May 13, 1941. W. R. CUTHBERT 2,241,846

RECEPTACLE FOR LIQUIDS

Filed Sept. 9, 1938 2 Sheets-Sheet 1

Fig. 1.

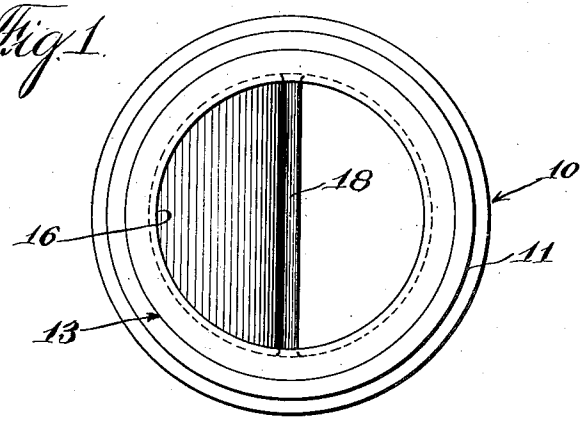

Fig. 2.

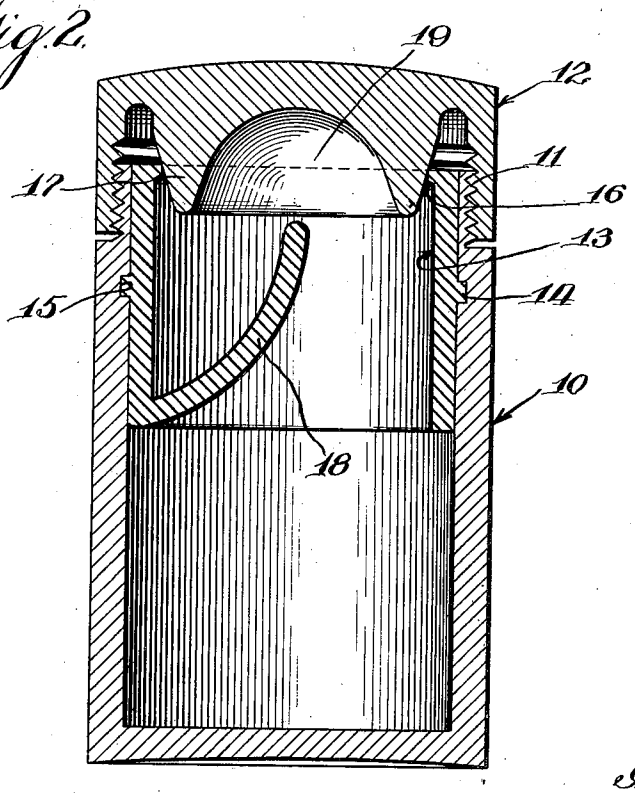

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Fig. 3.

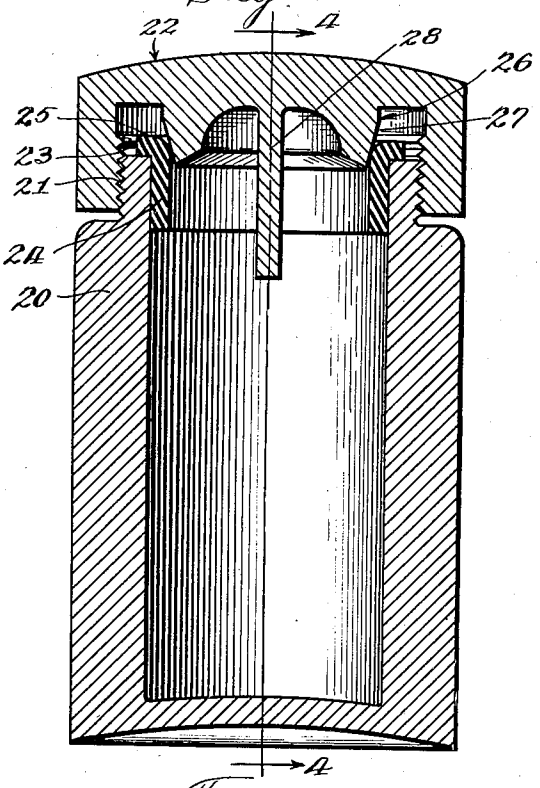


Fig. 4.

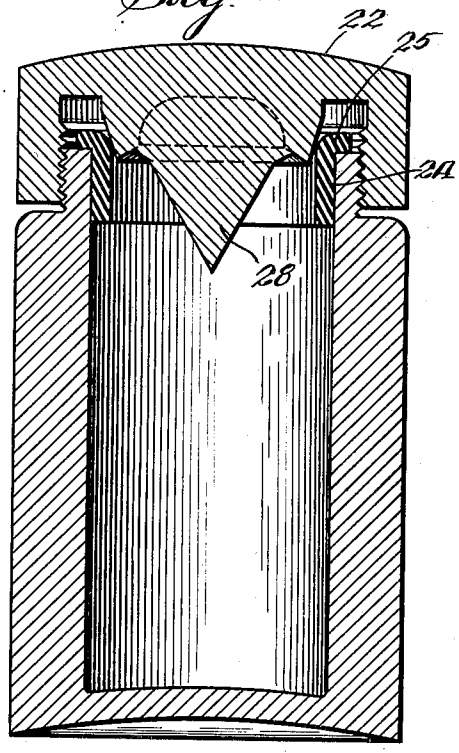


Fig. 5.

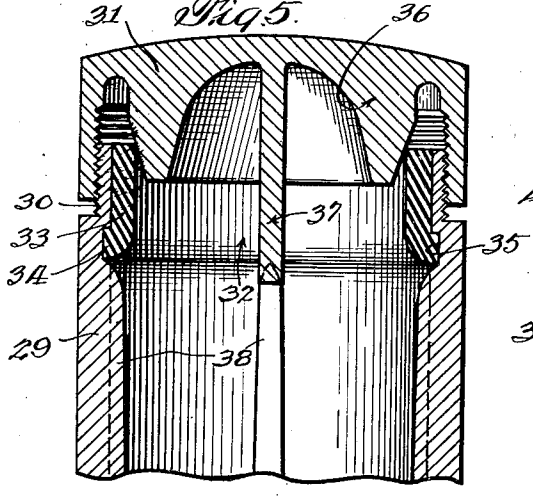
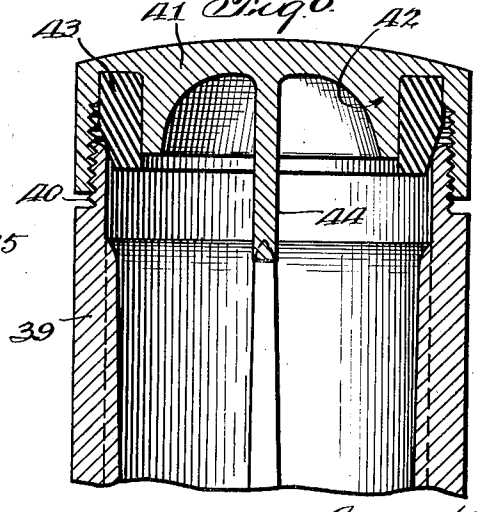


Fig. 6.



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RECEPTACLE FOR LIQUIDS

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Application September 9, 1938, Serial No. 229,080

3 Claims. (Cl. 215—40)

This invention relates to a receptacle for liquids and has special reference to a sealing means between an open end of a receptacle and a cap for enclosing the same in which the sealing means may function as a drip edge to return the liquid accumulated at the open end of the receptacle back into the receptacle.

More particularly, this invention relates to a receptacle for liquids comprising a rigid main body portion having an open upper end with connecting means on the outer periphery thereof and a rigid cap for enclosing the open upper end having an internal recess with connecting means therein co-operating with the connecting means of the main body portion for detachable engagement therewith, a rigid extension on the cap within the recess seating within the bore of a band of resilient material frictionally engaging the open end of the main body portion to seal the contents of the receptacle and to provide an internal drip edge for directing liquid accumulated at the open end back into the receptacle.

It may be desirable to provide a fin extending axially of the rigid extension down into the open end of the bottle preferably below the sealing band for automatically breaking any bubble that may have formed around the open end of the bottle as the cap is removed to avoid the splatter of fluid which would ordinarily result if the bubble were broken through the insertion of a pen or other means after the cap has been removed. The bubble is broken upon removing the cap and before actual removal thereof so that the breaking of the bubble and subsequent splattering will be retained within the open end of the receptacle and such accumulated liquid as may result from the splattering will drip back into the receptacle.

This invention also contemplates a band of resilient material employed between the receptacle and the cap having an integrally formed inwardly extending peripheral lip and an outwardly extending integrally formed flange together with an integral wall extending across the inner bore thereof, the flange engaging a groove in the open upper end of the receptacle for maintaining the band in a fixed position and the wall forming a well to be filled by tilting the receptacle with the lip engaging a substantial rigid extension of the cap to effect a sealing engagement between the side walls of the extension and the inner bore of the lip, whereby the lip function as a sealing means and a drip edge.

One of the uses to which the present container may be employed is that of holding writing ink and that use particularly in the instance of carrying the container in a grip together with wearing apparel. Traveling salesmen, tourists and others are confronted with the problem of carrying a writing fluid in the same container with their wearing apparel, and everyone generally encounters it occasionally. The receptacle of the present invention, besides being leakproof, must retain displaced ink in the receptacle and not permit the same to soil the outer surfaces of the receptacle after the stopper has been removed, the ink used and the stopper replaced.

One of the objects of this invention is to provide a receptacle of the character indicated above in which the sealing means thereof may function as a drip edge to return the ink within the receptacle and prevent the same from being attracted to the outside of the receptacle to soil the threads and outer surfaces thereof.

A further object of this invention is to provide a receptacle of the type hereinabove described in which the sealing means may be resilient and may be readily inserted into the open end of the receptacle in a fixed relation therewith.

A still further object of this invention is to provide a receptacle of the type above referred to in which a fin is disposed on the extension of the cap to break any air bubble formed at the open end of the receptacle prior to the cap being removed from the open end thereof to prevent splattering of liquid upon subsequent use of the receptacle in dipping a pen or other object thereinto.

Another object of this invention is to provide a receptacle as indicated above in which the sealing means may be so constructed and arranged as to provide a well which may be quickly and easily filled when the cap is in position on the receptacle by tilting or inverting the receptacle.

A still further object of this invention is to provide a receptacle of the type above referred to which is simple in operation, is inexpensive to manufacture, and is durable.

Other objects and advantages will hereinafter be more particularly pointed out and for a more complete understanding of the characteristics of this invention, reference may now be had to the following description when taken together with the accompanying drawings, in which latter:

Figure 1 is a top plan view of a receptacle embodying the features of this invention with the cap thereof removed;

Fig. 2 is a central vertical sectional view of the receptacle of Figure 1 with the cap thereof in position thereon;

Fig. 3 is a central vertical sectional view of a

modified form of receptacle construction embodying the features of this invention;

Fig. 4 is a central vertical sectional view taken on the line 4—4 of Fig. 3;

Fig. 5 is a central vertical sectional view of another form of receptacle embodying this invention with a portion of the receptacle broken away; and

Fig. 6 is a view similar to Fig. 5 of still another form of receptacle embodying the features of this invention.

Referring now to the drawings, and more particularly to Figs. 1 and 2 thereof, one of the constructions shown as embodying the features of this invention comprises a receptacle 10 having an open upper end with connecting means such as threads 11 on the upper and outer periphery thereof, the threaded portion being preferably a reduced extension of the main body portion. A cap 12 is provided for enclosing the open upper end of the receptacle 10 and is preferably interiorly threaded for engaging the threaded open upper end of the container. The outer diameter of the cap is preferably the same as the outer diameter of the receptacle for purposes of appearance and convenience in handling.

The material of the container and cap may be of hard rubber, or of a cellulose composition or material such as is known to the trade as radite, Bakelite, and the like, the latter materials being preferable where ornamentation or color effects may be desired. However, it is to be understood that the receptacle may be of glass, or, if desired, may be of glass covered with a thin shell of composition.

A sealing means 13 is provided between the receptacle and the cap and preferably comprises an annular band having an outer diameter substantially the same as that of the inner diameter or bore of the upper open end of the receptacle 10 for purposes of a sealed frictional fit. However, in order to maintain the resilient band in a desired fixed position, an outwardly extending preferably integrally formed flange 14 is formed on the periphery of the band which flange engages a peripheral groove 15 of the inner bore of the receptacle 10. The sealing means 13 is preferably formed of soft rubber and is thereby resilient. It may be compressed or distorted in such a manner that it may be readily and conveniently inserted from the open upper end and moved until the outwardly extending flange 14 registers with the groove 15, whereafter the flange will snap into engagement therewith.

The upper end of the sealing means or band 13 is provided with a preferably integrally formed inwardly extending lip 16 for engagement with the side walls of a substantially rigid extension 17 formed interiorly of the cap 12. The side walls of the extension 17 preferably converge when viewed in cross section and in this manner are adjustably associated with the inwardly extending lip by reason of the movement vertically of the receptacle by means of the engaged threads of the cap and receptacle.

It is desirable, when the receptacle is used for containing ink for filling fountain pens, that an integral wall 18 be extended across the inner bore of the band 13, the wall preferably being inclined or sloped. As indicated in the drawings, the top edge of the wall 18 terminates slightly below the plane of the lip 16 so that the projection 17 may be extended into the bore of the sealing means or band 13 without contact therewith, a central portion of the cap 19 being hollowed out in order for the ink to freely pass from the main body portion of the container into the well.

In the use of the receptacle as an ink receptacle and well, the receptacle is filled with ink and capped in the usual manner. When the well is to be used, the receptacle is tilted or inverted before the cap is removed and the well allowed to fill, after which the receptacle is placed upright and the cap removed. When the ink is to be used for filling fountain pens, the fountain pen is inserted into the pocket or well with the edge or end of the barrel resting against the top of the wall 18.

After the use of the receptacle for filling fountain pens, or any other use thereof, the receptacle is capped in the usual manner by threading the cap so that the extension 17 of the cap engages the resilient inwardly extending lip 16. In the sealing of the receptacle, a very efficient adjustable type is had in the present invention, the threads taking up wear, if any, and affording a very tight liquid seal. This sealing takes place within the neck of the receptacle where such sealing action is most desirable, the seal being formed as a peripheral lip. It functions as a drip edge to direct surplus or displaced liquid back into the container and avoids a displacement thereof on the outside to soil the threads exteriorly of the receptacle as well as the exterior surfaces thereof. Such a sealing means may be constructed and arranged as to readily provide a well for the purpose, as above described, of filling a fountain pen. The seal thus formed, may be readily applied to a receptacle inasmuch as it is soft and yielding although stiff enough to be fixed in position unless manually forced.

Referring now more particularly to Figs. 3 and 4 of the drawings, the modified form of construction therein shown comprises a receptacle 20 having an open upper end with connecting means such as threads 21 on the upper and outer peripheries thereof, the threaded portion being preferably a reduced extension of the main body portion. A cap 22 encloses the open upper end of the receptacle 20 and is provided with a recess having connecting means such as threads 23 for engaging the threaded open upper end of the container. The outer diameter of the cap is preferably the same as the outer diameter of the receptacle for purposes of appearance and convenience in boxing and handling. As in the previously described embodiment of this invention, the material of the cap and of the main body portion of the receptacle is comparatively rigid.

A sealing means 24 is provided between the open end of the receptacle and the cap and preferably comprises an annular band or collar having a radially extending flange 25 formed integrally therewith at one end thereof. The outer diameter of the annular band of the sealing means 24 is preferably such as to form a tight fit with the material employed preferably being of soft rubber or other like resilient material. The flange 25 maintains the sealing means 24 in a desired fixed position within the open end of the receptacle. By reason of the sealing means being resilient it may be compressed or distorted in such a manner that it may be readily and conveniently inserted into the open upper end of the receptacle and moved to a position such that the radially extending flange 25 engages the end of the receptacle whereafter the distorted material of the band will snap into frictional engagement therewith.

The recess of the cap is provided with an ex-

tension 26 preferably formed integrally with the cap and of rigid material, the side walls of the cap preferably converging as at 27 to extend into the collar of the sealing means 24 and to seat thereon. A fin 28 extends from the extension 26 through the collar of the sealing means and preferably on the other side thereof to break any bubble which may have formed across the open end of the receptacle automatically upon removal of the cap. The tapered on converging side wall 26, upon removal of the cap, breaks contact with the bottle quickly to avoid forming a peripheral capillary that may be inclined to draw the fluid outside of the neck of the bottle. The fin 28 is preferably pointed and V-shaped when viewed in one direction and is comparatively thin for performing its function in an efficient manner.

Referring now more particularly to Fig. 5 of the drawings, a construction very much similar to that of Fig. 2 is shown comprising a receptacle 29 having an open upper end with connecting means such as threads 30 on the upper and outer periphery thereof, the threaded portion being preferably a reduced extension of the main body portion. A cap 31 encloses the open upper end of the receptacle 29 and is preferably interiorly threaded for engaging the threaded open upper end of the container. The container and cap therefor are of a substantially rigid material such as hard rubber or the like as hereinbefore mentioned.

A sealing means 32 is provided between the receptacle and the cap and preferably comprises an annular band 33 having an outer diameter substantially the same as that of the inner diameter or bore of the upper open end of the receptacle 29 in order to assure a sealed frictional fit. However, in order to maintain the resilient band in a desired fixed position, an outwardly extending preferably integrally formed flange 34 is formed on one end of the collar 33 to engage a peripheral groove 35 on the inner bore of the receptacle 29. As in the previous embodiments of this invention, the sealing means 32 is preferably formed of soft rubber or like resilient material so that it may be inserted conveniently into position at the open upper end of the container and held therein against displacement.

An extension 36 is formed preferably integrally on the inside of the cap 31 the side walls of the extension 36 tapering or converging when viewed in cross section to extend into the collar and seat thereon. A fin 37 likewise preferably formed integrally with the cap extends through the collar and preferably on the other side thereof to form a means for breaking any bubbles which may form across the open end of the receptacle. The fin 37 is preferably formed in the same shape as that previously described with reference to the embodiment of Figs. 3 and 4.

The present embodiment disclosed in Fig. 5 differs from that of the embodiment shown in Fig. 2 by the omission of an inwardly extending lip surrounding the upper end of the collar 33 and the omission of the cup or auxiliary well formed by the sealing means. However, when the cap is to be removed, the initial movement to disengage the connecting members quickly breaks the seal so as to avoid the formation of a capillary condition which would ordinarily draw liquid to the point of engagement, and subsequent disengagement of the cap causes the fin to break any bubble which may be formed across the open upper end of the receptacle prior to the complete removal of the cap. The breaking of the bubble is done internally of the receptacle to obviate splattering fluid on the connecting means or outside of the receptacle. The walls of the receptacle may be reinforced in the provision of ribs 38.

The embodiment of this invention as disclosed in Fig. 6 comprises a receptacle 39 having an open upper end with connecting means such as threads 40 on the upper and outer periphery thereof, the threaded portion being preferably of reduced diameter. A cap 41 encloses the open upper end of the receptacle 39 and is preferably internally threaded for engaging the threaded open upper end of the container. The outer diameter of the cap 41 is preferably the same as the outer diameter of the receptacle for purposes of appearance and convenience in packaging. Both the cap and the receptacle, as in the previously described embodiments, are of a rigid material such as hard rubber or the like.

The cap 41 is provided with an internal extension 42, the side walls of the extension being spaced from the connecting means of the cap to form a channel. A sealing means 43 is disposed in the channel between the extension and the connecting means of the cap, the inner wall of the sealing means frictionally engaging the outer wall of the extension 42 with the outer wall of the sealing means being tapered or, in other words, when viewed in cross section the edges thereof converge. The converging edges extend into the open upper end of the receptacle and seat thereon to seal the contents of the receptacle and to provide an internal drip edge for directing liquid accumulated at the open end of the receptacle back into the main body portion thereof.

A fin 44 of the character of the fins in the previously described embodiments extends from the extension of the cap into the open end of the receptacle and substantially therebelow in order to break any bubble which may be formed across the open end of the receptacle as the cap is removed therefrom.

While several embodiments of this invention are herein shown and described, it is to be understood that various modifications thereof may be apparent to those skilled in the art without departing from the spirit and scope of this invention and, therefore, the same is only to be limited by the scope of the prior art and the appended claims.

I claim:

1. A receptacle for liquids having an open upper end with connecting means on the outer periphery thereof, a cap for enclosing said open upper end and for engaging said connecting means, and sealing means between said receptacle and said cap comprising a band of substantial depth fitting within the open upper end of said receptacle and having an inwardly extending peripheral lip and an interiorly formed well to be filled by tilting the receptacle, said cap having a substantially rigid extension with the side walls thereof effecting a sealing engagement with the inner bore of said lip whereby the latter functions as a sealing means and a drip edge.

2. A receptacle for liquids having a grooved open upper end with connecting means on the outer periphery thereof, a cap for enclosing said open upper end and for engaging said connecting means, and sealing means between said receptacle and said cap comprising a resilient band

having an inwardly extending integrally formed peripheral lip and an outwardly extending integrally formed flange for engaging said groove in the open upper end, said band having an integral wall extending across the inner bore thereof to form a well to be filled by tilting the receptacle, said cap having a substantially rigid extension with the side walls thereof converging when viewed in cross section to effect a sealing engagement with the inner bore of said lip whereby the latter functions as a sealing means and a drip edge.

3. A receptacle for liquids having an annular open upper end with threads on the outer periphery thereof, a cap for enclosing said open upper end and being interiorly threaded for engaging said outer peripheral threads, and sealing means between said receptacle and said cap comprising an annular resilient band having an integrally formed inwardly extending peripheral lip and an outwardly extending integrally formed flange together with an integral wall extending across the inner bore thereof, said flange engaging a groove in said open upper end for maintaining said band in a fixed position and said wall forming a well to be filled by tilting the receptacle, said cap having a substantially rigid extension with the side walls thereof converging when viewed in cross section to effect a sealing engagement with the inner bore of said lip whereby the latter functions as a sealing means and a drip edge.

WILLIAM R. CUTHBERT.