No. 637,680. Patented Nov. 21, 1899.

D. W. TOWER.

BRUSH.

(Application filed Nov. 18, 1897.)

(No Model.)

Fig. 1.

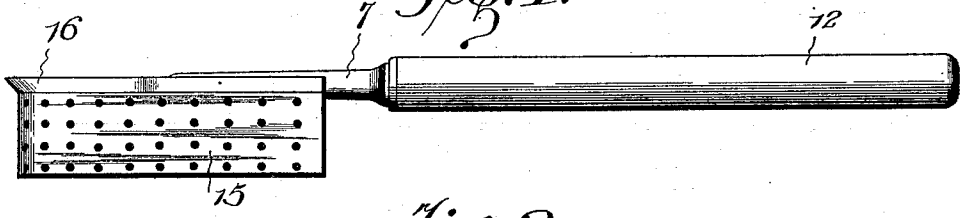


Fig. 2.

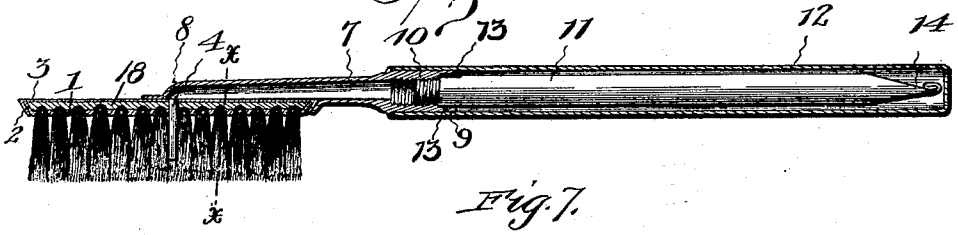


Fig. 7.

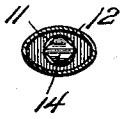


Fig. 3.

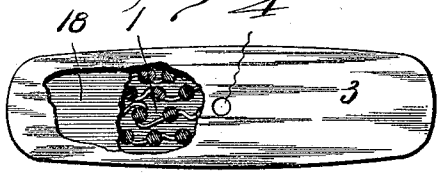


Fig. 4.

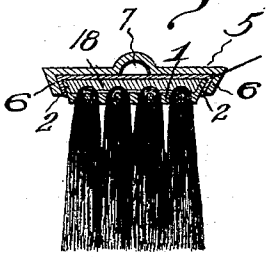


Fig. 5.

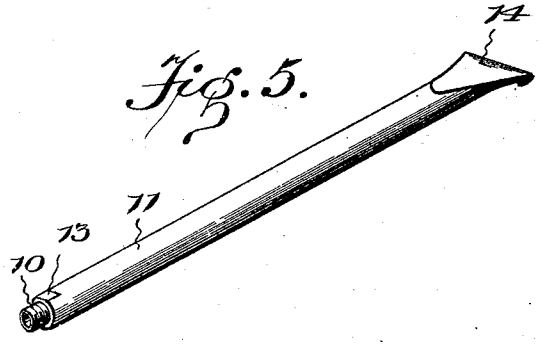
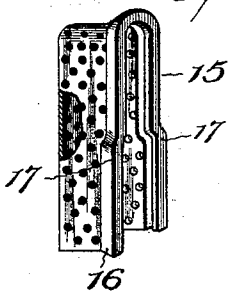


Fig. 6.



Inventor

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UNITED STATES PATENT OFFICE.

DANIEL W. TOWER, OF GRAND RAPIDS, MICHIGAN.

BRUSH.

SPECIFICATION forming part of Letters Patent No. 637,680, dated November 21, 1899.

Application filed November 18, 1897. Serial No. 658,990. (No model.)

To all whom it may concern:

Be it known that I, DANIEL W. TOWER, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented a new and useful Brush, of which the following is a specification.

This invention relates to fountain-brushes which are supplied with a composition or substance contained in a collapsible tube, and is more particularly designed as an improvement on the brush disclosed in Patent No. 570,573, granted to me November 3, 1896, although it can be applied to brushes of the variety of which that shown in my patent is typical.

The casing for inclosing the collapsible tube is elliptical in cross-section to accommodate the flattened end of the collapsible tube, and the latter making screw-thread connection with the brush or part fitted thereto it is of the utmost importance that the flattened end of the collapsible tube be in a plane parallel with the back of the brush when the said tube is screwed up tight against the part to which it is fitted.

One of the chief objects of this invention is to insure the collapsible tubes being closed, so that when applied to the brush or the part fitted thereto the flattened end will correspond with the major axis of the handle or casing when the latter is in place. This result is effected by flattening the opposite sides of the cap end of the tubes, these flattened portions bearing a relation to the threaded end so that when the latter is screwed home tightly the flattened or closed ends of the tubes will be in a position to correspond with the longer diameter of the casing.

A further purpose of the invention is to construct the brush-back so that its opposite ends will be similarly formed and of corresponding taper, whereby the brush can be reversed end for end and fitted to the part receiving the casing and handle.

The improvement further consists in the peculiar construction of the brush-back with relation to the means for securing the tufts thereto.

For a full understanding of the merits and advantages of the invention reference is to be had to the accompanying drawings and the following description.

The improvement is susceptible of various changes in the form, proportion, and the minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, in which—

Figure 1 is a side elevation showing the invention applied to a tooth-brush and the latter as it will appear when in condition to be carried in the pocket or stowed away. Fig. 2 is a central longitudinal section thereof, the casing being omitted and the collapsible tube being shown in full. Fig. 3 is a top plan view of the brush, having a portion of the cap broken away. Fig. 4 is a transverse section of the brush and the head which is detachably fitted thereto, taken on the line $x\ x$ of Fig. 2. Fig. 5 is a detail view in perspective of a collapsible tube. Fig. 6 is a detail view in perspective of the casing for the brush, parts being broken away. Fig. 7 is a transverse sectional view taken on the line $y\ y$ of Fig. 2.

Corresponding and like parts are referred to in the following description and indicated in the several views of the drawings by the same reference characters.

The invention is designed to be applied to the various styles and kinds of brushes and for the sake of illustration is shown in connection with a tooth-brush, because it is best adapted for brushes of this type.

The brush-back 1 is a metal block having rows of perforations to receive the tufts, which are drawn into the openings by wire and secured therein in the ordinary manner. This back is formed with a rim or flange 2 of a height to project beyond the wire employed for securing the tufts to the back and incloses a space which is filled flush with the top of the rim by plaster-of-paris or like cementitious plastic material 18, which protects the inner ends of the tufts and the wire securing the same. The edges of the back are beveled inwardly, and the ends are made rounding, and the back tapers slightly from an intermediate point toward its ends. A cap 3 is fitted to the back and extends over the filled

or top side thereof, and its edge portions are bent or swaged, so as to snugly embrace the beveled edges of the brush-back and correspond to the taper and bevel thereof. A flexible nipple 4 is located centrally and communicates with an opening extending through the back and cap. The head 5 is provided with a flange 6 to embrace an end and sides of the brush-back and is provided with a tubular stem 7 at one end communicating with a passage 8 and with a collar 9. The end of the passage 8 communicates with the opening in the brush-back, into which is fitted the flexible nipple 4, and conveys the substance to the brush from the collapsible tube. The outer end of the tubular stem 7 is flattened, so as to appear oblong in transverse section, and the opening therein is internally threaded to receive the threaded end 10 of the collapsible tube 11, which latter contains the dentifrice, composition, or substance to be supplied to the brush. The side portions of the flange 6 are slightly divergent to correspond to the convergent edges of the brush-back, thereby enabling the head to slip easily upon the brush-back to within a short distance of the limit of its movement, when considerable energy must be exerted to force the head into position, whereby the friction between the engaging surfaces will be sufficient to prevent the disengagement of the brush from the head by ordinary usage. The handle or casing 12 is oblong or elliptical in transverse section and is fitted to the outer end of the tubular stem 7 by a slip-joint and incloses and protects the collapsible tube 11.

The collapsible tube 11 has the cap end reduced and threaded, as shown at 10, and the sides adjacent to the shoulder formed at the base of the threaded end 10 are flattened, as shown at 13, and these flattened portions 13 are disposed with reference to the threaded portion 10 so that when the latter is screwed firmly into the threaded portion of the stem 7 they will occupy a position corresponding to the top and bottom sides of the brush. After the tubes have been filled their rear ends are closed by being pressed together and folded, the flattening being accomplished with reference to the flattened sides 13 so that when the collapsible tube is fitted to the head 5 or its stem the flattened end 14 will occupy a position corresponding to the major axis of the handle or casing 12. It will thus be seen that the collapsible tubes are not closed at haphazard, but systematically and with reference to the threaded or cap end, so that when the tube is properly positioned with reference to the brush its flattened or closed end 14 will extend and correspond with the major axis of the part 12. As will be understood, the object of flattening the collapsible tube, as at 13, is to indicate that the tube is to be closed, so as to dispose the broadened end thereof in a proper relative position to fit within the major axis of the casing or handle. Any other suitable or convenient means or mark may be used to indicate how the closed end is to be disposed.

The housing or casing 15 is constructed to inclose the brush on four sides, the rear end and side corresponding to the back of the brush being open, and the walls of this housing are perforated for the admission of air and the escape of moisture, thereby preventing the molding and souring of the brush. The upper edges of the sides and end are formed with a bead 16 to receive the edges of the brush-back, and the rear portions of the side beads are offset, as shown at 17, to receive the edges of the head 5, which latter when in position projects beyond the edges of the brush-back, as will be readily understood.

In the operation of the device the casing 12 is removed and the tube 11 partly collapsed by pressure of the fingers of the operator, thereby forcing a quantity of the dentifrice or whatever may be contained in the tube through the stem 7 and flexible nipple 4 to the bristles or tufts of the brush, and by replacing the casing, which forms the handle of the device and prevents further accidental collapsing of the tube, the brush is ready for use, as will be understood.

Having thus described the invention, what is claimed as new is—

1. In a fountain-brush having a tubular stem internally threaded and provided with a casing of oblong or elliptical form in cross-section and having detachable connection with the said stem, a collapsible tube containing the substance to be supplied to the brush having an end portion threaded to make screw-thread connection with the said stem, and having a flattened side portion adjacent to the threaded end to properly position the tube with reference to the brush and stem, and having the opposite end flattened in a direction corresponding with the flattened side at the attaching end of said tube, substantially as and for the purpose set forth.

2. In a brush, the back provided with an inclined circumscribing flange forming a cavity and with the tuft-perforations, tufts of bristles secured in said perforations, the cementitious material filling the cavity within the back, and a head fitted over the back to inclose the cementitious material and provided with a circumscribing flange which incloses the flange of the brush-back and is interlocked therewith by closely hugging or embracing the same to be united therewith by frictional contact, combined with a tubular stem attached to the head, a collapsible tube connected to the stem, and a handle fitted to the stem, substantially as described.

3. In a brush, the combination of a perforated back having a surrounding flange at its top side and its edges inwardly beveled, tufts secured to the back by wire in the ordinary manner, plastic cementitious material filled into the space inclosed by the said flange and coming flush with the upper edge thereof, and

a cap fitting over the filling and having its edge portions bent or swaged to snugly embrace the beveled edge of the back, substantially as set forth.

4. The combination with a brush-back, of a detachable head in sliding frictional engagement with the brush-back, and a detachable perforated casing having an open inner end, said casing having along the upper edges of its side walls longitudinal grooves adapted to receive the edges of the brush-back and the head, and the walls of the grooves being adapted to frictionally engage the two parts to hold the perforated casing in place, substantially as described.

5. The combination with a brush, and a head detachably fitted to an end portion of the back and gripping the edges thereof, of a casing for the tufts open at one end and at the top, and having a bead at the end and sides at the top grooved to engage with the edges of the brush-back and the head detachably fitted thereto, the end portions of the side beads near to the open end of the casing being offset to clear the edges of the detachable head, said casing being slidable with reference to the brush, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

DANIEL W. TOWER.

Witnesses:
PERRY C. PECKHAM,
CARLTON AUSTIN.