This invention relates to paste tubes in general and more particularly to toothpaste tubes. As is well known, after repeated use in dispensing the contents of such tubes, they become cracked and often torn so that they are not only unsightly and messy but paste tends to leak out through cracks in the tube on to the hands.

In order to overcome the above as well as other disadvantages resulting from the repeated squeezing of paste from such tubes, it is an object of the present invention to provide a novel and improved preferably transparent plastic pliable shield, cover or housing to contain the tube, such cover not only protects the tube from damage during use but it enables efficient dispensing of the paste with greater ease.

Another object of the invention is the provision of a protective cover for paste tubes so constructed that it may be applied successively to replacement tubes after the contents of the first tube have been exhausted.

A further object of the invention is to provide such a protective cover in the shape of a tube substantially complementary to the shape of the paste tube, with the protective cover open at the bottom to permit insertion thereinto or extraction therefrom of a paste tube, with the further provision of means for releasably locking the paste tube within the protective cover. Additional means is provided to permit suspension, in upside-down position, of the protective tube with the paste tube therein so that gravity will aid in maintaining the paste tube outlet end at the lower end of the protective cover when not being used.

The above as well as additional objects will be clarified in the following description wherein reference numerals refer to like-numbered parts in the accompanying drawing.

It is to be noted that the drawing is intended primarily for the purpose of illustration and that it is therefore neither desired nor intended to limit the invention necessarily to any or all of the exact details shown or described except insofar they may be deemed essential to the invention.

Referring briefly to the drawing,

FIG. 1 is a front elevational view of a paste tube cover or shield with a capped paste tube enclosed therein, showing an embodiment of the present invention.

FIG. 2 is a sectional view taken on the line 2—2 of FIG. 1.

FIG. 3 is an exploded view showing the shield open at the bottom and a conventional paste tube in position to be inserted into the shield.

FIG. 4 is a fragmentary perspective view of a modified form of shield.

FIG. 5 is a fragmentary sectional view through the modified form of shield and a paste tube contained therein.

Referring in detail to the drawing, the numeral 10 indicates a filled standard collapsible tube of the type which contains toothpaste or other material in paste or other material in paste or ointment form. Such tubes are provided with frusto-conical shoulders, as at 11 and a threaded outlet neck 12 as well as the removable closure cap 13.

The present invention provides a protective shield 14 of substantially the same tubular conformation as the tube 10 and made of a strong but pliable preferably transparent flexible material, preferably of sheet material having a thickness of about one thirty-second of an inch.

The tubular shield is completely open at the bottom, as shown at 15; at its upper end it has a frusto-conical flange complementary to the shoulder 11 of the paste tube, surrounding a circular opening 17 of a diameter slightly larger than the diameter of the closure cap 13.

It is apparent from FIG. 3 that the tube 10 may be inserted into the shield 14 into the position shown in FIG. 2, with the cap 13 projecting through the opening 17. With the tube thus positioned in the shield 14, the following means is provided for closing the opening 15 sufficiently to releasably maintain or lock the tube 10 within the shield in the position shown in FIG. 2. Interengageable male and female snap-button parts 18 and 19 are provided in opposite walls of the shield, in mutual alignment, at a position near to but spaced from the lower end of the shield as well as closely adjacent the lower edge 20 of the paste tube.

In order that the shield with the paste tube therein may be hung from a hook or the like, not shown, in upside-down position, aligned grommets 21 are provided in the same opposed walls of the shield, below the snap-button members 18, 19, so that when the snap-button members are interengaged as in FIG. 2 the grommets 21 are in mutual contact and provide a through hole 22 through the shield.

If desired, graduations 23, FIG. 1, may be provided along one edge of the shield, as a guide, especially to children, to indicate where the shield and hence the paste tube is to be squeezed, and for how large a distance, to expel a proper amount of paste from the tube. In expelling paste, the tube will be squeezed first at the bottom and thence progressively upward. As the paste tube thus becomes progressively depleted, the opening 17 becomes reduced so that there will be increased play between the tube and the shield. Suspending the whole upside-down will maintain the tube in advanced position with the cap 13 protruding from the opening 17.

When the tube 10 has been substantially emptied of its contents to warrant discarding it, the snap-button is opened and the paste tube is dropped through or withdrawn from the open bottom of the shield, when a fresh full tube is again inserted and the snap-button closed. Thus the shield may be used again and again, with consequent economy.

In the modification shown in FIGS. 4 and 5, parts which are equivalent to parts previously described bear the same reference numerals followed by the suffix "a." The essential difference between this modification and the form shown in FIGS. 1–3, is that a bead or ring 23 is provided around the opening 17a, which rather snugly fits around the base of the outlet neck 12 of the paste tube 10.

When the cap 13 is screwed down upon the neck 12, it comes down upon the bead 23 and, to some extent, compresses it in the manner of a washer, thus forming a tight fit and serving to hold the paste tube in its advanced position within the shield. At 24 is shown a disc of paper or other suitable material such as is commonly provided within the cap 13, to serve as a seal of the outlet when the cap is in closure position.

While the invention has been described with particular reference to the construction shown in the drawing such is not to be construed as a limitation upon the invention which is best defined in the accompanying claims.

What is claimed and desired to be secured by Letters Patent is as follows:

1. A protective device for enclosing a collapsible paste tube, comprising a pliable plastic tubular shield having a reduced opening in the top thereof through which the threaded discharge neck of a collapsible tube mounted in the device is adapted to project, the shield having substantially the conformation of a collapsible paste tube and having a wide opening at the bottom thereof through which the paste tube is adapted to be inserted into or
withdrawn from the shield, and releasable means for closing said last-named opening.

2. A protective device according to claim 1, said reduced opening in said shield having a diameter larger than the diameter of said closure cap.

3. A protective device according to claim 1, said shield having a bead around said reduced opening in the top thereof, said bead having a diameter substantially equal to the diameter of the closure cap and being adapted to be clamped between the open end of said closure cap and the portion of said top of the paste tube which surrounds said neck.

4. A protective device according to claim 1, said releasable means comprising aligned interengangeable snap-button members mounted on opposed walls of said shield near said bottom thereof.

5. A protective device according to claim 4, said snap-button members being positioned closely adjacent the lower end of the collapsible tube enclosed by the shield.

6. A protective device according to claim 5, having aligned grommets in said opposed walls of the shield positioned below said snap-button members and providing a through hole in the shield for hanging the device from a hook in upside-down position.

7. The combination of a collapsible paste tube and a pliable plastic protective shield enclosing the paste tube, the paste tube body having a reduced threaded discharge neck on the upper end thereof and a seal on the lower end thereof, a closure cap threaded on said neck, said shield having substantially the same tubular conformation as said paste tube and having a wide opening at the lower end thereof and a reduced opening on the upper end thereof through which said neck projects, the paste tube being insertible upward into said shield through said wide opening, and snap-button means mounted on opposed walls of said lower end of the shield for closing said wide opening, said snap-button means being positioned at a distance from said upper end of the shield substantially equal to the length of the paste tube body.

8. A combination according to claim 7, said upper end of said shield having a circumferential bead surrounding said reduced opening therein, said bead having substantially the same diameter as said cap and being normally clamped between the open end of said cap and said upper end of the shield.

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