March 31, 1936. A. W. KATH 2,035,656

METHOD OF CLOSING AND SEALING COLLAPSIBLE TUBES

Filed Nov. 9, 1932

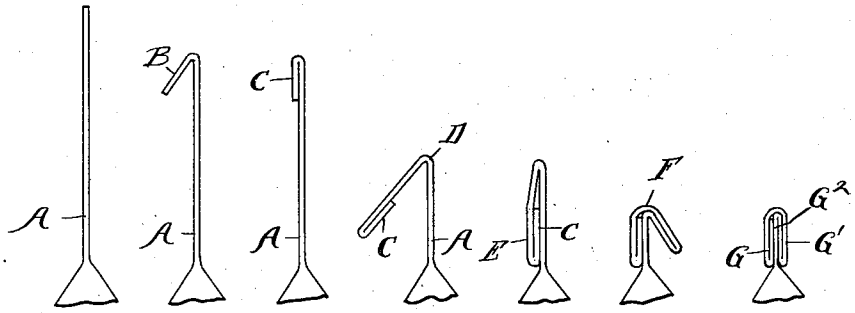


Fig. 1. Fig. 2. Fig. 3. Fig. 4. Fig. 5. Fig. 6. Fig. 7.

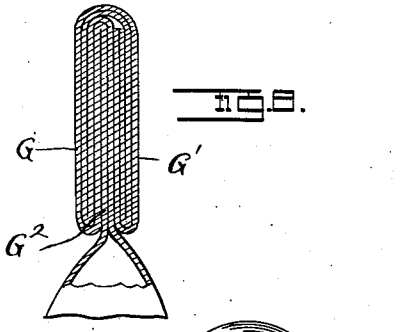


Fig. 8.

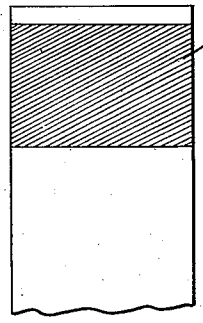


Fig. 11.

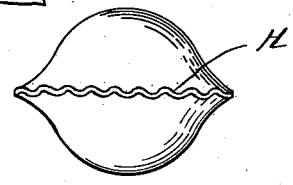


Fig. 9.

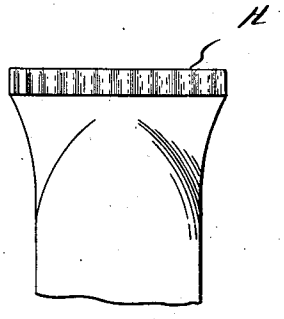


Fig. 10.

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METHOD OF CLOSING AND SEALING COLLAPSIBLE TUBES

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Application November 9, 1932, Serial No. 641,919

3 Claims. (Cl. 113—121)

The invention relates to collapsible tubes such as are used for holding plastic and liquid substances and the invention consists in the method for effectively closing and sealing the ends of the tubes as hereinafter set forth.

In the drawing:

Figs. 1 to 7 are series of diagrams illustrating the successive steps in the closing and sealing of the end of the tube;

Fig. 8 is a section through the closed end of the tube;

Fig. 9 is a side elevation of the end portion of the closed tube;

Fig. 10 is an end elevation thereof;

Fig. 11 is a side elevation of the tube prior to closing showing the means for providing contrasting colors or shades in the body portion and closure portion of the tube.

As shown in Fig. 1, the filled tube is provided with an extension or unfilled end portion A which is first flattened down. The outer end portion of this flattened part, substantially one-fifth the entire length thereof, is then folded over along the line B and flattened down to form a return bend C substantially one-fourth the length of the unfolded flattened portion, Fig. 3. The portion A is then again bent in the same direction along a center line D and flattened down to form a return bend E substantially twice the length of the portion C as shown in Fig. 5. This return bend portion is then folded in the reverse direction along a central line F, Fig. 6, and flattened down to form return bends G and G' upon opposite sides of a central portion G^2. Finally, all of the plies are corrugated or crimped as indicated at H, Figs. 9 and 10, to reinforce the same and prevent unfolding.

As shown in enlarged cross section, Fig. 8, the closed end comprises ten plies of the metal wall of the tube which are arranged symmetrically with five plies on each side of the central plane. These when reinforced by crimping will give sufficient rigidity to the structure so as to prevent unsealing by any stresses incident to the ordinary handling and use of the tube. It will also be noted that the original flattened portion of the tube is bent to form a double fold on each side thereof.

It is some times desired to form the exposed surface of the folded portion of the tube of a different color or contrasting shade from the body portion of the tube. This may be accomplished in the formation of the original tube by placing a band I of the contrasting color across the tube in the portion thereof which will eventually form the two outer plies. This band may be slightly greater in width than required for these outer plies, thereby insuring that all of the exposed surface will be of the contrasting color or shade while the body of the tube is of another color or shade. This is illustrated in Fig. 11.

What I claim as my invention is:

1. The method of closing and sealing filled collapsible tubes which consists in flattening the end of the tube beyond the filled portion thereof, folding over the end portion of the flattened tube to form a return bend, refolding in the same direction a portion substantially twice the length of the first fold, and folding the re-folded portion at the center thereof in the reverse direction.

2. The method of closing and sealing filled collapsible tubes which consists in flattening a portion of the tube beyond the filled portion thereof, folding over the end of the flattened portion to form a return bend extending substantially one quarter the length of the remainder of said flattened portion, re-folding in the same direction at the center of said remaining portion and folding at the center of the re-folded portion in the opposite direction.

3. The method of closing and sealing collapsible tubes with the sealed end a contrasting color from the body portion which consists in forming on the outer surface of the end portion of the unfilled tube a band of the contrasting color, flattening the portion beyond the filled portion of the tube and folding and refolding said flattened portion to place said band of contrasting color in the outermost fold.

ALFRED W. KATH.