March 3, 1942. E. D. MOSS 2,274,844

POURING AND CLOSING CAP FOR RECEPTACLES

Filed Sept. 6, 1938

FIG. 1.

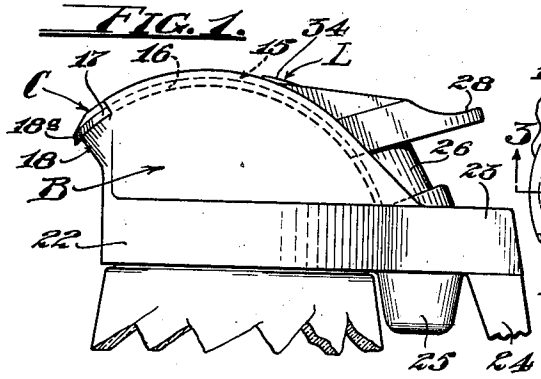


FIG. 2.

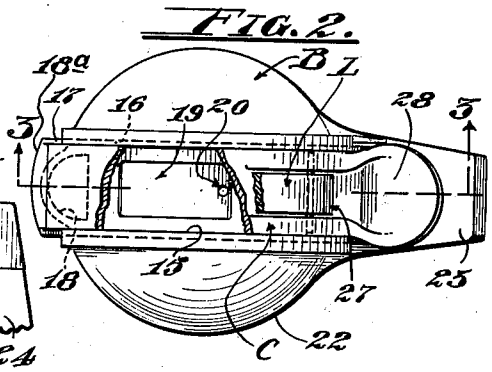


FIG. 3.

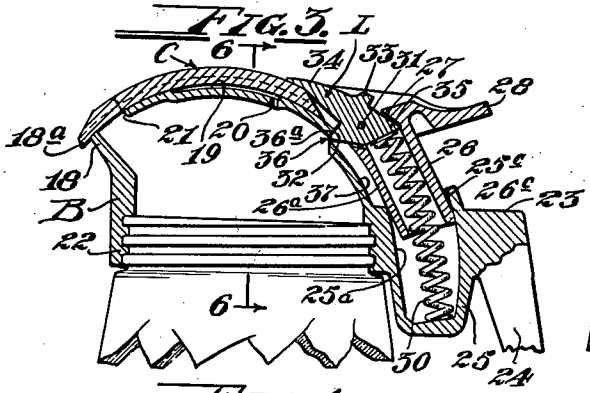


FIG. 6.

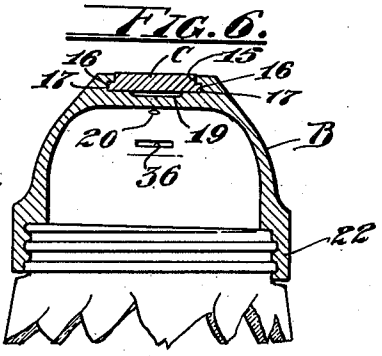


FIG. 4.

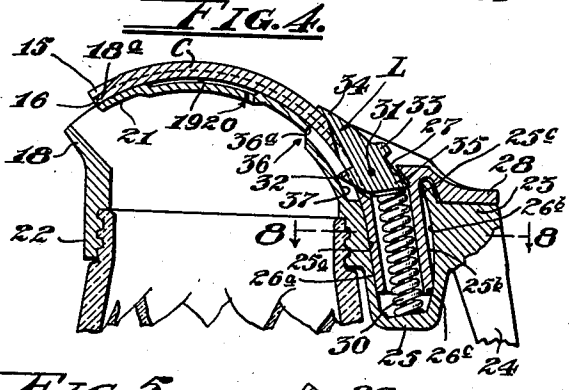


FIG. 7.

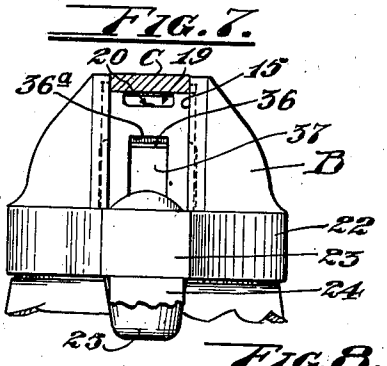


FIG. 5.

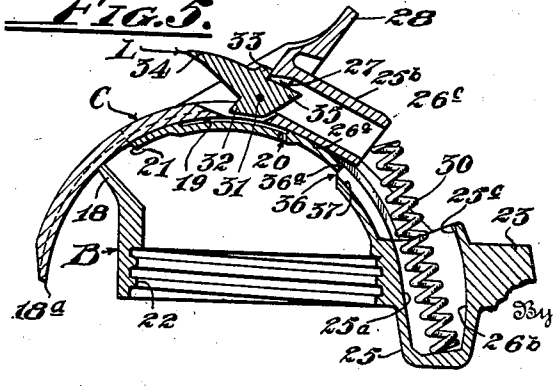
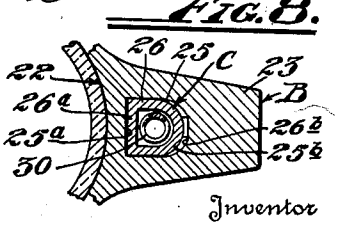


FIG. 8.



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POURING AND CLOSING CAP FOR RECEPTACLES

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Application September 6, 1938, Serial No. 228,627

14 Claims. (Cl. 65—31)

My invention relates to pouring and closure caps for use on jars, bottles, pitchers, and similar fluid containing receptacles and it has particular reference to caps of the character embodied in my co-pending application Serial No. 203,130, filed April 20, 1938, wherein the cap is of dome-shaped form and provided with a pouring spout, with a closure of corresponding curvature operable to cut off the liquid in a manner to prevent the same from dripping, and a spring or other urging means for normally maintaining the closure in spout closing position.

It is a purpose of my present invention to provide a cap for receptacles in which the spring or other urging means is free and floating and completely isolated from the fluid in the receptacle so as to eliminate any possibility of contamination of the fluid by the spring.

It is also a purpose of my invention to provide a cap for receptacles in which the spout closure is mounted for sliding movement on the cap in such manner as to prevent the possibility of the fluid contained in the receptacle from entering between the surfaces of the cap and closure and interfering with the smooth operation of the closure.

A further purpose of my invention is the provision of a cap for receptacles wherein the closure is readily detachable from the cap for the purpose of cleaning both the cap and closure when necessary, and, in addition, the spring, although housed exteriorly of the cap, is removable with detachment of the closure from the cap to permit substitution of a new spring when required.

Another purpose of my invention is the provision in a cap for receptacles of means automatically operable to retard closing movement of the closure under the action of the spring, and to thus eliminate the noise and jar incident to snapping of the closure to spout-closing position as occurs in prior devices.

Another purpose of my invention is the provision of a cap for receptacles in which the closure member when in spout-closing position, extends beyond or overhangs the spout and thus presents in conjunction with the exterior surface of the spout, to any fluid and particularly syrup, sufficient surface area for such adherence of the fluid as to prevent the fluid from running down the sides of the cap and receptacle.

Another purpose of my invention is the provision of a cap for receptacles in which means is provided for wiping the closure clean on its under side of any fluid with each movement thereof to spout opening position, thereby precluding the possibility of fluid accumulating between the cap and the closure.

I will describe only one form of pouring and closure cap for receptacles embodying my invention and will then point out the novel features thereof in claims.

In the accompanying drawing:

Figure 1 is a view showing in side elevation one form of pouring and closure cap for receptacles embodying my invention, and in an applied position on a receptacle.

Fig. 2 is a view showing the cap in top plan and with a portion of the closure and latch member thereof broken away.

Fig. 3 is a vertical sectional view taken on the line 3—3 of Fig. 2, and showing the closure member of the cap in closed position.

Fig. 4 is a view similar to Fig. 3 showing the closure member in open position.

Fig. 5 is a view similar to Fig. 4 showing the latch of the cap in released position and the closure member in partly detached position.

Fig. 6 is a vertical sectional view taken on the line 6—6 of Fig. 3.

Fig. 7 is a view showing the cap in rear elevation and with a part of the closure member broken away.

Fig. 8 is a horizontal sectional view taken on the line 8—8 of Fig. 4.

In carrying out my invention, I provide a hollow body B of cupped, semi-spherical or dome-shaped form so as to have an arcuately curved outer or upper side on which a closure member C of like curvature is adapted to slide in a channel 15. This channel is formed by recessing the upper surface of the body B and forming the side walls of the recess with grooves 16 in which are slidably received tongues 17 on the opposite edges of the member C, all as best shown in Fig. 6. This tongue and grooved connection in addition to mounting the closure for sliding movement secures the closure member against lateral displacement from the cap body, and prevents the possibility of syrup or any other fluid from passing outwardly of the cap from the under side of the closure member and cap. This is due to the joints provided by the tongue and groove connection through which a fluid would have to pass to reach the outer surface of the cap or closure member.

The closure member C is in the form of an inflexible strip permanently curved to substantially the same longitudinal curvature as the channel so as to lie flat therein and to be slidable on

the body to open and close a pouring spout 18 formed in the cap B. To minimize the area of contact between the closure member and the cap body to reduce friction between the two, and yet at the same time to prevent air from interfering with the easy operation of the closure member, the bottom wall of the channel 15 is provided with a recess 19 at a point between the ends of the channel, as best shown in Fig. 2. Communicating with the recess is a vent port 20, relatively small, so as to preclude the passage of syrup or other fluid into the recess but sufficiently large to allow the free circulation of air into and out of the recess thereby eliminating the possibility of air being trapped in the recess and impeding movement of the closure member.

As best shown in Fig. 3, the recess 19 terminates short of one end of the channel 15 to provide at a point at the inner side or edge of the spout a wiping element 21 for the under side of the closure member C. This wiping element functions to wipe the under side of the closure member as it is moved to spout-opening position, so that any syrup adhering to the closure member will be removed therefrom and deposited into the receptacle, rather than to be carried rearwardly with the closure member to clog the channel and thus interfere with the smooth operation of the closure member.

The cap body B is provided with the conventional internally threaded collar 22, and integral with the collar is a radial projection 23. On to the lower side of this projection is secured a handle 24, while between the handle and collar projection 23 is formed a barrel 25 closed at its lower end and opened at its upper end. Slidable in this barrel 25 is a second barrel 26 open at its lower end and provided at its upper end with a transverse slot 27. This barrel 26 is formed integral with the closure member C, and from the adjacent end of the closure member, extends an upper operating extension or thumb piece 28.

As will be observed from Figs. 3, 4 and 5, both barrels 25 and 26 are curved longitudinally so as to be concentric to the curvature of the cap body and closure member. This is in order that free movement of the barrel 26 within the barrel 25 may be afforded in the movement of the closure member to open and close the spout 18. As best shown in Fig. 8, those exterior walls 25*a* and 26*a* of the barrels 25 and 26 adjacent the collar 22 are flat transversely, while the opposite walls 25*b* and 26*b* are rounded transversely, except at the center where they are flat.

These flat portions are co-extensive in length with the barrels, and as are the walls 25*a* and 26*a*, such flat portions are longitudinally curved in arcs concentric to the closure member, except the lower end of the wall 25*b* and the upper end of the wall 26*b*, where they are curved in different arcs to provide friction faces 25*c* and 26*c*. This is for the purpose of causing the faces 25*c* and 26*c* to gradually bind one against the other as the upper barrel 26 moves into its uppermost position and to thereby retard movement of the closure member to closed position.

The barrels 25 and 26 coact to form a housing for completely enclosing a coiled expansible spring 30 which constitutes the means for urging the closure member to spout-closing position, it being understood that by pressing downwardly on the thumb piece 28 the spring will yield to permit manual movement of the closure member to spout-opening position.

The spring 30 also serves to urge a latch L to latched position. This latch is in the form of a lever pivoted on a pin 31 which extends through the closure member at the upper end of the barrel 26. The lever is formed with two bills 32 and 33, a tapered extension 34, and a straight edge portion 35. In the latched position of the lever the straight edge portion 35 extends into the slot 27 to be engaged by the spring 30 so that the spring functions to urge the lever to latched position. The extension 34 is so tapered that with the latch lever in latched position it lies substantially flat against the closure member to prevent accidental movement thereof to released position, and also permitting the finger nail to be extended therebeneath for lifting and moving the lever to released position.

The bill 32 functions as a valve for closing a slot-shaped vent port 36 when the closure is in spout-closing position. This port is formed at the upper end of a groove 37 in the upper side of the cap body, and in this groove the bill or valve 32 slides with movement of the closure. The port 36 is for the purpose of admitting air to the cap and receptacle when the spout 18 is open, so that fluid can be freely poured from the spout.

The upper wall of the port 36 is flat as indicated at 36*a* to form a keeper for the latch stop 32, so that the two coact to secure the closure member C against being withdrawn from the channel 15 in the direction of the spout 18, and also to define the closed position of the closure member wherein the forward end thereof overhangs the spout to form a fluid retaining lip 18*a*. Manifestly, by lifting the latch to the released position shown in Fig. 5 wherein the stop 33 abuts the barrel 26 while the stop 32 is moved clear of the keeper 36*a*, the entire closure member can be withdrawn from the body channel 15, and thus the closure, the barrel 26 and the latch L may be detached from the cap body. By this mode of disassembly all parts of the device are accessible for cleaning.

In the partly detached position of the closure member as shown in Fig. 5, the barrel 26 is completely withdrawn from the barrel 25 to permit removal of the spring and the substitution of another if required.

When liquid or other fluid is to be poured out of the receptacle, the user grasps the handle 24 and draws the closure member C to open position by pressing downwardly on the extension or thumb piece 28 which acts against the tension of the spring 30 and opens the spout 18. During this pouring operation air is admitted to the receptacle through the port 36, the valve 32 now being in open position, as shown in Fig. 4. As the closure member is moved to open position its under side wipes against the surface 21 to remove any liquid therefrom so that it cannot be carried back between the closure and cap body.

When sufficient quantity of liquid has been poured out the thumb piece is released thus allowing the spring 30 to cause the closure member to slide over the spout and cut off the stream in a manner to prevent dripping. Concurrently therewith, the valve 32 closes the port 36 and thus the entire cap is sealed against the ingress of air or the egress of the liquid.

As the closure member C approaches fully closed position the barrel 26 in its rising movement brings the surface 26*c* into contact with the surface 25*c* and because of the relation of these surfaces such friction is set up as to retard movement of the closure as it approaches fully closed position. Thus the spring 30 is prevented

from thrusting the closure to closed position with a force likely to break the closure and its attached parts, or throw the latch to released position. Also all objectional noise is eliminated.

The lip 18*a* of the closure member functions in the closed position of the latter to provide an additional surface to which any liquid remaining on the exterior of the spout will adhere, and be prevented from running down the spout. In the case of syrup, or any other liquid of like viscosity, the lip 18*a* in causing the syrup to adhere thereto retains it in a position to be drawn back into the spout beneath the lip under the action of the syrup within the spout flowing downwardly therein.

When it is desired to clean the parts of the cap or to substitute a new spring, the entire closure member and its appurtenances can be detached from the cap body by merely moving the latch L free of the keeper 36*a* when the closure member can be withdrawn from the cap channel 15.

Although I have herein shown and described only one form of pouring and closure caps for receptacles embodying my invention, it is to be understood that various changes and modifications may be made herein without departing from the spirit of my invention and the spirit and scope of the appended claims.

I claim:

1. A cap for receptacles, comprising a curved body having a pouring spout; a barrel fixed on the body and curved so as to be concentric of said body; a closure for said spout of substantially the same curvature as said body and mounted for sliding movement thereon to open and close the spout; a second barrel fixed on said closure and curved on the same radius as the first mentioned barrel and telescoping within the latter; and an expansive spring within the barrels and acting to urge the closure to spout closing position.

2. A cap for receptacles, comprising; a curved body having a pouring spout; a barrel fixed on the body and curved so as to be concentric of the curvature of said body; a closure for said spout of substantially the same curvature as said body and mounted for sliding movement thereon to open and close the spout; a second barrel fixed on said closure and curved on the same radius as the first mentioned barrel and telescoping within the latter; an expansive spring within the barrels and acting to urge the closure and engageable with the body for releasably securing the closure against endwise detachment from the body and for defining the closed position of the closure.

3. A cap for receptacles, comprising; a dome-shaped body having a pouring spout and a vent opening; an elongated closure for said spout of substantially the same curvature as said body and mounted for sliding movement on the body to close and open said spout; a spring interposed between the body and closure exteriorly of the body for urging the closure to closed position; and a latch pivoted on the closure for detachably securing the closure against endwise displacement from the body and for opening or closing the vent opening according as the closure is in spout opening or spout closing position.

4. A cap for receptacles, comprising; a curved body having a pouring spout; a barrel fixed on the body; a closure for said spout slidably mounted on the body and of substantially the same curvature as said body; a second barrel fixed on the closure and slidable in the first mentioned barrel; a spring within said barrels for urging the closure to spout closing position; coacting means on the closure and body for defining the closed position of the closure; said barrels having surfaces acting to retard movement of the second mentioned barrel under the action of said spring as the closure moves to spout closing position, whereby movement of the closure to spout closing position is retarded.

5. A cap for receptacles, comprising; a body having a pouring spout; an elongated closure slidably mounted on the body to open and close the spout; a spring for urging the closure to spout closing position; a latch pivoted on the closure to occupy one position in which it engages the body to define the closing position of the closure and to secure the closure against detachment from the body, and another position in which it disengages the body to permit detachment of the closure from the body; and means on the closure for sliding the latter against the action of the spring to open the pouring spout.

6. A cap for receptacles as embodied in claim 5, wherein said spring engages the latch to releasably secure the latter in body engaging position.

7. A cap for receptacles, comprising; a body having a pouring spout and a channel; a closure for the spout slidable in said channel; the bottom of said channel being recessed for a portion of its length between its ends to reduce the area of surface contact between the closure and the body; and a port in the body at one end of said recess to allow the free circulation of air into and out of said recess so as not to impede movement of the closure in the channel.

8. A cap for receptacles, comprising; a body having a pouring spout; an elongated closure slidably mounted on the body to open and close the spout and removable endwise from the body; a latch pivoted on said closure to occupy one position in which the closure is secured against endwise removal from the body, and another position in which the closure is free to be removed endwise from the body; and means on the closure for sliding the latter to open and close the spout.

9. A cap for receptacles, comprising; a body having a pouring spout; a closure slidable on the body to open and close the spout; barrels on the closure and the body slidably interfitted; and a spring housed between the barrels and acting to urge the closure to spout closing position.

10. A cap for receptacles, comprising; a dome-shaped body having a pouring spout at one edge thereof, and a barrel at an opposite edge thereof; a closure slidable on the body to open and close the spout and having a barrel telescopically associated with the first mentioned barrel, both of said barrels being curved on arcs concentric of the body; and a spring housed within the barrels and acting to urge the closure to spout closing position.

11. A cap for receptacles, comprising; a dome-shaped body having a pouring spout at one edge thereof, and a barrel at an opposite edge thereof; a closure slidable on the body to open and close the spout and having a barrel telescopically associated with the first mentioned barrel, both of said barrels being curved on arcs concentric of the body; a spring housed within the barrels and acting to urge the closure to spout

closing position; and a latch pivoted on the closure for detachably retaining the closure against endwise detachment from the body and engagable with the body for defining the closed position of the closure.

12. A cap for receptacles as embodied in claim 11, wherein an opening is formed in the second mentioned barrel through which the spring engages the latch for securing the latter in a position to retain the closure against detachment from the body.

13. A cap for dispensing viscous liquids, comprising: a body of semi-spherical form having a dispensing spout; an arcuate closure slidably mounted on the exterior of the body to open and close the spout; opposed extensions on the closure and body; an expansible spring between the extensions for urging the closure to spout-closing position; a keeper on the body; and a latch pivoted on the closure to occupy one position in which it is adapted to abut the keeper for defining the closed position of the closure and maintaining the closure against detachment from the body and another position in which the closure is detachable from the body.

14. A cap for dispensing viscous liquids, comprising: a body of semi-spherical form having a dispensing spout; an arcuate closure slidably mounted on the exterior of the body to open and close the spout; opposed extensions on the closure and body; a keeper on the body; a latch pivoted on the closure to occupy one position in which it is adapted to abut the keeper for defining the closed position of the closure and maintaining the closure against detachment from the body, and another position in which the closure is detachable from the body; and an expansible spring between the extensions for urging the closure to spout-closing position and for maintaining the latch in the first-mentioned position.

EVERETT D. MOSS.