Dec. 5, 1967 W. R. SCHOLLE 3,356,267

VALVE

Filed Oct. 7, 1966

Fig. 1.

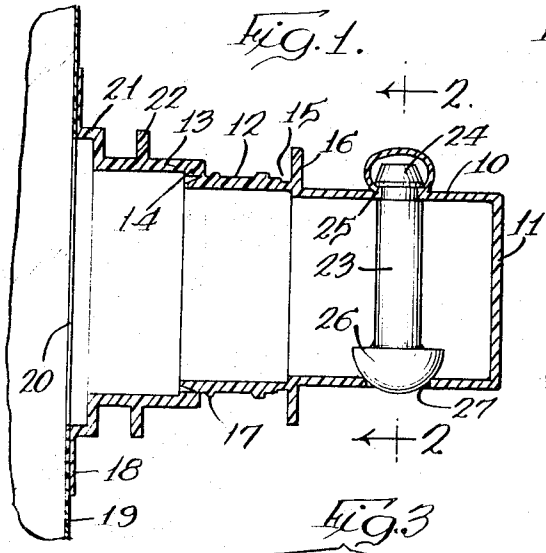


Fig. 2.

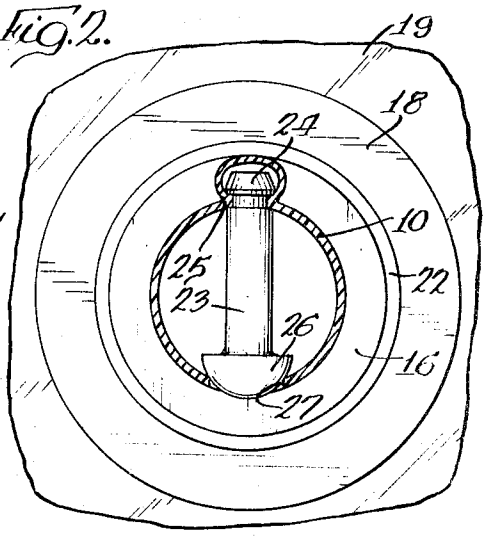


Fig. 3

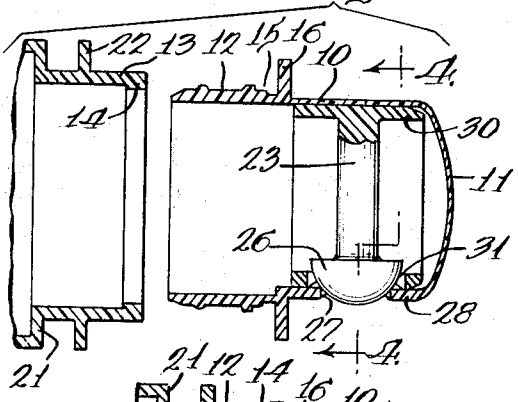


Fig. 4.

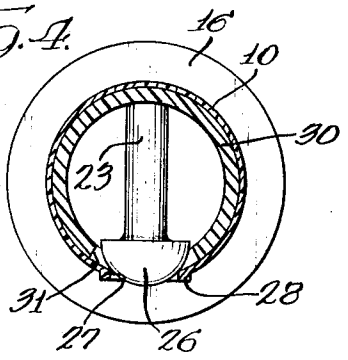


Fig. 5.

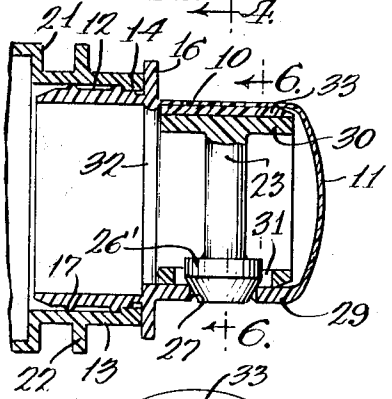


Fig. 6.

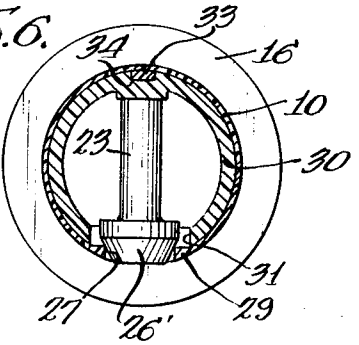
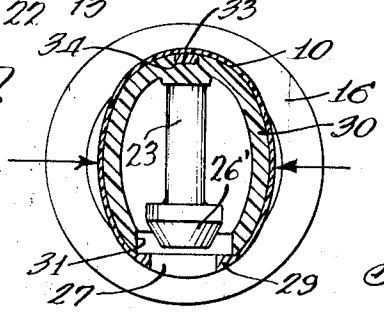


Fig. 7.



Inventor
William R. Scholle
By
Gary, Parker, Juettner & Cullinan
Attys

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3,356,267

VALVE

William R. Scholle, Long Beach., Calif., assignor to Scholle Container Corporation, Northlake, Ill., a corporation of Illinois

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ABSTRACT OF THE DISCLOSURE

This invention relates to novel valve or spigot means adapted for association with a receptacle for containing and dispensing liquid contents, such as milk, fruit juice, water, etc.

The valve of the present invention is of simple and economical construction, and while it can be adapted for re-use, by reason of its economy can be fixedly secured to the receptacle with which it is employed and discarded therewith when the contents of the receptacle are fully discharged.

The valve or spigot of the present invention is comprised of a body portion of flexible resilient plastic material, such as polyethylene, and is of tube-like character, closed at one end and secured, or adapted to be secured at its opposed open end to a receptacle about a communicating opening therein. The resilient valve body is formed with a lateral dispensing opening and has disposed therein a radially extending valve stem engaged or secured at one end within the flexible valve body, the valve stem carrying at its opposed end a valve head adapted to project to the lateral opening and form a seal with the defines thereof forming a seat. The valve head is adapted to be upset from its seat by manually compressing the valve body in a direction normal to the axis of the valve stem to thereby elongate the valve body in a transverse direction causing elevation of the valve head from its seat. Upon release the resilient valve body portion returns to its original cylindrical form and seats the valve head.

When the valve body wall is of relatively thin material it can be reinforced by means of a relatively thicker insert of flexible resilient material providing a spring-like action in the manner above described, which insert portion can further carry the valve stem.

Other objects of the invention, its details of construction, arrangement of parts and the economies thereof will be apparent from a further consideration of the following specification and accompanying drawings, wherein:

FIG. 1 is a longitudinal section of the valve of the present invention showing it as it is about to be engaged to a liquid receptacle, the latter being shown in fragmentary section.

FIG. 2 is a section on the line 2—2 of FIG. 1.

FIG. 3 is a longitudinal section of a modified form of the valve of the present invention separated from the interlocking nozzle, shown in fragmentary section, of the liquid receptacle.

FIG. 4 is a section on the line 4—4 of FIG. 3.

FIG. 5 is a longitudinal section of another modified form of the valve of the present invention interengaged with the nozzle of the receptacle of the previous figures.

FIG. 6 is a section on the line 6—6 of FIG. 5.

FIG. 7 is a transverse section of the valve of FIGS. 5 and 6 illustrating compression thereof to dispensing position.

Referring to the drawings, and particularly FIGS. 1 and 2, the reference numeral 10 indicates a hollow tubular valve body composed of flexible resilient plastic material, such as polyethylene, closed at one end 11 and open

at its opposed end which terminates in the connector sleeve 12.

This connector sleeve portion 12 is adapted as shown for telescopic interengagement with the nozzle 13, FIG. 5 showing the two fully telescoped and interlocked by engagement of the inturned annular flange 14 of the nozzle in the annular recess 15 of the sleeve 12, and in abutment with the annular flange 16. For temporary engagement, as during shipping and before filling, the flange 14 can be engaged over the annular rib 17 on member 12, and the two components then separated for filling, as shown in FIG. 3, and thereafter fully secured together as in FIG. 5.

The nozzle 13 terminates at its base in the annular flange 18 which is bonded to the receptacle 19 about the communicating opening 20. The receptacle 19 is conventionally in the form of a thin collapsible bag of flexible plastic material, although it may be of more rigid self-sustaining character. The entire assembly is usually disposed in a rigid outer receptacle not shown, such as of cardboard or plastic which has a keyhole slot for passage of the valve through the enlarged portion of the slot and anchoring in the narrower portion of the slot about the nozzle portion between its shoulder 21 and flange 22.

Although not shown, it will be understood that the nozzle 13 and valve connector sleeve 12 may be formed and engaged in a manner other than that illustrated, for example, by external or internal threads, rather than a force fit of the somewhat flexible parts illustrated.

The entire assembly above mentioned can be disposed in a home refrigerator, with the valve in the position shown for dispensing purposes.

The valve body further comprises a radially extending valve stem 23 one end 24 of which is engaged to the valve body 10 as at 25 as shown in FIGS. 1 and 2, or in other suitable manner. The other end of valve stem 23 terminates in the valve head 26 which can be of semi-spherical contour as shown in FIGS. 1 to 4 or of conical contour 26′ as shown in FIGS. 5 to 7.

The valve head seats in the defines of the lateral aperture 27 in the valve body 10. The valve body 10 may be thickened externally as at 28 shown in FIGS. 3 and 4, or internally at 29 as in FIGS. 5 to 7 to provide a reinforced internally flat valve seat.

As shown in FIGS. 3 to 7, the valve body can be internally reinforced by means of a concentric annular loop or spring 30 composed of flexible resilient plastic material. This is especially desirable to permit use of a valve body as short as possible and also to permit the valve body to be composed of relatively thinner material. This loop 30 is formed with an aperture 31 in register with the aperture 27 for reception of the valve head therethrough. In the forms of FIGS. 3 to 7 the valve stem 23 is integral with the loop or spring 30.

In the preferred form shown in FIGS. 3 to 7, the loop 30 is anchored between the end wall 11 and the internal annular rib 32. It is also secured in the body 10 by means of the key 33 integral with the body 10 which seats in keyway 34 of loop 30.

For dispensing the liquid contents of receptacle 19, the valve body 10 is normally compressed in a direction normal to the axis of valve stem 23, as illustrated in FIG. 7, whereby the body 10 becomes ovoid or elongated transversely, elevating the valve stem and head from the valve seat. To close the valve the body is released and permitted to spring back to original shape thereby reseating the valve head.

Although I have shown and described the preferred embodiment of my invention, it will be understood that other modifications can be made in the details thereof without departing from the scope and spirit thereof as comprehended by the following claim.

I claim:

A dispensing valve device for engagement with a receptacle adapted to contain liquid and for dispensing liquid therefrom, comprising a substantially cylindrical hollow body closed at one end and open at its opposed end and connector means at said open end for engagement with complementary means on and in communication with said receptacle, said body being composed of flexible resilient material and formed with a lateral dispensing aperture, a relatively rigid valve stem disposed and secured at one end within said resilient body and extending radially thereof, and the opposed end of said stem carrying a valve head normally projecting to the defines of said lateral aperture for closing said valve and adapted to be spaced therefrom on lateral compression of said resilient body in a direction substantially normal to the axis of said valve stem for opening of said valve, further including a flexible resilient concentric reinforcing ring disposed within said body, wherein the valve stem is secured to said reinforcing ring, and wherein the reinforcing ring is formed with an aperture for receiving therethrough said valve head.

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ROBERT B. REEVES, *Primary Examiner.*

N. L. STACK, *Assistant Examiner.*