Nov. 26, 1929. F. H. SILVERTHORNE 1,737,273

BOTTLE CLOSURE

Filed May 17, 1927

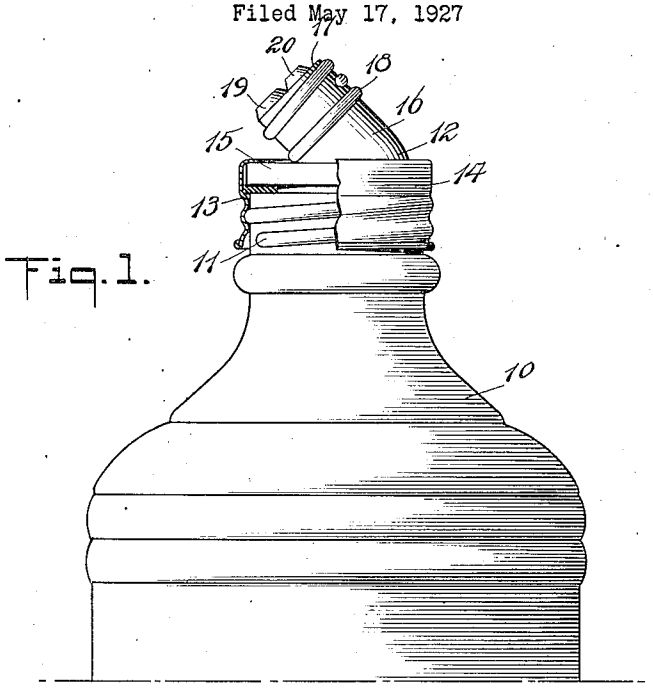


Fig. 1.

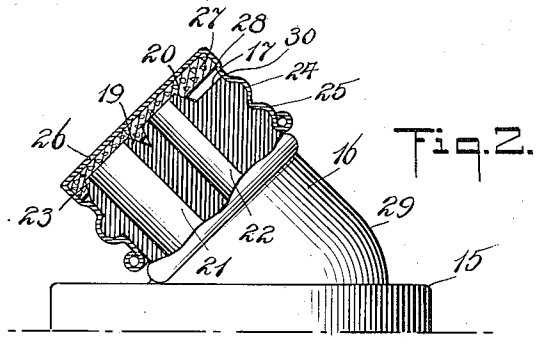


Fig. 2.

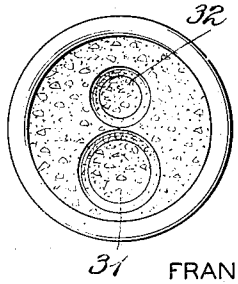


Fig. 3.

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UNITED STATES PATENT OFFICE

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BOTTLE CLOSURE

Application filed May 17, 1927. Serial No. 192,152.

The invention relates to a bottle closure of the pour-out type designed to be secured to a bottle and the invention is specifically designed to constitute the closure for an ink bottle.

The primary object of the invention is to provide a simple form of closure which will provide a hermetically tight sealing of the bottle and which will permit the pouring of a uniform gentle stream from the bottle and which features the minimizing of drip formations when the bottle is restored to its normal upright position.

Various other objects and advantages of the invention will be in part obvious from an inspection of the accompanying drawings and in part will be more fully set forth in the following particular description of one form of mechanism embodying my invention, and the invention also consists in certain new and novel features of construction and combination of parts hereinafter set forth and claimed.

In the accompanying drawing:

Fig. 1 is a view in side elevation of the upper portion of a bottle provided with a closure constituting a preferred embodiment of the invention and with parts of the securing ferrule shown in section and with the closing cap omitted;

Fig. 2 is an enlarged view shown partly in section of the closure shown in Fig. 1 and illustrated with the closing cap in position and;

Fig. 3 is a plan view looking into the closing cap shown in section in Fig. 2 and after the cap has previously been inserted in its closed position.

In the drawing there is shown an ink bottle 10 provided with a threaded neck 11 and on which is positioned the closure 12 particularly constituting the subject matter of this disclosure. Interposed between the closure 12 and the top of the bottle is a gasket 13 and a metal ferrule 14 engages the closure 12 and acts conventionally to secure the closure to the bottle.

The closure 12 is formed of hard rubber, or similar moldable composition and includes a flat disc shaped body portion 15 and a cylindrical nozzle 16, the axis of which extends at an angle of about 45 degrees to the plane of the body portion 15. The outer end of the nozzle 16 terminates in a flat face 17 and the periphery of the cylinder has threads 18 integrally molded therewith. Projecting beyond the flat end 17 are two frusto-conical teats 19 and 20, one positioned above the other, the closure is provided with two passageways, one of which, 21 extends through the closure and through the teat 19 to form a liquid discharging or pouring passageway, the other passageway 22 is of relatively smaller diameter than the passageway 21 and likewise extends through the closure and through the teat 20 to form an air inlet passageway. The outer edges of the teats and particularly the outer edge of the teat 19 forms a sharp pouring edge 23 which facilitates the discharge of the ink or other liquid contents of the bottle and tends to minimize the formation of drips at this point when the bottle is restored to its upright position shown in Fig. 1. The nozzle is closed by means of a metal screw cap 24, the sides of which are pressed to form threads 25 adapted to engage the composition threads 18 on the nozzle as particularly shown in Fig. 2. Fitted within the cap and engaging the bottom 26 thereof is a compressible liner or washer 27 preferably formed of a thin disc of cork. The inner face 28 of this cork washer is coated with a thin layer of paraffin.

In forming the closure care is exercised to eliminate the formation of any die seams or other projections on the flat face 17 or on the teats. Constructions of the type illustrated are commonly formed of two-part dies which form a seam along opposite edges, such as along the edge 29. In known structures this seam extends across the outer end of the nozzle and expense and labor is necessary in order to scrape the seam smooth and thus avoid the formation of irregularities in surface contour and which irregularities tend to form drips. In the manufacture of the device illustrated the adjacent ends of the two-parts of the die are formed smooth and contain the apertures which form the teats. In this way the seam extends along the edge 29

up to the point 30 but no die seam extends across the end 17 or across the teats. This leaves the end 17 and teats with a smooth die finish free of die seams. When the cap is first screwed on to the nozzle a thin film of paraffin will adhere to the outer edges of the teats and this thin layer of paraffin has a tendency to prevent the adherence of liquid to the nozzle when the bottle is restored to its normal upright position. The cork disc has a frictionally tight fit in the cap but during the final movement of screwing the cap in position the teats will have a tendency to project into the outer face of the washer and form permanent depressions 31 and 32. While the disc is held frictionally in the cap it is not held so intensely as to prevent the slight movement of the metal cap relative to the washer in effecting its final fractional turn compressing the part of the washer engaged by the teats as the cap is moved into its final closed position.

The nozzle is opened simply by reversing the direction of rotation of cap and when released the cork washer is carried off with the cap. When the cap is again screwed into position the previously formed recesses will tend to seat themselves over the teats as the cap is rotated into its finally closed position. In use the recesses will tend to become more pronounced and an effective seal is provided whenever the cap is rotated into position.

Having thus described my invention, I claim:—

1. A bottle closure comprising a flat body portion provided with a cylindrical pouring nozzle with its axis inclined to the plane of the body portion, and terminating in a flat end, a pair of frusto-conical teats projecting from said flat end and with their reduced ends exposed, a pair of passageways extending through the nozzle and extending axially through said teats, and a cap in threaded engagement with the nozzle and provided with a compressible washer and adapted to have the outer reduced ends of the teats embedded therein as the cap is forced toward its final closing position sealing the outer ends of the passageways.

2. A bottle closure comprising a nozzle having a teat projecting from one end terminating in a sharp pouring edge, and provided with a passageway extending therethrough and through the teat, and a cap in threaded engagement with the nozzle and provided with a compressible washer adapted to have sharp pouring edge of the teat pressed into the same as the cap is screwed into position.

3. A bottle closure comprising a nozzle having a teat projecting from one end; and provided with a passageway extending therethrough and through the teat, and a cap in threaded engagement with the nozzle and provided with a compressible washer adapted to have the teat pressed into the same as the cap is screwed into position, said washer coated on its outer side with a film of paraffin adapted to leave a film on the exposed end of the teat when the cap is removed.

4. A bottle closure comprising a nozzle having a teat projecting from one end, and provided with a passageway extending therethrough and through the teat, and a cap in threaded engagement with the nozzle and provided with a compressible washer adapted to have the teat pressed into the same as the cap is screwed into position, said washer having a frictional engagement with the cap but capable of turning in the cap when in frictional engagement with the nozzle during the final turning movement of the cap as it is screwed on to the nozzle.

5. A bottle closure comprising a nozzle provided with a pair of teats, and having passageways extending therethrough and through the teats, a cap in threaded engagement with the nozzle, said cap having a cork washer held frictionally therein but capable of rotating in the cap when the frictional resistance is overcome and provided on its outer face with a pair of depressions fitting the teats when the cap is in closing position.

6. A screw threaded bottle closure having a teat projecting beyond the outer end thereof and provided with a passageway extending therethrough, a cap for said closure having threaded engagement therewith for adjusting said cap to closing position, and a compressible washer frictionally held in said cap and rotatable relative thereto by engagement with said teat, as said cap is adjusted to its closing position.

7. A bottle closure having teats projecting beyond the outer end surface thereof and having passageways extending therethrough, a cap for said closure rotatable relative thereto when being adjusted to closing position, and a washer in said cap and having depressions therein for receiving the other extremities of said teats, said washer being rotatable relative to said cap by engagement of said teats therewith as the cap approaches its full closing position.

Signed at New York, in the county of New York and State of New York, this 13th day of May, A. D. 1927.

FRANK HODGEKINS SILVERTHORNE.