April 13, 1937. P. REINSBERG 2,076,826

COLLAPSIBLE TUBE CLOSURE

Filed Dec. 11, 1936

Fig. 1

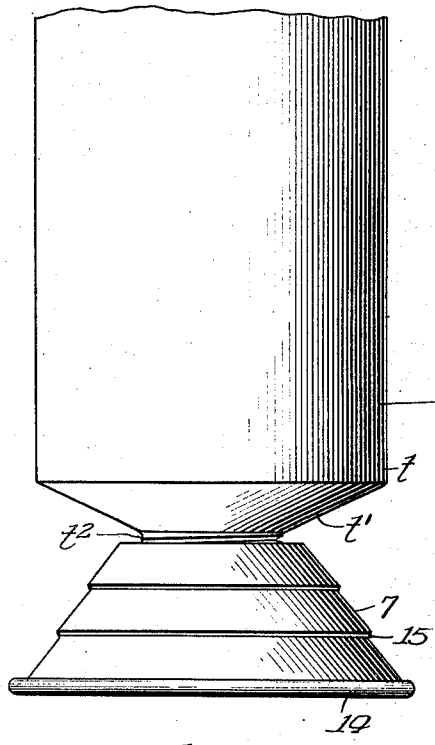


Fig. 2

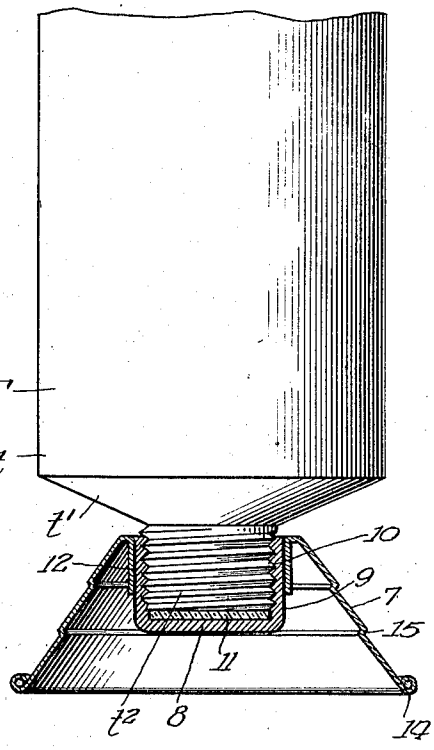


Fig. 3

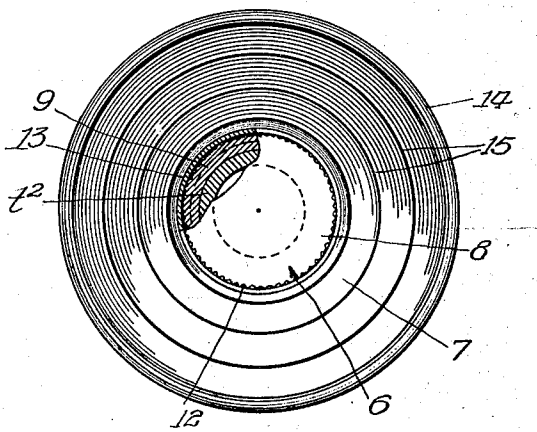


Fig. 4

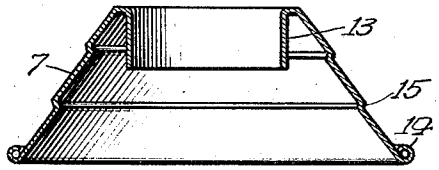
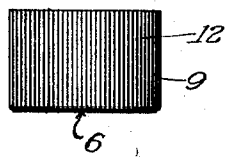


Fig. 5



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COLLAPSIBLE TUBE CLOSURE

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11 Claims. (Cl. 221—60)

The present invention relates generally to closures. More particularly the invention relates to that type of closure which is designed for use with a paste dispensing collapsible tube having an externally threaded discharge nipple at one end thereof and comprises (1) a cap part which has an internally threaded socket for the discharge nipple of the tube and is adapted when screwed into connected relation with the nipple to close or seal the latter and thus prevent extrusion of the paste within the tube; and (2) a continuous skirt which surrounds the cap part and serves not only as a finger grip whereby the cap part may be readily unscrewed from or applied to the discharge nipple of the tube but also as a pedestal whereby the tube may be retained or supported in an inverted upstanding position.

One object of the invention is to provide a collapsible tube closure of this type which is more practical and durable, and is less costly to produce than previously designed closures of the same general character by reason of the fact that the pedestal forming skirt is formed separately from the cap part and is in the form of a sheet metal stamping.

Another object of the invention is to provide a collapsible tube closure of the last mentioned character in which the separately formed skirt embodies a depending inturned flange in the central portion thereof and the cap part is knurled on the outer face thereof and is pressed into interlocked or fixed relation with the inrolled flange of the skirt.

A further object of the invention is to provide a closure of the type and character under consideration in which the separately formed sheet metal skirt is of conical design, that is, tapered from the lower end thereof to the upper end and embodies a rib type formation around the central portion thereof whereby it is reinforced against bending or distortion.

A still further object of the invention is to provide a collapsible tube closure which is generally of new and improved construction and efficiently serves its intended purpose.

Other objects of the invention and the various advantages and characteristics of the present collapsible tube closure will be apparent from a consideration of the following detailed description.

The invention consists in the several novel features which are hereinafter set forth and are more particularly defined by claims at the conclusion hereof.

In the drawing which accompanies and forms a part of this specification or disclosure and in which like numerals of reference denote corresponding parts throughout the several views:

Figure 1 is a side elevational view showing a closure embodying the invention in connected relation with the discharge nipple of a paste dispensing collapsible tube;

Figure 2 is a vertical sectional view of the closure, illustrating the construction and design of the skirt and cap part and showing the manner in which the cap part is fixed to the inturned flange of the skirt;

Figure 3 is an inverted plan view of the closure, parts being shown in horizontal section for purposes of illustration;

Figure 4 is a vertical section of the skirt of the closure; and

Figure 5 is a side elevational view of the cap part.

The closure which is shown in the drawing constitutes the preferred embodiment of the invention. It comprises a cap part 6 and a skirt 7, and is designed to form a seal as well as a pedestal for a collapsible paste dispensing tube T. The latter is shown in the drawing as being of conventional design or construction and consists of a continuous side wall t and an end wall t^1. The end wall embodies in the central portion thereof an externally threaded discharge nipple t^2 through which the paste within the tube may be discharged or extruded when the side wall is squeezed or pressed together.

The cap part 6 of the closure is formed of tin or like metal. It serves as a seal for the discharge nipple of the tube and consists of a circular end wall 8 and a cylindrical side wall 9. The side wall forms with the end wall 8 a socket for the discharge nipple and embodies an internal screw thread 10 for the external thread of the nipple. The end wall 8 is formed integrally with the side wall 9 and is adapted to extend across the end of the discharge nipple when the cap part 6 is in connected or sealed relation with the nipple. A sealing disk 11 of cork or like elastic material is disposed in the socket within the cap part of the closure and abuts or is seated against the inner face of the end wall 8. When the cap part 6 is screwed tightly into connected relation with the discharge nipple of the tube this disk is clamped by the end wall 8 against the outer end of the nipple and serves to seal or close the latter. The side wall of the cap part 6 is of uniform diameter from end to end and

has longitudinal knurls 12 on its outer face or periphery.

The skirt 7 of the closure surrounds the cap part 6 and serves as a handle or finger gripping medium for facilitating unscrewing and application of the cap part and also as a pedestal whereby the tube T may be retained or held in an upstanding position. It is in the form of a sheet metal stamping and is conical, that is, tapered from the bottom thereof to its top. The upper or small end of the skirt embodies an integral inturned flange 13. This flange fits tightly around the upper end of the cylindrical side wall 9 of the cap part 6 and forms the attaching or connecting medium between the cap part and the skirt. In assembling the closure, the cap part is inserted into the flange and is then pressed inwards until the outer end of the side wall 9 is flush with the small or upper end of the skirt 7. During the pressing operation the knurls 12 on the outer face or periphery of the side wall of the cap part are jammed into interfitting relation with the inner periphery of the flange and are distorted in such manner that the cap part becomes rigidly attached or fixed to the flange 13. As shown in Figure 2, the flange 13 is but slightly more than half as long as the side wall of the cap part. Because of this and the fact that the outer end of the side wall of the cap part is flush with the small end of the skirt 7 the inner end of the side wall of the cap part is exposed and hence may be gripped for turning purposes when the fingers are inserted within the skirt 7. The lower or large end of the skirt 7 projects beneath the cap part 6, as shown in Figure 2, and the bottom extremity thereof is bent upwardly and then inwardly to form an annular bead 14. This bead serves to reinforce or strengthen the skirt and operates as a foot for the skirt when the closure is placed on a shelf or other supporting surface. The central portion of the skirt 7 is shaped to form a pair of annular laterally spaced inrolled ribs 15. These ribs strengthen the skirt in such manner that it is not likely to become bent or distorted during use of the closure. The skirt is preferably formed of sheet metal which is harder and less expensive than tin. By forming the skirt of metal of this type the cost of producing the closure is extremely small. In addition efficient interlock or rigid connection between the side wall of the cap part 6 and the flange 13 is effected. The latter is directly attributable to the fact that the knurls 12 which are formed on the outer periphery of the side wall of the rib part are softer than the flange and as a result grip the latter without weakening it to any material extent.

When it is desired to apply the closure to the tube T it is only necessary to insert the outer end of the externally threaded discharge nipple t^2 in the socket in the cap part 6 of the closure and then screw the cap part on the nipple by rotating the skirt 7. When the closure is applied to the tube T the latter may, if desired, be placed in an upstanding position. When the tube is placed in such a position the skirt 7 serves as a pedestal and retains the tube in place. By reason of the fact that the skirt 7 is conical as contradistinguished from cylindrical the outer marginal portion of the end F^1 wall of the tube T is exposed and hence any paste which accumulates thereon may be readily removed while the closure is in place.

The herein described collapsible tube closure due to its specific construction may be manufactured at a low and reasonable cost. It is practical and durable and efficiently fulfills its intended purpose.

The invention is not to be understood as restricted to the details set forth, since these may be modified within the scope of the appended claims, without departing from the spirit and scope of the invention.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent is:

1. As a new article of manufacture, a closure adapted for use with a paste dispensing collapsible tube having an externally threaded discharge nipple, and comprising a cup-shaped cap part having an internally threaded socket for receiving and closing the discharge nipple of the tube, and a separately formed skirt around the cap part adapted to form a pedestal for supporting the tube in an inverted upstanding position and having an inturned flange at the central portion thereof fitting tightly around the cap part and serving to secure the latter in fixed relation with respect to the skirt.

2. As a new article of manufacture, a closure adapted for use with a paste dispensing collapsible tube having an externally threaded discharge nipple, and comprising a cup-shaped cap part having an internally threaded socket for receiving and closing the discharge nipple of the tube, and a separately formed sheet metal skirt around the cap part adapted to form a pedestal for supporting the tube in an inverted upstanding position and having an integral inturned flange at the central portion thereof fitting tightly around the cap part and serving to secure the latter in fixed relation with respect to the skirt.

3. As a new article of manufacture, a closure adapted for use with a paste dispensing collapsible tube having an externally threaded discharge nipple, and comprising a cup-shaped cap part having an internally threaded socket for receiving and closing the discharge nipple of the tube, and embodying a cylindrical side wall of uniform external diameter from one end thereof to the other, and a separately formed skirt around the cap part adapted to form a pedestal for supporting the tube in an upstanding position and having an inturned annular flange at the central portion thereof fitting tightly around the side wall of the cap part and serving fixedly to secure the cap part and the skirt together.

4. As a new article of manufacture, a closure adapted for use with a paste dispensing collapsible tube having an externally threaded discharge nipple, and comprising a cup-shaped cap part having an internally threaded socket for receiving and closing the discharge nipple of the tube, and embodying a cylindrical side wall of uniform external diameter from one end thereof to the other, and a separately formed sheet metal skirt around the cap part adapted to form a pedestal for supporting the tube in an inverted upstanding position and having an integral inturned annular flange at the central portion thereof fitting tightly around the outer end of the side wall of the cap part and serving fixedly to secure the cap part and the skirt together.

5. As a new article of manufacture, a closure adapted for use with a paste dispensing collapsible tube having an externally threaded discharge nipple, and comprising a cup-shaped cap part having an internally threaded socket for receiving and closing the discharge nipple of the tube, and embodying a continuous side wall with knurling on the outer face thereof, a sepa-

rately formed skirt around the cap part adapted to form a pedestal for supporting the tube in an inverted upstanding position and having an inturned flange in the central portion thereof fitting tightly around and locked by the knurling to the side wall of the cap part and serving to secure said cap part in fixed relation with the skirt.

6. As a new article of manufacture, a closure adapted for use with a paste dispensing collapsible tube having an externally threaded discharge nipple, and comprising a cup-shaped cap part having an internally threaded socket for receiving and closing the discharge nipple of the tube, and embodying a continuous side wall of uniform external diameter from one end thereof to the other and with longitudinal knurls on its outer face, and a separately formed sheet metal skirt around the cap part and adapted to form a pedestal for supporting the tube in an inverted upstanding position and having an integral inturned flange at the central portion thereof fitting tightly around and locked by the knurling to the side wall of the cap part.

7. As a new article of manufacture, a closure adapted for use with a paste dispensing collapsible tube having an externally threaded discharge nipple, and comprising a cup-shaped cap part having an internally threaded socket for receiving and closing the discharge nipple of the tube, and a conical separately formed sheet metal skirt around the cap part adapted when the large end thereof is placed on a horizontal supporting surface to support the tube in a horizontal upstanding position and having an integral continuous flange on the small end thereof fitting tightly around the cap part and serving to secure the latter in fixed relation with respect to the skirt.

8. As a new article of manufacture, a closure adapted for use with a paste dispensing collapsible tube having an externally threaded discharge nipple, and comprising a cup-shaped cap part having an internally threaded socket for receiving and closing the discharge nipple of the tube, and a conical separately formed sheet metal skirt around the cap part adapted when the large end thereof is placed on a horizontal supporting surface to support the tube in a horizontal upstanding position and having an integral continuous inturned flange on the small end thereof fitting tightly around the cap part and serving to secure the latter in fixed relation to the skirt.

9. As a new article of manufacture, a closure adapted for use with a paste dispensing collapsible tube having an externally threaded discharge nipple, and comprising a cup-shaped cap part having an internally threaded socket for receiving and closing the discharge nipple of the tube, and embodying a cylindrical side wall with knurling on the outer face thereof, and a conical separately formed sheet metal skirt around the cap part adapted when the large end thereof is placed on a horizontal supporting surface to support the tube in a horizontal upstanding position and having an annular integral inturned flange at the small end fitting tightly around the wall of the cap and locked by the knurling to the side wall of the cap part and serving to secure the cap part and skirt in fixed relation.

10. As a new article of manufacture, a closure adapted for use with a paste dispensing collapsible tube having an externally threaded discharge nipple, and comprising a soft metal cup-shaped cap part having an internally threaded socket for receiving and closing the discharge nipple of the tube and embodying a cylindrical side wall of uniform external diameter from end to end and with longitudinal knurls on its outer face, and a skirt around the cap part stamped from comparatively hard sheet metal, adapted to form a pedestal for supporting the tube in an inverted upstanding position and having an integral annular flange at the central portion thereof fitting around and locked by the knurls on the side wall of the cap part and serving fixedly to connect the cap part and skirt together.

11. As a new article of manufacture, a closure adapted for use with a paste dispensing collapsible tube having an externally threaded discharge nipple, and comprising a cup-shaped cap part having an internally threaded socket for receiving and closing the discharge nipple of the tube, and a conical skirt around the cap part in the form of a sheet metal stamping, adapted when the large end thereof rests on a horizontal supporting surface to support the tube in a horizontal upstanding position and having on the central portion thereof annular reinforcing ribs and at its small end an integral continuous flange fitting tightly around the cap part and serving to secure the latter in fixed relation with respect to the skirt.

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