

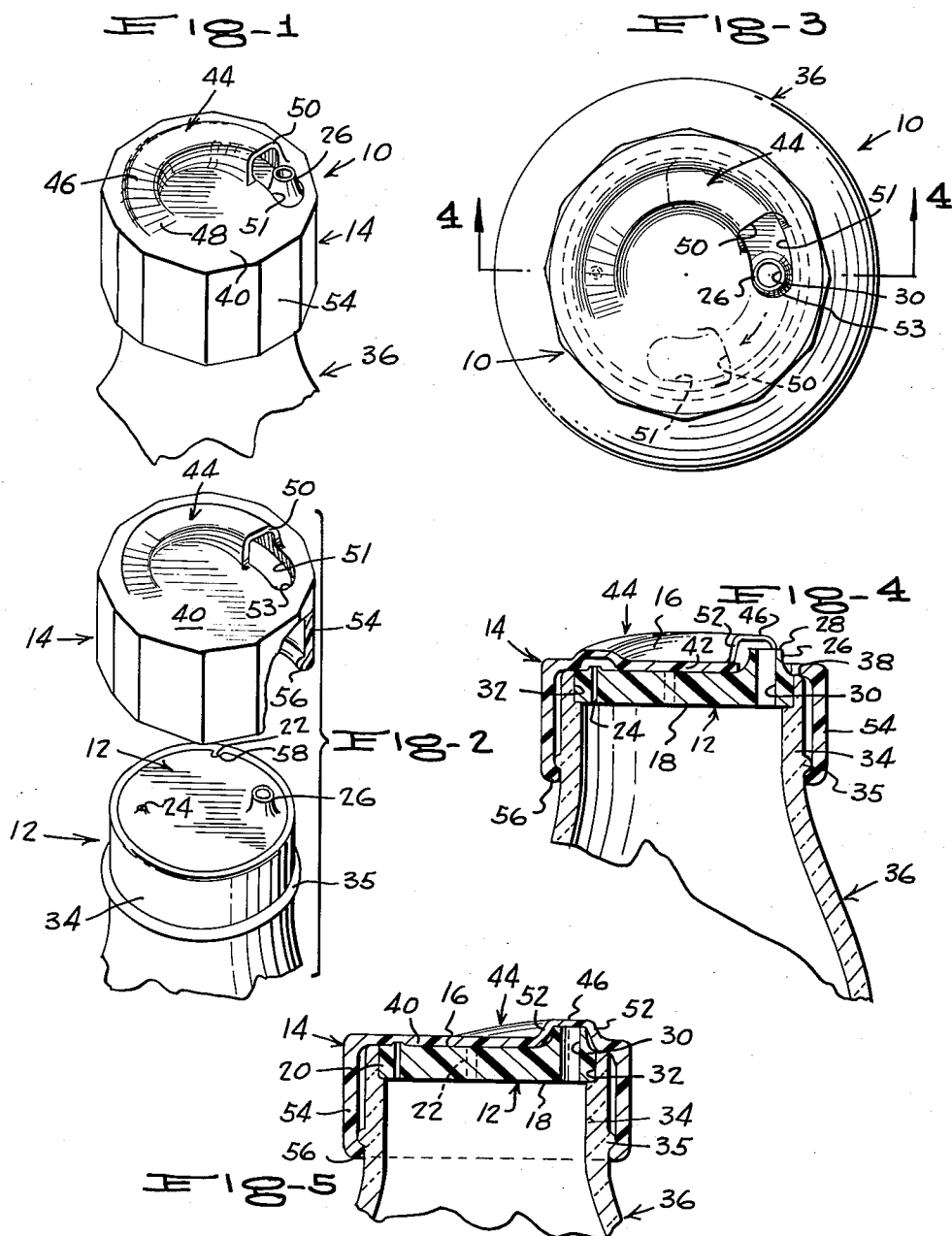
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NON-REMOVABLE DISPENSING CLOSURE

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NON-REMOVABLE DISPENSING CLOSURE

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This invention relates to an improved dispensing closure for containers of fluid material, of the type involving stationary closure elements to close the necks of the containers, and rotary caps to enclose the closure elements and which are non-removably secured on the necks.

The primary object of the invention is to provide a more serviceable and efficient non-removable dispensing closure of this kind wherein the stationary closure element is in the form of a disc seated in the neck of a container and has an eccentric dispensing mouth, and the cap encloses and bears rotatably upon the disc and has a wedge-action dispensing channel which uncovers the dispensing mouth in one rotary position of the cap and closes and seals the dispensing mouth in other rotary positions of the cap, and wherein the cap encloses also the container neck and is rotatably but non-removably secured on the neck.

Another object of the invention is to provide a dispensing closure of the character indicated above wherein the cap is forced over and constricted upon the container neck beneath an external rib on the neck, so that the cap cannot be removed from the neck by ordinary means and is not likely to become removed by any conditions met with in the handling and use of the container.

A further object of the invention is to provide a device of the character indicated above which is composed only of a disc and a cap, both of which are of simple and uncomplicated construction, and lend themselves to easy and economical mass production from such as plastic material, the device being easily and quickly applicable to rib-equipped container necks.

Other important objects and advantageous features of the invention will be apparent from the following description in the accompanying drawings, wherein, for purposes of illustration only, a specific form of the invention is set forth in detail.

In the drawings:

Figure 1 is a perspective view of a dispensing closure of the invention installed on a container neck, the cap being in an open position;

Figure 2 is an exploded perspective view of Figure 1, partly broken away;

Figure 3 is an enlarged top plan view of Figure 1, with phantom lines showing a closed position of the cap;

Figure 4 is a reduced vertical transverse section taken on the line 4-4 of Figure 3; and

Figure 5 is a view similar to Figure 4, showing the cap in closed position.

Referring in detail to the drawings, wherein like numerals designate like parts throughout the several views, the illustrated dispensing closure, generally designated 10, comprises a container neck closing disc 12, and a rotary cap 14.

The disc 12 has flat parallel upper and lower sides 16 and 18 and a right angular peripheral edge 20, and on its edge 20 a radial lug 22. The disc 12 is traversed at one side thereof by a vertical air hole 24 located near

the edge 20. Rising from the upper side 16 of the disc 12 is a frusto-conical dispensing mouth 26 which is located diametrically opposite to the air hole 24 and is spaced at the same distance from the peripheral edge 20. The smaller upper end 28 of the mouth 26 is flat, and the mouth 26 and the disc 12 are traversed by a relatively large diameter vertical dispensing passage 30. The disc 12 is of a thickness to seat in a groove 32, in the neck 34 of a dispensing container 36, with the upper side 16 of the disc 12 substantially flush with the upper end 38 of the container neck.

The rotary cap 14 is cup-shaped and comprises a circular top wall 40 having a central portion 42 to bear rotatably upon the upper side 16 of the disc 12. The material of the cap top wall 40 around one side of the central portion 42 is deformed to provide a circumferentially extending semi-annular channel 44 which has a top wall 46 which inclines gradually from the plane of the top wall 40, at the point 48, to the open end 50 of the channel, on a level spaced above the top wall 40, the side walls 52 of the channel being downwardly divergent, as seen in Figures 4 and 5, and of longitudinally tapered heights corresponding to the inclination of the channel top wall 46. The material of the channel 44 is sufficiently resilient to provide for snug and sealing engagement of the channel top wall 46 with the upper end 28 of the dispensing mouth 26. The location and inclination of the channel top wall 46 is such that as the cap 14 is rotated clockwise from the open position shown in Figures 1, 3 and 4 toward the closed position of the cap shown in Figure 5, the channel top wall 46 bears slidably and wedgingly upon the upper end 28 of the dispensing mouth 26 and securely closes and seals the upper end of the dispensing passage 30. Counterclockwise rotation of the cap 14 from its closed position withdraws the channel top wall 46 from the upper end 28 of the mouth 26, and puts the open end 50 of the channel 44 at one side of and clear of the mouth 26, so that material in the container 36 can be freely dispensed from the mouth 26. In the open position of the cap 14 the air hole 24 is in communication with the interior of the channel 44 so as to facilitate dispensing of material from the container.

The cap 14 further comprises an annular side wall 54 having on its lower end a laterally inwardly projecting annular bead 56 which is constructed on the container neck below and is in upward engagement with an annular rib 35 on the container neck 34, so that the cap 14 is non-removably secured in place, with the lower side of the cap top wall 40 bearing rotatably upon the upper edge 38 of the container neck 34, and with the central portion 42 of the cap top wall 40 bearing upon the upper side 16 of the disc 12. The side wall 54 of the cap 14 is preferably spaced from and out of engagement with the container neck 34 above the rib 35. The lug 22 on the disc 12 is engaged in a notch 58, in the side wall of the groove 32 in the container neck 34 so as to maintain the disc 12 stationary in place. In the cap top wall 40 at the open end 50 of the channel 44 is a concentric arcuate slot 51 through which the dispensing mouth 26 projects, and having a rounded closed end 53 arranged for stop engagement with the mouth 26 in the extreme open position of the cap 14.

Although I have shown and described herein a specific form of my invention, it is to be understood that any change or changes in the structure and in the relative arrangements of the components are contemplated as being within the spirit and scope of the invention as defined by the claims appended hereto.

What is claimed is:

1. A dispensing closure for a container neck, comprising a disc to be engaged in closing relation to the

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container neck, said disc having thereon an upstanding cylindrical tubular mouth having an upper end above the surface of the disc, a rotary cap adapted to be mounted securably and rotatably on the neck around said disc, said cap having a top wall, said top wall being mutilated so as to provide a downwardly opening circumferential channel having a top wall and having closed and open ends, the top wall of the cap having a circumferential slot at and extending beyond the open end of the channel, through which said mouth rises, said channel top wall being inclined from the closed to the open end of the channel, said mouth being uncovered by the channel when the cap is rotated in a direction away from the mouth and being closed by engagement of the upper end of the mouth by the channel top wall when the cap is rotated in a direction toward the mouth.

2. A dispensing container closure assembly comprising a container neck having an open end, a disc secured on and closing said open end, said disc having thereon an eccentric outstanding dispensing mouth having an open upper end, a cap securably and rotatably mounted on said neck around said disc, said cap having a top wall at the outward side of the disc, said cap top wall being mutilated to provide an inwardly opening circumferential channel aligned with and to receive said mouth as the cap is rotated, said channel having a closed end and an open end and having a top wall which is inclined from the closed end of the channel to the open end thereof, said cap top wall having a circumferential slot at the open end of the channel, through which said mouth extends, the cap being rotatable in a direction away from the mouth so as to expose the mouth in said slot and being rotatable toward said mouth to put the channel top wall in sealing contact with the open upper end of the dispensing mouth.

3. A dispensing container closure assembly comprising a container neck having an open end, a disc secured on and closing said open end, said disc having thereon an eccentric outstanding dispensing mouth having an open upper end, a cap securably and rotatably mounted on said neck around said disc, said cap having a top wall at the outward side of the disc, said cap top wall being mutilated to provide an inwardly opening circumferential channel aligned with and to receive said mouth as the cap is rotated, said channel having a closed end and an open end and having a top wall which is inclined from the closed end of the channel to the open end thereof, said cap top wall having a circumferential slot at the open end of the channel, through which said mouth extends, the cap being rotatable in a direction away from

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the mouth so as to expose the mouth in said slot and being rotatable toward said mouth to put the channel top wall in sealing contact with the open upper end of the dispensing mouth, said disc having an air hole there-through which is concentric with the dispensing mouth and located to be in communication with the channel only in the mouth uncovering position of the cap, the air hole otherwise being closed by the cap top wall.

4. A dispensing container closure assembly comprising a container neck having an open end, a disc secured on and closing said open end, said disc having therein an eccentric outstanding dispensing mouth having an open upper end, a cap securably and rotatably mounted on said neck around said disc, said cap having a top wall at the outward side of the disc, said cap top wall being mutilated to provide an inwardly opening circumferential channel aligned with and to receive said mouth as the cap is rotated, said channel having a closed end and an open end and having a top wall which is inclined from the closed end of the channel to the open end thereof, said cap top wall having a circumferential slot at the open end of the channel, through which said mouth extends, the cap being rotatable in a direction away from the mouth so as to expose the mouth in said slot and being rotatable toward said mouth to put the channel top wall in sealing contact with the open upper end of the dispensing mouth, said disc having an air hole there-through which is concentric with the dispensing mouth and located to be in communication with the channel only in the mouth uncovering position of the cap, the air hole otherwise being closed by the cap top wall, said disc being freely engaged in the open end of the neck, and means mounting the disc on the container neck comprising a circumferential external bead on the neck and spaced from the open end of the neck, said cap having an annular side wall surrounding the neck and having a free end, an internal bead on the cap side wall engaged beneath the neck bead.

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