July 3, 1934. J. F. RABE ET AL 1,964,860

COLLAPSIBLE TUBE

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Fig. 1.

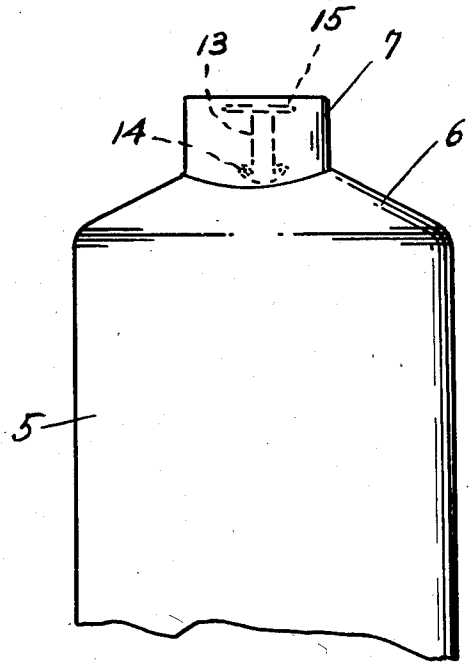


Fig. 2.

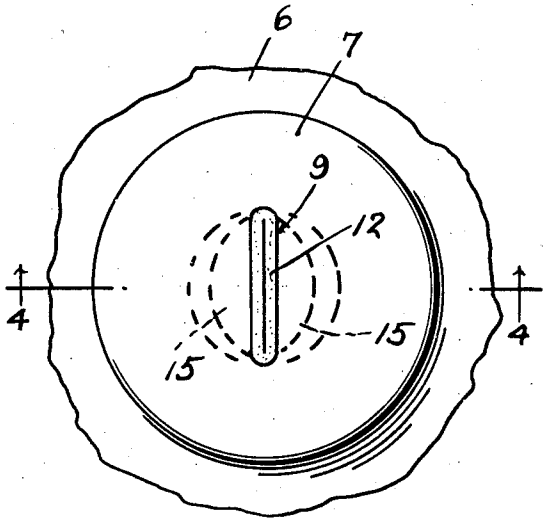


Fig. 3.

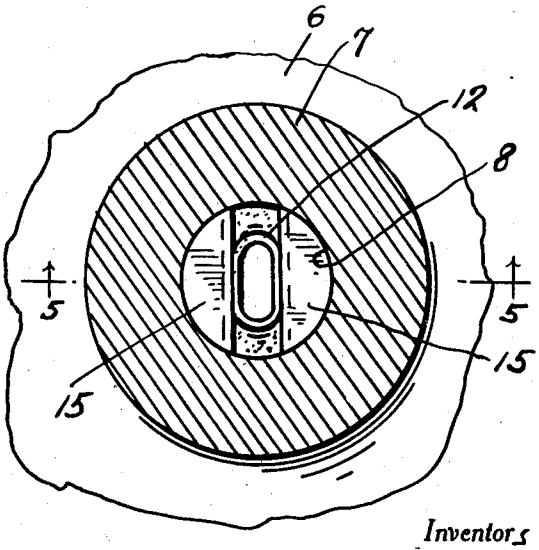
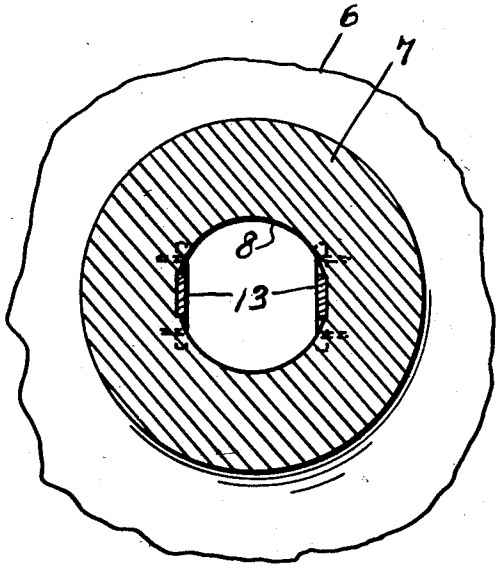


Fig. 7



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Fig. 4.

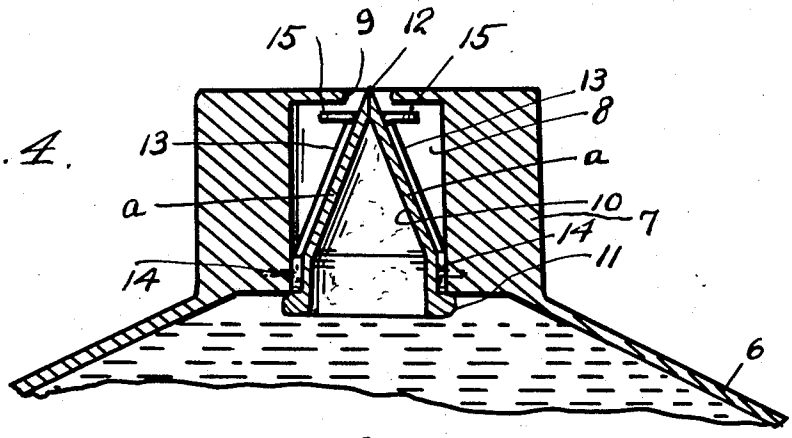


Fig. 5.

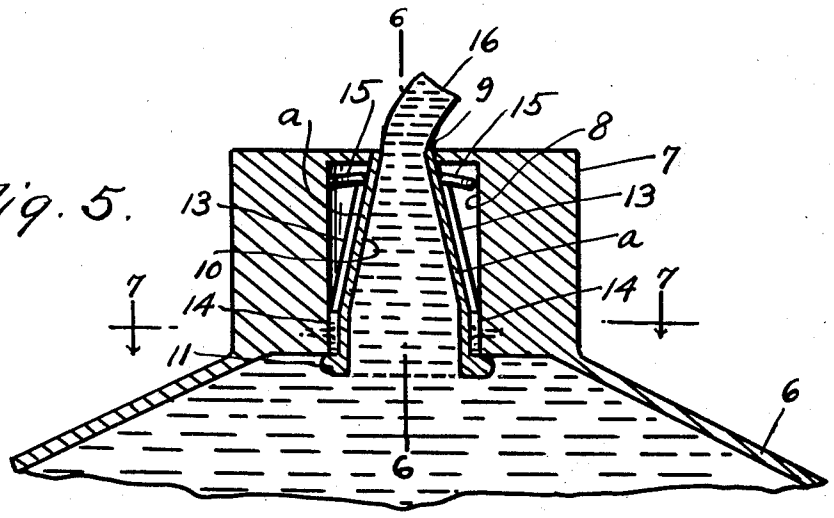
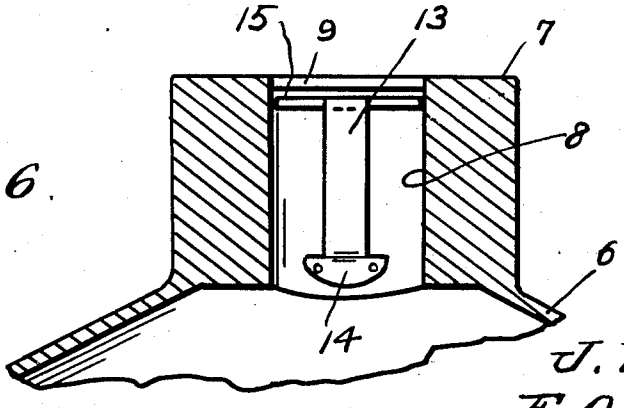


Fig. 6.



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UNITED STATES PATENT OFFICE

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COLLAPSIBLE TUBE

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Application July 22, 1932, Serial No. 624,090

2 Claims. (Cl. 221—60)

This invention appertains to new and useful improvements in receptacles and more particularly to a receptacle of the collapsible tube type.

The principal object of this invention is to provide a self-closing collapsible tube, which when compressed, will automatically open and which when released will automatically close.

During the course of the following specification and claims, other important objects and advantages of the invention will become apparent to the reader.

In the drawings:—

Figure 1 represents a fragmentary side elevational view of the tube.

Fig. 2 represents a fragmentary top plan view of the tube.

Fig. 3 represents a fragmentary sectional view through the neck portion of the tube.

Fig. 4 represents a vertical sectional view, taken substantially on line 4—4 of Fig. 2.

Fig. 5 represents a fragmentary vertical sectional view taken substantially on line 5—5 of Fig. 3 and showing the nipple in open position, in contrast to the closed position shown in Fig. 4.

Fig. 6 represents a vertical sectional view taken substantially on line 6—6 of Fig. 5.

Fig. 7 represents a horizontal sectional view taken substantially on line 7—7 of Fig. 5.

Referring to the drawings wherein like numerals designate like parts, it can be seen that numeral 5 represents the usual collapsible tube container of some suitable ductile material which is provided with the shoulder portion 6 merging into the neck portion 7.

This neck portion 7 has a chamber 8 therein and the only outlet from this chamber 8 is the small rectangular-shaped opening 9.

Mounted within this chamber 8 is the upwardly tapering resilient nipple 10 suitably secured to the neck portion 7 by its lower end portion 11. The portions *a*—*a* of the nipple 10 are plane upwardly converging portions which abut at their upper free edges 12 within the aforementioned opening 9.

Bearing against each plane side *a* of the nipple 10 is a leaf spring 13 secured at its lower end as at 14 and to the neck 7. The upper free ends of these springs 13 are provided with outwardly extending plate-like extensions 15 which when in contracted relation form somewhat of a closure for the opening 9 and which when spread apart, abut the wall of the chamber 8 to limit the expansion of the nipple 10.

It can now be seen, that when the tube 5 is compressed, there will be a flow of the contents through the nipple 10. This flow under pressure will expand the free end of the nipple so that the paste 16 will flow outwardly between the free ends 12 of the nipple. This flow continues along so long as compression of the tube 5 is in force, but as soon as the tube compression ceases, the tension of the leaf springs 13—13 will contract the plane side portions *a*—*a* so that the free edges 12 will come into abutment, thus automatically shutting off the tube.

While the foregoing specification sets forth the invention in specific terms, it is to be understood that numerous changes may be made in the shape size and materials without departing from the spirit and scope of the invention as claimed hereinafter.

Having thus described our invention what we claim as new is:—

1. A collapsible tube comprising a container having an outlet neck, a resilient nipple mounted within the neck, and spring means interposed between opposite sides of the nipple at the inner side of the neck for normally maintaining the mouth of the nipple closed.

2. A collapsible tube comprising a container having an outlet neck, a resilient nipple mounted within the neck, and spring means interposed between opposite sides of the nipple in the inner side of the neck for normally maintaining the mouth of the nipple closed, said spring means consisting of leaf spring members bearing against the nipple, and stop members on the leaf springs adapted to abut the inner side of the neck to limit expansion of the nipple.

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