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(54) Title: IMPROVEMENTS IN OR RELATING TO BRUSHES

(57) Abstract

An applicator brush (9) for a fluid contained in a container (1) is provided with means (15, 18, 20) for cleaning deposits of the dried fluid from the neck (3) of the bottle (1), thereby maintaining the neck (3) substantially free of the deposits.
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IMPROVEMENTS IN OR RELATING TO BRUSHES

This invention relates to liquid containers equipped with replaceable caps which carry applicator brushes used to apply the liquid contents of the container to a surface. The invention has particular relevance to correction fluid bottles.

Correction fluid bottles are commonly supplied with screw caps which also serve as handles for applicator brushes which are used to coat a substrate, e.g. paper surface, in order to obliterate an incorrect marking such as a letter or word when a correction is to be made. When an applicator brush is used, it is common practice to use the bottle neck to wipe excess correction fluid from the brush head when it is withdrawn from the bottle. As a consequence a build up of dried fluid tends to occur on the bottle neck, and in view of the quick-drying nature of the fluid this can happen quite rapidly. The accumulation of dry fluid restricts the neck opening and can lead to damage to the brush head when it is being inserted into the bottle. In addition, it can lead to unintentional wiping of fluid from the brush head and hence exacerbation of the problem. As a consequence correction fluid
bottles are frequently discarded before they have been completely depleted of liquid.

The present invention addresses the above problem and as a solution provides an applicator brush for a container having a neck for insertion and removal of the brush, comprising an elongate stem carrying a brush head at a free end thereof, and including a portion spaced from the brush head and provided with cleaning means for contacting and detaching deposits collected within the neck, thereby to maintain the neck substantially free of such deposits.

In a preferred construction the brush stem portion has at least one longitudinal edge for removing deposits with a sweeping or wiping action when rotating the stem within the neck, such as when turning a cap carrying the applicator brush to screw it onto or off of the container. The edge or edges may be provided by splines or fins, or by the stem having a polygonal e.g. triangular cross section. The fins may be flexible and have an interference fit within the neck to obtain a true wiping action against the neck surface. Alternatively, the fins can be rigid and dimensioned to fit within the neck with a small clearance and hence to remove deposits with a reaming action.

A full understanding of the invention will be gained from the following detailed description of the embodiment shown in the drawings, in which:

Figure 1 shows in partial cross-section a correction fluid bottle equipped with an applicator brush in accordance with the invention;

Figure 2 is a perspective view of the
applicator brush; and

Figures 3, 4 and 5 are sections taken along the line A-A, B-B and C-C in Figure 2, respectively.

Apart from the applicator brush described fully below, the correction fluid bottle shown in Figure 1 is of known construction. It has a unitary body 1 with a neck 2 into which is fitted a neck insert 3 including an upper flange defining a sealing surface, and a stepped cylindrical tube with a large diameter upper part, a tapering intermediate section and a small diameter lower part. The neck insert can serve to prevent liquid spilling if the bottle is accidentally knocked over onto its side with the cap removed.

The neck 2 of the bottle is externally screw threaded for cooperation with the cap 4 which is correspondingly internally threaded at its lower open end. The cap interior is shaped to include an axial spigot 5 defining an annular slot 6, and an axial shoulder 7 which serve to attach and locate the applicator brush.

The applicator brush has a stem 10 with a bundle of bristles 9 fixed to and defining a brush head at the free lower end of the stem. The upper end of the stem is rigidly attached to the cap 4 and for this purpose there is formed integrally with the stem a flange 11 and a hollow cylindrical projection 12 which engages with a tight friction fit in the slot 6 with the flange 11 abutting the shoulder 7. The flange defines a sealing surface for cooperation with the sealing surface of the neck insert 3 when the cap is applied tightly to the bottle as shown in Figure 1.

The stem portion which extends through
the neck insert is formed to keep the inner surface of the neck surface clear of deposits.
An upper stem section 14 has a triangular cross section (Figure 3) defining three sharp longitudinal edges 15 which pass in contact with or at least in close proximity to the surface of the larger diameter neck part when the cap 4 is being twisted onto or off of the bottle.
Another stem section 16 is formed with three equi-spaced longitudinal splines or fins 17 defining longitudinal edges 18 which slide around, or move across in close juxtaposition to the surface of the smaller diameter neck part when the cap is being twisted on or off. At an intermediate stem section 19, the fins 17 gradually change in cross-section and eventually form the corner regions of the triangular section 14, whereby radially inclined edges 20 are formed for cooperation with the tapered neck portion for removing deposits therefrom. The lower end of the stem is cylindrical. The lower ends of the fins are tapered to ease insertion of the applicator through the bottle neck.

As will be understood from the foregoing description, the action of twisting the cap 4 onto and off of the bottle neck 2 will cause the edges 15, 18, 20 to move around the inner surface of the neck and remove any deposits. The deposits may drop back into the bottle or may collect on the brush stem between the cleaning edges, where they can do no harm.

It will be appreciated the number of cleaning elements provided around the brush stem is not crucial, the important factor being that there are sufficient to sweep the entire circumference of the neck surface.
CLAIMS

1. An applicator brush for a container having a neck for insertion and removal of the brush, comprising an elongate stem carrying a brush head at a free end thereof, and including a portion spaced from the brush head and provided with cleaning means for contacting and detaching deposits collected within the neck, thereby to maintain the neck substantially free of such deposits.

2. An applicator brush according to claim 1, wherein the brush is attached to a screw cap of the container, and said cleaning means are arranged to sweep deposits from the neck surface as the cap is screwed onto the bottle.

3. An applicator brush according to claim 2, wherein the cleaning means comprises at least one radially projecting elongate element.

4. An applicator brush according to claim 3, wherein the stem comprises a section of polygonal cross-section defining a plurality of longitudinal cleaning elements.

5. An applicator brush according to claim 4, wherein said stem section is triangular in cross-section.

6. An applicator brush according to claim 3, wherein the stem includes a section with at least one element in the form of a longitudinal fin.

7. An applicator brush according to claim 6, wherein the longitudinal fin is substantially rigid.

8. An applicator brush according to claim 3, wherein the cleaning element defines a radially directed cleaning edge.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : A46B 11/02
US CL : 401/122, 129

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 401/122, 129

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

NONE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
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<td>A</td>
<td>US, A, 3,662,769, (VASAS ET AL.), 16 May 1972.</td>
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Date of the actual completion of the international search

10 MARCH 1995

Date of mailing of the international search report

24 MAR 1995

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