

[54] **FOUNTAIN BRUSH**
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[22] Filed: **Feb. 26, 1973**
[21] Appl. No.: **335,677**

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[52] U.S. Cl. **401/290**, 15/206
[51] Int. Cl. **A46b 3/00**, A46b 11/02
[58] Field of Search 15/106, 164, 190, 206,
15/229 R; 300/20, 21; 401/129, 183, 184,
185, 268, 286, 290; 52/753 B; 403/267, 268,
365

[56] **References Cited**
UNITED STATES PATENTS
2,726,417 12/1955 Rowser et al. 401/183
FOREIGN PATENTS OR APPLICATIONS
280,264 11/1927 Great Britain 403/268
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[57] **ABSTRACT**

An improved fountain brush including a squeezable bottle, with a rigid closure member and a wire frame brush with its ends received in bores formed in the closure member, improvements consisting of providing said bores with bushing like inserts, the inserts having locking or retaining elements on the inside faces, arranged to prevent the inadvertent displacement of the wire ends from the bores, but permit the removal and replacement of the brush by predetermined force.

1 Claim, 5 Drawing Figures

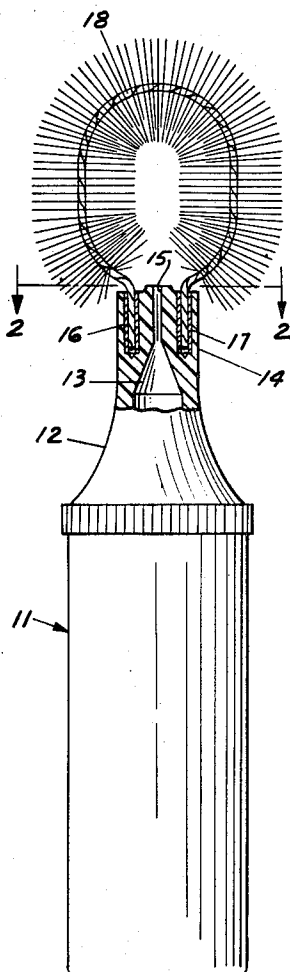


FIG. 1

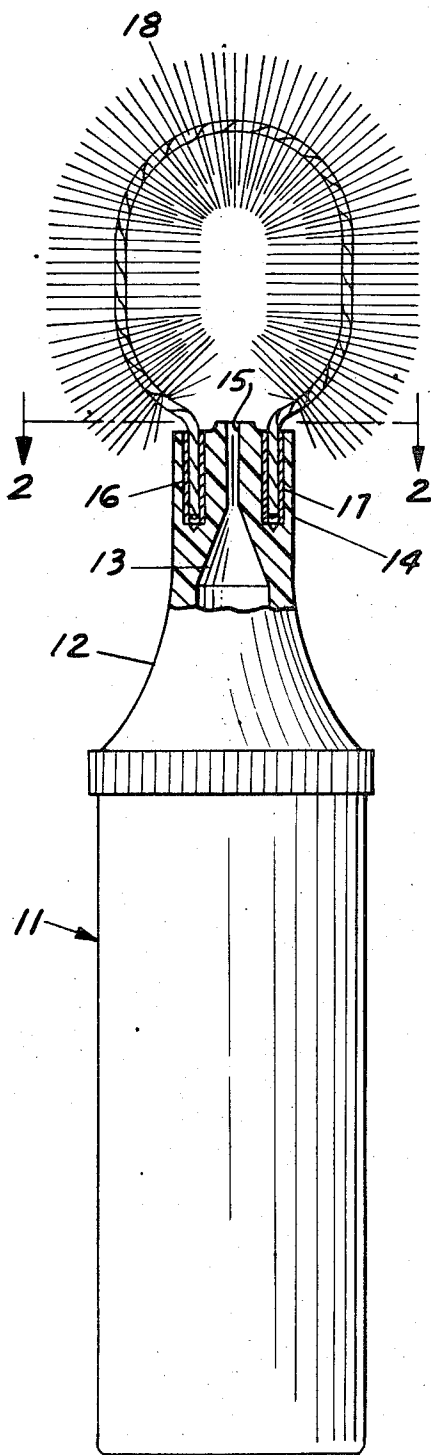


FIG. 2

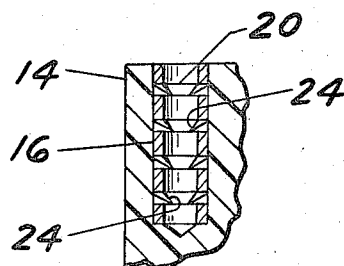
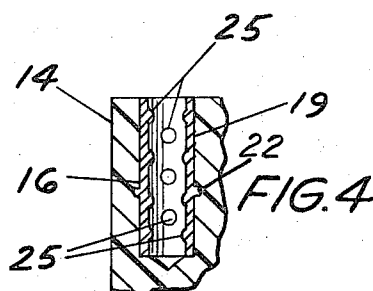
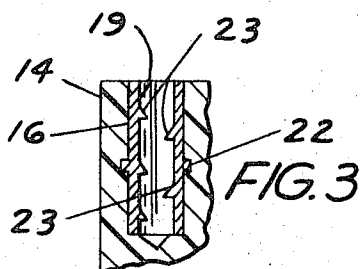
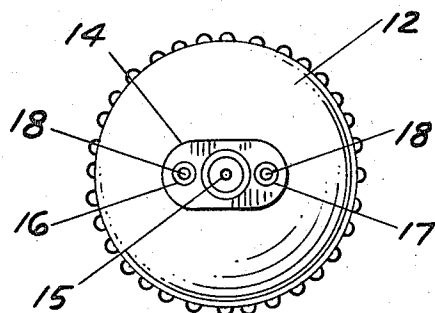


FIG. 5

FOUNTAIN BRUSH

This invention relates to fountain brushes, such as disclosed in U.S. Pat. No. 2,726,417 and particularly to the improvement of such devices.

An object of the invention is to generally improve fountain brushes in which the terminal ends of the brushes are received in axial bores formed in the bottle closure member.

Another object of the invention is to reinforce the bores with metal inserts to obviate the wear factor.

Another object of the invention is to provide metal inserts with locking and retaining elements.

In fountain brushes, such as disclosed in the above numbered patent, particularly the type shown in FIG. 1, thereof, the wire ends of the brush are received directly in bores formed in the plastic neck, which forms the closure member for the bottle. Constant use of the brush, particularly in washing dishes and the like, where heavy lateral pressure is exerted, the wire ends erode the plastic walls of the bores and often times the brush falls out when in use, or the brush develops a sloppy fit which makes it difficult to perform good work with the device. These difficulties are also present in the type shown in FIG. 2 of the Patent.

It is therefore an object of the invention to obviate the foregoing difficulties and to generally improve the fountain brush.

The foregoing and other objects and advantages of the invention will become more apparant as the description proceeds, reference being made from time to time to the accompanying drawing, forming part of the within disclosure, which drawing:

FIG. 1, is a side elevational view, with parts broken away and parts in section, of a fountain brush embodying the invention.

FIG. 2, is a section taken substantially on the line 2-2 of FIG. 1.

FIG. 3, is an enlarged detail in section, taken through one of the reinforced bores shown in FIG. 1.

FIG. 4, is a view similar to FIG. 3, but showing a modified form of insert.

FIG. 5, is a view similar to FIG. 3, but showing a further modified form of insert.

Referring now more particularly to the drawing, it will be understood that in the embodiment herein disclosed, the reference character 11 indicates a conventional squeezable plastic bottle which is preferably made of a plastic material which is impervious to present known liquid detergents and soaps. The bottle 11, is sufficiently rigid to enable it to stand upright and support the other elements of the device hereinafter described, but it has flexible sidewalls which may be squeezed inwardly with light pressure exerted by the hand in order to expel the soap or liquid detergent contained therein.

The bottle 11, has an externally threaded neck portion (not shown) to which is secured an internally threaded neck portion or closure member 12, which has a central bore 13, with a reduced portion 14, which is open to atmosphere, as at 15, all of which are more particularly described in the patent herein above referred to, and form no part of the invention except as they are combined with the elements hereinafter described.

I will now describe the improvements constituting the within invention. As shown in FIGS. 1 and 2 of the drawing, it will be seen that the free end of the neck or

closure member 12 is provided with a pair of spaced axial bores 16 and 17, which extend to a depth of approximately one inch into the upper end of the neck or closure member 12. In the original patent, the terminal ends of the wire brush frame structure 18 were received directly into the axial bores 17 and 17 without any protection to the walls of the bores, with a result that the bores became worn and enlarged by the twisting action of the wire frame 18 as lateral pressure is exerted on the brush while in use. The twisting of the terminal ends of the wire 18 is caused by the exertion of lateral tension on one side and then the other of the brush, as the device is used to wash dishes, pots, pans, glasses and the like. The wear and enlargement of the bores 16 and 17 developed a sloppy fit of the terminal ends of the wire structure 18, so that the brush often-times inadvertently fell out of the neck or closure member 12. The inadvertent dislocation of the brush further resulted from the fact that the bores 16 and 17 were rather shallow.

In order to obviate these difficulties, I propose to deepen the bores 16 and 17 to the approximate depth of one inch, and to reinforce the bores 16 and 17 with bushing like metal inserts 19 and 20. The inserts 19 and 20 are positioned in the plastic mold prior to the injection molding operation. The inserts 19 and 20 may have at least one outer peripheral ring 22, FIG. 3, or other means to prevent them from being dislodged from the bores 16 and 17 after they have been molded into the neck or closure member 12.

The inside peripheral faces of the inserts 19 and 20, are provided with inwardly and downwardly projecting barbs 23, FIG. 3, so that once the terminal ends of the wire brush 18 are inserted in the inserts it will be difficult, if not impossible, for the wire brush to be removed without extreme pulling force being exerted on the frame of the brush.

A modification of this type of locking element is shown in FIG. 5, in which the locking or securing means take the form of inside peripheral rings 24 which have a substantially triangular cross section with the apices of the triangles facing inwardly and downwardly.

In FIG. 4, I show a further modification in which the retaining or locking means consist of a plurality of semicircular elements 25, which may be individual hemispheres or continuous rings of hemispherical cross-section. With such retainers in the inserts, sufficient frictional engagement will exist between the inserts and the terminal ends of the wire so that the wire brush may be removed from the inserts with sufficient pull to overcome the said frictional engagement, so that the brush may readily be removed and replaced with a new brush or a brush of different conformation such as disclosed in my co-pending design Pat. application Ser. No. 338,378.

It is believed that the operation of the device is obvious from the foregoing description.

Having described my invention, what I claim and desire to secure by Letters Patent is:

1. In a fountain brush, including a squeezable bottle having a threaded neck and an elongated tapered thermoplastic closure member with axial bores therein for receiving the terminal ends of a wire frame brush, the improvements consisting of extended axial bores in said closure member and bushing like elements in said bores, said elements having locking means on the outside for engaging the walls of said bores and locking

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means on the inside for engaging the terminal ends of said wire frame, and in which said inside locking means have semi-spherical contours, which normally frictionally retain said wire ends in said elements, but permit

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said ends to be removed from said elements by a pulling force sufficient to overcome said frictional engagement.

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