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H. MOCK

2,108,689

COLLAPSIBLE TUBE

Filed Feb. 10, 1937

FIG. 1

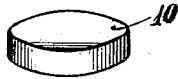


FIG. 2

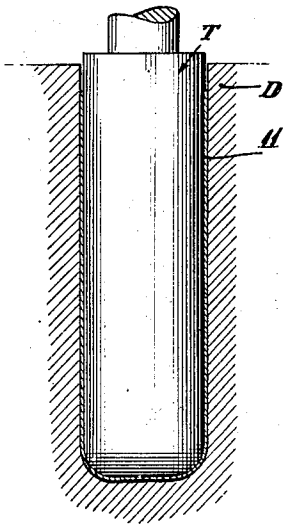


FIG. 3

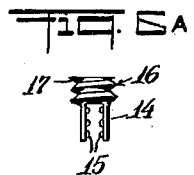
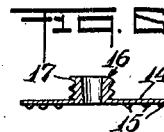
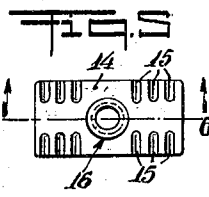
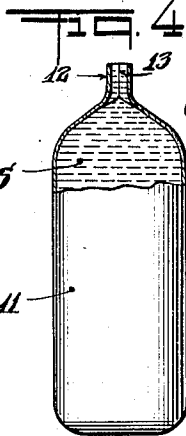
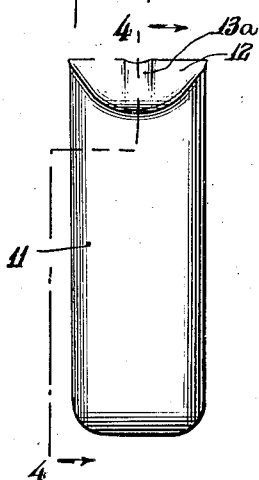


FIG. 7

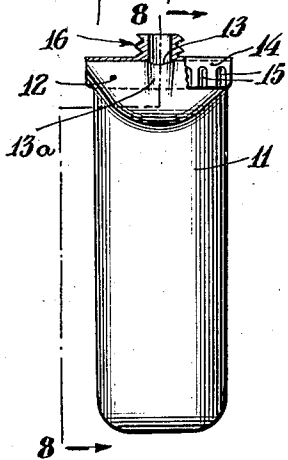


FIG. 8

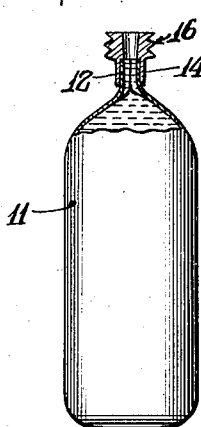
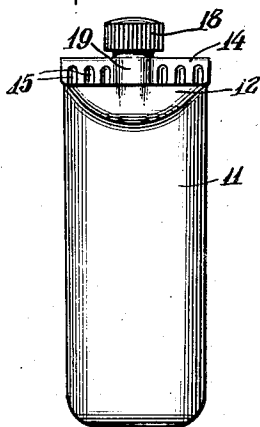


FIG. 9



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UNITED STATES PATENT OFFICE

2,108,689

COLLAPSIBLE TUBE

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9 Claims. (Cl. 221-60)

This invention has for its object an improvement in collapsible tubes, and more particularly has for its object to provide a novel form of the collapsible tube of the type made from tin or lead or lead tin alloys.

A particular object of the invention is the provision of a new form of collapsible tube which is made with but a single opening and in which the base and body form an integrally closed element.

A further object of the invention is the provision of a novel form of collapsible tube in which the clamping device ordinarily used to seal the ends of the collapsible tube at the present time is transformed into a device which not only seals one portion of the tube but also acts as the duct or opening through which the contents of the tube are extruded.

Further objects of the invention will be apparent from the specification and drawing, in which

Fig. 1 is a perspective view of the ingot from which the body of the tube is made.

Fig. 2 is a side elevation of the completed tube as extruded from the die.

Fig. 3 is a side elevation of a completed tube with its ends compressed.

Fig. 4 is a sectional view along the lines 4-4 of Fig. 3.

Fig. 5 is a plan view of the metal clamping device in extended or inoperative position.

Fig. 6 is a sectional view along the lines 6-6 of Fig. 5.

Fig. 6a is an end view of the clamping device in operative position, that is, after the sides have been turned over the ends of the tube.

Fig. 7 is a side elevation partly in section showing the clamping device applied to the ends of the tube.

Fig. 8 is a sectional view along the line 8-8 of Fig. 7.

Fig. 9 is a side elevation of the completed tube with clamping device attached and provided with a cap.

11 indicates the body of the tube having the ends or pressed-in portion 12, in the center of which a small opening 13 is left.

14 is a clamping device which may be stamped out of sheet metal having the corrugations or projections 15 and a neck 16 made integral therewith having a thread 17.

18 is a cap internally threaded to fit the neck 16, which cap may be made of metal, synthetic plastic or any other suitable material.

I have endeavored in this invention to provide a collapsible tube with only one opening, so after obtaining a tube 11 by means of the die T and

the tool D, I leave the bottom of the tube unperforated so that the tube itself is both filled and emptied through the same end of the tube.

After the walls of the open end of the tube are compressed together, a small opening is left therein, for extruding the contents of the same when the tube is compressed, and said opening extends within the contiguous ends of the clamping device 14 which is clamped over these compressed end walls by being bent along the line 6-6 shown in Fig. 5. The clamping device is preferably stamped from a sheet of suitable metal having a threaded neck 16 provided with an axial bore which is the opening through which the material in the tube is finally extruded. The opening 13 in the tube is formed by providing opposed bulged portions 13a in the flattened end of the tube, as clearly shown in Figs. 3 and 7. The clamping member or clip 14 is initially flat, as shown in Figs. 5 and 6 with the neck 16 rising therefrom, and is then bent in U shape similar to the configuration shown in Fig. 6a, and at this time the opposed parallel legs of the clamp or clip 14 are provided with bulged portions 19 which are adapted to engage about the bulged portions 13a of the tube.

The projections 15 may be corrugations of any suitable form in order to stamp the contiguous end walls of the tube more effectively, but may be changed or omitted without departing from the spirit of my invention.

S shows the material or substance in the tube. The tube may be filled prior to compressing the open and contiguous end walls together or may be filled after the entire tube is completed.

It is apparent that considerable economies are effected by this form of tube in which the clamping device serves a double function and a neater and more attractive tube is produced.

Having fully described my invention, what I claim is:

1. A collapsible tube having a cylindrical body and a rounded bottom closing said tube and integral with said body, the ends of the open portion of said tube being compressed together, said ends having confronting bulged portions, a clamping piece forcing said ends together in parallel relation, and an opening in said clamping piece aligning with said bulged portions by which the contents of said tube may be extruded.

2. A collapsible tube comprising a substantially cylindrical body provided with one end thereof closed and the opposite end open, said opposite end being compressed together to provide parallel walls, a portion of each wall being outwardly

bulged to provide a discharge opening, and a substantially U-shaped clamping member engaging over said parallel walls provided with spaced apart detents and a discharge neck engaging about said bulged portions and projecting outwardly thereof.

3. In a clamping device for a collapsible tube, a body of metal bent in the center thereof to form two adjacent side walls, an opening in said body along said center, said side walls being concave adjacent said opening.

4. A clamping device for a collapsible tube comprising a clip fitting over the open and compressed end of the tube, an opening in said clip, the walls of said opening being bulged so as to provide a passage through which the contents of the tube may be extruded.

5. In a clamping device for a collapsible tube, a body of metal bent to form two adjacent side walls, an opening in said body in line with the edges of the open and compressed end of the tube, said side walls being bulged or concave adjacent said opening.

6. A collapsible tube comprising a substantially cylindrical body having one end thereof compressed to provide parallel walls, said walls having an opening therebetween, a clip fitting over said compressed end and having an opening registering with the opening in said tube by which the contents of the tube may be extruded, a discharge member integral with said clip provided

with a discharge passage, and a closure for said discharge member.

7. A clamping device for a collapsible tube comprising a clip made of sheet material bent in substantially U-shaped form to compress one end of the tube, said clip having an opening therein and said tube having an opening registering with the opening in the clip through which the contents of the tube may be extruded, a threaded neck on said clip, and a detachable closure for said neck.

8. A clamping device for a collapsible tube comprising a sheet metal body bent in the middle to form two adjacent side walls, said body having a central opening, a cap formed on said body adjacent said opening and integral therewith adjacent said opening, said cap being threaded to receive a closure for said opening.

9. As a new article of manufacture, a combined clamping and outlet means for a collapsible tube comprising a clamping member U-shaped in transverse section having a discharge opening in the bight thereof adapted to register with a discharge opening formed in the compressed walls of the tube, a neck carried by the bight of said clamping member disposed axially of said opening, and a cap for said neck, the parallel walls of said clamping member firmly gripping therebetween the compressed walls of said tube.

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