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W. C. TERRY

2,321,333

CLOSURE DEVICE

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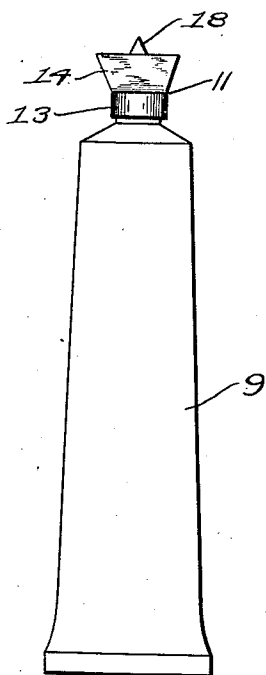


Fig. 1

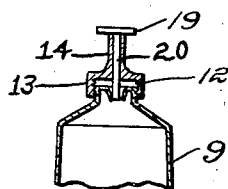


Fig. 3

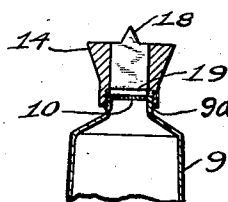


Fig. 2

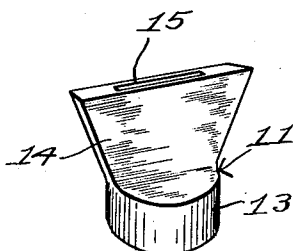


Fig. 4

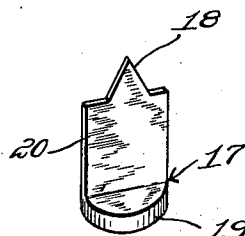


Fig. 5

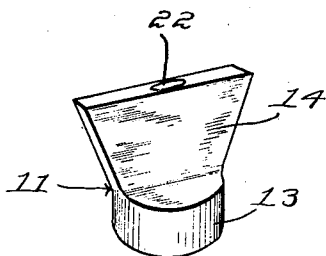


Fig. 6

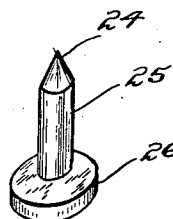


Fig. 7

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UNITED STATES PATENT OFFICE

2,321,333

CLOSURE DEVICE

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7 Claims. (Cl. 15—135)

This invention relates to a device adapted to make a discharge opening in a tube and also close it, and which also serves as a spreader of the material discharged from said tube.

Tubes that contain adhesives such as household cement, rubber cement and the like, are commonly sealed or permanently closed at their discharge end when the consumer obtains them. This closed end must first be punctured to provide an opening through which to obtain the adhesive in said tube, and it is my object to provide a closure device that has means to pierce said closed end and which also may serve as a readily removable stopper to prevent involuntary discharge of said cement. Said means is adapted to serve a double purpose as it can extend into said device with said piercing end on the outside or on the inside as desired, depending upon conditions.

Another object is to make said device of a simple construction that can be used in association with various kinds of tubes and that embodies an efficient spreader portion.

The foregoing and other objects will appear as the nature of the invention is better understood, may be accomplished by a construction, combination and arrangement of parts such as is disclosed by the drawing and specification. The nature of the invention is such as to render it susceptible to various changes and modifications, and, therefore, I am not to be limited to said disclosure; but am entitled to all such changes therefrom as fall within the scope of my claims.

In the drawing:

Figure 1 is a front elevational view of a tube with my closure device attached thereto.

Figure 2 is a longitudinal sectional view similar to Figure 3; but showing the stopper member in the same position as in Figure 1 before the closed end of said tube has been punctured.

Figure 3 is a longitudinal sectional view, broken away, of said tube and device with the piercing end of the stopper member extending into the opening it has made in the closed end of said tube.

Figure 4 is a perspective view of the applicator member of my device, while Figure 5 is a perspective view of the stopper member that fits in said applicator member.

Figures 6 and 7 are perspective views of modified forms of said applicator member and stopper member respectively.

As illustrated, a tube or container 9 of the kind commonly used to contain an adhesive, has the usual screw-threaded neck portion 9a ter-

minating in an end 10 that is closed or sealed when the consumer obtains it. It is shown after it has been pierced, in Figure 3 of the drawing, thereby providing a discharge opening for the adhesive to pass out of said tube 9.

My closure device consists of an applicator member 11 having interior screw threads 12 to enable it to be removably attached to said neck portion 9a of the tube 9. Said applicator 11 has a hollow sleeve portion 13 and a spreader portion 14. A slot 15 extends through said spreader portion 14 and communicates with the opening in said sleeve portion 13.

A stopper member 17 has a closure portion 20 preferably terminating in a sharpened end 18 and has a round cap portion 19 at the other end. Said slot 15 is of a size sufficiently large to receive any part of said closure portion 20; but not said cap portion 19. The latter overlaps on two sides of said spreader portion 14 while other parts of said spreader portion 14 overlaps said cap portion 19.

Before said tube 9 is used, and as it appears when it is placed on sale, said stopper member 17 is within said applicator member 11 in the position illustrated in Figures 1 and 2 of the drawing, and it cannot be removed unless said applicator member 11 is unscrewed from said tube 9. It is kept in this position before said tube sealed end 10 is pierced, and also when carrying said tube in a pocket or the like after it is pierced, as in this position said stopper member 17 cannot come out or be withdrawn and the adhesive in the tube 9 cannot escape.

When first using said tube 9, the parts are in the position shown in Figure 1 of the drawing. Said applicator member 11 is unscrewed therefrom and said stopper member 17 is withdrawn. Said applicator member 11 is screwed onto said tube 9 again and said stopper member 17 is inserted into said slot 15 and pushed until said sharpened end 18 forces a hole in said closed end 10 of the tube 9. When preparing to discharge adhesive said stopper member 17 is first withdrawn and the adhesive passes through said slot 15. The said spreader portion 14 can be used to spread or apply the adhesive. To close the opening in said tube 9 said stopper member 17 is ordinarily inserted through said slot 15—sharpened end first—to the position shown in Figure 3 of the drawing, and kept there, where it can readily be removed because said cap 19 projects over two edges of said spreader portion 14, thereby providing a good grasping surface.

In Figure 6 I have shown said applicator

member provided with a round hole 22 instead of a slot, in which event the stopper member used terminates in a pointed end 24, and has a round closure portion 25 and a round cap portion 26, as illustrated in Figure 7 of the drawing.

What I claim is:

1. A closure device comprising an applicator member having an opening extending there-through embodying a slot and having an elongated top surface, and a stopper member embodying an oblong-shaped closure portion adapted to extend into said slot, said stopper member also embodying a cap portion that overlaps said slot and the outside end of said applicator at its narrower portion while a portion of said applicator member elongated top surface overlaps said cap portion.

2. A closure device comprising an applicator member embodying a round hollow sleeve portion and an oblong-shaped spreader portion having an oblong-shaped slot extending there-through in communication with the opening in said sleeve portion, and a stopper member embodying a cap portion and an oblong-shaped closure portion, said cap portion being larger than said spreader portion slot so that it cannot enter therein but smaller than said hollow sleeve opening whereby it can enter said sleeve opening, said closure portion being longer than said spreader portion and smaller than said spreader portion opening whereby it is adapted to extend through said spreader portion into said sleeve portion.

3. A closure device comprising an applicator member embodying a round hollow sleeve portion and a spreader portion having an oblong-shaped surface at its outer end and having an opening extending therethrough in communication with the opening in said sleeve portion the wider portion of said spreader portion flaring outwardly towards its outside end and the narrower portion being of less width than said sleeve portion, and a stopper member embodying a cap portion and a closure portion adapted to extend through said spreader portion opening, said cap portion being larger than spreader portion opening but smaller than said hollow sleeve opening whereby it can enter said sleeve opening but not said spreader portion opening, said closure portion being longer than said spreader portion whereby it is adapted to extend through said spreader portion into said sleeve portion.

4. In combination, a tube and a closure device therefor, said tube embodying a neck portion having a sealed outside end, said closure device embodying a hollow sleeve portion adapted to be attached to, and extend downwardly outside of said neck portion and a spreader portion having an opening extending therethrough in communication with the opening in said sleeve portion, and a stopper member embodying a cap portion and a closure portion having a sharpened end extremity, said cap portion being larger than said spreader portion opening but smaller than said sleeve opening whereby it can enter

said sleeve opening but not said spreader portion opening, said closure portion being longer than said spreader portion whereby said sharpened end extremity is adapted to extend into said neck portion sealed end.

5. In combination, a tube, and a closure device therefor, said tube embodying a neck portion having a sealed outside end, said closure device embodying a hollow sleeve portion adapted to be attached to and extending downwardly outside of said neck portion, and a spreader portion having an opening extending therethrough in communication with the opening in said sleeve portion, and a stopper member embodying a cap portion and a closure portion having a sharpened end extremity, said cap portion being larger than said spreader portion opening but smaller than said sleeve opening whereby it can enter said sleeve opening but not said spreader portion opening, said closure portion being longer than said spreader portion but shorter than the combined length of said sleeve and spreader portions and long enough for said sharpened end extremity to extend into said neck portion sealed end.

6. In combination, a tube and a closure device therefor, said tube embodying a neck portion having a sealed outside end, said closure device embodying a hollow sleeve portion of substantially the same depth adapted to be attached to and extend downwardly outside of said neck portion substantially its entire depth, and a spreader portion having an opening extending therethrough in communication with the opening in said sleeve portion, and a stopper member embodying a cap portion and a closure portion having a sharpened end extremity, said cap portion being larger than said spreader portion opening but smaller than said sleeve opening whereby it can enter said sleeve opening but not said spreader portion opening and being of substantially the same width as the outside end of said neck portion, said closure portion being longer than said spreader portion whereby said sharpened end extremity is adapted to extend into said neck portion sealed end.

7. A closure device for a tube comprising an applicator member embodying an upper portion having a rectangularly-shaped opening extending therethrough and a round lower portion having an opening extending therethrough in communication with and larger than said upper portion opening, and a stopper member embodying a cap portion and a rectangularly-shaped closure portion having an end extremity that is adapted to pierce the sealed end of a tube, said closure portion being smaller in cross section than and also longer than said upper portion opening whereby it can extend through and beyond it, said cap portion being smaller than said lower portion opening whereby it can fit into it and being larger than said upper portion opening whereby it cannot enter it.

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