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MARKING INSTRUMENTS WITH COLLAPSIBLE CONTAINERS

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FIG. 1

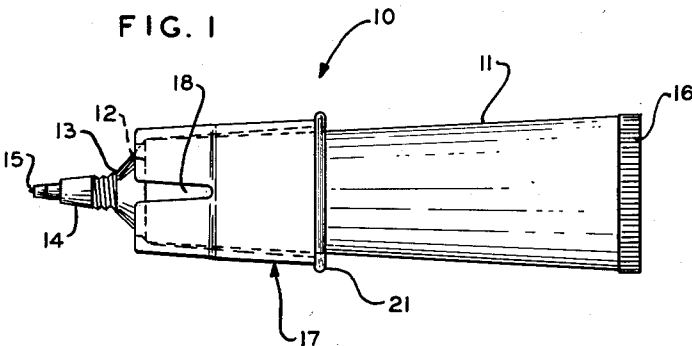


FIG. 2

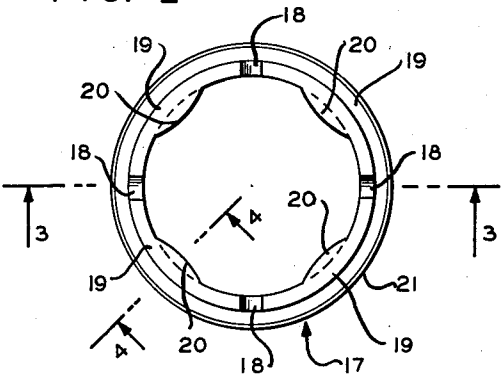


FIG. 3

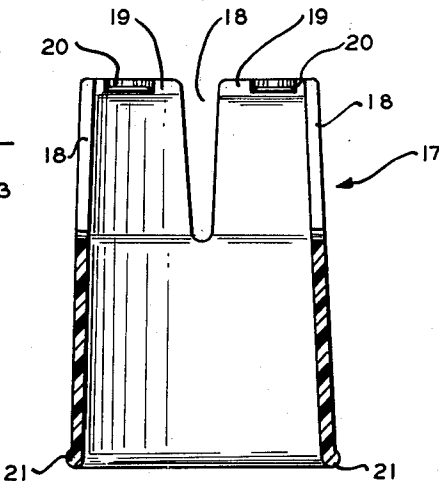
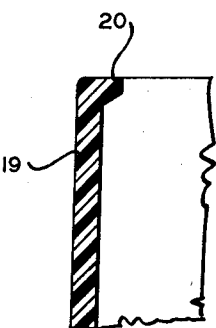


FIG. 4



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1

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MARKING INSTRUMENTS WITH COLLAPSIBLE CONTAINERS

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2 Claims. (Cl. 15—507)

This invention relates to marking instruments of the type using collapsible tube-like containers for the marking fluid, and more particularly it relates to providing such marking devices with a novel form of protective holder for the containers.

Marking devices of very economical construction are now widely sold in the form of the usual squeeze type tubular container provided with a ball type applicator at one end. The container is filled with a water-proof paint of paste like consistency and serves also as the means by which the marking device is held by the hand. The marking devices are used typically for painting designs on textiles, marking laundry and making identifications on hard surfaces such as stone, glass, metal, wood, plastic, etc. Containers of the collapsible type are very desirably used in these devices because they are mass produced for many uses and are therefore available at low cost. A gradual collapsing of the container to provide a slight feed-out pressure is, however, desirable only from the back end. For instance, in using these marking devices the user holds the container in the hand approximately at right angles to the surface to be marked and moves the ball tip of the applicator lightly across the surface. As this is done the ball retracts to feed out an even line of paint responsive to a small feed-out pressure exerted on the container. However, in using these marking devices people tend to grip the fragile collapsible containers with more pressure than is necessary, with the result that they gradually collapse the containers at the forward ends before the paint is used up and in so doing form a constriction against further feed-out of the remaining paint supply. Moreover, this distortion of the containers often develops leaks and renders the containers so that they are no longer suitable as holders for the marking devices. There is accordingly a need to protect the containers where they are normally gripped and receive their roughest usage.

The present invention resides in providing the collapsible container with a novel protective sleeve which can be easily mounted on the container to provide it with a rigid surface where the container is normally gripped by the hand, giving the user the opportunity of applying as much pressure as is desired in holding the marking instrument without distorting the container out of shape or damaging it in any way.

Objects of the invention are therefore to provide an economical marking instrument of improved construction and especially to provide a simple and economical improvement for a marking instrument of the type using a collapsible container for the marking fluid, which is adapted to give the instrument longer life and the capability of withstanding rougher use.

Another object is to provide a simple and economical protective holder for the collapsible container of such marking instruments, which can be readily attached to the container to permit the instrument to be held firmly by the hand without the container being distorted, collapsed or damaged.

2

These and other objects and features of the invention will be apparent from the following description and claims.

In the description of the invention, reference is had to the accompanying drawings, of which:

Figure 1 is a side view of a marking instrument of the character to which the invention particularly pertains, showing the container of the marking fluid provided with a protective holder according to the invention;

Figure 2 is an end view of the protective holder;

Figure 3 is a sectional view of the protective holder taken on the line 3—3 of Figure 2; and

Figure 4 is a fractional sectional view taken on the line 4—4 of Figure 2.

With reference to Figure 1, there is shown a marking instrument 10 comprising a container 11 for the marking fluid, which is of the usual squeeze type made of thin soft metal rendering it capable of being collapsed by the hand. The container has a circular end wall 12 slightly domed and provided with an externally threaded neck 13 for receiving a protective cap not shown. The neck has a tapered extension 14 provided with a dispensing orifice. Fitted into this orifice is a ball-type applicator 15 such as is described in my pending U.S. patent application S. N. 777,896 filed December 3, 1958, now Patent No. 2,930,062. The container is typically pinched flat at its outer end 16, giving it an increasing cross sectional dimension or taper throughout its length.

In using this marking instrument the container 11 is gripped between the fingers just above the domed end wall 12 and is held approximately normal to the surface to be marked while drawing the ball tip lightly across the surface. In so doing the ball feeds out an even line of paint onto the surface responsive to a small feed-out pressure. Although only a light grip of the hand is necessary to hold the instrument, users tend to apply an excessive pressure and to collapse and constrict the inner end portion of the container. This also oftentimes develops cracks, and distorts the container out of shape so that it can no longer be conveniently held in the hand. To provide the container itself with a sufficient structural strength to withstand the usual grip of the hand would preclude the use of the economical squeeze type collapsible container.

By the invention the collapsible container is provided with a simple protective sleeve 17 made of a yieldable material, preferably of a plastic such as polystyrene. Such sleeve has sufficient strength to withstand the usual grip of the hand without collapsing. The protective sleeve is made so that it can be telescoped onto the inner end portion of the container 11 and have a tight fit thereon by giving the sleeve a taper exceeding that of the container, and by providing the smaller-diameter end portion thereof with a plurality of slits 18, preferably four, lengthwise of the sleeve. These slits provide the sleeve with four spring fingers 19. By making the protective sleeve with a free diameter at its smaller end which is less than the diameter of the shouldered end of the collapsible container, the smaller end portion of the sleeve is expanded, with the fingers firmly frictionally gripping the shouldered end portion of the container where it has its greatest strength, as the sleeve is telescoped onto the container. A series of nodes or inwardly extending end flanges 20 on the respective fingers 19 serve as stops which abut against the shouldered end of the container to locate the protective sleeve in its mounted position. A reinforcing bead 21 is provided on the sleeve at its larger end.

Since the present protective sleeve is economical to produce by molding and easy to mount and provide the fragile collapsible container with the needed protection to withstand the rough usage which the present marking

3

instruments receive, giving the container sufficient life to last until the tube of paint is all used up, which may extend over a period of several years with many users, the present protective holder is an important feature of my improved marking instrument.

The embodiment of my invention herein particularly shown and described is intended to be illustrative and not necessarily limitative of my invention since the same is subject to changes and modifications without departure from the scope of my invention, which I endeavour to set forth according to the following claims.

I claim:

1. In combination: a collapsible container for a marking fluid to be dispensed, said container having a cone shaped wall at one end provided with a neck having an orifice through which said fluid is dispensed, an applicator attached to said neck for dispensing a thin line of said fluid onto a surface when the container is held by the hand normal to said surface and the applicator is moved across the surface, a tubular non-collapsible sleeve of a resilient material telescoped onto said one end portion of said container to provide a rigid holder for said collapsible container enabling the container to be gripped and held by the hand, said tubular sleeve being tapered and having an inwardly extending flange at its reduced-diameter end for abutting against said end wall and locating the sleeve in mounted position on the container, and said sleeve having a plurality of slits running lengthwise of the sleeve from its reduced-diameter end providing the sleeve with yieldable fingers for frictionally gripping the rim of said end wall of the container as the sleeve is slid onto the container, the diameter of said end wall of the

4

container being greater than the free diameter of the reduced-diameter end portion of said sleeve causing said fingers to be spread outwardly in frictional gripment with the rim of said end wall as the sleeve is slid onto the container.

2. A protective holder for a collapsible fluid container of a marking instrument provided with a relatively rigid cone-shaped wall and an applicator at one end, said container being adapted to be gripped by the fingers of the hand to move the applicator across a surface to be marked, comprising a non-collapsible protective tubular sleeve of a yieldable material telescoped onto said container from said one end, said sleeve having a length equal approximately to one-half the length of said container and having a taper throughout its length, the reduced-diameter end portion of said sleeve having slits running lengthwise of the sleeve to provide it with yieldable fingers for gripping the rigid end wall of said container with a compressive force as the sleeve is telescoped onto the container, and said fingers of the sleeve having inwardly extending flanges at the ends thereof for abutting against said end wall of the container to locate the sleeve in mounted position on the container.

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