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3,090,987

DISPENSER

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FIG. 1

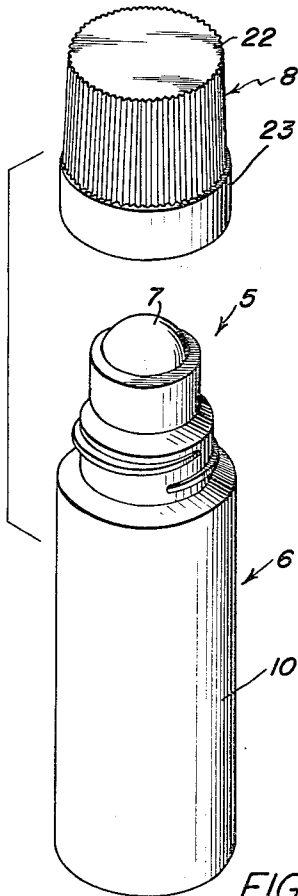


FIG. 2

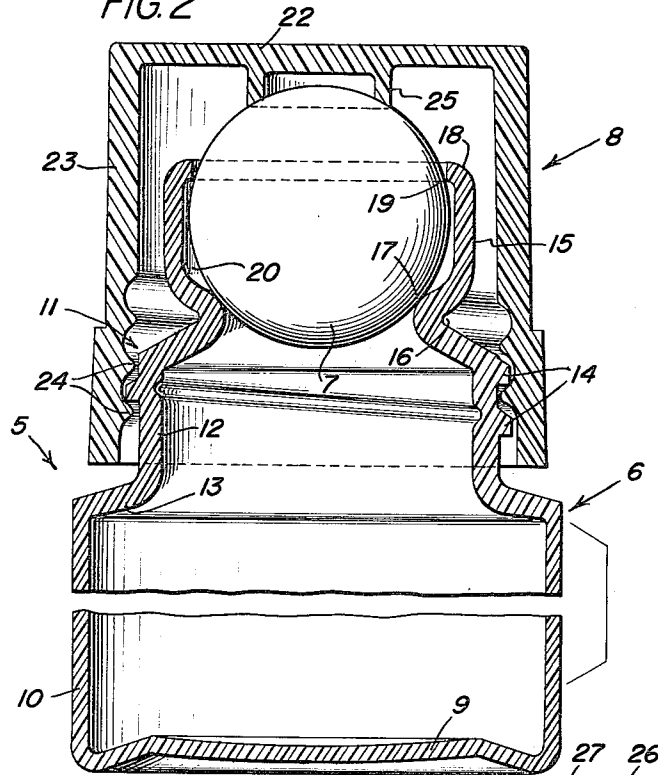


FIG. 3

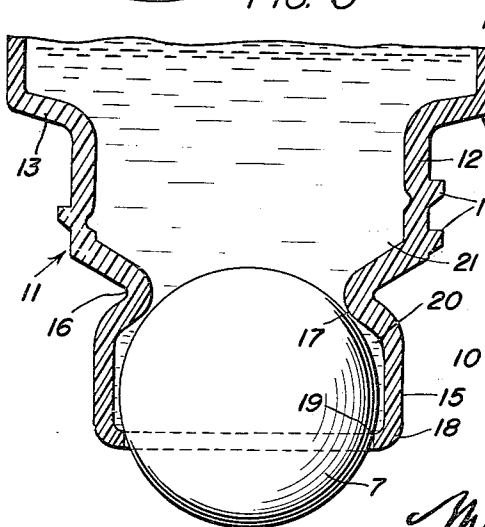
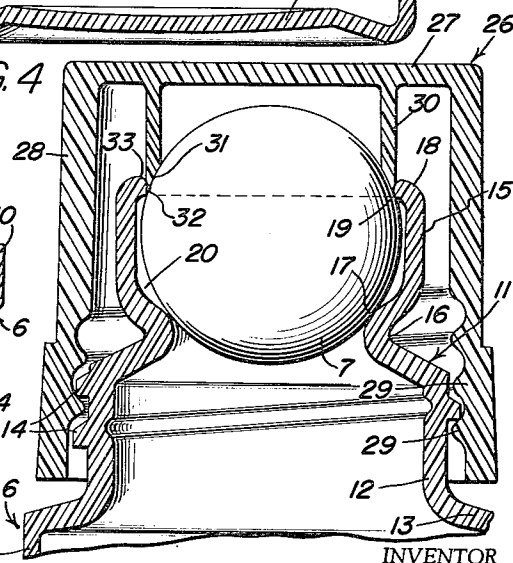


FIG. 4



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DISPENSER

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1 Claim. (Cl. 15—572)

The invention relates in general to new and useful improvements in dispensers, and primarily seeks to provide a novel dispenser of the roll or roll-on type.

In the customary roll type dispenser, a container is provided with a reduced neck portion in which a ball type applicator is mounted for rotation or rolling movement. Normally, the neck portion is provided with a chamber surrounding the applicator so that as the applicator is rolled, for example, against one's skin, the liquid to be dispensed will be picked up by the applicator from the reservoir and applied to the surface. This type of applicator has presented two primary problems. First, because it is necessary that the applicator be restrained against movement out of the neck portion, it has been the general practice to form the neck portion separate from the container body in order to facilitate the mounting of the ball type applicator. Secondly, because the applicator must be loosely seated in the neck portion to permit the dispensing of fluid, and since the fluid to be dispensed is in many instances volatile, proper sealing of the container has presented a problem.

Accordingly, it is another object of the invention to provide a novel container for use as a component of a roll type dispenser, the container being of a one-piece construction and having an integral neck portion into which a ball type applicator may be readily snapped, thereby eliminating the necessity for providing a separate neck portion, assembling the neck portion on the remainder of the container, and providing the required seal between the neck portion and the remainder of the container.

Another object of the invention is to provide a novel container for use as a component of a roll type dispenser, the container being molded of plastic and being of a one-piece construction, the container having a neck portion which is formed integral with the container body, and the neck portion including upper and lower annular seats between which seats an intermediate portion of a ball type applicator is retained, the upper annular seat being deformable because of the resiliency of the material from which the container is formed, so that the ball type applicator may be snapped past the upper annular seat and into position between the two annular seats.

A further object of the invention is to provide a novel dispenser of the roll-on type, the dispenser including a container having a neck portion which is provided with a pair of vertically spaced annular seats, a ball type applicator having an intermediate portion disposed intermediate the seats and restrained by the seats against movement other than rotary, with the seats defining upper and lower limits of a chamber for supplying fluid to be dispensed to the ball type applicator, the container being provided with a cap which is screw threaded thereon, and the cap having a downwardly projecting ring-like portion which engages the ball type applicator and urges it into sealed engagement with the lower one of the annular seats to prevent flow of the fluid out of the container body.

A still further object of the invention is to provide a novel manner of sealing a roll type dispenser of the type wherein a ball type applicator is positioned between two annular seats, the dispenser including a cap which is selectively interlocked with the container of the dispenser

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and which has a ring-like depending portion on the underside thereof which engages the ball type applicator and portions of the uppermost one of the annular seats when the cap is in place to seal the container both at the upper one of the annular seats and the lower one of the annular seats by forcing the ball type applicator down into sealed engagement with the lower annular seat and forming a seal between the upper annular seat and the ball type applicator.

With the above, and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claim, and the several views illustrated in the accompanying drawings:

In the drawings:

FIGURE 1 is a perspective view of the dispenser of the invention with a modified form of cap displaced, and shows the general configuration of the dispenser.

FIGURE 2 is an enlarged vertical sectional view, taken through the dispenser of FIGURE 1 with a modified form of cap in position, and shows the specific details of construction of the container, the cap and ball type applicator of the dispenser, an intermediate portion of the container body being omitted.

FIGURE 3 is an enlarged fragmentary vertical sectional view taken through the neck portion of the dispenser, with the dispenser being shown in an inverted position for filling the reservoir surrounding the ball type applicator.

FIGURE 4 is an enlarged fragmentary vertical sectional view taken through an upper portion of the dispenser of the invention, and shows the specific relation between the cap, the container and the ball type applicator of the dispenser.

A dispenser formed in accordance with the invention is illustrated in FIGURE 1, the dispenser generally being referred to by the numeral 5. The dispenser 5 is formed of three basic components. These components include a container, generally referred to by the numeral 6, a ball type applicator 7, and a cap, generally referred to by the numeral 8. The container 6 is believed to be of a novel construction, and is formed of a resilient plastic material by a blow molding process. The container 6 includes a bottom 9 and a cylindrical container body 10. The container body 10 terminates at its upper end in an integral neck portion generally referred to by the numeral 11.

The neck portion 11 includes a lower generally cylindrical portion 12 which is connected to the upper part of the container body 10 by an intermediate part 13. The lower portion 12 is provided with outwardly projecting threads 14.

The neck portion 11 of the container 6 also includes an upper part 15 which is separated from the lower part 12 by the neck portion 11 being inwardly bowed, as at 16. The inward bowing of the neck portion 11 results in the formation of a lower annular seat 17. The extreme upper end of the upper part 15 is inwardly turned, as at 18, to form an upper annular seat 19.

It is to be noted that the diameters of the annular seats 17 and 19 are less than the diameter of the ball type applicator 7. Also, it is to be noted that the diameter of the lower annular seat 17 is less than that of the upper annular seat 19. Although the diameter of the upper annular seat 19 is less than the diameter of the applicator 7, the differential between the two diameters is relatively small. Since the container 6 is formed of a resilient plastic material, the upper annular seat 19 may be temporarily enlarged by forcing the ball type applicator 7 downwardly into the upper part 15 of the neck portion 11. As a result, the ball type applicator

7 may be snapped into place, as is best shown in FIGURE 2.

The relationship between the ball type applicator 7 and the annular seats 17 and 19 is such that the applicator 7 is free to rotate or roll within the neck portion 11 and at the same time, is restrained against movement longitudinally of the neck portion 11 except for a very small movement which is required and which will be described hereinafter. The upper part 15 of the neck portion 11, together with the associated portion of the applicator 7, combines to define a chamber or reservoir 20. During a dispensing operation, it is necessary that the fluid to be dispensed be disposed within the reservoir 20. Thus, when the applicator 7 is rolled against a surface, for example, one's skin, the fluid will be fed continuously to the applicator 7.

Reference is now had to FIGURE 3, wherein the container 6 is shown in an inverted position with the cap 8 removed. It is to be noted that the applicator 7 has moved by gravity into sealed engagement with the annular seat 19, and that it is spaced from the annular seat 17. As a result, the fluid to be dispensed, the fluid being referred to by the numeral 21, is free to flow into the reservoir 20. As soon as the reservoir 20 is filled with the fluid 21 in the manner illustrated in FIGURE 3, the container 6 is again turned to its upright position with the result that the applicator 7 will move into sealed engagement with the annular seat 17 and retain the fluid 21 within the reservoir 20. The fluid 21 within the reservoir 20 is now ready to be dispensed by rolling the applicator 7 over the surface to be coated.

From the foregoing, it will be readily apparent that by forming the container 6 of a one-piece construction, the problem of forming a seal between the neck portion of the container and the container body has been eliminated. Further, by forming the container 6 of a resilient plastic material, the ball type applicator 7 may be readily snapped into place through the deformation of the upper annular seat, and retained in place within the neck portion of the container by the upper annular seat which will return immediately to its original shape locking the applicator 7 in place.

The cap 8 has a dual function of enclosing the applicator 7 and sealing the container 6. The cap 8 includes a top wall 22 and a depending skirt 23. The skirt 23 is provided with internal threads 24 which are complementary to the threads 14 and thus serve to interlock the cap 8 with the container 6.

The top wall 22 is provided with a centrally located, downwardly projecting ring 25. The ring 25 is centered with respect to the ball type applicator 7, and when the cap 8 is positioned on the container 6, the lower surface of the ring 25 engages the upper part of the applicator 7 and urges the applicator 7 downwardly. Thus, the applicator 7 is forced into pressure contact with the lower annular seat 17 and a seal between the applicator 7 and the seat 17 is assured. This prevents the escape of the fluid 21 from the container 6.

In FIGURE 4 of the drawings, the container 6 is illustrated as being provided with a preferred form of cap which is generally referred to by the numeral 26. The cap 26 is of a construction very similar to the cap 8, and includes a top wall 27 and a depending skirt 28. The lower portion of the skirt 28 is provided with internal threads 29 which cooperate with the threads 14 to retain the cap 26 on the container 6.

The underside of the top wall 27 is provided with a large diameter, downwardly projecting ring 30 as compared to the smaller diameter ring 25. The lower part of the ring 30 terminates in a tapered edge 31. It is to be noted that the ring 30 is of a diameter to generally fit within the annular seat 19. Either the outside leading edge of the ring 30 may be slightly tapered, as at 32, or the top of the portion 18 may have a slight radius, as at 33, to facilitate the entry of the ring 30 into the

annular seat. If desired, both the taper 32 and the radius 33 may be provided.

When the cap 26 is in place on the container 6, the ring 30 is in engagement with the ball type applicator 7 and retains the lower portion of the applicator 7 in sealed engagement with the lower annular seat 17. Thus, the reservoir 20 is sealed with respect to the interior of the container body 10. Further, the lower portion of the ring 30 has entered the space between the applicator 7 and the annular seat 19, and due to the tapered shape of the lower edge of the ring 30, it is wedged between the applicator 7 and the annular seat 19. In this manner, the ring 30 forms a second seal between the upper portion of the applicator 7 and the annular seat 19. While this second seal is not necessary to seal the contents of the container 6, due to the seal between the applicator 7 and the annular seat 17, it does seal the upper part of the reservoir 20 to the atmosphere. In this manner, there is no possibility of the fluid 21 to be dispensed evaporating from the reservoir 20, with the resultant loss of the fluid. Further, in many instances when the fluid evaporates, there remains a hardened residue which prevents the proper functioning of the applicator 7. It will also be apparent that the two seals will not interfere with each other in their formation.

Although two forms of the dispenser have been illustrated and described, it is obvious that other changes in the details of construction may be made without departing from the spirit of the invention, as set forth in the appended claim.

I claim:

A roll dispenser comprising a resilient container having an integral neck portion of substantially uniform thickness, said neck portion including a lower generally cylindrical portion having external cap engageable threads, an upper generally cylindrical portion, an intermediate portion disposed between and connecting together said upper portion and said lower portion, said intermediate portion being inwardly bowed and presenting a lower annular seat, said upper portion terminating in an inwardly turned upper end presenting an upper annular seat spaced above said lower seat, a ball type applicator positioned partially within said neck portion and limited to movement other than rotary by said annular seats, said applicator having a diameter only slightly greater than that of said upper seat and said upper seat being resiliently deformable whereby said applicator may be snapped into place between said seats, said upper portion being spaced outwardly of said applicator and together with said applicator forming a fluid reservoir, and a cap telescoped over said neck portion and releasably threadedly engaged therewith, said cap having a downwardly projecting thin walled cylindrical member with an outwardly flared lower surface, said lower surface engaging said applicator and forming a seal therewith and the lower part of said cylindrical member being wedged between said applicator and said upper seat and being sealed relative to said upper seat, and said cap holding said applicator in pressure sealed contact with said lower seat.

References Cited in the file of this patent

UNITED STATES PATENTS

2,700,784	De Brock	Feb. 1, 1955
2,719,314	Taube	Oct. 4, 1955
2,749,566	Thomas	June 12, 1956
2,807,817	Ackerman	Oct. 1, 1957
2,823,403	Whitney	Feb. 18, 1958
2,910,712	Schaich et al.	Nov. 3, 1959
2,923,957	Gentile	Feb. 9, 1960
2,998,616	Gentile	Sept. 5, 1961

FOREIGN PATENTS

820,254	Germany	Nov. 8, 1951
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