Aug. 19, 1930. R. S. CASEY 1,773,475

CLOSURE MEANS FOR CONTAINERS

Filed Feb. 13, 1928

Fig. 1.

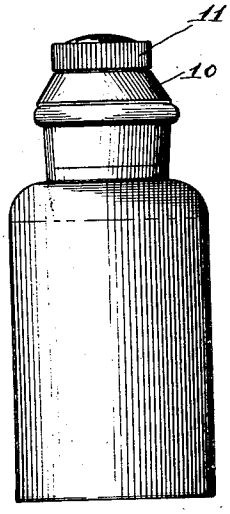


Fig. 2.

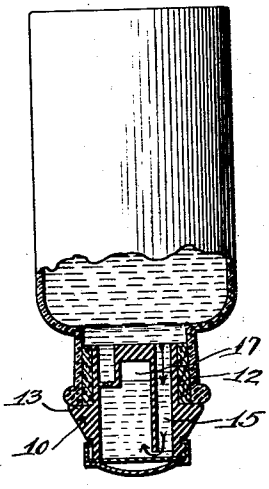


Fig. 4.

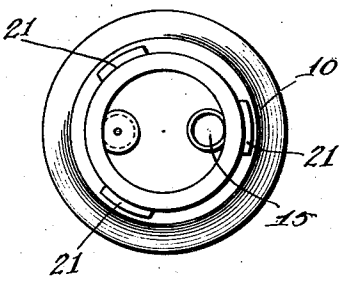


Fig. 3.

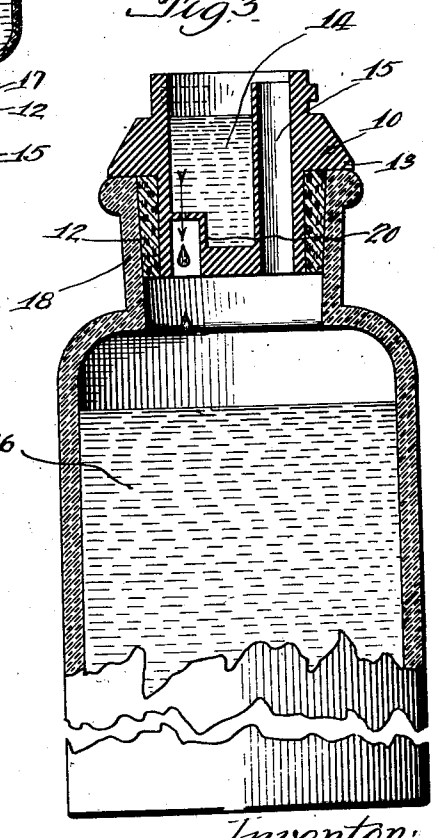


Fig. 6.

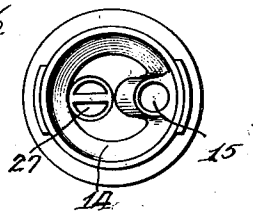
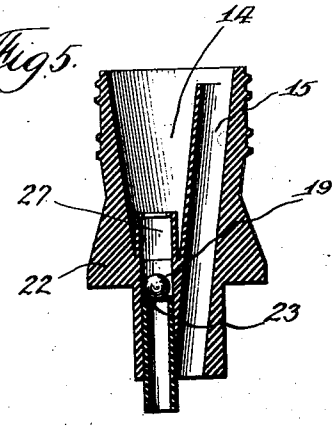


Fig. 5.



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Patented Aug. 19, 1930

1,773,475

UNITED STATES PATENT OFFICE

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CLOSURE MEANS FOR CONTAINERS

Application filed February 13, 1928. Serial No. 253,834.

My invention relates to closure means for containers and has special reference to stoppers for containers for fountain pen ink where it is desirable to provide means for filling fountain pens direct from a bottle or receptacle as well as to use the receptacle to pour out ink in the regular way.

The primary use of the invention is for ink bottles of the size used in offices and homes to keep a supply of ink to pour out into inkwells as required. Hitherto it has always been necessary in filling a fountain pen either to pour out a small quantity of ink into another receptacle or to dip the pen, where the nature of the cap permitted, into the large bottle, resulting in soiling of the barrel of the pen.

My invention avoids both inconveniences. No ink has to be poured out into other receptacles and no soiling of the pen barrel takes place when filling the pen because the pen cannot descend far enough into the ink to make this possible.

Another advantage of the invention is that it discourages and makes unnecessary the practice of filling fountain pens from open inkwells wherein the ink, owing to evaporation, dust and precipitation, is never in fit condition for use in a fountain pen and when so used causes clogging and soiling of the pen and obstruction of the flow of ink in the fine passages of the ink-feeding means.

With this invention there is combined the convenience of filling a fountain pen from a small bottle and the economy of purchasing ink in larger quantities.

A further object lies in the fact that the stopper embodying my invention is trim and neat and not materially different in outward appearance from standard ink bottle stoppers now in use.

Further objects and advantages will be apparent from the accompanying drawing in which:

Figure 1 is a side elevational view of an ink bottle with the stopper inserted;

Fig. 2 is a view similar to that in Figure 1 showing the container in inverted position and partially in section;

Fig. 3 is a vertical sectional view of one form of my invention showing ink dropping back from the ink reservoir into the bottle;

Fig. 4 is a top plan view of Fig. 3;

Fig. 5 is a vertical section of an alternate form of my invention; and

Fig. 6 is a top plan view of Fig. 5.

Referring more particularly to the drawing, the stopper 10 is preferably of hard rubber or other similar substance. It consists of a cylindrical portion having a shoulder portion substantially midway between the top and bottom with a cork band where the stopper engages the neck of the ink bottle or other receptacle. The shoulder 13 prevents further entry of the stopper into the bottle. The cylindrical portion 10 is provided with an ink chamber 14 of sufficient depth so that the nib, or ink-feeding means, of a fountain pen inserted therein will rest on the bottom and submerge in the ink present in said chamber. In order to prevent soiling of the barrel of a fountain pen so inserted the depth of the chamber may not be at a greater depth than is necessary to submerge only the nib or ink-feeding means of the pen.

Extending through the stopper is an ink-feeding passage 15 preferably formed integrally with the cylindrical portion of the stopper and opening at one end into the ink bottle or container and at the other end into the ink chamber of the stopper near, but not touching, the cap portion 11, which is preferably provided with a paraffined surface on its under side. This tubular passage serves as a pour-out when it is desired to empty any of the ink from the main receptacle and also as a means for filling the ink chamber 14 when it is desired to use my invention as a means for filling a fountain pen. At the bottom of the ink chamber 14 is a short tubular passage 20, preferably formed integrally with the cylindrical portion of the stopper and having in the top surface of said passage a small hole 18 to permit the ink in the chamber 14 to drip back into the receptacle 16. The tubular passage 20 must be of sufficient length so that when the bottle is inverted, as in Fig. 2, and the ink pours into the chamber 14, an air pocket 17 will be formed, preventing the complete filling of said cham-

ber 14 so that when restored to an upright position the surface of the ink in said chamber 14 will be slightly below the level of the top of the chamber 14, thereby preventing spilling of the ink and permitting the ink to drip from the inside surface of the cap back into the chamber 14. When the receptacle is inverted to fill the reservoir 14, ink passes into said chamber 14 through the passage 15, air at the same time escaping from the chamber 14 through the small hole 18.

The preferred form of my invention is shown in Fig. 3, wherein the escape of air when filling the chamber 14 and the drip of ink from said chamber back into the receptacle 16 is through the small hole 18. An alternative form of my invention is shown in Fig. 5 wherein a short cylindrical member having a passageway therethrough extends downwardly through the stopper and has below the level of the bottom of the chamber 14 a ball 19 disposed in said passageway and adapted to engage a seat 23, said seat being provided with a restricted opening 22. When the bottle is inverted the ink passes into the chamber 14 through the passage 15 and air escapes through the top of said tubular passage 27. In this form of my invention it may be desirable to provide for more rapid filling by permitting the escape of air through a large opening at the top of the tubular passage 27, said opening being sealed when the receptacle is in an upright position, the ink then passing back into said receptacle through said restricted opening 22.

Lips on the cap 11 engage with the top of the stopper by means of segmental flanges 21 integrally formed with the cylindrical portion of the stopper as shown in Fig. 4.

The underside of these flanges may be tapered so as to provide a tight engagement between the top and the stopper.

The use of my invention is not confined to ink bottles but may be used as a closure for any kind of container, such as jars or containers made of tin or any other materials.

Having described but two embodiments of my invention it is apparent that many modifications thereof may occur to those skilled in the art without departing from the spirit and scope of my invention and I desire, therefore, that the same be limited only by the scope of the appended claims and the prior art.

I claim:

1. A closure for the open end of receptacles having a chamber embodied therein, said closure having a passageway communicating between said receptacle and said chamber for rapidly filling said chamber with the contents of said receptacle, and a second passageway of a substantially smaller diameter than said first passageway for evacuating said contents from said chamber slowly into said receptacle.

2. A closure for the open end of receptacles having a chamber embodied therein, said closure having a passageway communicating between said receptacle and said chamber, said passageway terminating near the top of and for rapidly filling said chamber, said closure having a second passageway of a substantially smaller diameter than said first passageway for evacuating said contents from said chamber slowly into said receptacle.

3. A closure for the open end of receptacles having a chamber therein open at the upper end thereof, a cover for said open end, said closure having a passageway communicating between said receptacle and said chamber for rapidly filling said chamber with the contents of said receptacle, and a second passageway of a substantially smaller diameter than said first passageway for evacuating said contents of said chamber slowly into said receptacle.

4. A closure for the open end of receptacles, having a chamber therein open at the upper end thereof, a cover for said open end, said closure having a passageway communicating between said receptacle and said chamber and terminating at a spaced distance from said cover for filling said chamber with the contents of said receptacle, said closure having a second passageway of a substantially smaller diameter than said first passageway for evacuating said contents of said chamber slowly into said receptacle.

5. A closure for the open end of receptacles having a chamber embodied therein, said closure having a passageway communicating between said receptacle and said chamber, and a portion of said closure extending above the bottom surface of said chamber having a restricted opening therein for slowly evacuating the contents of said chamber into said receptacle.

6. A closure for the open end of receptacles having a chamber embodied therein, said closure having a passageway communicating between said receptacle and said chamber, and means above the bottom surface of said chamber having an aperture therein for slowly evacuating the contents of said chamber, said means providing that said chamber may be filled only to within a spaced distance from the top thereof.

7. A closure for the open end of receptacles having a chamber embodied therein open at the upper end thereof, a cover for said open end, said closure having a passageway communicating between said chamber and said receptacle terminating at a spaced distance from said cover, and a raised portion in said chamber whereby said chamber may be filled only to within a spaced distance from the top thereof, said raised portion having a restricted opening in communication with said receptacle for slowly evacuating the contents of said chamber.

3. A closure for the open end of receptacles having a chamber embodied therein open at the upper end thereof, a cover for said open end, a tubular member extending to within a spaced distance from said cap and affording communication between said receptacle and said chamber, a raised portion above the bottom surface of said chamber having a restricted opening in the upper surface thereof for slowly evacuating said chamber into said receptacle, said raised portion creating an air trap between the bottom surface of said chamber and the top surface of said raised portion when said container is in an inverted position whereby said chamber is never completely filled.

9. A closure for the open end of receptacles having a chamber embodied therein, said closure having a comparatively large opening for permitting communication between said receptacle and said chamber to fill rapidly the chamber from the contents of said receptacle, and valve means between said chamber and said receptacle for permitting the chamber to evacuate slowly into said receptacle.

10. A closure for the open end of receptacles having a chamber embodied therein, said closure having a comparatively large opening for permitting communication between said receptacle and said chamber to fill rapidly the chamber from the contents of said receptacle, and a restricted opening between said chamber and said receptacle for permitting the chamber to evacuate slowly into said receptacle, and means for preventing said chamber to evacuate into said receptacle through said large opening.

In witness whereof, I have hereunto subscribed my name.

ROBERT S. CASEY.