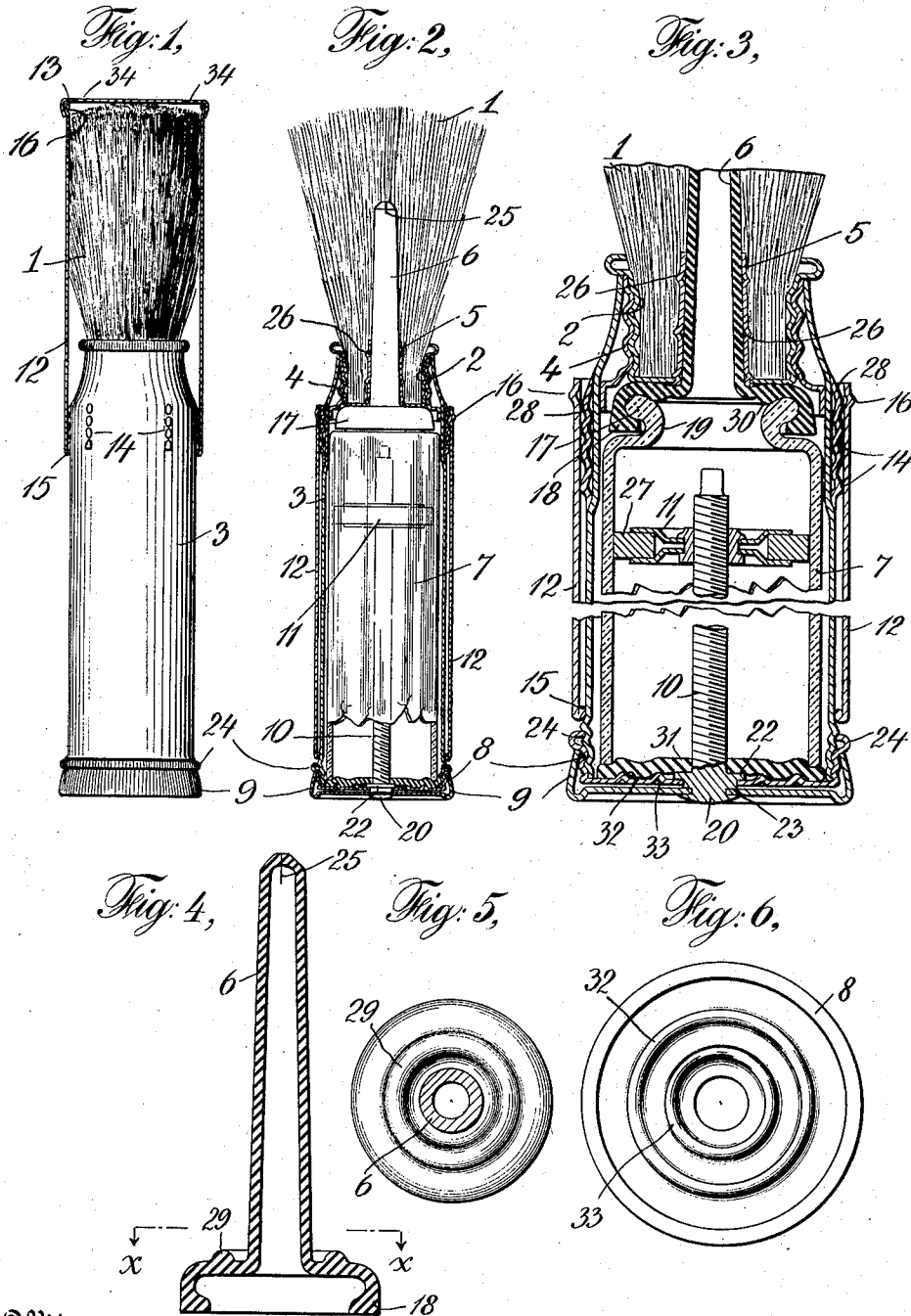


J. B. FESLER.
 FOUNTAIN BRUSH.
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FOUNTAIN-BRUSH.

1,006,641.

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To all whom it may concern:

Be it known that I, JOEL B. FESLER, a citizen of the United States of America, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Fountain-Brushes, of which the following is a specification.

My invention relates to improvements in fountain brushes, that is to say, brushes comprising a reservoir for soap, mucilage, ink, paint or the like, and embodies improvements on the invention set forth in my prior application for Letters Patent, serial No. 555,474, filed April 14, 1910, and in my Patent No. 904,190, dated November 17, 1908.

The particular brush herein illustrated and described, is particularly intended for use as a shaving brush, though suitable for other uses as well, and comprises a hollow handle carrying at one end the bristle-tuft or brush proper, which handle may or may not be provided with a telescopic cover and end cap. Within the said tubular handle the brush is provided with a removable reservoir adapted to contain the material, such as soap paste, which is to be fed to the brush, and to the upper end of said reservoir is connected a feed tube, preferably flexible, which extends up into the interior of the bristle tuft. The lower end of the reservoir, in the construction shown in this case, is open; and within the reservoir is a piston and a feed screw for feeding said piston toward the upper end of the reservoir for the purpose of forcing the contents of the reservoir through the feed tube into the bristle tuft. The lower end of said feed screw is secured to an end piece rotatably mounted upon the lower end of the handle, so that by rotating this end piece the feed screw is rotated to advance the piston in the reservoir, or to withdraw it, according to the direction of rotation.

My invention consists in the novel connection of said feed tube to the reservoir, in the novel construction of the feed tube, in the novel construction of the lower end cap of the handle, and in the provision of elastic packing between such end cap and the reservoir.

The objects of my invention are to improve the construction of fountain brushes such as described, to improve the connection of the feed tube to the reservoir, to improve

the joint between the lower end of the reservoir and the end cap, and to prevent breaking of the reservoir through screwing up said end cap too tightly.

I will now proceed to describe my invention with reference to the accompanying drawings, and will then point out the novel features in claims.

In the drawings Figure 1 shows an elevation of a brush constructed in accordance with my invention and provided with a telescopic cover, the said cover and its removable end cap being shown in longitudinal section. Fig. 2 shows a central vertical section of the brush, the reservoir being shown partly in section and partly in elevation. Fig. 3 shows a central vertical section of the brush on a larger scale, a portion of the central portion of the handle being broken away. Fig. 4 shows a detail vertical section of the feed tube, and Fig. 5 shows a horizontal section thereof on the line $x-x$ of Fig. 4. Fig. 6 shows a top view of the end cap of the handle.

In the drawings, 1 designates the bristle-tuft, 2 designates a screw-threaded ferrule constituting the bristle-holder, 3 designates the main portion of the hollow handle, and 4 designates a screw-threaded ferrule fitting into the upper end of the handle 3, and into which the bristle holder 2 screws.

5 designates a center tube secured to, and in effect forming a part of, the bristle holder 2, through which tube the flexible feed tube 6 of the brush passes into the bristle tuft.

7 designates a removable reservoir, (customarily formed of glass or other suitable material), within the handle and connected to the feed tube 6 as hereinafter described.

8 designates an end cap for the handle, screw-connected to the main portion 3 of the handle, and serving to hold the reservoir in place; and 9 designates a hand piece rotatably mounted upon this end cap 8 and to which is connected the feed screw 10 extending up into the interior of the reservoir 7 and having mounted upon it a piston 11 adapted to force the plastic contents of the reservoir into the feed tube 6.

12 designates a telescopic cover for the bristle-tuft, mounted to slide upon the main portion 3 of the handle, and provided at its upper end with a removable cap 13. To guide the cover 12 and permit it to slide over the main portion 3 of the handle without

marring the surface thereof, said main portion 3 of the handle is provided with rows of outwardly projecting bosses 14 against which, as guides, the inner surface of the cover 12 bears. The lower edge of the cover 12 is turned inward, as indicated particularly in Fig. 3, so as to form a hook-shaped bead 15 which will engage the lowermost bosses 14 and so limit the upward movement of the cover. These lowermost bosses 14 are flat on their lower sides, for engagement by said hook 15 of the cover. The other bosses are round. At the upper end, the cover 12 is provided with a row of bosses 16, which are engaged by the cap 13. As shown in Fig. 1, the rim of this cap is turned inward slightly near its lower end, the construction being such that the rim of the cap can be sprung over the bosses 16 and then the lower end of this rim will spring inward sufficiently to hold the cap in place; though the cap may be removed readily, its rim springing outward, as the cap is pressed off the cover.

The reservoir 7 is provided at its upper end with a shoulder 17 adapted to be engaged by a shoulder or thickened rim 18 on the base of the feed tube 6. Preferably, and customarily, the shoulder 17 is formed at the extremity of a neck 19 formed on the reservoir. The feed tube 6 is customarily of rubber, and therefore may be readily drawn over the neck of the reservoir.

The feed screw is provided at its lower end with a rounded head 20; and around the lower portion of said screw is an integral flange 22. The hand piece 9 is located between said rounded head 20 and flange 22. The pressure required to form the rounded head 20, after the hand piece has been placed on the screw, secures the hand piece to the screw. The flange 22 has a hub 23 fitting within a central aperture in the end cap 8 of the handle, whereby the feed screw is centered with respect to the handle and is nevertheless free to rotate with respect to the end cap 8. Said end cap is provided with a projecting rim 24 whereby said end cap may be unscrewed when desired; and when so unscrewed and pulled away from the handle, it carries with it the feed screw 10, the piston 11, and, by reason of the suction produced by any slight withdrawal of the piston with respect to the reservoir, carries with it also the reservoir 7 and feed tube. The feed tube is provided at its upper end with a mouth, preferably consisting of a mere slit 25 in the end of the tube, which slit forms an automatic mouth which opens to permit the escape of the plastic material into the interior of the bristle tuft, when the piston is advanced slightly in the reservoir, and which closes automatically as soon as the plastic material ceases to flow, so closing the feed tube against the entrance of air or moisture, preventing the plastic material from drying

out, on the one hand, and preventing entry of moisture into the plastic material, on the other hand.

The tube 5 is customarily of a relatively soft material such as aluminum, and is provided with external ribs 26, forming anchorages for the cement in which the bristles are set at their lower ends. The threads of the bristle holder 2 are rolled threads and so present a ribbed surface on the interior of said bristle holder, these ribs likewise forming anchorages for the cement. The bristle tuft is, therefore, held very firmly in the bristle holder, once the cement has set. I prefer to form the tube 5 of relatively soft metal, because there is some expansion of the cement in setting, also the base of the bristle tuft sometimes swells slightly, when first used, from the effects of moisture, and such swelling if any, will be taken up by compression of this soft tube 5, thereby obviating splitting of the bristle holder 2.

The length of the feed screw 10 is such that just before the piston 11 reaches the neck of the reservoir 7, said piston will leave the threaded portion. I have found that by making this screw of proper length, the piston will leave the threaded portion when it reaches the upper end of the screw, but will reengage the threaded portion and will be drawn downward when the said screw is turned in the reverse direction. This construction obviates breakage of the reservoir from an attempt to force the piston too far into the reservoir on the one hand, and at the same time prevents complete disengagement of the piston from the feed screw, such as might make it difficult to withdraw the piston and reservoir when removing the end cap 8. The piston is provided with suitable packing material 27,—preferably an elastic and flexible packing material such as rubber.

In practice it is found difficult to press up bosses 14 from the tube forming the main portion 3 of the handle, to the desired height, without breaking the metal at these bosses, since the metal of the tubing 3 must be relatively stiff and rigid and therefore is not readily drawn to such an extent as is required to form bosses of the desired height. For this reason, and as shown particularly in Fig. 3, I prefer to form these bosses upon a thin tube 28 of softer metal, fitting over the upper portion of the tube 3. In practice, when this outer tube 28 is properly applied to the tube 3, and the parts have been silver-plated or nickel-plated, or otherwise finished, no joint between the tubes 3 and 28 is perceptible to the eye.

One important feature of this invention is the formation of a tight joint between the reservoir 7 and the feed tube 6. To this end, not only does the broadened base of the feed tube embrace and interlock with the flange 17 at the end of the reservoir, but a

rib 29 is provided on the base portion of the feed tube. When the feed tube and reservoir are in place in the handle, and when the end cap 8, in pressing the reservoir 7 upward, presses the base portion of the feed tube against the base of the bristle holder 2, this rib 29, though formed on the upper side of the base of the feed tube, as indicated in Figs. 4 and 5, is displaced inward, owing to the elasticity of the material of the feed tube, so that what then becomes a reverse rib 30 (Fig. 3) presses against the inner side of the neck of the reservoir, forming a very tight joint. Therefore, in practice, there is a double joint between the reservoir and the feed tube—*i. e.*, a joint between the rib 30 and the neck of the reservoir, and a joint between the flange of the base portion of the feed tube and the flange 17. In fact, there is also a third joint between these two parts, for the extreme end of the reservoir, in forcing the base of the feed tube against the base of the bristle holder 2, also forms a tight joint between the feed tube and reservoir at such extreme end of the reservoir. Such triple joint at once precludes possible escape of the contents of the reservoir between the end of the reservoir and the base of the feed tube, and prevents the entrance of moisture into the reservoir at this point. The pressure of the base of the feed tube against the base of the bristle holder, produced by the upward pressure of the reservoir, further effectually prevents the passage of moisture from the brush down into the interior of the handle; but as a further protection against the entrance of moisture into the handle, the feed tube 6 has a slight taper, as shown, and the center tube 5 of the bristle holder, through which the feed tube passes, has a corresponding taper, so that the feed tube also forms a tight joint with tube 5. There are thus two water tight joints to exclude moisture from the interior of the handle.

To prevent contact of the contents of the reservoir with the inside of the end cap 8 of the handle—which contact, if it occurs, is apt to cause fouling of the metal surface, and also to make a tight joint at the bottom of the reservoir and to obviate possible breakage of the reservoir through screwing up the end cap 8 too tightly, a washer 31 of rubber or other suitable material, is provided between said end cap and the bottom

of the reservoir; and to facilitate the “flow” of the rubber, necessary for the compression thereof, and also to make the joint more tight, an inwardly-projecting rib 32 is provided on the end cap 8, which rib is just within the inner surface of the reservoir, so that the rubber washer 31 is “pinched” between the inner edge of the reservoir and the said rib. This is clearly shown in Figs. 2 and 3. A further inwardly-projecting rib 33 is provided on end cap 8, which serves to hold the main portion of the washer 31 clear of the end cap, so preventing adhesion of the washer to said end cap.

It will be clear that when end cap 8 is screwed up, the compression of the washer 31, as well as the compression of the base portion of feed tube 6, permits considerable variation in the extent to which the end cap is screwed home, so at once assuring a tight at each end of the reservoir, and obviating possible breakage of the reservoir. Furthermore, this washer prevents any rattle between the reservoir and end cap.

What I claim is:—

1. A fountain brush such as described, comprising in combination a hollow handle, bristles carried thereby, a reservoir located within said handle and having a flanged mouth portion, and a feed tube having a base portion engaged with the rear side of such reservoir flange, arranged to be pressed against a fixed portion of the brush, and provided with a rib of less diameter than the extreme diameter of said flange, which rib is caused, by such pressure, to press against the mouth portion of the reservoir.

2. A fountain brush such as described, comprising in combination a hollow handle, bristles carried thereby, a reservoir located within said handle and a feed tube having an elastic base portion engaged with the upper end of said reservoir and arranged to be pressed against a fixed portion of the brush, and means whereby the said feed tube presses against an inner surface of said reservoir so forming a tight joint therewith.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOEL BARLOW FESLER.

Witnesses:

H. M. MARBLE,
PAUL H. FRANK.