Jan. 2, 1940. W. G. ARNOLD 2,185,323

AUTOMATIC PASTE TUBE CLOSURE

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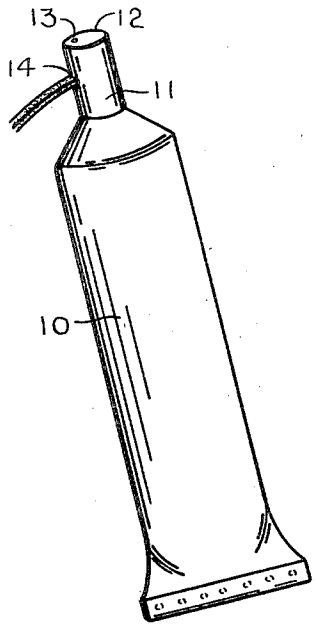


Fig. 1

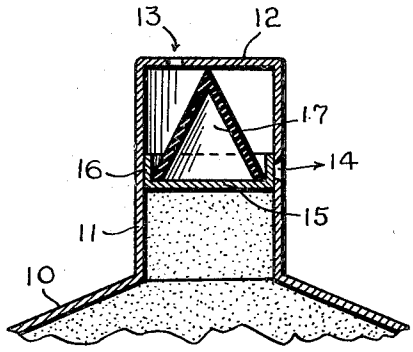


Fig. 2

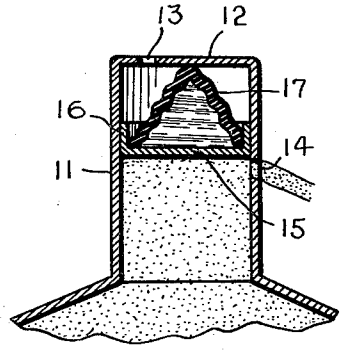


Fig. 3

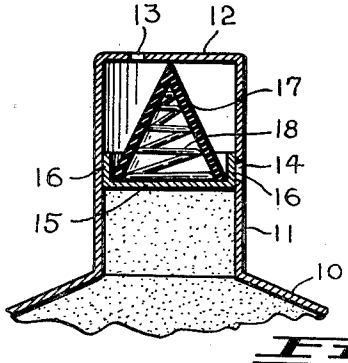


Fig. 4

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AUTOMATIC PASTE TUBE CLOSURE

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2 Claims. (Cl. 221—60)

This invention relates to improvements in an automatic paste tube closure. Its primary object being to provide means to automatically open and close the outlet aperture in the neck of a collapsible paste tube.

A further object of the invention is to provide a device as set forth, wherein the closure means is automatically opened by the pressure of the contents being forced out and at the same time a retraction device is compressed and which automatically retracts the closure means where the pressure on the tube is released.

With these and other objects in view that may appear while the description proceeds the invention consists in the novel construction and arrangement of parts as hereinafter more specifically set forth, claimed and shown in the accompanying drawing forming part of this application and in which:

Fig. 1 is a perspective view of a collapsible tube as fitted with the improved cap.

Fig. 2 is an enlarged sectional view through my invention with the closure in normal position.

Fig. 3 is a similar view with the closure member in the open position.

Fig. 4 is a further sectional view of the cap and closure showing a modified retraction means.

Referring more in detail to the drawing in which similar reference characters designate corresponding parts throughout the several views it will be seen that the invention comprises a collapsible tube 10 having a neck 11 formed thereon, said neck being closed at the top 12 with a small air aperture 13 formed therein. An outlet aperture 14 is provided in the side of the neck approximately midway of its length.

The closure device consists of a circular member 15 having a collar 16 formed thereon. Said closure is arranged to slide smoothly within the neck of the tube with the collar toward the top. A hollow conical member 17 of resilient material is positioned between the circular member and the top of the tube with the base thereof resting against the said circular member within the collar and the point normally bearing against the inside of the top. The member 17 normally retains the closure member in the downward position in which the collar 16 covers the aperture 14 to close the same. When the tube is compressed the paste forces the closure upward against the resilient member 17. Air is allowed into the hollow of the member 17 and is compressed as the closure is forced upward. When the pressure is released from the tube the resilient retraction member 17 having compressed air therein forces the said closure down again to its normal position to close the aperture.

In the modification shown in Fig. 4 a helical spring 18 is inserted within the member 17 to assist the same in forcing the closure member downward. This type is more applicable for use with tubes containing stiffer forms of paste.

From the foregoing it will be seen that the device is automatic in operation and is actuated by pressure on the tube when it is desired to force paste therefrom for use.

It is believed that the construction and advantages of the structure shown may be apparent from the foregoing paragraphs taken in conjunction with the accompanying drawing without further detailed description.

While the preferred embodiment of the invention has been disclosed it is understood that minor changes in the details of construction, combination and arrangement of co-operating elements may be resorted to within the scope of what is claimed without departing from the spirit of the invention.

I claim:

1. In an automatic closure for a collapsible tube as described, comprising a tube having a neck and an apertured top formed thereon, said neck having a discharge opening formed therein, a closure therefor consisting of a circular member having an upstanding collar thereon, said member slidably mounted within said neck and arranged to normally close said discharge opening, and a conical shaped resilient member positioned between said closure and said top, and spring means within said resilient member, substantially as set forth.

2. An automatic closure for a collapsible tube comprising a tube having a neck provided with a discharge opening in the wall thereof and an air vent in the top, a closure disk slidably mounted within said neck and arranged to normally close said discharge opening, and a hollow cone of resilient material positioned between said closure and the top of the neck, the base of said cone being seated on said closure disk and its apex being in contact with the top of the neck.

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