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H. F. TEMPLE

2,125,250

COLLAPSIBLE TUBE

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Fig 2

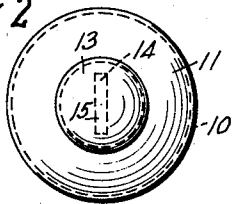


Fig 3

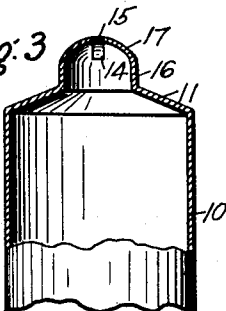
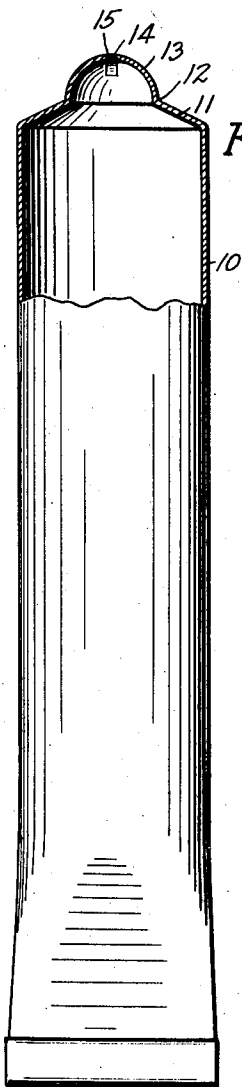


Fig 1



INVENTOR.
Harold F. Temple

BY

Harry Jacobson
ATTORNEY.

UNITED STATES PATENT OFFICE

2,125,250

COLLAPSIBLE TUBE

Harold F. Temple, Freeport, N. Y., assignor to
Victor Metal Products Corporation, Brooklyn,
N. Y., a corporation of New York

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2 Claims. (Cl. 220—27)

This invention relates to collapsible tubes and particularly to the capless type known as "one-application" tubes.

Collapsible tubes designed to contain just enough material for a single use have heretofore been sealed at both ends thereof, the seal at one of the ends being intended to be breakable to expose a material discharge opening through which all of the contents may be discharged at one time. The breakable seals of such tubes, however, frequently do not break as intended, thereby necessitating the use of tools or annoying manipulation to make a proper discharge opening in the tube.

My invention therefore contemplates the provision of a sealing member for the tube, which member while sufficiently strong to withstand the pressure of filling the tube and the stresses inherent in shipment and handling, is made so thin, that it may be readily ruptured by pressure thereon exerted by the finger or nail of the user.

My invention further contemplates the provision of an extremely thin sealing member bridging a space intended to become the discharge opening of the tube and readily breakable deliberately but strong enough to prevent accidental breakage thereof.

The various objects of my invention will be clear from the description which follows and from the drawing, in which,

Fig. 1 is a front elevation and partial vertical section of one form of my invention.

Fig. 2 is a top plan view thereof.

Fig. 3 is a view similar to Fig. 1 of a somewhat modified form of the invention.

In the practical embodiment of my invention which I have shown by way of example, the body portion 10 is made of the usual cylindrical form and of thin collapsible material such as tin, aluminum or the like. Projecting integrally from the upper end of said body portion 10 is the frusto-conical portion 11 terminating at the line indicated by the numeral 12. A projection or neck 13 of hemi-spherical form as shown in Figs. 1 and 2, projects from the upper end of the frusto-conical portion 11 and as shown, is provided with a rectangular or "ribbon" recess 14, said recess extending outwardly from the inner surface of the portion 13 to such an extent as to form a sealing member 15 of approximately half or less the thickness of the wall of said portions 10, 11 and 13.

Because of its extreme thinness, said sealing member while hardly noticeable from the exterior of the tube, may, however, be readily rup-

tured by concentrated though slight pressure thereupon. For example, the user may merely run his finger across the top portion of the member 13, putting slight pressure thereupon, which pressure exerts a sufficient unit stress upon the member 15 to cause said member to rupture. Or, the user may run his finger nail across said sealing member to rupture it and to depress it sufficiently to expose a resulting ribbon opening.

In that form of the invention shown in Fig. 3, the form of the member 13 is slightly changed, there being provided a cylindrical neck portion 16 terminating in a partly spherical portion 17. The recess 14 and the sealing member 15, however, may remain substantially the same as illustrated in Figs. 1 and 2.

I have found that the sealing members hereinabove described may be extremely thin, that is, on the order of about 0.003 of an inch in thickness but are, nevertheless, sufficiently strong to withstand ordinary handling and to withstand the pressure of filling the tube, since while the total stress on the interior surface of the tube and on the sealing member may be large, the unit stress thereon is small and insufficient to cause rupture. Such rupture, nevertheless, may be easily effected by downward pressure on the sealing member since the unit stress thereon is then comparatively large.

It will be seen that I have provided a one-piece thin collapsible tube with a sealing member which can readily be broken with ease when necessary to expose an adequate discharge opening and that I have provided a structure designed to meet the requirements of practical use.

While I have shown and described certain specific embodiments of my invention, I do not wish to be understood as limiting myself thereto, but intend to claim the invention as broadly as may be permitted by the state of the prior art and the scope of the appended claims.

I claim:

1. A one piece collapsible tube of the type having an hermetically sealed discharge end which is adapted to be ruptured comprising a body portion substantially cylindrical in configuration and an end portion, said end portion being formed integral with said body portion and comprising a frusto-conical part and a teatlike protuberance associated therewith, the end of which is of gradually diminishing circular section, a relatively narrow slot-like elongated weakened portion formed in said protuberance end in a manner whereby the exterior surface of said protuberance is left substantially smooth and regu-

lar, said weakened portion being of a width and thickness adapted to be pierced by the thumb nail, whereby insertion of the thumb nail through the weakened portion effects a gradual shearing
5 of the weakened portion.

2. A one piece collapsible tube of the type having an hermetically sealed discharge end which is adapted to be ruptured comprising a body portion substantially cylindrical in configuration and an end portion, said end portion being
10 formed integral with said body portion and comprising a frusto-conical part and a teatlike protuberance associated therewith, the end of

said protuberance being formed in the shape of the curved surface of a segment of a sphere, a relatively narrow slot-like elongated weakened portion formed in said protuberance end in a manner whereby its external surface is substantially smooth and unbroken, said weakened portion being of a width and thickness adapted to be pierced by the thumb nail, whereby insertion of the thumb nail through the weakened portion effects a gradual shearing of the weakened portion.
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HAROLD F. TEMPLE.