Jan. 3, 1933. A. H. SCHWARTZ 1,892,788

CONTAINER AND CLOSURE MEANS THEREFOR

Filed Jan. 17, 1931

Fig. 1

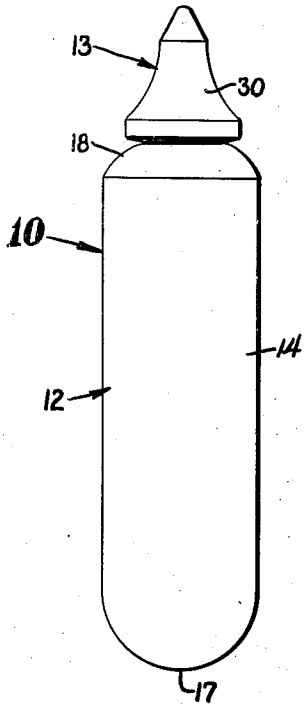


Fig. 3

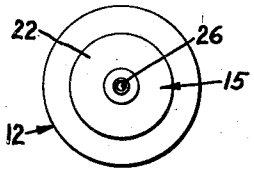


Fig. 2

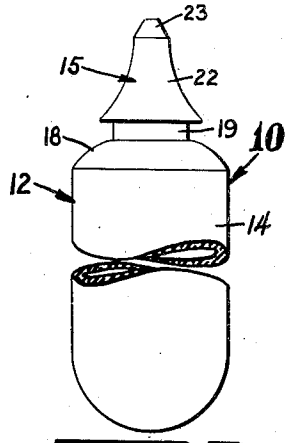


Fig. 5

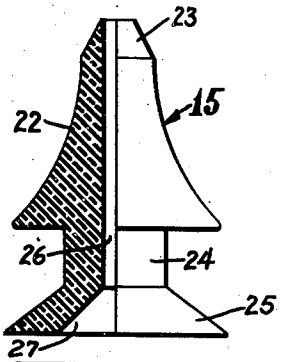


Fig. 7

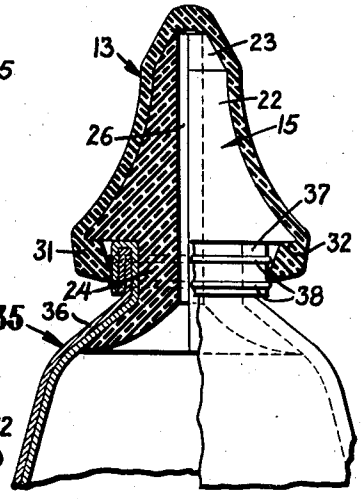


Fig. 4

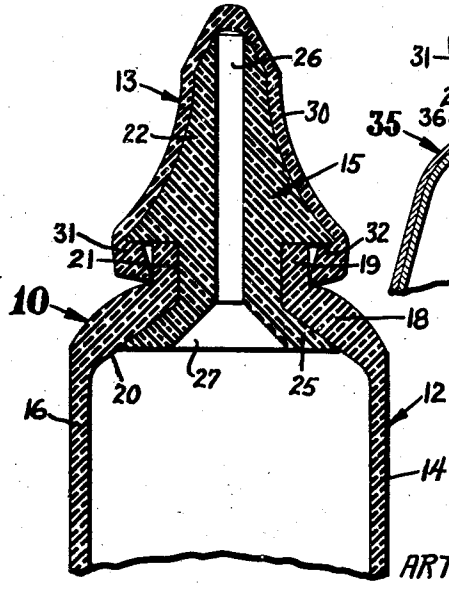
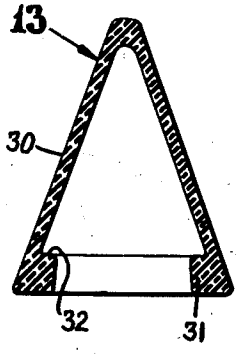


Fig. 6



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UNITED STATES PATENT OFFICE

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CONTAINER AND CLOSURE MEANS THEREFOR

Application filed January 17, 1931. Serial No. 509,332.

This invention relates to improvements in containers and closure means therefor.

The general object of the invention is to provide an improved container.

A further object is to provide a novel closure for containers.

An additional object of the invention is to provide a novel container and closure which is particularly adapted for holding medicines or acids which are detrimentally affected by contact with metal.

Another object of the invention is to provide an improved collapsible container and closure member therefor.

A further object is to provide an improved medicinal container which may be used as a syringe for injecting medicines into various ducts of the human body.

A specific object of the invention is to provide a novel collapsible container and closure member made of a resilient material such as rubber.

Other objects and advantages of this invention will be apparent from the following description taken in connection with the accompanying drawing wherein:

Fig. 1 is an elevation of my improved container and closure member.

Fig. 2 is a view similar to Fig. 1 with the closure member removed.

Fig. 3 is a top plan view of the device shown in Fig. 2.

Fig. 4 is an enlarged fragmentary central vertical section through the container and closure member.

Fig. 5 is an enlarged view of the discharge nozzle partly in section.

Fig. 6 is an enlarged central vertical section through the closure member, and

Fig. 7 is a fragmentary sectional view of a modification.

Referring to the drawing by reference characters I have indicated my improved device generally at 10. As shown this device comprises a container 12 and a closure member or cap 13. The container 12 comprises a body portion 14 which is preferably made of a good grade of rubber vulcanized to the desired elasticity and a discharge nozzle 15 made of a good grade of rubber which may be vulcanized slightly harder than the body portion 14.

The container body 14 is shown as cylindrical in cross section and includes side walls 16 and a rounded lower end 17. At the upper end the side walls merge into a thickened upper portion 18 on which is provided a reduced collar 19. The inner face of the thickened portion 18 is preferably conically shaped as indicated at 20 and converges towards a reduced aperture 21 provided in the collar 19.

The discharge nozzle 15 includes a conically shaped body portion 22 having an arcuate side wall which converges upwardly where it merges into a reduced conically shaped tip 23. Extending from the lower end of the body portion 22 I provide a reduced neck 24 which is cylindrical for a distance and then is provided with an outwardly flared portion 25, the taper of which substantially corresponds to the taper of the conically shaped portion 20 of the container body.

Extending through the discharge nozzle body 22 the tip 23 and the neck 24 I provide an aperture 26, and in the portion 25 I provide a conically shaped recess 27 which communicates with the aperture 26.

To operatively position the discharge nozzle 15 on the body 14 the collar 19 is stretched to enlarge the aperture 21 and the outwardly flared portion 25 of the nozzle is inserted through the aperture into the interior of the body 14. When the nozzle 25 is thus operatively positioned on the body 14 the neck 24 of the nozzle is positioned in the aperture 21 of the body 14 and the tapered surface of the nozzle portion 25 engages the tapered surface of the conically shaped portion 20 of the body 14 and the upper surface of the collar 19 engages the under surface of the conical portion 22 of the nozzle, as clearly shown in Fig. 4. The resiliency of the parts holds them securely assembled.

The cap 13 comprises a conically shaped hollow body portion 30 which is preferably made of a good grade of rubber vulcanized to the desired elasticity, and which is of less interior diameter than the outer diameter of the nozzle 15. Adjacent the lower open end

of the cap 13 I provide an inwardly extending flange 31 which includes an inner shoulder 32.

The container 12 is preferably filled with the desired contents by inserting a hollow instrument through the nozzle aperture 26. After the container has been filled the cap 13 is positioned on the discharge nozzle 15. To position the cap 13 on the discharge nozzle 15 the cap is forced down over the nozzle and in so doing the elasticity of the cap allows it to stretch and the cap flange 31 is forced over the base of the conical body 22 of the discharge nozzle until the inner shoulder 32 of the cap engages the under surface of the base of the nozzle body 22 as clearly shown in Fig. 4.

When the cap 13 is thus positioned on the discharge nozzle 15 the cap is under tension and tightly engages the nozzle 15. When the cap 13 is on the nozzle 15 pressure on the container will force the contents thereof up through the nozzle aperture 26 against the inner surface of the end of the cap and thereby exert an upward pressure on the cap which puts the cap under greater tension and thereby causes the cap to more tightly grip the nozzle 15 and prevent the contents from squeezing down between the nozzle and the cap. If desired the container 12 may be made in one piece with the body 14 and nozzle 15 formed integral.

In Fig. 7 I have shown a slight modification of my invention wherein the discharge nozzle 15 and the cap 13 are used in combination with a container 35 which may be a paper milk container. The container 35 is made of a plurality of layers of treated paper and at the upper end is tapered as at 36 to conform to the taper of the nozzle portion 25. The conical portion 36 merges into a reduced collar 37 which is preferably of a greater thickness than the walls of the container and is reinforced by a plurality of bands such as wire 38.

To operatively position the discharge nozzle 15 on the container 35 the outwardly flared portion 25 of the nozzle is distorted and compressed and forced through the neck 37 until the nozzle portion enters the container and resumes its correct shape whereupon the outer tapered surface of the nozzle portion 25 engages the tapered inner surface of the conical portion 36 of the container 35. The container 35 is then filled and the cap 13 positioned on the nozzle 15. To remove the contents of the container 35 the cap 13 is removed and the contents withdrawn from the container through the aperture 26 in the discharge nozzle.

From the foregoing description it will be apparent that I have provided a novel container and closure therefore which is simple in construction and highly efficient in use.

Having thus described my invention what I claim is:

1. In combination with a hollow container including a reduced collar having an aperture therein, a discharge nozzle and a cap, said discharge nozzle being made of a resilient material and including a conical shaped body portion converging to a reduced tip, there being an aperture in said nozzle, a reduced neck extending from the base of said conical body, said neck of said nozzle being positioned in said collar aperture, means to retain said nozzle in position on said container, the end of said container collar engaging the under surface of the base of said nozzle body, said cap being made of a resilient material and comprising a conically shaped hollow body portion of less diameter than the corresponding diameter of the outside of said nozzle, the apex of said cap being closed and the base being open, said cap including a lower portion adapted to be stretched and positioned to engage the under surface of the base of said conical body while the inner surface of said cap tightly engages the outer surface of said nozzle body.

2. A container, said container including a body portion, a discharge nozzle and a cap, said body portion being made of a resilient material and being hollow, one end of said body being closed, means to secure said nozzle to the opposite end of said body, said discharge nozzle being made of a resilient material and including a conical shaped body portion converging to a reduced tip, there being an aperture in said nozzle, said cap being made of a resilient material and comprising a conically shaped hollow body portion, the apex of said cap being closed and the base being open, a flange on the inner surface of said cap adjacent the base thereof, said cap being positioned on said nozzle whereby the upper shoulder of said cap flange engages the under surface of the base of the nozzle and the inner surface of said cap tightly engages the outer surface of said nozzle body.

3. A container, said container including a body portion and a discharge nozzle, said body portion being made of a resilient material and being hollow, one end of said body being closed, the opposite end of said body including a top portion of greater thickness than the side walls of said body and including a conically shaped lower surface, a collar on said top portion and an aperture in said collar, said discharge nozzle being made of a resilient material and including a conical shaped body portion having a base converging to a reduced tip, there being an aperture in said nozzle, a reduced neck extending from the base of said conical body and terminating in an outwardly flared portion having tapered sides, said neck of said nozzle being positioned in said collar aperture and said outwardly flared portion of said nozzle being

positioned in said container body whereby said tapered sides of said outwardly flared portion engage said tapered surface of said container body top portion and the end of said collar engages the under surface of the base of said nozzle body.

4. A container, said container including a body portion, a discharge nozzle and a cap, said body portion being made of a resilient material and being hollow, one end of said body being closed, the opposite end of said body including a top portion of greater thickness than the side walls of said body and including a conically shaped inner surface, there being a collar on said top portion and an aperture in said collar, said discharge nozzle being made of a resilient material and including a conical shaped body portion converging to a reduced conically shaped tip, there being an aperture in said nozzle, a reduced neck extending from the base of said conical body and terminating in an outwardly flared portion having tapered sides, said neck of said nozzle being positioned in said container body whereby said tapered sides of said outwardly flared portion engage said tapered surface of said container body top portion and the end of said collar engages the under surface of the base of said nozzle body, said cap being made of a resilient material and comprising a conically shaped hollow body portion of less diameter than the diameter of the corresponding portions of the outside of said nozzle, the apex of said cap being closed and the base being open, a flange on the inner surface of said cap adjacent the base thereof, said cap being adapted to be stretched and positioned on said nozzle whereby the upper shoulder of said cap flange engages the under surface of the base of said conical body and the inner surface of said cap tightly engages the outer surface of said nozzle body.

5. A container, said container including a body and a discharge nozzle, said body being hollow, one end of said body including a top portion having an aperture, said discharge nozzle including a tapered portion having an aperture, a base on said nozzle engaging the end of said top portion and overhanging said end to produce a downwardly facing shoulder and means on said nozzle engaging the inner end portion of said body to hold the nozzle on the body.

6. A container, said container including a body portion having a discharge nozzle, said body portion being made of a resilient material and being hollow, said discharge nozzle including a tapered portion, there being an aperture in said nozzle, a cap made of a resilient material and comprising a tapered body portion, a flange on the inner surface of said cap, a shoulder on said nozzle, on the exterior thereof and outside of said container, said cap being positioned on said nozzle whereby the upper shoulder of said cap flange engages the under surface of the shoulder of the nozzle.

7. A container, said container including a body portion and a discharge nozzle, said body portion being hollow, one end of said body including a top portion of greater thickness than the side walls of said body and including a tapered inner surface, a collar on said top portion and an aperture in said collar, said discharge nozzle including a tapered body portion having a base having an aperture therein, a reduced neck extending from the base of said body and terminating in an outwardly flared portion having a tapered side, said neck of said nozzle being positioned in said collar aperture and said outwardly flared portion of said nozzle being positioned in said container body whereby said tapered sides of said outwardly flared portion resiliently engage said tapered surface of said container body top portion and the end of said collar engages the under surface of the base of said nozzle body, the body of said discharge nozzle including a projecting portion which engages the end of said collar, said projecting portion extending beyond said collar.

8. A container including a body portion having a nozzle, said body portion being made of flexible material and being hollow, said discharge nozzle being made of a resilient material and including a conical shaped body portion converging to a reduced tip, there being an aperture in said nozzle and an overhanging base thereon, a cap made of a resilient material and comprising a conically shaped hollow body portion, the apex of said cap being closed and the base being open, a flange on the inner surface of said cap adjacent the base thereof, said cap being positioned on said nozzle whereby the upper shoulder of said cap flange engages the under surface of said overhanging base of the nozzle and the inner surface of said cap tightly engages the outer surface of said nozzle body.

In testimony whereof, I hereunto affix my signature.

ARTHUR H. SCHWARTZ.