Aug. 24, 1954 H. W. HEMPEL 2,686,925

FOUNTAIN BRUSH

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Fig. 1.

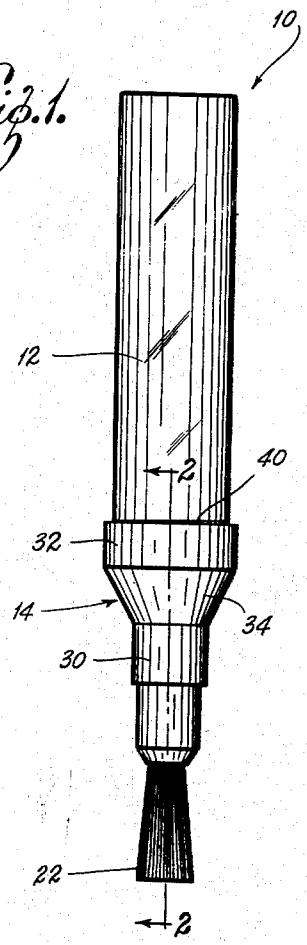



Fig. 2.

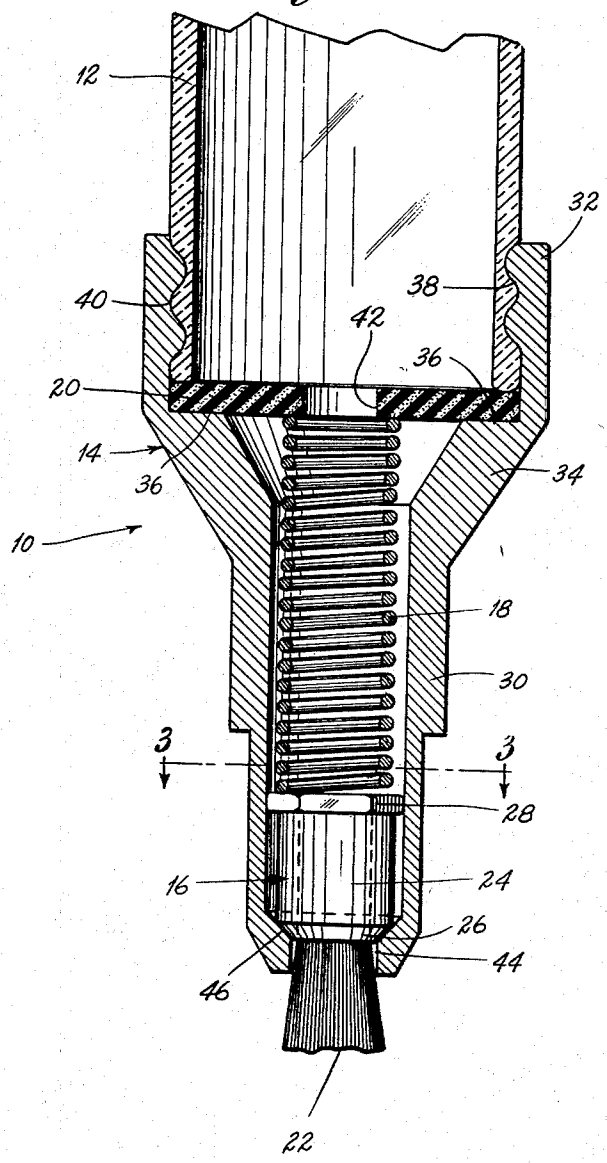
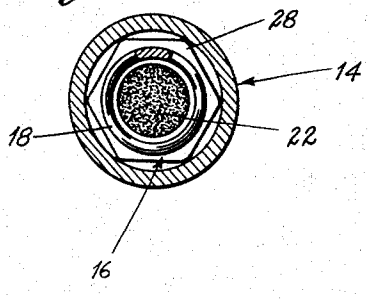



Fig. 3.




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## FOUNTAIN BRUSH

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3 Claims. (Cl. 15—139)

1

The present invention relates generally to fluid applicators, and more particularly to a general purpose fountain brush.

Briefly, the present novel general purpose fountain brush comprehends a one-piece valve, guide and bristle holding ferrule which is disposed in a housing for reciprocatory spring-biased movement into engagement with a valve seat after manual movement away from same. A liquid reservoir handle threadedly fits the housing remote from the end through which the brush bristles extend.

Therefore, an object of the present invention is to provide a novel general purpose fountain brush which incorporates a one-piece valve, guide and bristle holding ferrule.

Another object is to provide a novel general purpose fountain brush constructed to apply liquid to applicator bristles readily and through a short path to minimize trapped liquid on the exhaust side of the valve and to eliminate bristle flooding on closing of the brush valve.

Another object is to provide a novel general purpose fountain brush in which the valve seat is positioned at the extreme lower end of the housing to give immediate fluid-bristles contact.

Another object is to provide a novel general purpose fountain brush in which a spring biasing the valve into closed relation limits the valve opening to avoid flooding through compressing into solid relation.

Another object is to provide a novel general purpose fountain brush in which the guide portion of the one-piece valve, guide and ferrule contacts the housing at spaced points and permits passage of liquid in any position.

Another object is to provide a novel general purpose fountain brush constructed to incorporate a replaceable closed end liquid reservoir of any standard or selected design.

Another object is to provide a novel general purpose fountain brush which is adapted to be used with a wide variety of fluids and for numerous purposes.

Another object is to provide a novel general purpose fountain brush which is inexpensive to manufacture, which may be readily employed to apply any selected fluid, which is simple in construction rendering cleaning and maintenance quick and sure, which is adapted to be used for many applications without mechanical failure, and which presents a neat appearance.

The foregoing and other objects and advantages are apparent from the following description taken with the accompanying drawing, in which:

2

Fig. 1 is a side elevational view of a general purpose fountain brush constructed in accordance with the teachings of the present invention;

Fig. 2 is an enlarged diametric cross-sectional view on substantially the line 2—2 of Fig. 1; and

Fig. 3 is a transverse cross-sectional view on substantially the line 3—3 of Fig. 2.

Referring to the drawing more particularly by reference numerals, 10 indicates generally a general purpose fountain brush incorporating the concepts of the present invention which includes a fluid reservoir handle 12 open at one end and closed at the other end, a housing 14, a one-piece valve, guide bristle ferrule 16, a compression spring 18, a washer 20, and bristles 22.

The one-piece valve, guide and bristle ferrule 16 includes a cylindrical body 24, a frusto-conical valve portion 26 preferably sloped at thirty degrees, and a guide flange 28 shown as of hexagonal form, the points of which slidingly engage the interior of the housing 14. The bristles 22 extend into the body 24. The valve portion 26 may be formed as a portion of a sphere.

The housing 14 includes an elongated cylindrical portion 30 of small internal diameter and a short cylindrical portion 32 of larger internal diameter which are connected by a frusto-conical portion 34. The portion 34 includes an annular shelf 36 at its upper end which receives the washer 20. The portion 32 has internal threads 38 which receive external threads 40 at the open end of the reservoir-handle 12. The free edge of the open end of the reservoir-handle 12 engages the washer 20 to effect a seal. The washer 20 has an opening 42 for passage of fluid from the reservoir-handle 12 into the housing 14. The washer 20 is held in assembled position by a press fit, crimp, or adhesive, so that it will not be spring ejected or fall out when the reservoir-handle 12 is removed for filling or replacement.

The portion 30 of the housing 14 includes an opening 44 and a thirty degree slope valve seat 46. The one-piece valve, guide and bristle ferrule 16 is disposed within the portion 30 with the valve portion 26 biased into engagement with the valve seat 46 by the spring 18, one end of which engages the underside of the washer 20 and the other end the top of the guide flange 28. The bristles 22 extend through the opening 44.

For a small fountain brush 10 of the actual size as shown in Fig. 1, it is desirable that full compression of the spring 18 permits longitudinal travel of the one-piece valve, guide and

bristle ferrule 16 of approximately one-sixteenth of an inch. Manifestly, this travel may be changed to suit particular applications of the brush 10.

In operation, a selected liquid is poured in the reservoir-handle 12 and the housing 14 with its several contained elements, as illustrated in Fig. 2, is screwed onto the open end thereof. The brush 10 is then disposed with the bristles 22 depending. The liquid will flow from the reservoir-handle 12 through the opening 42 into the housing 14, thence past the flange 28 and around the body 24. Pressure of the free ends of the bristles 22 against any surface when thus held in depending position will lift the valve portion 26 from the valve seat 46 and permit liquid to flow onto the bristles 22 by the short path only slightly greater than the depth of the valve portion 26. Air will replace discharged liquid. Upon release of the pressure at the ends of the bristles 22, as by lifting the brush 10, or releasing downward pressure, the spring 18 will quickly seat the valve portion 26 with minimum trapped liquid. As is clear from the drawing, the guide flange 28 serves to center the valve portion 26. As stated above, total compression of the spring 18 acts as a stop to prevent raising of the valve portion 26 more than a predetermined distance, thereby eliminating undue flooding of the bristles 22, but permitting adequate flow for heavy liquid application.

The reservoir-handle 12 is shown as of cylindrical form and of plastic for observation of its contents. A standard filled container of glass or other material and of any desired configuration may be employed.

It is manifest that the fountain brush 10 may be used for many purposes, such as the application of paints, coatings, liquid cleaners and spot removers, adhesives, shoe polishes, tool room bluing solutions, water, ink, and a host of other liquids.

Palpably, there has been provided a general purpose fountain brush which fulfills the objects and advantages sought therefor.

It is to be understood that the foregoing description and the accompanying drawing have been given by way of illustration and example. It is also to be understood that changes in form of the elements, rearrangement of parts, and substitution of equivalent elements, which will be obvious to those skilled in the art, are contemplated as within the scope of the present invention which is limited only by the claims which follow.

What is claimed is:

1. A fountain brush comprising, in combination, an elongated housing member having a passageway therethrough, said passageway being formed to provide a circular discharge opening at one end of the housing, a circular inlet opening at the other end of the housing, and an elongated cylindrical passage interconnecting said openings, said discharge opening being smaller in diameter than any other portion of said passageway, said cylindrical passage being intermediate in diameter between said openings, said passageway being further formed to provide a circular valve seat immediately adjacent said discharge opening, a ferrule member disposed in said cylindrical passage and being coaxially movable therein, said ferrule member having one of its ends shaped for valving engagement with said valve seat and the other of its ends shaped for peripherally spaced slidable engagement with the walls of said cylindrical passage, a plurality of bristles secured in said ferrule and extending beyond said one end thereof and through said discharge opening, a washer secured in said inlet opening, a compression spring interposed between said ferrule member and said washer for biasing the former toward said valve seat, and a fluid reservoir removably connected to said inlet opening.

2. The combination of claim 1 wherein the bristles are formed into a circular bundle, said bundle being in continuous slidable engagement with said discharge opening.

3. The combination of claim 1 wherein the convolutions of the spring are so spaced as to provide only a predetermined limited coaxial movement of the ferrule before the spring is compressed to a minimum length.


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