

Jan. 15, 1952

F. J. ZAVADA

2,582,404

TOOTHBRUSH

Filed Feb. 11, 1947

2 SHEETS—SHEET 1

Fig. 1

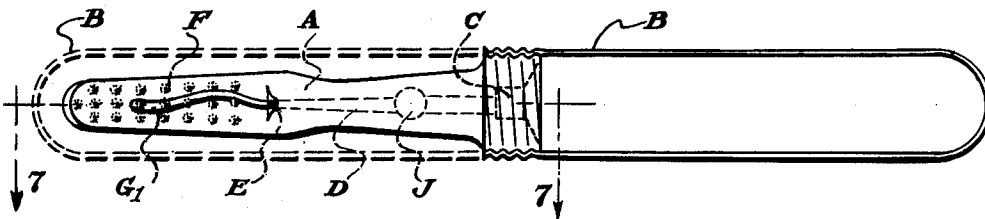


Fig. 2

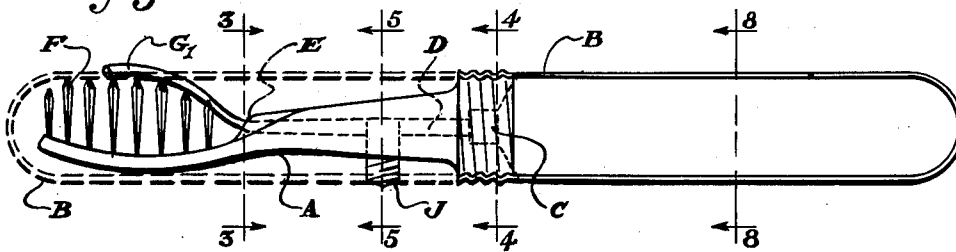


Fig. 3



Fig. 4

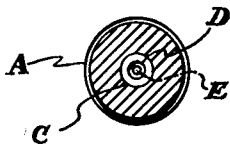


Fig. 5

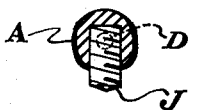


Fig. 6

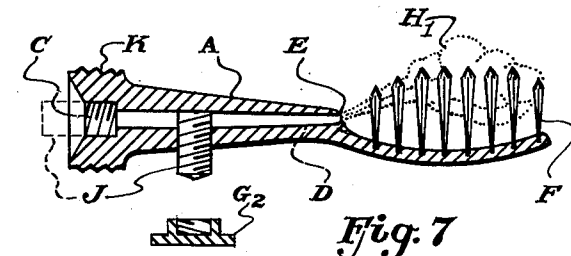
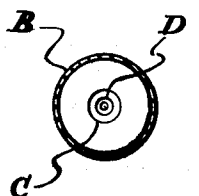


Fig. 7

Fig. 8



Inventor:

Frank J. Zavada

By: Shepard & Shepard

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F. J. ZAVADA

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2 SHEETS—SHEET 2

Fig. 9

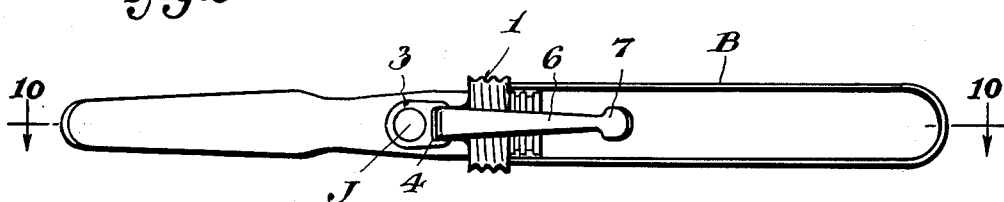


Fig. 10

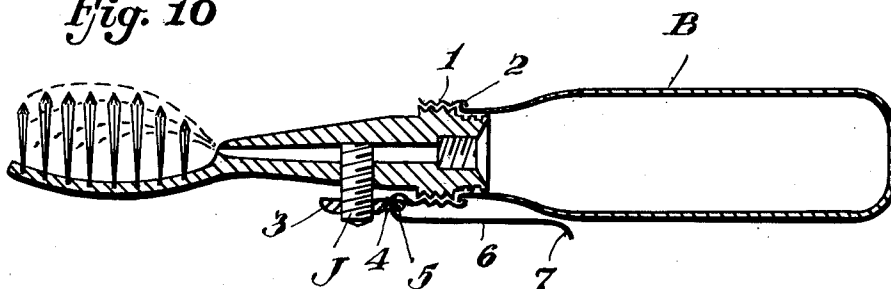


Fig. 11

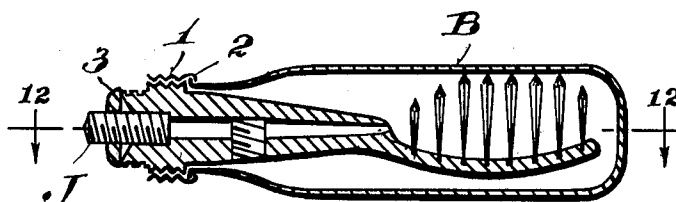
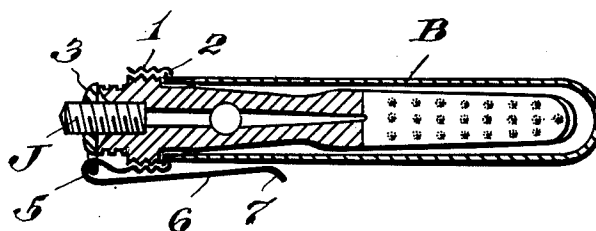


Fig. 12



Inventor:

Frank J. Zavada

By: Shepard Shepard

UNITED STATES PATENT OFFICE

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TOOTHBRUSH

Frank J. Zavada, Swissvale, Pa.

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7 Claims. (Cl. 15-136)

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This invention relates to brushes and in particular to fountain tooth brushes.

It is an object of the invention to provide for assembling a paste tube or a powder tube or receptacle with the shank of the brush so that when so assembled the tube or receptacle will afford a handle for the brush, and the contents of the tube or receptacle may be fed to the bristles of the brush through the shank of the brush in a simple and effective manner.

It is a further object of the invention to employ a comparatively short brush shank for convenience in carrying the brush in a piece of luggage, and also to provide for housing and protecting the brush, when not in use, in a casing which may be detached from the brush-shank and then reassembled therewith in a reverse position so as to form a handle for the brush.

The brush shank is tubular in form or provided with a longitudinal bore open at opposite ends for the passage of liquid, paste or powder, and provision is made to deliver such material to the brush bristles in an effective and satisfactory manner.

Provision is made, in the form of an adjustable plug, for controlling the passage of material through the bore in the shank, and such means is also employed for carrying the screw cap of a paste tube or a powder receptacle when assembled with the shank of the brush. When the brush is housed within the casing, the screw plug is employed to close the open end of the bore at the rear end of the shank.

It is also an object of the present invention to provide for interlocking the casing with the shank of the brush in each of the assembled relations of the brush shank and the casing, and also to provide for holding the brush in a pocket in the clothing.

With these and other objects in view, the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the drawings and particularly pointed out in the appended claims, it of course being understood that changes in the form, construction and minor details may be made, within the scope of the claims, without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings,

Figure 1 is a plan view of the brush of the present invention looking at the bristle side thereof, and with the casing member in position for use as a handle;

Figure 2 is a side elevation of Figure 1;

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Figure 3 is a cross sectional view on the line 3-3 of Figure 2;

Figure 4 is a cross sectional view on the line 4-4 of Figure 2;

Figure 5 is a cross sectional view on the line 5-5 of Figure 2;

Figure 6 is a side view of the brush of the present invention with the casing assembled therewith and housing the brush and shown in 10 section;

Figure 7 is a longitudinal sectional view of the shank of the brush;

Figure 8 is a cross sectional view on the line 8-8 of Figure 2;

Figure 9 is a side view of a brush of the present invention provided with means for interlocking the casing and the brush shank, the parts being shown in the operative condition of the brush;

Figure 10 is a longitudinal sectional view on the line 10-10 of Figure 9;

Figure 11 is a longitudinal sectional view of the brush of Figures 9 and 10 with the brush housed within the casing;

Figure 12 is a longitudinal sectional view on the line 12-12 of Figure 11.

The brush of the present invention includes a shank A provided with a longitudinal bore or passage D opening through opposite ends of the shank. At its forward end, the shank A is provided with a head portion offset longitudinally of the shank and provided with any ordinary or preferred character of bristles F in line with the bore or passage D in the shank. The shank tapers from its rear larger end portion towards the bristles, and said larger end is provided with a series of annular ribs K for a purpose as will be hereinafter described. The enlarged rear end of the shank is provided with an annular concavity, and the rear end of the bore D is enlarged and screw-threaded for the reception of a screw-threaded plug J. This plug may be removed from its position as shown in Figure 6, and engaged with a screw threaded opening extending transversely through the shank so that the inner end of the plug may enter the bore and reduce the cross sectional area at this point for controlling the passage of the material through the bore.

In Figure 6, the brush is shown as being housed within a casing B closed at that end which embraces the bristles and open at the opposite end which frictionally engages the annular ribs K in such a manner as to hold the parts together and at the same time permitting of the slidable disengagement of the casing or cover from the en-

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larged portion of the brush shank. As indicated in Figures 1 and 2, when the cover or casing B has been removed, it may be turned end for end and its open end slipped upon the enlarged end of the shank so as to frictionally hold it in place, in which position it will serve as a handle for manipulating the brush as an ordinary tooth brush. While this housing or casing may be of any material, it is preferred to make it of Celuloid or some similar relatively stiff elastically yieldable material, and it may also be transparent.

When the brush is to be used as a fountain brush, the cover or casing B is removed, and then any ordinary or preferred form of paste tube may be assembled with the shank of the brush by inserting the screw-threaded discharge nipple of the tube into the screw-threaded socket portion C at the rear end of the brush shank, the socket in the rear end of the shank accommodating the tapered forward end of the tube. In this position the tube serves as a handle for manipulating the brush. By squeezing the collapsible paste tube, a portion of the contents thereof may be forced through the bore D and thus fed to the bristles of the brush in the manner indicated in Figure 2. It will be seen that the bore D tapers from its rear end to its forward end and, what will be termed the inner longitudinal side of the bore, is slightly inclined towards the outer ends of the bristles, whereby the discharged ribbon of paste, designated G', in Figure 2, is directed somewhat laterally from the discharge end of the bore D so that the discharge portion of the tooth paste will be directed outwardly and around the outer ends of the bristles in a simple and efficient manner. The supply of paste to the bristles may be controlled by adjustment of the plug J. Preparatory to assembling the brush and the paste tube, the screw cap of the latter is, of course, removed and may be screwed upon the projecting outer end of the plug J as indicated at G² in Figure 7 of the drawings.

A powder receptacle, of any common or preferred form, may be assembled with the brush shank in the same manner as described for the paste tube, and by pressing upon the collapsible walls thereof, the powder may be forced through the bore D and discharged upon the bristles.

The housing or cover B may be, as hereinbefore described, made of some relatively stiff elastically yieldable material such as plastic, and may be employed as a container or receptacle for a liquid dentifrice or any kind of a liquid and connected with the rear end of the shank and employed for rinsing purposes by squeezing the cover when positioned to serve as a handle. The cover or casing must, of course, be of a character to resume its normal shape after being squeezed, in order that it may be detached, turned end for end and slipped upon the brush from the bristle end thereof so as to again house the brush in the manner indicated in Figure 6.

In Figures 9 to 12, inclusive, the brush has been shown equipped with means for interlocking the brush and the casing to prevent accidental separation or looseness of these parts in each of the assembled relations thereof. As shown, the casing B is provided at its open end with a screw threaded band 1, swivelled at 2 to the end of the casing so as to rotate thereon around its longitudinal axis for engagement with the screw threaded portion of the brush shank as shown in Figures 10, 11 and 12. There is a nut 3 provided

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with a slot or opening 4 with which is engaged a hook or elbow 5 projecting longitudinally from outer edge of the band 1 so as to provide a hinged connection between the nut and the band 1. When the brush shank and the casing are in the assembled condition whereby the brush may be used, the screw threaded opening through the nut 3 will be in concentric alignment with the threaded opening in the side of the brush shank, and the screw threaded plug J will be passed through the nut and engaged with said screw threaded opening whereby the band 1 will be locked against rotation and thus the brush shank and the casing will be interlocked and held against accidental disengagement.

When the brush shank and the casing have been disconnected from the condition shown in Figures 9 and 10, and the brush reassembled with the casing and aligned within the latter, the nut 3 will be swung on its hinged connection on the band 1 and placed across the outer end of the brush shank, whereupon the plug J may then be passed through the nut 3 and engaged with the screw threaded portion of the bore or passage through the shank so as to thereby hold the shank and casing against accidental separation.

The coupling band 1 for connecting the shank and the casing in either of their related positions, is utilized as a mounting for a spring clip 6 with the body of the clip extending longitudinally of the brush and capable of being employed in the usual manner for holding the brush in a pocket. Preferably, the spring clip 6 is an integral part of and extends from the part 1 and projects rearwardly and beyond the swiveled connection between the coupling band and the casing, the free end portion 7 of the clip lying close to or in engagement with the exterior of the casing and flared outwardly therefrom, as well shown in Figures 10 and 12 so as to facilitate the engagement of the clip with the outer side of the pocket.

Having thus described my invention, what I claim is:

1. A brush comprising a shank screw-threaded at its rear end and provided with bristles projecting transversely from the front end of the shank, said shank having a longitudinal bore extending from the front end to the rear end thereof and open at opposite ends, the rear end of the bore which is remote from the bristles being screw threaded, said shank also having a screw-threaded seat intersecting the bore, a casing adapted to contain the shank and having a closed end portion adapted to house the bristle portion of the shank, the other end of the casing being open for the introduction and removal of the shank, a screw-threaded coupling swiveled concentrically to the open end of the casing and removably engaging the screw-threaded portion of the shank, said casing capable of being removed, turned end for end and then reengaged with the rear end of the shank and thereby extending rearwardly therefrom for use as a handle, a nut hinged to the coupling so as to lie across the rear end of the shank in registration with the bore thereof when the bristle portion of the brush is housed within the casing and to lie alongside the shank concentrically covering said screw-threaded seat when the casing is in the position of a handle, and a screw-threaded pin engaging the threads of the nut and the threads of the bore of the shank when said nut and the bore of the shank are concentrically registered, and adapted to engage the threads of the nut and the

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threaded seat provided in the shank when the casing is in the position of a handle.

2. A brush comprising a shank screw-threaded at its rear end and having bristles projecting transversely at the front one end thereof, said shank having a longitudinal bore open at opposite ends, the end of the bore which opens through the rear end of the shank being screw threaded, the shank having a transverse screw-threaded opening, a casing adapted to contain the shank and having a closed end portion adapted to house the bristles, the other end of the casing being open for the introduction and removal of the shank, a screw-threaded coupling swiveled concentrically upon the open end of the casing and detachably engaging said screw-threaded portion of the shank, said casing and coupling capable of being removed, turned end for end and then re-engaged with the threaded portions of the shank and thereby extending rearwardly therefrom for use as a handle, a nut hinged to the coupling and adapted to lie across the rear end of the shank in the housed position of the shank with the threaded portions of the nut and the bore in concentric registration, and a screw-threaded pin engaging the threaded portions of the nut and the bore when registered to prevent rotation of the coupling, said nut also being adapted to lie along side the shank when the casing is employed as a handle with the threaded portions of the nut and opening in the shank in concentric registration and the screw-threaded pin being adapted to engage with the threads of the nut and the threaded opening in the shank.

3. A fountain brush comprising a hollow elastically yieldable combined handle and dentifrice container open at one end only, a shank member having its front end portions offset laterally and provided with transversely extending brush bristles, the rear portion of the shank having a bore open at opposite ends, a detachable connection between the handle and the shank said shank capable of being disconnected from the handle and turned end for end and thrust into the hollow handle brush end foremost, the length of the handle being such as to house the shank, the bore of the shank forming a conduit for the passage of material from the elastically yieldable hollow handle to the bristles of the shank, the rear open end of the said bore being screw-threaded, the shank having a screw-threaded passage intersecting the bore, the passage and the screw-threaded end of the bore being of the same diameter, a nut hinged to the hollow handle for selective registration with the passage and the rear end of the bore, a screw-threaded plug engaged with the nut and the screw-threaded passage when the shank is extending outwardly from the handle, and said plug being engaged with the nut and the screw-threaded end of the bore when the shank is within the handle.

4. A fountain brush as set forth in claim 3, said detachable connection comprising a connecting band swiveled on the open end of the handle for engagement with the shank in each position thereof, said nut being hinged to said connecting band and capable of being registered with the rear end of the bore when the shank is housed in the handle and also registered with the screw-threaded passage when the shank projects outwardly from the handle.

5. A fountain brush comprising a hollow elastically yieldable combined handle and dentifrice container open at one end only, a shank member

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having its front end portion offset laterally and provided with transversely extending brush bristles, the rear portion of the shank having a bore open at opposite ends, a detachable connection between the handle and shank said shank capable of being disconnected from the handle and turned end for end and thrust into the hollow handle brush end foremost, the length of the handle being such as to house the shank, the bore of the shank forming a conduit for the passage of material from the elastically yieldable hollow handle to the bristles of the shank, said detachable connection comprising a connecting band swiveled on the open end of the handle for engagement with the rear end of the shank in each position thereof, a retaining clip integral with the band and projecting beyond the open end thereof, a nut hinged upon the outer end portion of the clip for selective alignment with the rear end of the bore when the shank is housed within the handle and with the passage in the shank when said shank is projecting outwardly from the handle, and a screw plug for engagement with the nut and passage and also with the nut and rear end of the bore respectively.

6. A fountain brush comprising a hollow elastically yieldable and compressible combined handle and dentifrice container open at one end only, a shank member provided with transversely extending brush bristles, the rear portion of the shank having a bore open at opposite ends, a detachable connection between the handle and the shank, said shank capable of being disconnected from the handle and turned end for end and thrust into the hollow handle brush end foremost, the length of the handle being such as to house the shank, the bore of the shank leading from the hollow handle to the brush and forming a conduit for the passage of material forced from the elastically yieldable hollow handle to the bristles of the shank upon collapsing of the hollow handle, the rear end of said bore being screw-threaded, the shank having a screw-threaded passage intersecting the bore, the passage and the screw-threaded end of the bore being of the same diameter, and a screw-threaded plug for selective engagement with the screw-threaded rear end of the bore and the said passage.

7. A fountain brush comprising a hollow elastically yieldable and compressible combined handle and dentifrice container open at one end, a shank member provided with transversely extending brush bristles, the rear portion of the shank having a longitudinal bore open at opposite ends, a detachable connection between the handle and the shank, said shank being capable of being disconnected from the handle and turned end for end and thrust into the hollow handle brush end foremost, the length of the handle being such as to house the shank, the bore of the shank leading from the hollow handle to the brush and forming a conduit for the passage of material forced from the elastically yieldable hollow handle to the bristles of the shank upon collapsing of the hollow handle, the rear end of said bore being screw-threaded, the shank having a screw-threaded passage intersecting the bore, the passage and the screw-threaded end of the bore being of the same diameter, said detachable connection comprising a connecting band swiveled to the open end of the handle for engagement with the rear end of the shank in each position thereof, a retaining clip bent from the outer end of the band and connected to the

band by an elbow, a nut having an opening loosely receiving the elbow whereby the nut is hinged to the clip for selective alignment with the rear end of the bore when the shank is housed within the handle and with the passage in the shank when said shank is projecting outwardly from the handle, and a screw plug engaged with the nut for selective engagement with the passage and the rear end of the bore.

FRANK J. ZAVADA. 10

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