

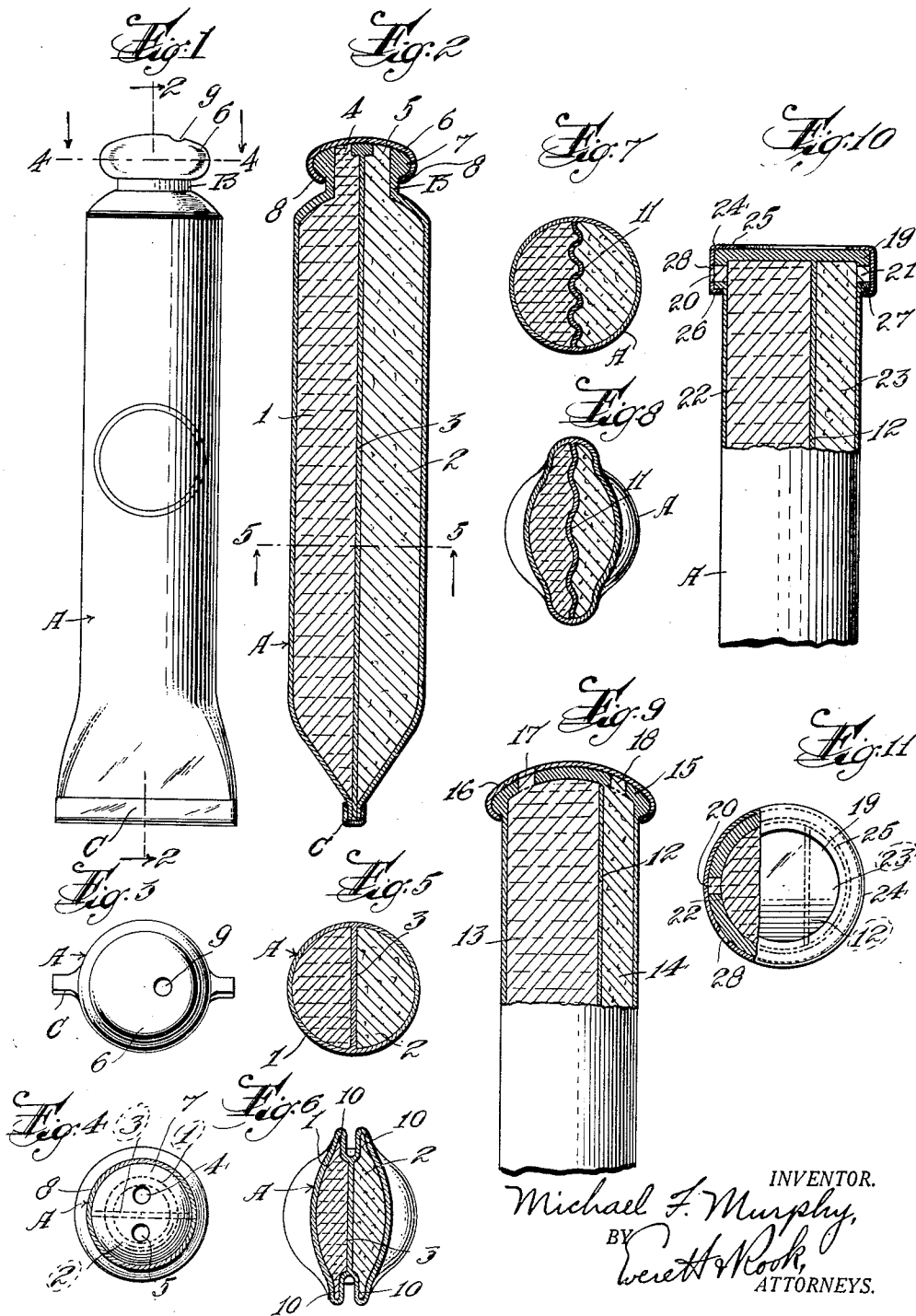
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PLURAL CHAMBERED COLLAPSIBLE TUBE

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PLURAL CHAMBERED COLLAPSIBLE TUBE

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This invention relates in general to collapsible tubes, that is, tubes for containing plastic or semi-liquid materials and having collapsible walls, pressure upon and collapsing of which serves to eject material therefrom.

One object of the invention is to provide a novel and improved collapsible tube having a plurality of chambers each of which may receive a different material, and the walls of each of which may be collapsed independently of the other chamber, whereby the material in the two chambers can be selectively removed from the tube.

Other objects of the invention are to provide a collapsible tube of this character in which each chamber has its own discharge opening, and all of said openings are controlled by a single closure or outlet valve which selectively cooperates with said opening; to provide such a collapsible tube which has collapsible outer walls and a collapsible partition dividing the tube into a plurality of chambers whereby the outer walls of the tube may be collapsed in the usual manner to eject the material from the chambers and the collapsible partition compensates for the deformation of the outer walls of the tube; and to obtain other advantages and results as will be brought out by the following description.

Referring to the accompanying drawing in which corresponding and like parts are designated throughout the several views by the same reference characters,

Figure 1 is a side elevation of a collapsible tube embodying my invention,

Figure 2 is a vertical longitudinal sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a top plan view of the tube.

Figure 4 is a transverse sectional view on the line 4—4 of Figure 1.

Figure 5 is a similar view on the line 5—5 of Figure 2 with the tube in normal condition.

Figure 6 is a view similar to Figure 5 showing the walls of the tube partially collapsed.

Figures 7 and 8 are transverse sections similar to Figures 5 and 6, respectively, showing a modified form of the invention,

Figure 9 is a fragmentary sectional elevation showing a modified form of outlet and closure for the tube,

Figure 10 is a similar view showing another form of outlet and closure, and

Figure 11 is a top plan view partially in section of the tube shown in Figure 10.

Specifically describing the embodiment of the invention illustrated in Figures 1 to 6 inclusive, the tube includes a body A formed of flexible or deformable material such as is commonly used in collapsible tubes. This body is molded in the usual manner to form at one end a discharge head or nozzle B and the walls at the other end are pressed and folded or sealed together in the usual manner indicated at C to form a closed receptacle.

The body A is divided longitudinally into two chambers 1 and 2, by a wall or partition 3 preferably formed integral with the walls of the body A and in the same moulding operation. At opposite sides of the wall 3 the nozzle B is formed with discharge openings 4 and 5, one for each chamber 1 and 2. These discharge openings are controlled by a closure or valve 6 which is rotatably mounted upon the end of the nozzle B coaxially therewith, the nozzle preferably having an annular rib 7 over which edges 8 of the closure are fitted as by spinning, as clearly shown in Figure 2 of the drawings. The closure 6 is provided with a discharge opening 9 which, upon rotation of the closure, may be caused selectively to register with either of the discharge openings 4 and 5 in the nozzle.

The chambers 1 and 2 of the tube are filled in the usual manner before the end of the tube is sealed at C, and the closure 6 is located so as to cover both discharge openings 4 and 5. When it is desired to eject material from either of the chambers 1 or 2, the closure 6 is rotated to bring the discharge opening 9 into register with the discharge opening 4 or 5 corresponding to the chamber from which it is desired to eject the material. Then by pressure upon the outer walls of said chamber, the material is ejected.

The partition or dividing wall 3 being incapable of stretching or extending laterally,

portions of the walls of the body A to which the partition 3 is directly connected are prevented from expanding, but the other portions of the walls of the body spread laterally as indicated at 10 in Figure 6 of the drawing.

This may be disadvantageous in some cases, and therefore I contemplate making the partition or dividing wall also laterally stretchable or extensible as indicated at 11 in Figures 7 and 8. Here the wall 11 is shown longitudinally corrugated or rippled so that as the outer walls of the tube are compressed or deformed, the wall 11 may stretch laterally as shown in Figure 8 of the drawing.

Obviously, the body A may be divided into chambers of different sizes instead of into two chambers of the same size as shown in Figures 1 to 8 inclusive. Such a construction is shown in Figure 9 where the dividing wall 12 is arranged to provide a large chamber 13 and a smaller chamber 14.

Also the outlet end of the tube may be variously modified; for example, the outlet end may be of substantially the same diameter as the body of the tube, as indicated at 15 in Figure 9 of the drawing. A closure 16 substantially the same as the closure 6 may be provided to cooperate with discharge openings 17 and 18 in the outlet end of the tube for ejecting material from the chambers 13 and 14. Another form of outlet for the tube is shown in Figure 10 of the drawings where the outlet end 19 has lateral or radial discharge openings 20 and 21 for the respective chambers 22 and 23 of the tube. The closure 24 is in the form of a flanged ring having one flange 25 disposed at the top of the outlet portion and another flange 26 disposed under a shoulder 27 on the outlet end of the tube. An outlet opening 28 is formed in the closure ring 24 to selectively register with the openings 20 and 21.

While I have shown several different forms of the invention each of which embodies certain details of construction, it should be understood that this is primarily for illustrating the principles of the invention and that the invention may be embodied in other forms and details of construction without departing from the spirit or scope of the invention.

Having thus described my invention what I claim is:

1. A collapsible tube comprising a hollow body having collapsible walls and a longitudinal partition dividing the interior of the body into two chambers, said body having an outlet opening at one end thereof for each chamber and said partition being laterally extensible to compensate for deformation of the walls of said body as the latter are collapsed.

2. A collapsible tube comprising a hollow body having collapsible walls and a longitudinal partition dividing the interior of the

body into two chambers, said body having an outlet opening at one end thereof for each chamber and said partition being longitudinally corrugated to laterally stretch and compensate for deformation of the walls of said body as the latter are collapsed.

3. A container comprising a hollow body having flexible walls, and a partition dividing the interior of the body into two chambers, said body having an outlet opening for each chamber and said partition being extensible to compensate for flexing of the walls of said body.

4. A container comprising a hollow body having flexible walls, and a partition dividing the interior of the body into two chambers, said body having an outlet opening for each chamber and said partition being corrugated to stretch and compensate for flexing of the walls of said body.

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