Dec. 23, 1969 A. C. S. CHENNELL 3,485,563

FOUNTAIN TYPE FLUID APPLICATOR

Filed Sept. 28, 1967

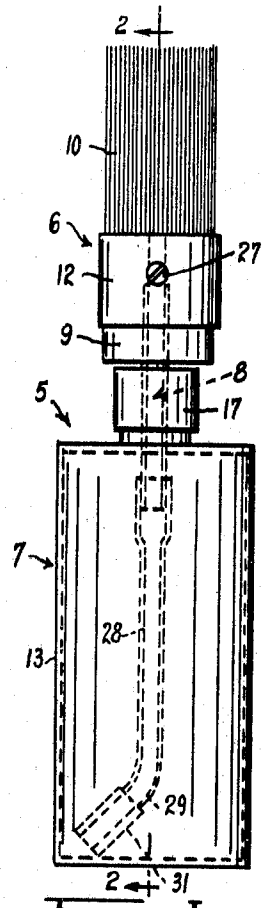


Fig. 1

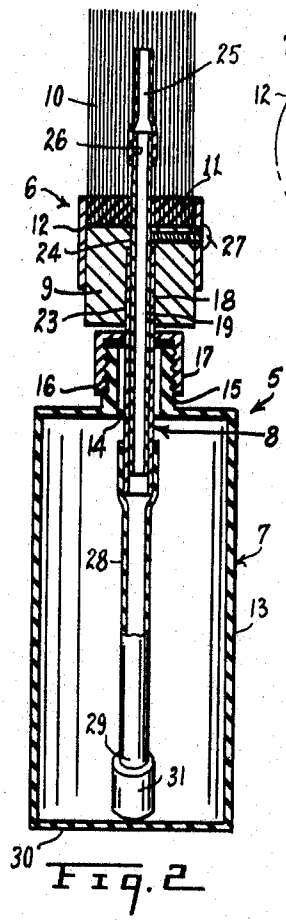


Fig. 2

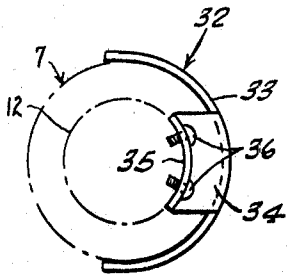


Fig. 6

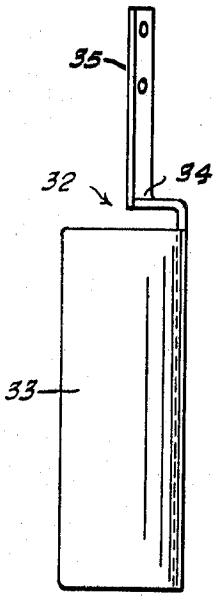


Fig. 5

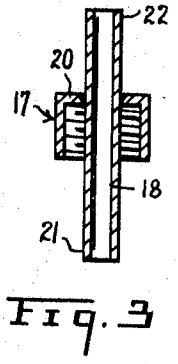


Fig. 3

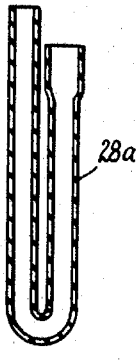


Fig. 4

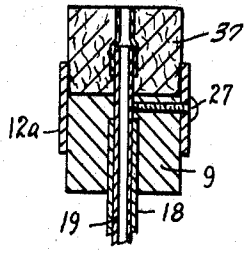


Fig. 7

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FOUNTAIN TYPE FLUID APPLICATOR

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ABSTRACT OF THE DISCLOSURE

An applicator for liquids having a brush head, a squeezable liquid container and a liquid feed tube assembly between the container and brush head and a tube extending from the brush head into the bristles of the brush head, the shape of the tube within the container ensures that its open end will be within the liquid in the container when in use.

This invention relates to applicators used to distribute liquids on the surface of articles and particularly to fountain type brushes or applicators which include a squeezable liquid container.

Many attempts have been made to provide a satisfactory type of brush which can be used to distribute liquids on surfaces without much success, as the means for feeding the liquid to the brush utilized either a gravity feed or a large tank or reservoir, which was pressurized.

Present paint brushes, marking or stencil brushes use rigid handles. In using most of these, however, the bristles are dipped in paint or marking material, then it is applied to the article to be painted or marked. The handles of some of these brushes, however, consist of a rigid container, with an orifice leading to the bristles of the brush, or to an absorbent pad. Some have more or less complicated control valve devices to regulate the liquid supply. Such brushes are limited to the use of light or volatile fluids and are expensive to manufacture, or do not provide positive fluid control. They are not suitable for thick or viscous fluids such as paint, etc.

The present invention seeks to overcome the above disadvantages and consists of a brush head and a squeezable fluid container, with demountable liquid feed tubing between the container and the brush head. The tubing is in sections, that making the connection between neck of the squeezable container and the brush head consisting of a pair of telescoping rigid tubes, while the connecting tubing in the interior of the container, and that penetrating into the bristles of the brush are of flexible material such as polyvinyl chloride or other suitable material resistant to the ingredients contained in paint or marking material.

For small size brushes, the container can be squeezed in the hand of the user, while in larger size brushes a hand grip can be fitted to the brush assembly, leaving an area of the container free for squeezing against the hand grip.

The flexible portions of the tubing can be readily replaced by tubing of varying size depending upon the type of liquid being dispensed or the quantity of liquid desired at the bristles of the brush. Provision can also be made for replacement of the flexible tube within the container to suit the attitude in which the brush is to be used, whether on vertical wall or ceiling surfaces or on floor or table surfaces.

The various elements of the brush assembly can be quickly dismantled for rapid and thorough cleaning to an extent which is not possible with similar type brushes hitherto in use.

Painting can be accomplished on any surface without dipping the bristles in paint and removing the excess paint each time it is necessary to replenish the supply of paint to the bristles. Painting time is therefore effectively used

in the actual brushing or painting operation as the paint is supplied to the bristles of the brush under control of the operator as required by eliminating unproductive movements to obtain fresh paint supply.

An object of the invention is to provide a paint or marking brush equipped with a reservoir that is not limited by the volatility of the liquid.

A further object of the invention is to provide a simple means of obtaining positive control over the supply of the liquid to the surface to be painted or marked.

A further object of the invention is to provide means to supply fluid directly to the surface to be covered or to that part of the brush where it is needed for distribution.

A further object of the invention is to provide an efficient brush which is simple, easy to manufacture, easy to use and to clean.

A further object of the invention is to provide a fountain type brush which can be used above, level with or below the level of the grip of the brush by the operator.

These and other objects of the invention will be apparent from the following detailed specification and the accompanying drawings in which:

FIG. 1 is a vertical elevation of a paint brush according to the present invention.

FIG. 2 is a vertical sectional view of the brush shown in FIG. 1 taken on the line 2—2.

FIG. 3 is a detail vertical section of the cap of the liquid container and rigid tube secured thereto.

FIG. 4 is a vertical section of an alternative form of liquid feed tube from that shown within the container in FIGS. 1 and 2.

FIG. 5 is a side elevation of a hand grip for attachment to the brush shown in FIG. 1 and

FIG. 6 is a plan view of the hand grip shown in FIG. 5.

FIG. 7 is a vertical sectional view showing a retaining ring having a pad fitted thereto in place of the bristle brush shown in FIG. 2.

Referring to the drawings the fountain type brush **5** consists of a brush head **6** and a liquid container **7** connected together by a telescopic tube assembly **8**.

The brush head **6** consists of a block **9** of wood or other suitable material. The bristles **10** are set in a base **11** of rubber or other suitable material in well known manner and anchored in the metal retaining ring **12**. While the brush head **6** is shown as circular, it is to be understood that the brush head can have a flat configuration of well known type.

The liquid container **7** is preferably made of a suitable plastic material which is squeezable and resistant to the various ingredients normally contained in paints and other marking liquids. The container **7** includes a body portion **13** and is fillable through the opening **14** in the neck portion **15** when the brush is at least partly disassembled. The neck portion **15** has a thickness which makes it substantially rigid, and is moulded with an external thread **16**. A closure cap **17** is threaded over the neck portion **15** of the container.

The telescopic tube assembly **8** consists of an outer tube member **18** and an inner tube member **19** in close sliding fit with each other. The outer tube member **18** is secured at an intermediate portion of its length, in axial alignment in the end wall **20** of the closure cap **17**, as shown in FIG. 3 of the drawings. The lower end **21** of the outer tube member **18** in the assembly of the brush extends downwards part way into the container **7**, while the upper end **22** is a force-fit in the bore **23** in the block **9**. The inner tube member **19** extends upwards beyond the upper end **22** of the outer tube member **18** and passes through a reduced diameter bore **24** in the block **9** and through the base **11** and into the body of the bristles **10**

for a short distance above the base **11**. A short length of flexible tube **25** is fitted on to the upper end **26** of the inner tube member **19** and is intended to flex with bristles **10** as the brush is moved back and forwards over the surface being covered with the liquid, paint or other marking fluid. The inner tube member **19** and the block **9** are secured together by the screw **27** passing through the annular wall of the retaining ring **12**.

A length of flexible tubing **28** has one end fitted over the lower end of the outer tube member **18**. This length of tubing **28** is of a length such that, when assembled as shown in FIGS. 1 and 2, its lower end **29** is close to the bottom wall **30** of the container **7** and to the side wall of the container in the manner shown in FIG. 1. The lower end of the tube **28** is weighted at **31** to ensure that the end will stay in the liquid even if the assembly is rotated while held horizontally and will not become blocked when in contact with the container walls.

The tube **28** as shown in FIGS. 1 and 2 is suitable for most positions of use of the brush such as on walls and ceilings. However, when used to cover a floor or table surface with paint etc. there might be difficulty in inducing a flow of paint into the tube if the brush was upside-down from the position shown in FIGS. 1 and 2. In order to overcome this difficulty, a replaceable flexible U-shaped tube **28***a* is shown in FIG. 4. When the tube **28***a* is fitted in place of the tube **28**, the open end of the tube **28***a* will be submerged in the paint or marking fluid and the paint or marking fluid will be made to flow when the container is squeezed.

In the assembly of the above described brush, the brush head includes the block **9**, retaining ring **12** with bristles **10**, inner tube member **19** and flexible tube **25** secured as an assembly by the screw **27**. The closure cap **17** includes the outer tube member **18** and the flexible tube **28** or **28***a*.

The inner tube **19** can be adjusted in the brush or pad and held in the adjusted position by the screw **27**. This permits various sizes of heads **9** to be fitted so that a wide selection of brushes or pads can be used. The adjustment of the tube **19** also permits easy fitting of the flexible tube **25** into the desired position with respect to the bristles **10**.

After the container **7** is filled with liquid through the opening **14**, the closure cap assembly is fitted to the container by first inserting the tube **28** or **28***a* into the container **7** and then securing the closure cap **17** to seal the container. The brush head assembly is then fitted by inserting the lower end of the inner tube member **19** into the open upper end of the outer tube member **18** and, at the same time fitting the block **9** on to the exposed upper end of the outer tube member **18**. The brush is then ready for use.

When the container **7** contains fluid and is assembled with the brush as above described, squeezing of the container forces the fluid through the tubes **28**, **19** and **25** and into the bristles. When pressure on the container **7** is released, outward flow of fluid is stopped and air is permitted to enter the container through the tubes to replace the paint already expelled. Repeated squeezing and releasing of the container supplies the required quantity of fluid until the container is empty. If air does not enter the container when pressure is released, the container need only be tilted so that the fluid in the container does not cover the open end of the tube **28**. Similar action takes place when the tube **28***a* is used but is more effective when the brush is used upside-down from the position shown in FIGS. 1 and 2.

The brush head can be quickly and efficiently replaced by another type merely by pulling up the brush head, including the inner tube member **19** and fitting on the new brush head.

For large brush and container assemblies a hand grip **32** of the type shown in FIGS. 5 and 6 has been found convenient. The hand grip **32** may include a member **33** forming a cradle into which the container **7** is fitted. An upper extension member **34** having a vertically disposed face **35** is adapted to fit against the outer surface of the retaining ring **12** and be secured thereto by the screws **36**. With this assembly it is only necessary to squeeze the exposed surface of the container **7** to induce a flow of fluid to the brush.

The above described brush is easily cleaned after use as the various tubes and other parts can be readily disassembled from each other.

In FIG. 7 there is shown a felt applicator **37** fitted into the retaining ring **12***a* in place of the bristle brush shown in FIGS. 1 and 2.

What I claim is:

1. An applicator for controlled distribution of a fluid on a surface, comprising a compressible fluid container having a fluid filling opening and a cap detachably sealing said filling opening, a fluid distributing head detachably mounted on said cap, a fluid applicator on said head, tubular means passing through said cap and forming a fluid passageway between the container and the fluid applicator, said tubular means including a pair of telescoping tubular members, a first one of which is secured to and passes through said sealing cap into the interior of the container, a second one of said tubular members being longitudinally adjustably and detachably secured to said distributing head, a flexible tube secured to said first tubular member within said container, and another flexible tube fitted to said second tubular member for adjustable location within the fluid applicator, said tubular means being adapted to pass a controlled quantity of fluid from the container through said flexible tubes and telescopic tubular members to that portion of the fluid applicator remote from said distributing head.

2. An applicator as set forth in claim **1** in which the free end of said tube within the container is weighted.

3. An applicator as set forth in claim **1** in which said distributor head includes a bristle brush.

4. An applicator as set forth in claim **1** in which said distributor head includes a pad.

5. An applicator as set forth in claim **1** in which a hand grip is attached to the applicator.

6. An applicator as set forth in claim **1** in which the tube within the container is U-shaped and whose free end takes a position within the container adjacent the fluid distributing head.

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