Dec. 25, 1951 D. L. BURROWS 2,579,899

REMOVABLE CAP WITH DEPENDING CHAMBER WHICH ENCLOSES A RECIPROCATING VALVE ELEMENT

Filed May 21, 1948

Fig. 1.

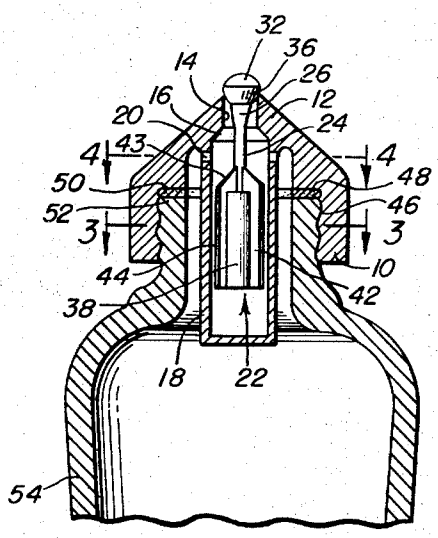


Fig. 2.

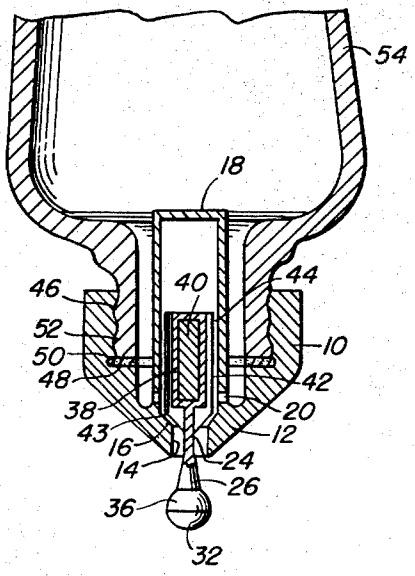


Fig. 3.

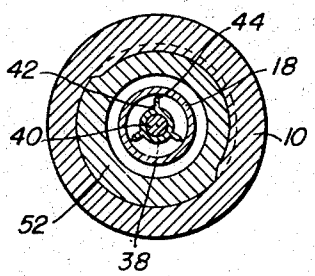


Fig. 4.

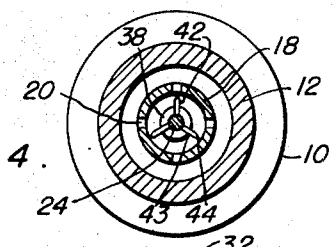
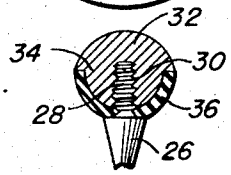


Fig. 5.



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REMOVABLE CAP WITH DEPENDING CHAMBER WHICH ENCLOSES A RECIPROCATING VALVE ELEMENT

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5 Claims. (Cl. 222—196.2)

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This invention relates to new and useful improvements in salt shakers and the primary object of the present invention is to provide a novel and improved removable cap for condiment dispensers and more particularly for salt shakers that is so designed as to reduce and eliminate the normal clogging of salt and the like due to the moisture absorbing qualities of the same by permitting the salt to be exposed to the surrounding atmosphere only during the actual discharge of the salt from the dispenser.

Another important object of the present invention is to provide a removable cap for condiment dispensers and the like having a delivery opening and embodying a novel and improved gravity actuated valve which will be disposed normally in a closed position to seal the delivery opening and which will be actuated to an open position as the dispenser is inverted for removing the salt therefrom.

A further object of the present invention is to provide a gravity actuated self-closing condiment dispenser including a cap supporting a gasket that will seal the cap to the open end of the dispenser to prevent the entrance of moisture laden air into the dispenser to effect a clogging of the salt within the dispenser.

A still further aim of the present invention is to provide a removable cap for condiment dispensers that is simple and practical in construction, strong and reliable in use, small and compact in structure, efficient and sanitary in use, neat and attractive in appearance, relatively inexpensive to manufacture, and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a longitudinal vertical sectional view taken through the condiment shaker constructed in accordance with the present invention, and with parts of the shaker removed therefrom;

Figure 2 is a similar view of Figure 1, and showing the shaker inverted to actuate the valve to an open position;

Figure 3 is a transverse horizontal sectional view taken substantially on the plane of section line 3—3 of Figure 1;

Figure 4 is a transverse horizontal sectional view taken substantially on the plane of section line 4—4 of Figure 1; and,

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Figure 5 is an enlarged fragmentary elevational view of the valve used in conjunction with the present invention, and with parts thereof broken away and shown in section.

Referring now to the drawings in detail, wherein for the purpose of illustration, there is disclosed a preferred embodiment of the present invention, the numeral 10 represents a closure or shaker cap of a non-corrosive material having a preferably conical upper end portion 12 that is provided with an axial delivery opening 14 which terminates in a flared, annular bearing surface 16.

Rigidly secured to or forming an integral part of the end portion 12, is a depending cylinder or chamber 18 of non-corrosive material that communicates with the delivery opening 14. The upper end of the chamber 18 is provided with a plurality of circumferentially spaced passages or openings 20 that lead to the delivery opening 14. The openings 20 are disposed at the upper end of the cartridge or chamber 18 to make the salt path through the chamber 18 as short as possible and thus reduce the possibility of jamming the valve unit, which is designated generally by the numeral 22, by reducing the amount of salt arrested in travel. During the dispensing operation the valve unit 22 causes negligible interference with openings 20 resulting in a dependably constant rate of flow of salt.

It should be noted, that openings 20 have a combined opening area slightly less than the minimum annular area formed by the delivery opening 14 and the stem 24. This is to insure that during the shaking operation more salt will not enter the chamber space than leaves it and such a feature will in turn reduce the possibility of clogging and jamming the valve unit 22.

The valve unit 22 includes a stem 24 having a conical portion 26 from which there projects an externally threaded lug 28 that receivably engages an internally threaded recess 30 provided in a substantially spherical valve head 32. The lower portion 34 of the valve head 32 is reduced and there is provided a concavo-convexed, resilient member 36 that embraces portion 34. The outer surface of the member 36 conforms to the outer surface of the valve head 32.

Integrally formed with the stem 24, is a hollow cylinder or cartridge 38 of a non-corrosive material that is filled with a suitable weight or mass 40 having a high specific weight such as lead or the like. The function of the mass 40 is to insure that member 36 will be compressed sufficiently against the upper surface of portion 12 to effectively seal the opening 14 in the cap 10.

Rigidly attached to or forming an integral part of the cartridge 38 and the stem 24, is a plurality of longitudinally extending, circumferentially spaced vanes or fins 42 of non-corrosive material having inclined upper edges 43 and beveled side edges 44. The side edges 44 of the vanes 42 are spaced slightly from the inner walls of the chamber 18. The side edge bevel and wall clearance of these vanes 42 tend to eliminate the possibility of being jammed by the small quantity of salt which is arrested in its travel through the upper end of the chamber at the end of each dispensing operation. In the dispensing operation the inclined upper edges 43 of the vanes 42 contact the flared portion 16 of the delivery opening 14 to limit the movement of valve unit 22 in one direction.

It should be noted, that the conical portion 26 serves as a deflector for the falling salt, so that salt collection will have little opportunity to attach to member 36 thus keeping surface or member 36 relatively clean and sanitary to insure sealing with the upper portion 12 and closing of opening 14.

Formed with the cap 10, adjacent the internal threads 46 thereof, is an annular shoulder 48 against which there is seated an annular gasket or ring 50 that will engage the upper open end 52 of a suitable container or bottle 54 to seal the cap 10 to the container 54 and which will prevent salt or the like from becoming lodged in the cap threads which would prevent convenient removal of the cap.

In view of the foregoing description taken in conjunction with the accompanying drawings it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. In a condiment dispenser, a cap having a delivery opening, a chamber depending from said cap and having passages communicating with the delivery opening, a valve normally closing the delivery opening, said valve including a stem slidably mounted in said chamber, a hollow plunger carried by said stem and remaining entirely within the chamber during sliding of said stem, a weight disposed in the plunger, and means carried by the plunger and remaining in the chamber for guiding the sliding movement thereof and for cleaning the inner walls of the chamber, said passages having a combined area slightly less than the minimum cross-sectional area of said delivery opening, the stem of said valve having a conical portion constituting a deflector for said condiment leaving the delivery opening.

2. The combination of claim 1 wherein said means includes a plurality of elongated scraper fins extending longitudinally of said plunger and projecting radially from the plunger.

3. The combination of claim 1 and means for limiting the sliding movement of said plunger in one direction.

4. The combination of claim 3 wherein said limiting means includes a sloping surface provided in said cap intermediate said delivery opening and said chamber for engaging said plunger guiding and chamber cleaning means.

5. In a condiment dispenser, a cap having a delivery opening therein, a chamber depending from said cap and having passages communicating with the delivery opening, a valve normally closing the delivery opening and having a resilient base portion resting upon the cap, a valve stem secured to said valve and received in said chamber for sliding movement, a hollow plunger carried by the valve stem and also received in said chamber for sliding movement with the valve stem, a mass within said plunger for urging the valve to its closed position, said cap having an inner surface sloping toward the delivery opening, and a plurality of circumferentially spaced radially disposed fins carried by and paralleling the plunger and having inclined edges for contacting the inner sloping surface of the cap to limit the outward sliding movement of the valve relative to the cap, said valve stem having a conical portion adjacent said valve forming a deflector for condiment leaving the delivery opening, said fins extending well into the chamber to scrape salt adhering to the inner walls of the chamber.

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