

Nov. 14, 1933.

V. H. CHRISTEN

1,934,699

COLLAPSIBLE TUBE

Filed March 21, 1932

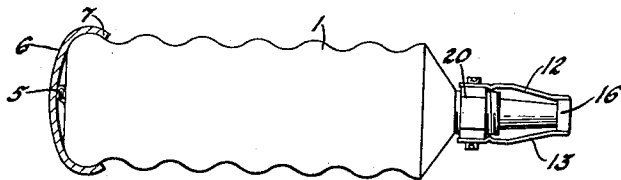


Fig. 1

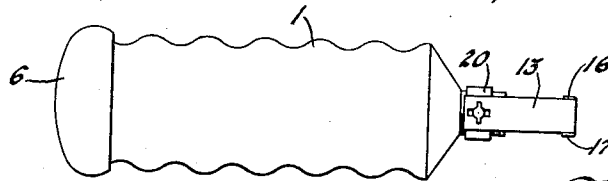


Fig. 2

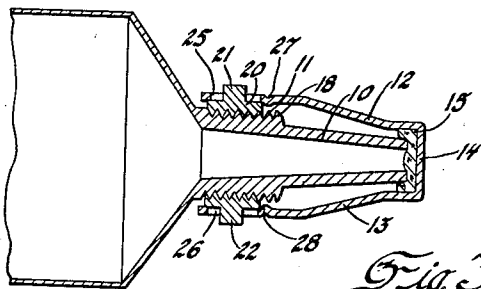


Fig. 3

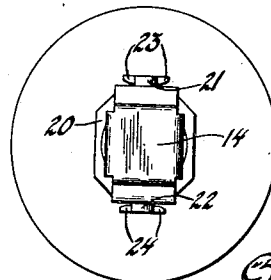


Fig. 4

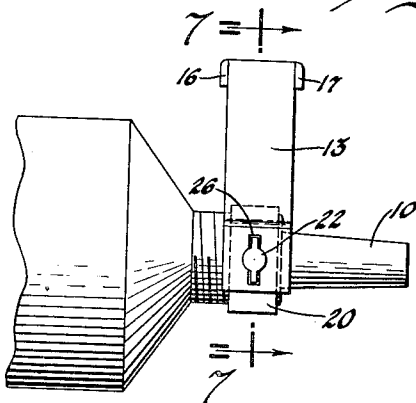


Fig. 5

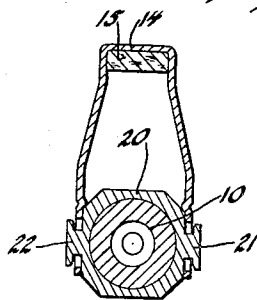


Fig. 7

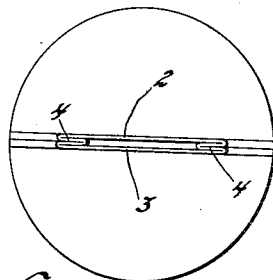


Fig. 6

INVENTOR
Victor H. Christen
 BY
Barnes, Kisselle & Laughlin
 ATTORNEYS

UNITED STATES PATENT OFFICE

1,934,699

COLLAPSIBLE TUBE

Victor H. Christen, Detroit, Mich.

Application March 21, 1932. Serial No. 600,189

3 Claims. (Cl. 221-69)

This invention relates to a collapsible tube and it has to do particularly with an improved closure member for the tube outlet and also to a tube constructed in such manner as to facilitate collapse thereof for discharge of its contents.

An object of the invention is the provision of a collapsible tube closure which may be opened and closed in an easy manner and wherein the closure member is not separable from the tube and in which the construction is such as to provide an effective seal. Another object of the invention is the provision of a tube structure and tube end construction of novel form for facilitating tube collapse.

In the accompanying drawing:

Fig. 1 is a side view of a tube constructed in accordance with the invention.

Fig. 2 is a side view taken at right angles to Fig. 1.

Fig. 3 is an enlarged sectional view showing the cap structure.

Fig. 4 is an end view of the same.

Fig. 5 is a view illustrating the cap in open position.

Fig. 6 is a view of the end of the tube with the bottom part removed.

Fig. 7 is a sectional view taken substantially on line 7-7 of Fig. 5.

The tube comprises a body of suitable soft metal which may be collapsed as illustrated at 1, and it is preferably corrugated with the corrugations running around the tube so that the same may be collapsed after the fashion of bellows. The end of the tube may be sealed as by means of flattening the tube to bring its edges in close proximity as shown at 2 and 3, and in order to maintain the overall cross dimension of the tube to a dimension not exceeding the diameter, the ends of the flattened metal may be provided with inwardly disposed folds 4. A suitable clip 5 may be clamped over the ends of the stock. A base member 6 which may be in the form of a disk may then be placed over this end of the tube and secured thereto in any suitable manner as for example by fashioning the edge portions of the base, as shown at 7, over the lowermost corrugation. To collapse the tube for discharge of the contents, an operator may grasp the tube placing two fingers on the tube shoulders near the outlet end and collapsing the tube axially by a thumb on the disk 6. The tube may stand in a vertical position on the base 6 when not in use.

The outlet end of the tube made be a hollow

extension 10 enlarged at its base and provided with threads 11. The closure member may be in the form of a strip of metal having spaced legs 12 and 13 connected by the top or bight portion 14. Within this portion 14 there may be seated a sealing member 15 made of cork or other suitable sealing material. This may be held in place on two opposite edges by the legs 12 and 13 and two other opposite edges by folded down wings 16 and 17.

Screw threaded upon the part 11 is a nut 20 having oppositely disposed trunnion members 21 and 22, each having near its end projections 23 and 24. The legs 12 and 13 may be provided with elongated openings 25 and 26 having a circular central portion as illustrated in Fig. 5. In applying the cap member to the nut the same may be positioned substantially as illustrated in Fig. 5 and then with the legs 12 and 13 spread apart they may be disposed over the trunnions 21 and 22 with the wings 23 and 24 passing through the elongated openings 25 and 26. The legs 12 and 13 are advantageously arranged to normally spring towards each other so that once in position they will snugly engage the nut. When the cap member is turned upon the trunnions to the position as illustrated in Figs. 1 and 2, the same may be revolved to in turn revolve the nut on the screw threads 11, to the end that the sealing member 15 is pressed against the end of the outlet 10. This closes and seals the tube. In use a slight turn of the cap sufficient to free the end of the outlet 10 is made and then the cap 12 may be swung upon the trunnions 21 and 22 to clear the end of the outlet. One or both legs 12 and 13 may be fashioned to provide inwardly extending ribs 27 and 28 designed to snap over the top of the nut 20 as illustrated in Fig. 3 and aiding to hold the cap in alignment with the outlet. This is particularly advantageous during the time the cap is being revolved into or out of sealing position. The nut 20 may be of a shape so that when the cap is turned to open position, as illustrated in Fig. 5, the ribs 27 and 28 snap behind other edges of the nut to hold the cap open after the manner illustrated in Fig. 7.

Accordingly, it will be noted that a cap is provided which forms an effective seal capable of sealing the contents of a collapsible tube even though the same be in storage or in merchandise stock over a long period of time. In use, the cap does not become separated from the tube and is easily turned and shifted into and out of closing position. Preferably the nut 20 is associated with the tube so that it cannot be re-

moved in normal conditions. To this end the threads 11 may be distorted as illustrated at 18.

I claim:

1. A collapsible tube comprising, a tube having
5 an outlet spout, thread means at the base of the
spout, a nut thereon, trunnions extending from
opposite sides of the nut, a cap member having
a pair of legs connected by a bight portion with
the legs near their ends journaled on the trun-
10 nions, and a sealing element seated in the bight
portion for seating against the end of the spout,
said legs normally springing towards each other
to engage the nut and being provided with in-
wardly extending ribs adapted to engage over a
15 corner of the nut to hold said sealing member
substantially fixed relative to the nut.

2. A collapsible tube comprising, a hollow
tubular body of soft metal adapted to be filled
with a flowable substance and having an outlet
20 at one end, said body being corrugated substan-
tially circumferentially and adapted to be col-
lapsed axially for the discharge of the substance
from the outlet end, the end of the body oppo-
site the outlet end lying in a plane substantially

perpendicular to the axis of the tubular body,
and the soft metal at said end being seamed to-
gether to seal the tube, and a separate disc fitting
over said last mentioned end of the tube and
having rim portions fashioned inwardly toward
the axis of the tube and engaging substantially
in the furrow formed by the corrugations, which
furrow is next adjacent the said end of the tubu-
lar body.

3. A collapsible tube comprising, a tube hav-
ing an outlet spout, thread means at the base of
the spout, a nut threaded thereon, a cap member
having a pair of legs connected by a bight por-
tion, means journaling the legs near their ends
to the nut, a sealing element supported by the
bight portion for seating against the end of the
spout, said legs normally springing toward each
other to engage the nut, said nut and legs having
interengaging portions adapted to hold the cap
member in a position substantially in alignment
with the spout and in another position out of
alignment with the spout by the spring action of
said legs.

VICTOR H. CHRISTEN.

25	100
30	105
35	110
40	115
45	120
50	125
55	130
60	135
65	140
70	145
75	150