April 6, 1948. W. J. HOFFMAN ET AL 2,439,166

DISPENSING TOOTHBRUSH

Filed Aug. 1, 1945

Fig. 1

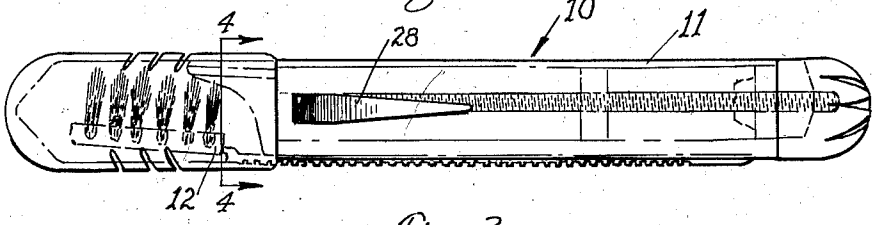


Fig. 2

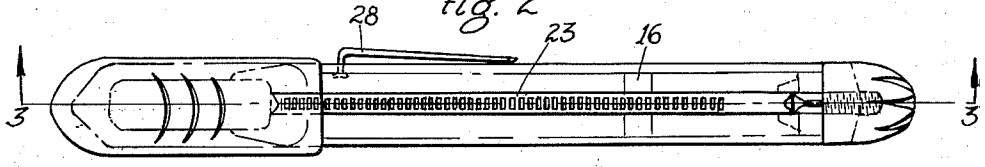


Fig. 3

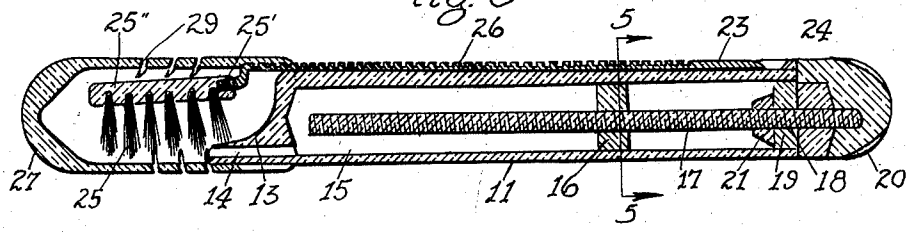


Fig. 4

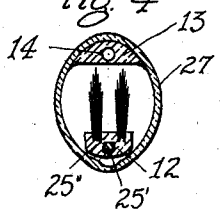


Fig. 5

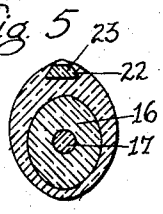
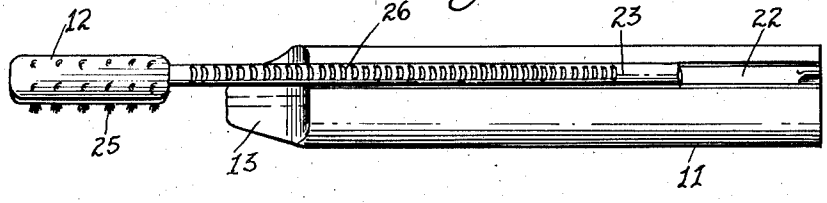


Fig. 6



INVENTOR.
Widof J. Hoffman
BY Olaf P. Olson
Cromwell, Greist & Warden
ATTORNEYS

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DISPENSING TOOTHBRUSH

Widof J. Hoffman and Olaf P. Olson,
Chicago, Ill.

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4 Claims. (Cl. 132—84)

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This invention relates to an improved portable toothbrush and dentifrice dispensing unit.

It is an object of the invention to provide a dispensing toothbrush of this type which is very compact in construction, this being made possible by the novel relation of a removable brush and a dispensing container.

It is a further object to provide a dispensing toothbrush of the type described wherein a desired charge of dentifrice is unfailingly deposited on the tops of the bristles of the brush so as to economize in the consumption of dentifrice and prevent undue clogging or fouling of the bases of the bristles.

It is a still further object to provide a compact unit of the type described capable of receiving an adequate supply of dentifrice for a relatively extended period of time, which shields the brush effectively against exterior contamination, yet maintains the same well aerated for drying to prevent deterioration, and which is thereby rendered extremely well suited for the use of traveling persons.

The foregoing statements are indicative in a general way of the nature of the invention, but other and more specific objects will be apparent to those skilled in the art upon a full understanding of the construction and operation of the device.

A representative embodiment of the invention is presented herein for the purpose of exemplification, but it will be appreciated that the invention is susceptible of incorporation in other modified forms coming equally within the scope of the appended claims.

In the drawings:

Fig. 1 is a view in side elevation illustrating the improved dispensing brush;

Fig. 2 is a top plan view of the container;

Fig. 3 is a view in vertical section on a line corresponding to line 3—3 of Fig. 2;

Fig. 4 is a sectional view taken on a line corresponding to line 4—4 of Fig. 1;

Fig. 5 is a sectional view on a line corresponding to line 5—5 of Fig. 3; and

Fig. 6 is a top perspective view illustrating the manner in which the brush may be removed for use when desired, certain of the dentifrice feeding instrumentalities being removed to indicate the mode of cleaning, charging or re-charging the dispensing container.

In the drawings the numeral 10 in general designates the dispensing toothbrush of the present invention which consists broadly of a dentifrice container and dispenser 11 and a toothbrush 12 removably carried thereby.

The container 11 is preferably fabricated in a hollow elongated tubular shape of a suitable transparent moldable material, such as one of a number of plastics, for example, of the methyl methacrylate type. Transparency is desirable,

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since it enables the amount of dentifrice remaining in the container at any given time to be visually ascertained. This container terminates at one end thereof in a lateral, forwardly projecting spout 13 having a small feed passage 14 therein communicating the mouth of the spout with the hollow interior 15 of the container.

Said container interior is non-circular in section and slidably receives a feeding nut 16, whereby advance of said nut to the left in Figs. 1, 2 and 3 forces dentifrice previously deposited in the interior 15 out through passage 14. The nut 16 is threadedly received on an elongated rod-like feed screw 17, which extends longitudinally through the container interior 18 and through an opening in a plug 19 frictionally receivable in the end of the container 11 opposite spout 13. Screw 17 has secured thereon externally of said plug a manipulating knob 20; and relative axial movement of the screw relative to the plug is prevented by a stop member 21 secured to the screw interiorly of the plug.

These provisions enable advance of feed nut 16 to discharge dentifrice through spout 13 as the knob 20 is rotated. A left-hand screw thread is preferably employed in order to enable advance of the nut upon clockwise rotation of knob 20 relative to the container body. Likewise, in the interest of improved appearance, said knob is conformed in an outline corresponding to and merging with the peripheral outline of the container body, so as to appear as an extension of the latter.

On the side thereof opposite lateral spout 13, the body of container 11 is provided with an elongated, undercut recess or groove 22 extending longitudinally of the body, which groove snugly receives the handle 23 of brush 12 for frictionally restrained sliding movement therein. The extent of this movement to the right is limited by an integral stop 24 at the end of said groove, and the parts are proportioned so that in feeding position of the brush, the bristles 25 thereof are positioned adjacent and in substantially underlying relation to the discharge mouth of spout 13 (see Fig. 1), the spout extending a substantial distance thereover. This insures the discharge of the dentifrice from the spout well over the tops of the bristles in a very effective manner, as contrasted to previous constructions, wherein the dentifrice is discharged either adjacent the base of the bristles, thus clogging and fouling the same, or in some other equally objectionable position.

In order to enable brush heads to be replaced when worn out, without discarding the entire brush, we employ a threaded connection 25' between handle 23 and the brush head 25''.

The upper surface of brush handle 23 which is exposed when the handle is in groove 22, is

provided with a series of serrations 26 for ready finger manipulation to shift the handle longitudinally outwardly relative to the container; this is necessary after applying the dentifrice on the bristles for convenience in brushing. The brush may be entirely removed or, preferably, it may be left in the groove, though withdrawn sufficiently from spout 13 to permit convenient use. The snug sliding fit of the handle in groove 22 suffices to prevent undesired separation of the parts.

A cap 27 of the same material as the container body completes the unit. This cap fits snugly and frictionally over the brush and container spout so as to shield and protect the same from external contamination. Since some provision is desirable to enable the brush bristles to dry following use, said cap is provided with a plurality of ventilating slots 29. Since the device is small and compact in size, it may be carried conveniently on the person, and to that end we provide a spring clip 28 of known type on the container body 11 which is engageable with a garment.

The overhang of the container spout relative to the brush bristles, in addition to resulting in depositing of the dentifrice properly on said bristles, furthermore insures that the dentifrice will be cleanly separated at the mouth of the spout when the brush is withdrawn outwardly for use. At the same time, the slight tension on the ribbon-like strip of dentifrice involved in this movement tends to embed the dentifrice material on the bristle ends so as to resist accidental displacement therefrom prior to use.

This dispensing brush construction is very simple and inexpensive so as to be capable of marketing at low cost. It corrects various objectionable features of hitherto known dispensing brushes of the type under consideration by a novel relationship of a brush adjustably mounted on one side of a hollow, plunger-type dispensing container, and a feed spout on the other side of said container through which material is discharged onto the tops of the brush bristles in a well distributed position on the latter. Though this construction is particularly devised and illustrated as a toothbrush, it will be evident to those skilled in the art that its anti-fouling and anti-clogging features and ease of manipulation lend themselves readily to use in other applications. Hence we do not desire to be unduly limited in this respect.

We claim:

1. A dispensing brush of the type described, comprising a hollow container for material to be dispensed having a discharge spout projecting longitudinally of said container and opening in that direction, said spout communicating with the container interior, material engaging means in said container, means to actuate said means to discharge material in the container through said spout, and a brush having a handle in fixed relation thereto adjustable on said container independently of said actuating means, said handle being positionable on said container to place the bristle ends of the brush adjacent and substantially in the plane of the discharge end of said spout, with a substantial overhang of said end relative to said bristles, and means to slidably support said brush and handle on said container for rectilinear sliding adjustment for removal of the brush relative to said container.

2. A dispensing brush of the type described, comprising a hollow container for material to be dispensed having a plunger slidable therein, a discharge spout projecting longitudinally of said container and opening in that direction, said spout communicating with the container interior, means to actuate said plunger to discharge material in the container through said spout, a brush having a handle in fixed relation thereto which is adjustable on said container independently of said actuating means, said handle being positionable on said container to place the bristle ends of the brush adjacent and substantially in the plane of the discharge end of said spout, with a substantial overhang of said end relative to said bristles, and means to slidably support said brush and handle on said container for rectilinear sliding adjustment for removal of the brush relative to said container.

3. A dispensing brush of the type described, comprising a hollow container for material to be dispensed having a plunger slidable therein, a discharge spout projecting longitudinally of said container and opening in that direction, said spout communicating with the container interior, means to actuate said plunger to discharge material in the container through said spout, a brush having a handle in fixed relation thereto which is slidably adjustable on said container independently of said actuating means, said handle being slidably positionable on said container to place the bristle ends of the brush adjacent and substantially in the plane of the discharge end of said spout, with a substantial overhang of said end relative to said bristles, and means to slidably support said brush and handle on said container for rectilinear sliding adjustment for removal of the brush relative to said container.

4. A dispensing brush of the type described, comprising a hollow elongated container for material to be dispensed having a spout on one side thereof in communication with the container interior and opening in the direction of the length of said container, whereby material in the container may be discharged lengthwise through said spout, a brush longitudinally adjustable on said container at a point in spaced relation to said spout, said brush being positionable on said container with the bristle ends thereof adjacent and substantially in the plane of the discharge end of said spout, and means on said container for mounting said brush for adjustment and removal on said container, said last named means including a longitudinal groove on the exterior of the container in which said brush is frictionally receivable for sliding movement.

WIDOF J. HOFFMAN.
OLAF P. OLSON.

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