C. W. STEGMAIER.

COLLAPSIBLE TUBE.

APPLICATION FILED DEC. 6, 1919.

1,356,837. Patented Oct. 26, 1920.

FIG. 1.

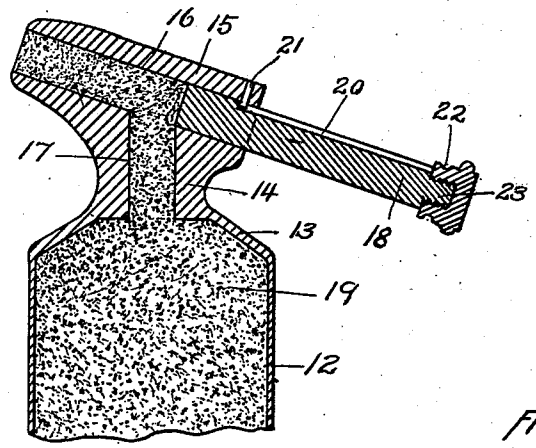


FIG. 3.

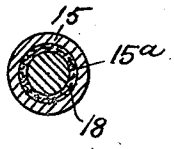


FIG. 2.

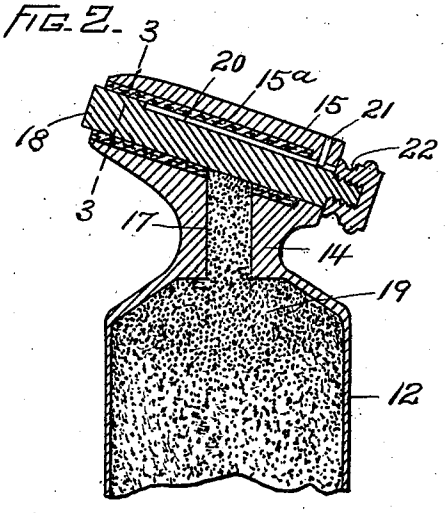


FIG. 4.

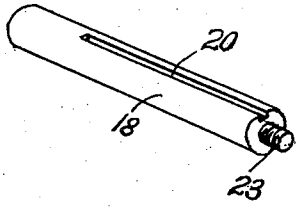


FIG. 5.

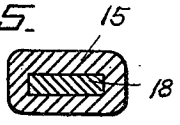


FIG. 6.

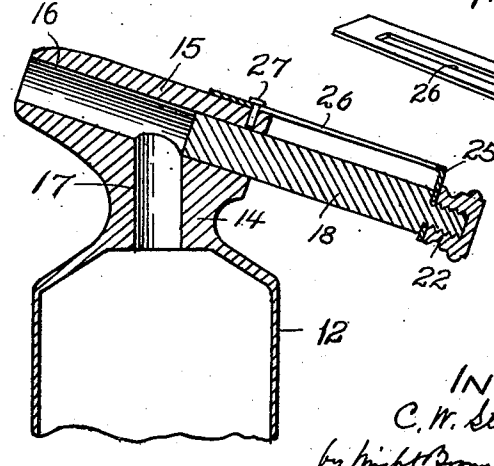


FIG. 7.

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COLLAPSIBLE TUBE.

1,356,837. Specification of Letters Patent. Patented Oct. 26, 1920.

Application filed December 6, 1919. Serial No. 342,885.

To all whom it may concern:

Be it known that I, CARL W. STEGMAIER, a citizen of the United States, residing at Kingston, in the county of Plymouth and State of Massachusetts, have invented new and useful Improvements in Collapsible Tubes, of which the following is a specification.

This invention has for its object to provide an ordinary collapsible tube, or container, for pasty material, with a measuring dispenser whereby, when the tube is compressed, a measured portion of its contents, constituting a predetermined charge, may be first displaced to position for ejection and then ejected, the outlet of the tube being at the same time securely closed.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings forming a part of this specification,—

Figure 1 is a vertical section of a portion of a collapsible tube, provided with measuring, ejecting, and closing means in accordance with the invention, the plunger hereinafter described being retracted.

Fig. 2 is a similar view showing the plunger projected.

Fig. 3 is a section on line 3—3 of Fig. 2.

Fig. 4 is a perspective view of the plunger with its head or enlargement removed.

Fig. 5 is a view similar to Fig. 3, showing a different form of the head and plunger.

Fig. 6 is a view similar to Fig. 1, showing a different embodiment of stop means.

Fig. 7 is a perspective view of the slotted arm shown by Fig. 6.

The same reference characters indicate the same parts in all of the figures.

In the drawings, 12 represents a collapsible tube such as is usually employed for containing tooth paste and other pasty or semi-fluid material. The tube has a rigid breast 13, and a rigid tubular neck 14.

Associated with the neck is a measuring dispenser comprising a tubular head 15, fixed to the neck, the bore 16 of the head communicating with the bore 17 of the neck, and a piston 18 formed to slide in the bore 16.

A portion of the bore 16 and the outer end of the piston 18 constitute a measuring cavity when the piston is retracted, as shown by Figs. 1 and 6. The material 19 in the tube may be forced into said cavity by pressure exerted on the body of the tube, until said material appears at the delivering end of the head, as indicated by Fig. 1.

The piston is adapted to be freely moved endwise in the head, the inner end of the piston being formed to be grasped by the operator.

I provide stop means for limiting the retraction of the piston, so that when the piston is fully retracted, it is in position to permit the material 19 to enter the said measuring cavity.

In the embodiment of the invention shown by Figs. 1, 2 and 4, I provide said stop means by forming a longitudinal slot 20 in the piston, and inserting in the head a pin 21, entering said slot, the arrangement being such that when the piston is retracted, the closed end of the slot 20 abuts against the pin 21.

The piston has a close sliding fit in the cavity-forming portion of the bore 16, so that when the piston is projected, it ejects a measured charge of material from the head and confines the material remaining in the neck and tube.

To limit the projection of the piston, I provide stop means embodied in an enlargement 22 at the inner end of the piston, said enlargement forming a stop member adapted to abut against one end of the head 15 when the piston is fully projected, as shown by Fig. 2. The length of the piston is preferably such that when it is fully projected, its outer end protrudes from the head, so that no material is left in the cavity-forming portion of the bore 16. The enlargement 22, which constitutes a handle piece or knob, is preferably internally screw-threaded and engaged with an externally threaded stem 23 at the inner end of the piston.

In assembling the described parts, the piston, without the enlargement 22, may be inserted in the outer end of the head until the open end of the slot 20 receives the pin 21. The enlargement 22 may then be applied, so that the piston is permanently engaged with the head, and is not wholly removable therefrom by a movement in either direction.

The head may be provided with a tubular bushing or packing 15^a of compressible material, such as cork, as shown by Figs. 2 and 3, to insure a tight sliding fit between the piston and the bore of the head.

The piston and head may be circular in cross section, as indicated by Fig. 3, or they may be oblong in cross section, as indicated by Fig. 5, so that a flat-sided charge of material may be formed and ejected.

Figs. 6 and 7 show an alternative form of stop means, for limiting the retraction of the piston, the same being embodied in an arm 25 fixed to the inner end of the piston, and provided with a slot 26, and a pin 27, fixed to the head and passing through said slot, the arangement being such that when the piston is fully retracted, one end of the slot abuts against the pin 27, as shown by Fig. 6.

The head 15, as here shown, is integral with the neck and the body of the container, although it is obvious that the head may be separately formed and secured detachably, or otherwise, to the neck and body.

I claim:

1. A collapsible tube having a rigid tubular neck, and provided with a measuring dispenser associated with said neck, said dispenser comprising a tubular head fixed to the neck, the bore of the head communicating with the neck bore between the ends of the head, and a piston formed to slide in the bore of the head, a portion of said bore and the outer end of the piston constituting a measuring cavity when the piston is retracted, and stop means adapted to limit the retraction of the piston, so that the retracted piston forms an end wall of said cavity, the piston having a close sliding fit in the cavity-forming portion of the head bore, so that when the piston is projected, it ejects a measured charge of material from the head, and confines the material remaining in the neck and tube.

2. A collapsible tube substantially as specified by claim 1, the inner end portion of the piston being provided with an enlargement constituting a stop member adapted to abut against one end of the head when the piston is fully projected.

3. A collapsible tube substantially as specified by claim 1, the inner end portion of the piston being provided with an enlargement constituting a stop member adapted to abut against one end of the head when the piston is fully projected, said enlargement being detachably secured to the piston.

4. A collapsible tube substantially as specified by claim 1, the head being provided with a compressible tubular bushing contacting with the piston.

In testimony whereof I have affixed my signature.

CARL W. STEGMAIER.