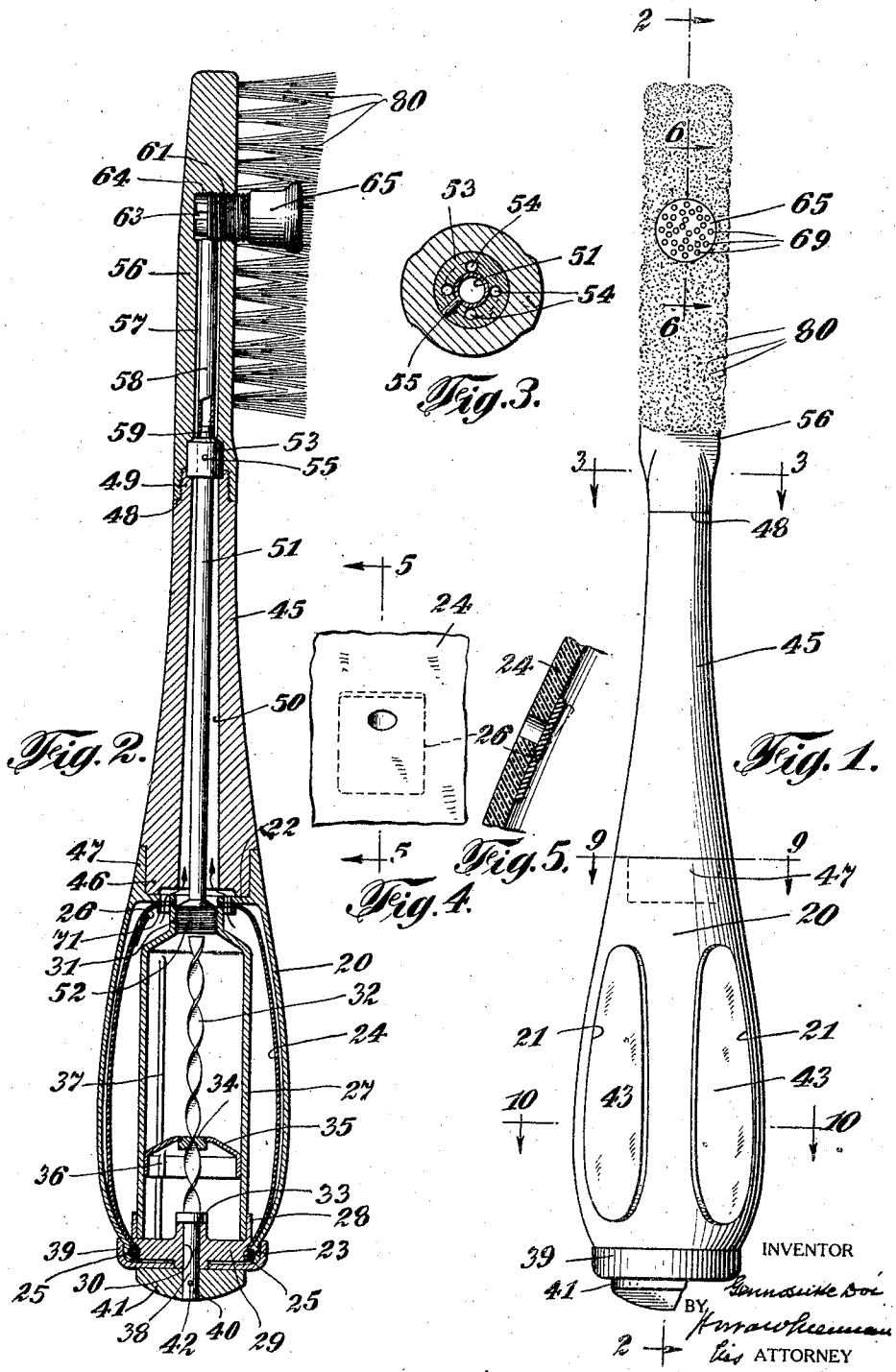
G. DOI

1,614,461

FOUNTAIN BRUSH

Filed May 20, 1926

2 Sheets-Sheet 1



Jan. 18, 1927.

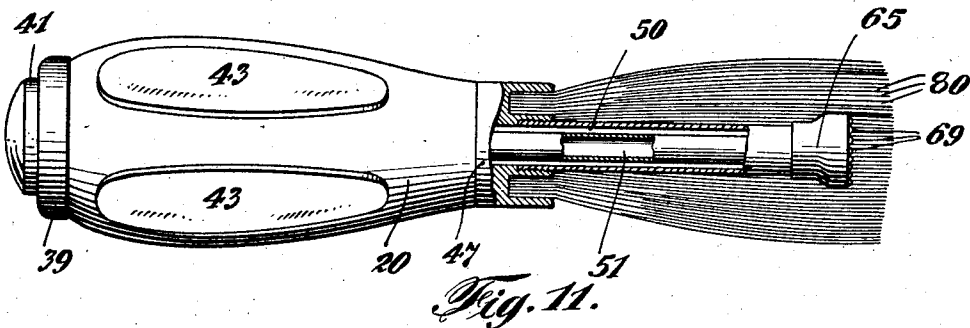
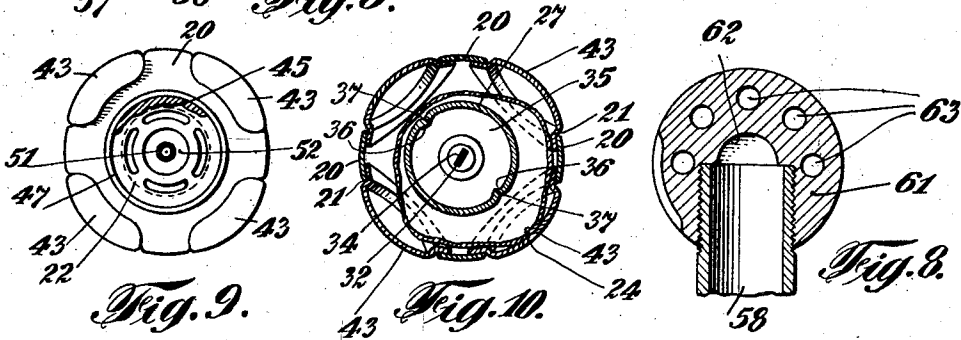
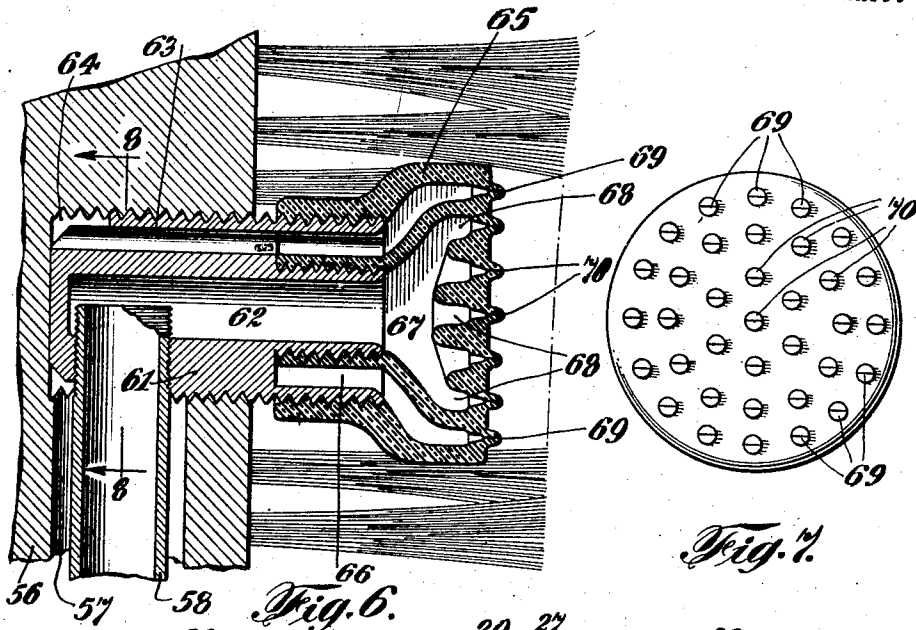
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1,614,461

FOUNTAIN BRUSH

Filed May 20, 1926

2 Sheets-Sheet 2



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Patented Jan. 18, 1927.

1,614,461

UNITED STATES PATENT OFFICE.

GENNOSUKE DOI, OF NEW YORK, N. Y.

FOUNTAIN BRUSH.

Application filed May 20, 1926. Serial No. 110,314.

My invention relates to fountain brushes and refers particularly to brushes of the described character in which air in conjunction with a paste or liquid may be forced between the hairs or bristles of the brush.

One of the objects of the device of my invention is a brush, as for instance, a tooth brush or shaving brush, so constructed that both air and a suitable paste may be forced outwardly of the brush during its application.

Notwithstanding the many suggested forms of tooth brushes, considerable difficulty is experienced in reaching all of the crevices within, and spaces between the teeth, resulting in a deposit of matter therein unaffected by the employed dentrifice, thus creating an unhygienic and unhealthy condition.

The device of my invention overcomes this difficulty and presents a means whereby the tooth paste or tooth powder is forced into the crevices and spaces through the medium of a compressed air current created by the user.

A further advantage of my device consists in the forcing of such an air current through the teeth crevices and spaces, thus allowing of the oxidation effect of air upon matter deposited therein.

A further advantage of my device is that the air current will dislodge and remove matter deposited within the crevices and spaces of teeth.

The device of my invention is also valuable when in the form of a shaving brush. Minute air bubbles are usually positioned at the base of each hair, the displacement of which is essential before the shaving soap lather can reach these base portions of the hair, while these may be dislodged in part by means of an ordinary bristle shaving brush, or by continued hand massage, a large proportion still remain, thus making the shaving operation unsatisfactory.

The device of my invention overcomes this difficulty and presents a means whereby these air bubbles may be removed by a pressure air current during the application of the soap to the skin, thus rendering the shaving operation more effective and pleasant.

While I prefer that my device have a massaging or polishing, element within the bristles of the brush in order that its effects

may be enhanced, such a device is not necessary.

The above and other valuable features of my device will be evident upon a consideration of this specification and its accompanying drawings.

In the accompanying drawings illustrating modifications of the device of my invention, similar parts are designated by similar numerals.

Figure 1 is a front view of one form of the device of my invention.

Figure 2 is a cross-section through the line 2—2 of Figure 1.

Figure 3 is a cross-section through the line 3—3 of Figure 1.

Figure 4 is a view illustrating the air-valve of the bag.

Figure 5 is a cross-section through the line 5—5 of Figure 4.

Figure 6 is a cross-section through line 6—6 of Figure 1.

Figure 7 is a front view of the air and liquid distributor or massaging element.

Figure 8 is a cross-section through the line 8—8 of Figure 6.

Figure 9 is a cross-section through the line 9—9 of Figure 1.

Figure 10 is a cross-section through the line 10—10 of Figure 1.

Figure 11 is a view, partly in section, of a modification of my device.

The device of my application, as shown in Figures 1 to 10 inclusive, comprises a non-pliable hollow handle 20, having a plurality of openings 21, 21 and having the perforated upper shoulder 22 and the lower curved shoulder 23.

Within the handle 20 is a rubber receptacle, or bag, 24, open at both ends, the lower end having an enclosed wire 25, fitting within, and maintained within, the shoulder 23. The bag 24 has the flap-valve 26 capable of allowing the entrance into and preventing the exit of air from the bag.

Within the air-bag 24 is a paste receptacle, or container, having the annular side 27 which is soldered, or otherwise attached, to the flange 28 of the base 29, the base 29 having an opening 30 therethrough. The upper portion of the side 27 is contracted into the interiorly threaded neck 31. Within the paste container is a vertical spiral member 32 fixedly attached to the flange head 33 of the revoluble pin 38, and passing through an elongated opening 34 of the slidable disc,

or plunger 35. The plunger has a plurality of recesses 36, 36 capable of receiving vertical extensions 37, 37 of the side 27 preventing the revolution of the plunger 35.

5 Within the handle and exterior of the bag 24 there is a plurality of plates 43, 43 covering the handle openings 21, 21, the edges of which extend beyond the opening edges to prevent the plates from moving outwardly
10 of the handle.

In assembling the lower portion of the handle and contained members, the bag wire 25 is placed within a recess in the base 29 and the handle shoulder 23, the collar 39
15 is positioned and the pin 38 is passed through the opening 40 of the exterior revolvable member 41 and attached thereto by means of the pin 42.

In assembling the upper portion of the handle and contained members, the edge of the bag 24 is placed between the perforated shoulder 22 and the perforated shoulder 71
20 of the side 27.

A handle extension 45 has the restricted member 46 capable of placement between the extension 47 of the side 20 and the flange 22. The upper portion of the handle extension 45 has the shoulder 48 and the exteriorly threaded portion 49. An opening, or conduit, 50 is within the handle extension 45.
25 30

Within the conduit 50 is a tubular member 51, the lower edge of which carries the exteriorly threaded head 52 and the upper end of which carries the head 53 having openings 54, 54, therein. A pin 55 fixes the head 53 to the tube 51.
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A brush holder 56 is capable of threaded engagement with the threaded member 49 of the handle extension 45 and has a conduit 57 therein. Within the conduit 57 is a tubular member 58, the lower end of which is capable of tight fitment around the cone extension 59 of the tube 51.
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Within a chamber 64 of the brush holder 45 56, is threaded a member 61 having a central conduit 62 and a plurality of circumferential openings 63, 63, the former connecting with the tube 58 and the latter with a chamber 64.

Threaded upon the member 61 is a soft rubber distributor 65, having an annular passage 66, 66 in alignment with the conduits 63, 63, and a central chamber 67 in alignment with the conduit 62 and having
50 a plurality of outwardly extended conduits 68, 68. The exterior end of passage 66 has slit openings 69, 69 and the exterior end of each conduit 68 has a slit opening 70, acting as click valves.

To assemble the device, the bag, or bulb, element is assembled as previously described, the member 45 carrying the tube 51 is placed in position and fixedly attached to the bag element by revolving the head 53, thus
55 threading the member 52 and the neck 31

and compressing the edges of the bag 24 between the shoulders 22 and 71, the openings in the two latter being in alignment. The brush member 56 is then threaded to the member 49.

The modification shown in Figure 11 is similar to the device previously described, the brush member being carried longitudinally instead of angularly to the member 56.

The operation of my device, assuming that the receptacle 27 contains a tooth liquid or tooth paste, is as follows:—The exterior member 41 is revolved thus revolving the spiral 32 and moving the plunger 35 upwardly. This causes a portion of the receptacle contents to be forced through the tube 51, the tube 58, the tube 62 into the chamber 67 and outwardly through the openings 70, 70 of the conduits 68, 68. A pressure upon the plates 43, 43 causes a compression of the bag 24, forcing a portion of the contained air to pass through the aligned opening of the members 22 and 71, through the conduit 50, the openings in the head 53, the conduit 57, the chamber 63, the conduit 66 and outwardly through the slits 69, 69. It will thus be seen that both the tooth paste and the air are forced into the hair bristles 80, 80 of the brush. If the air be thus forced outwardly during the application of the brush to the teeth, the air current will force the tooth paste into all the crevices and through the spaces between the teeth, thus causing a removal of deposited particles and the application of the paste to all tooth surfaces.
70 75 80 85 90 95 100

When the shaving brush of my invention is employed, the air current forces the shaving soap lather downwardly around the hair base contacts at the same time removing the air bubbles usually formed at those spots.

While I have referred to the brush as having bristles thereon, my device may be employed with devices having soft rubber projections instead of bristles, and by "brushing members" I mean both of these forms of device and others of a similar application.
105 110

It will thus be seen that the device of my invention possesses hygienic properties of great value.
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I do not limit myself to the particular size, shape, number, arrangement or material of parts as shown and described as these are given simply as a means for clearly describing my invention.
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What I claim is:—

1. In a fountain brush, in combination, a base, a plurality of brushing members carried by the base, two series of openings positioned between the brushing members, a handle attached to the base, means within the handle communicating with one series of openings whereby a paste may be forced through one series of openings and means
125 130

within the handle communicating with one series of openings whereby air may be forced through the other series of openings.

2. In a fountain brush, in combination, a base, a plurality of brushing members carried by the base, a hollow distributor carried by the base having two series of distributor openings therein, means whereby a paste may be forced through one series of distributor openings closed but expandable under pressure to permit escape of the paste and means whereby air may be forced through the other series of distributor openings.

3. In a fountain brush, in combination, a base, a plurality of brushing members carried by the base, a hollow distributor carried by the base having two series of openings therein, a handle communicating with one series of openings attached to the base, a paste receptacle within the handle, means whereby paste within the paste receptacle may be forced through one series of distributor openings, an air receptacle within the handle and means whereby air within the air receptacle may be forced through the other series of distributor openings.

4. In a fountain brush, in combination, a base, a plurality of brushing members carried by the base, a hollow distributor carried by the base having two series of openings therein, a handle communicating with one series of openings attached to the base, a paste receptacle within the handle, a longitudinally movable plunger within the paste receptacle, means for moving the plunger, a conduit connection between the paste receptacle and one series of distributor openings, an air receptacle within the handle and means whereby air within the air receptacle may be forced through the other series of distributor openings.

5. In a fountain brush, in combination, a base, a plurality of brushing members carried by the base, a hollow distributor car-

ried by the base having two series of openings therein, a handle communicating with one series of openings attached to the base, a paste receptacle within the handle, means whereby paste within the paste receptacle may be forced through one series of distributor openings, a resilient air receptacle within the handle and means whereby a pressure upon the air receptacle will force air contained therein through the other series distributor openings.

6. In a fountain brush, in combination, a base, a plurality of brushing members carried by the base, a hollow distributor carried by the base having two series of openings therein, a handle attached to the base, a paste receptacle within the handle, a longitudinally movable plunger within the paste receptacle, means for moving the plunger, a conduit connection between the paste receptacle and one series of distributor openings, a resilient air receptacle within the handle and means whereby a pressure upon the air receptacle will force air contained therein through the other series of distributor openings.

7. In a fountain brush, in combination, a base, a plurality of brushing members carried by the base, a hollow distributor carried by the base having two series of openings therein, a handle attached to the base, a paste receptacle within the handle, a longitudinally movable plunger within the paste receptacle, means for moving the plunger, a conduit connection between the paste receptacle and one series of distributor openings, a resilient air receptacle within the handle and a conduit connection between the air receptacle and the other series of distributor openings.

Signed at New York city in the county of New York and State of New York this 17th day of May, 1926.

GENNOSUKE DOI.