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TWO-PART DISPENSING CAP WITH REGISTERABLE OPENINGS

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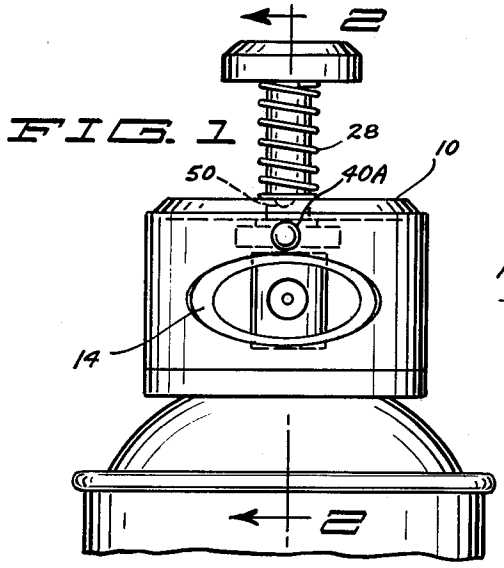


FIG. 1

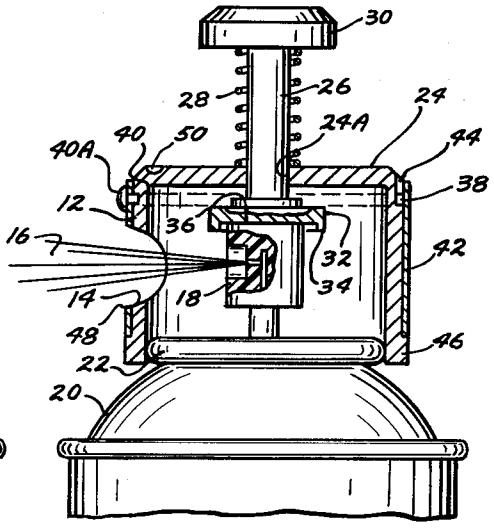


FIG. 2

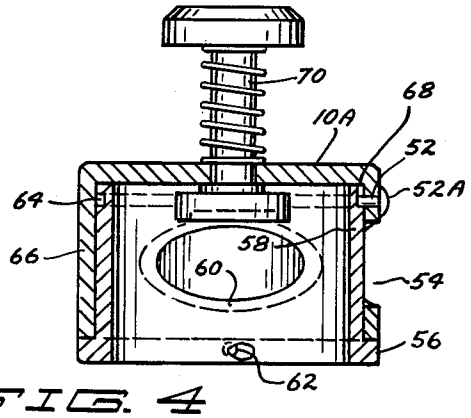


FIG. 4

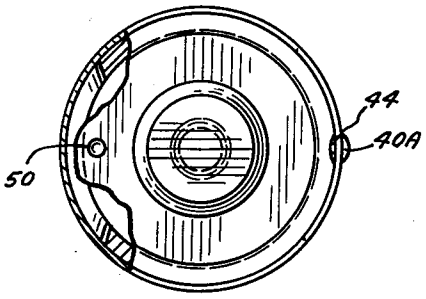


FIG. 3

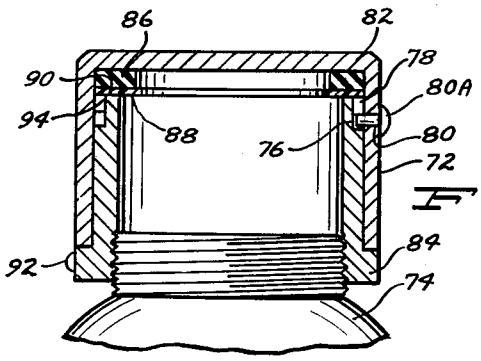


FIG. 5

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TWO-PART DISPENSING CAP WITH REGISTERABLE OPENINGS

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The present invention relates to the removable caps for containers generally and more particularly to such caps having indicating means visible from above the cap especially useful for compressed-gas type of spray dispensers.

Compressed-gas-dispensers are usually formed as a tubular can having a reciprocating valve at the top with a spray nozzle for forming a spray of the contents when the valve is depressed. The vehicle for containing the item to be sprayed usually consists of a combination of Freon 11 and Freon 12. Many commercial establishments, such as beauty and barber shops, use such dispensers in practicing their trades and which are usually provided with a cap which fits snugly over an annular rim formed in the top of the can and must be removed before the valve can be operated. Such dispensers with the caps removed can provide an eyesore in such shops as well as endangering the employees and customers.

This invention eliminates, inter alia, the unsightliness of such dispensers by providing a replacement cap therefor which has an oblong and enlarged side aperture together with a valve-operating plunger having some lost-motion. An annular and axially elongated sleeve is slidably disposed over the cap and has a large aperture which is registerable with the cap aperture. By circumferentially moving the sleeve on the cap, the aperture may be exposed or blocked. The sleeve rides on a lower flange integrally formed in the cap and has an inwardly extending dog which is adapted to slide in an annular groove in the cap. An axially extending notch is provided between the groove and one end of the cap through which the dog is slidable for removing the sleeve from the cap to clean same.

Another object of the present invention is to provide a dispensing cap having two relatively circumferentially movable and annular members each of which have indicating means visible from above the cap for indicating the relative position of the cap members.

A further object of the present invention is to provide a cap for a container and having two annular and relatively movable members with locking means which are actuated when indicators on the respective members are circumferentially aligned.

These and other more detailed and specific objects will be disclosed in the course of the following specification, reference being had to the accompanying drawings, in which:

FIG. 1 is an enlarged front elevational view of the preferred embodiment of the present invention as mounted on a dispenser and in a non-actuated position.

FIG. 2 is a vertical sectional view as taken in the direction of the arrows along the line 2—2 and showing the relationship between the dispenser spray-forming nozzle and the dispensing cap oval and enlarged aperture and being in a spray actuating position.

FIG. 3 is a cutting-away plan view of the FIG. 1 embodiment with the slidable sleeve thereof rotated to a position from which it may be axially removed from the cap.

FIG. 4 is a vertical sectional view of a modification of the FIG. 1 embodiment wherein the cap is slidable over a sleeve adapted to fit upon a spray-type dispenser.

FIG. 5 is a vertical sectional view of a dispensing cap

embodying the teachings of the present invention and adapted to be used with non-spray-forming dispenser.

Referring now more particularly to the appended drawing like numbers denote like parts and structural features in the various views. The preferred embodiment as shown in FIGS. 1–3 consists of a cap 10 having a tubular side wall 12 with a circumferentially- and axially-extending and oval-shaped aperture 14 adapted to pass a spray 16 from a valve-nozzle 18 of usual design and mounted on a compressed-gas-type dispenser 20. The tubular wall 12 is adapted to snugly and slidably engage the periphery of the annular rim 22 formed on the can 20 and supporting the cap 10. The closed top 24 of the cap 10 is provided with a central aperture 24A for vertically slidably receiving a plunger 26. A spring 28 is disposed around the plunger 26 between the plunger cap 30 and the top 24 for yieldably urging the plunger upwardly and away from the valve 18 such that the valve engaging circular disk 32 threadingly engaged on the lower end thereof is spaced from the valve 18 as seen in FIG. 1 for providing lost motion therebetween. As such the disk 32 may be unscrewed from the plunger 26 for removing same from the cap 10 to facilitate shipping the illustrated device. The plunger assembly 26, 30, 32 preferably has a total length less than the inside diameter of the cap 10 for permitting same to be inserted inside the cap during storage or shipment thereof.

The disk 32 is preferably formed with a depending annular and peripheral flange 34 for ensuring that the valve member 18 is retained in operative engagement with the disk 32. Additional the axial length of the cap 10 is preferably such that the disk 32 will be spaced from the upper end 36 of the member 18 for providing lost motion, as aforementioned, such as to prevent a slight depressing action of the member 26 from causing a spray 16 to be accidentally formed.

The cap has a circumferentially continuous annular groove 38 formed near the top 24 and adapted to slidably receive the radially inwardly extending pin 40 which is fixedly attached to the tubular sleeve 42. A notch 44 axially extends from the groove 38 toward the top 24 and is adapted to slidably pass the pin 40 for permitting the sleeve 42 to be axially slid upwardly and removed from the cap 10 as well as for assembling the sleeve thereon. The sleeve 42 when disposed around the cap 10 has its lower end slidably engaging the radially-outwardly extending lower-flange 46 which is integrally formed as a lower axial end portion of the cap. By constructing the dispensing cap with the flange 46 the pin 40 can be positioned on the sleeve 42 such as to be disposed centrally in the groove 38 preventing wear thereof by the relative movement between the sleeve and the cap. By providing the larger engaging surface between the sleeve 42 and the flange 46 the axial alignment of the aperture 48 formed in the sleeve 42 with the aperture 14 is better preserved.

The guide pin 40 is formed with the head 40A which extends radially outwardly from the sleeve 42 such as to be visible from above the cap 10 as clearly shown in FIG. 3. A slight recess 50 is provided in the top 24 centrally above the aperture 14 for indicating to the operator the circumferential location thereof from above the cap. When the apertures 14 and 48 are exactly aligned or registered as shown in FIGS. 1 and 2 and head 40A is circumferentially aligned with the recess 50 and this being clearly visible from above the cap for providing an indication that the apertures are accurately aligned. By providing the indicators to be visible from above the cap enables the operator to align the apertures without looking directly into or at them thereby insuring that no accidental release of the valve 18 will cause a spray into the operator's face and eyes. This is especially im-

portant in beauty shops where many of the sprays used contain ingredients which are injurious to human eyes and skin. Experience in using the described indicators has shown that described arrangement actually saves time in aligning the apertures in this dispenser cap over and above the time required for aligning same by viewing the front of the cap as shown in FIG. 1. To block the aperture 14, the sleeve 42 is rotated until the head 40A to at least half-way between the recess 40 and the notch 44, the apertures 14 and 48 extending circumferentially slightly less than ninety degrees of the annular wall 12.

Referring now to FIG. 4 a dispensing cap 10A has a radially-inwardly extending pin 52 disposed centrally over an aperture 54 having the same shape, size and relative location as the aperture 48 of the FIG. 1 embodiment. A head 52A is formed on the pin 52 and is readily visible from over the cap. The cap 10A is slidably and upwardly supported on a lower flange 56 which is integrally formed on an inner sleeve 58 and adapted to snugly fit on the annular rim 22 in the manner shown in FIG. 2. An aperture 60 is formed in the sleeve 58 and is registerable with the aperture 54 in the cap 10A as the cap is rotated on the flange 56. A radially-outwardly extending indicator 62 is formed on the flange 56 centrally below the aperture 60 and is clearly visible from above the cap 10A in the same manner that the indicator 40A is so visible and as clearly shown in FIG. 3. A circumferentially continuous groove 64 is formed in the sleeve 58 and opens toward the cap side walls 66 for slidably receiving the pin 52. A notch extends axially upwardly from the groove 64 allowing the pin 52 to move therethrough for permitting the cap 10A to be removed from the sleeve 58. A valve contracting plunger 70 is slidably disposed in the top of the cap 10A in the same manner described for the FIG. 1 embodiment and is preferably constructed in the same manner as the plunger assembly 26, 30, 32. As in the previously described embodiment the two apertures 54 and 60 may be accurately aligned by rotating the cap 10A on the sleeve 58 and aligning the indicators 52A and 62 while viewing same from above the cap.

Referring now to FIG. 5 there is shown a cap for dispensing a non-sprayed ingredient and comprises an inner sleeve 72 having a lower threaded portion adapted to threadingly engage the top portion of a dispenser 74. A circumferentially-continuous and outwardly-opening groove 76 is formed in the upper end-portion of the sleeve 72 and has an axially-extending notch 78 for slidably receiving a pin 80 which is fixedly mounted on the cup shaped cover 82. A lower flange 84 on the sleeve 72 limits the downward axial movement of the cup 82 as will become apparent. An annular and resilient ring 86, preferably of foam rubber, is stationarily disposed inside the cap 82 and has an annular washer 88 on its lower side for slidably engaging the upper edge 90 of the sleeve 72 for forming a vapor seal therebetween while in the illustrated position. It is understood, of course, that an annular spring may be substituted for the resilient ring 86.

The cap 82 when removed from the sleeve 72, as by sliding the pin 80 through the axially extending notch 78, permits the ingredients from the container 74 to be dispensed through the sleeve. For closing the container opening the cap 82 is remounted on the sleeve 72 and pressed downwardly thereon to compress the ring 86 and such that the lower edge of the cap rides on the flange 84 and is rotated thereon until the indicator 80A on the cap is aligned with the sleeve indicator 92 at which time the cap 82 may be released. The resiliency of the ring 86 forces the pin 80 upwardly into the groove recess 94 for locking the cap against rotation. It may be noted that the two indicators 80A and 92 are clearly visible from over the cap 82 as previously described for the other embodiments of this invention. To remove the cap 82 it is merely depressed and rotated until the pin is aligned with the notch, then axially removed.

It is understood that suitable modifications may be made in the structure as disclosed, provided such modifications come within the spirit and scope of the appended claims. Having now therefore fully illustrated and described my invention, what I claim to be new and desire to protect by Letters Patent is:

1. A dispensing cap adapted to fit over an opening of a container comprising concentric and relatively circumferentially slidably disposed inner and outer tubular members, an apertured top on a single one of the members, an upwardly spring biased plunger slidably disposed through the top aperture and having a valve engaging and radially enlarged portion inside the cap with a depending and outer peripheral flange, each member having an aperture which extends circumferentially slightly less than ninety degrees and axially extends a substantial portion of each member's axial length such that a spray may be passed therethrough, the inner member having a radially outwardly extending flange on its axial end opposite said top and adapted to circumferentially slidably and axially support the outer member, a first one of the members having a circumferentially continuous groove opening toward a second one of the members and with a notch axially extending from the groove toward the first one member axial end adjacent said top, the notch being diametrically opposite the first one member aperture, the second one member having a radially inwardly extending pin adapted to slide in the groove and notch, and each member having separate indicator means visible from the top side of the cap and each having a predetermined circumferential relation to the member apertures for indicating alignment thereof.

2. A cap for a container having an opening with a lip therearound, a first tubular member having upper and lower axial portions, a lower and radially outwardly extending flange on the first member lower portion and adapted to sealing engage said lip, said member having a circumferentially continuous and radially outwardly opening groove and a further outwardly opening groove extending from its upper axial end to said groove and at least one axially extending detent groove opening into said groove, a removable second tubular member having a closed top at the upper axial end thereof and being adjacently slidably disposed around the first member and having at least one radially inwardly extending pin adapted to slide in said grooves, indicator means on each member and being visible from over the closed end and being respectively circumferentially disposed on said members so that said indicator means are circumferentially aligned when said pin is so aligned with said detent groove, and a washer including biasing means therefor positioned adjacent said closed end for urging the second member upwardly with respect to the first member whereby when the indicator means are aligned, said pin is urged into said detent groove.

References Cited in the file of this patent

UNITED STATES PATENTS

658,382	Low	Sept. 25, 1900
770,763	Lyne et al.	Sept. 27, 1904
1,069,153	Lovell	Aug. 5, 1913
1,335,998	Onge	Apr. 6, 1920
1,612,719	Haddad	Dec. 28, 1926
1,963,766	Stewart	June 19, 1934
2,328,246	Albion	Aug. 31, 1943
2,342,932	Fram et al.	Feb. 29, 1944
2,752,066	Ayres	June 26, 1956
2,761,594	Stroh	Sept. 4, 1956
3,018,924	Reed	Jan. 30, 1962

FOREIGN PATENTS

373,059	Italy	July 18, 1939
605,249	Great Britain	July 19, 1948