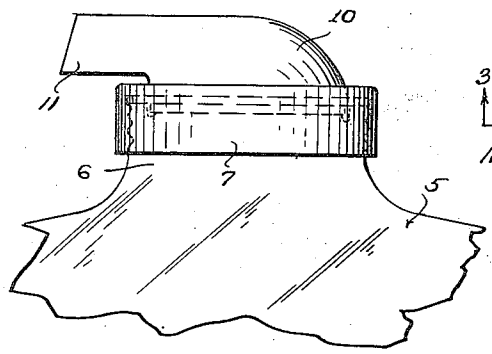
March 21, 1950 N. P. SMITH 2,501,636

BOTTLE CAP

Filed Sept. 27, 1948

Fig. 1.



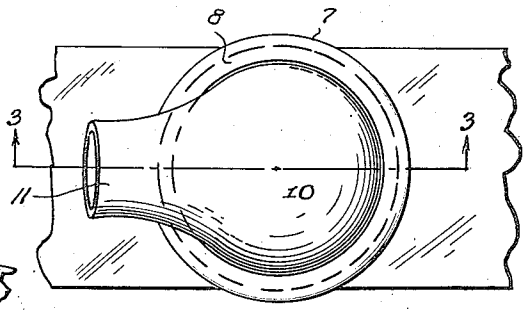
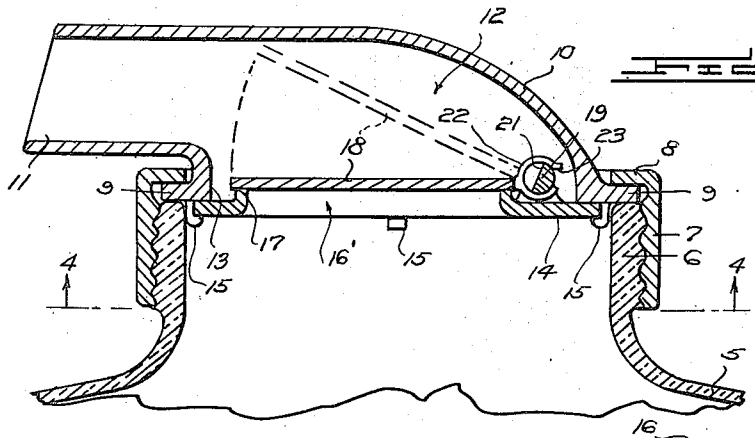


Fig. 2.

Fig. 3.



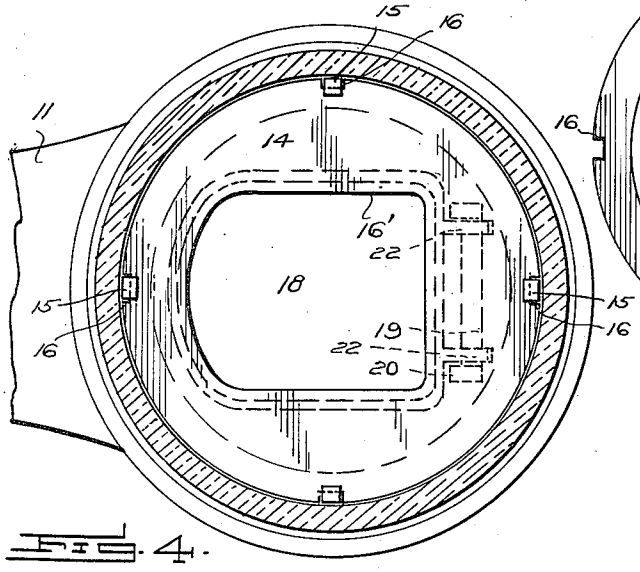


Fig. 4.

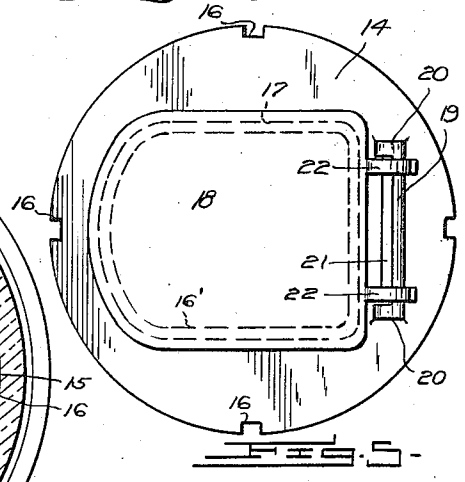


Fig. 5.

INVENTOR.
NERVIN P. SMITH,
BY
James N. Dyer
ATTORNEY

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BOTTLE CAP

Nervin P. Smith, Miami, Fla.

Application September 27, 1948, Serial No. 51,351

3 Claims. (Cl. 222—500)

1

This invention relates to an improvement in bottle caps and has particular reference to bottle caps having a pouring spout and a flap valve to normally close off the bottle contents from contaminating odors such as might be encountered in refrigerators.

An object of the present invention resides in the provision of a screw on bottle cap for use with conventional water bottles or the like and so constructed that the pouring spout may at all times be maintained in a position paralleling bottle so as to be free from interference with the sides of the refrigerator or other objects stored close thereto.

A further object of the invention resides in the provision of a screw on bottle cap having a pouring spout rotatable for proper positioning of the spout and a flap valve detachably supported from the spout carrying element in a manner to be freely opened and closed when the bottle is tilted and a novel mounting for the valve whereby the cap, valve and associated elements may be disassembled for cleaning with a minimum of effort and without the use of tools.

Another object of the invention resides in the novel construction of the device that readily lends itself to cheap and inexpensive manufacture from various types of materials, is extremely simple in nature, having but four parts that, when assembled and in use, will be held against displacement.

With these and other objects in view, the invention consists in certain novel features of construction and combinations and arrangement of parts as will be more readily apparent during the course of the following description, reference being had to the accompanying drawings, wherein—

Figure 1 is a side elevation of the device as applied to a conventional water bottle,

Figure 2 is a top plan view thereof,

Figure 3 is a longitudinal section taken on line 3—3 of Figure 2 and on an enlarged scale,

Figure 4 is a horizontal section taken on line 4—4 of Figure 3, looking in the direction of the arrows and

Figure 5 is a plan view of a valve carrying disc.

Like numerals are employed to designate like parts throughout the several figures.

Referring specifically to the drawings, the numeral 5 designates a conventional water bottle of usualy rectangular shape and having a screw threaded neck portion 6. While the invention is shown and described as being applied to a water bottle, it will be obvious that its construction

2

readily lends itself to any type bottle having a conventional threaded neck.

A clamp ring 7, internally threaded, is provided with an inwardly extending circumferential flange 8. The threads of the ring 7 are conventional and are the type threads commonly employed for bottle and jar tops. The flange 8 serves to clamp a disc 9 into relatively snug engagement with the mouth of the bottle, as clearly illustrated in Figure 3. The disc 9 is provided with an upwardly curved housing 10, terminating in a spout extension 11. The housing 10 provides an internal chamber 12 communicating with the spout 11 and with a relatively large circular opening 13 in the disc 9, concentric with the disc. The spout 11 is preferably oval in cross section, permitting a relatively large fluid discharge without materially adding to the height of the overall dimensions of the bottle and cap.

The disc 9, see particularly Figure 3, supports a second disc 14, concentric therewith and held against displacement by a plurality of hooked lugs 15, preferably formed integral with the disc 9 and depending therefrom. The lugs 15 engage in snap relation in a corresponding number of peripheral notches 16, formed in the disc 14. The disc 14 is snapped into engagement with the lugs 15 at assembly and is held against rotative movement with respect to the disc 9 by the interengagement of the lugs and notches. The disc 14 is provided with a relatively large, generally rectangular opening 16', having a circumferential upstanding rib 17, with one end of the opening 16' curved upon the arc of the disc 14. A flap valve 18, normally lies in closed position upon the rib 17 and provides a relatively effective closure against external contaminating odors. Means are provided to support the valve 18 in hinged relation to the disc 14 for permitting readily swinging movement of the valve when the bottle is tilted to pouring position, comprising a semi-cylindrical hinge pin 19, supported at either end in parallel relation to the disc, by end blocks or trunnions 20. The pin 19 and the trunnion blocks are preferably cast or molded integrally with the disc 14 for providing an economical method of manufacturing. The pin 19 has one side flattened, as shown at 21, for its entire length and this flattened side is arranged at an angle with respect to the axis of the pin, for a purpose to be described. The valve 18 carries a pair of ring-like hinge elements 22, having an internal diameter equal to the diameter of the pin 19. The elements 22 are open upon one side, as at 23 and this opening is of a size as to permit the

engagement of the rings 22 over the pin 19, when the valve is rotated backward sufficiently far to permit the openings 23 to pass over the pin at the narrow diameter. Thus, when the rings 22 are engaging with the pin 19 and the valve swung back to normal position, the valve will freely hinge upon the pin without danger of it becoming separated. Since the valve can only swing to open position, in use, a distance equal to its point of contact with the housing 10, it becomes apparent that there is no danger of the parts becoming separated.

In the assembly of the device, the valve is first engaged with the pin 19, as above pointed out and the valve dropped to closed position. The disc 14 is then engaged with the disc 9, by snapping into engagement with the lugs 15, being first sure that the valve is in proper alignment with the spout 11 for proper pouring action. The disc 9 is then engaged under the flange 8 and the units screwed upon the mouth of the bottle. In cases where the spout might not line up with the bottle, due to irregularities in the threads, the spout assembly, including the disc 14 can be rotated to correct position independent of the ring 7. The operation of the device is believed to be perfectly obvious, since a tilting of the bottle for pouring, causes the valve 18 to freely fall to open position upon its hinge pin 19 and when the bottle is returned to upright position, the valve freely falls to closed position by gravity, requiring no springs or supplemental weights.

It will be seen from the foregoing that an extremely simple and novel form of pouring spout and cap has been provided. The structure readily lends itself to manufacture from such cheap material as plastics, in colors or plain and provides a bottle closure calculated to prevent the absorption of surrounding objectional odors by the bottle contents. The device is easily assembled or disassembled, has no parts likely to become worn from use, adds relatively little to the overall height of the bottle and cap due to the wide oval discharge spout, may be manufactured at an extremely low cost and is extremely efficient in use.

It is to be understood, that the invention is not limited to the precise structural details shown, being a preferred embodiment of the invention, but that it includes within its purview, whatever changes fairly come within either the terms or the spirit of the appended claims.

Having described my invention, what I claim is:

1. A combined closure cap and pouring spout for bottles having a threaded neck portion, said cap comprising a disc having a housing formed thereon, a pouring spout extending from the housing, a clamping ring provided with internal threads for engagement with the threads of the neck portion, said ring adapted to clamp the disc in rotative engagement with the neck of the bottle, a valve disc concentric with the first named disc and provided with a central opening, lugs carried by the first named disc for engagement with the second named disc, a valve for closing the opening in the second named disc, a hinge pin carried by the second named disc, hinge rings carried by the valve for engagement with the pin, said rings engageable with the pin when the valve is turned to a position beyond its normal range of travel.

2. A combined closure cap and pouring spout for use on bottles having a threaded neck, comprising a circular disc having an integral housing extending thereabove, a pouring spout extending laterally from the housing and formed oval in cross-section, a clamping ring having an inwardly extending circumferential flange, said ring provided with internal threads for engagement with the bottle, said ring adapted to clamp the disc over the bottle neck, said disc provided with a relatively large opening communicating with housing and with the bottle, said disc being concentric with the bottle neck in use, a plurality of lugs formed upon and depending from the disc, a valve disc having an opening formed therethrough, said valve disc having its circumferential edge provided with notches for engagement with the lugs, an upstanding rib surrounding the valve disc opening, a flap valve adapted to cover and uncover the opening of the valve disc, a semicylindrical hinge pin carried by the valve disc, hinge rings carried by the valve for engagement with the pin, said rings engageable with the pin when the valve is turned to a position beyond its normal range of travel.

3. The structure as recited in claim 2, wherein the hinge rings are formed open upon one side a distance equal to the smallest diameter of the hinge pin.

NERVIN P. SMITH.

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