United States Patent

[11] 3,628,705

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[54] **LONG REACH LATERALLY EXTENDABLE AND RETRACTABLE POURING SPOUT**
6 Claims, 4 Drawing Figs.

[52] **U.S. Cl.** **222/527**
[51] **Int. Cl.** **B65d 25/44**
[50] **Field of Search** 222/527, 528, 529, 530

[56] **References Cited**

UNITED STATES PATENTS

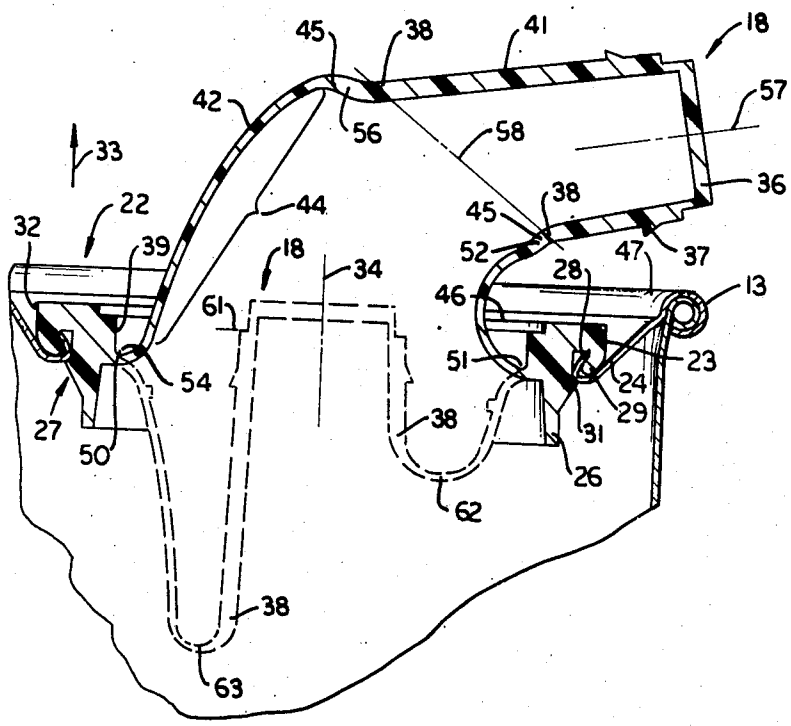
2,773,631	12/1956	Bryant	222/528 X
2,895,654	7/1959	Rieke	222/530 X
2,908,426	10/1959	Goldstein	222/530 X
3,298,577	1/1967	Chlystun	222/530 X
3,323,694	6/1967	Stevens	222/530 X

FOREIGN PATENTS

760,495	10/1956	Great Britain	222/530

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ABSTRACT: A normally nesting, extensible spout has a portion between its mounting and its outlet which varies in length from the mounting to the outlet at various locations around its circumference so that as it is pulled from the nesting condition to the extended condition, it assumes an attitude placing the outlet at a location sufficiently offset from the mounting area to facilitate pouring from containers without spillage of effluent onto the top of the container.



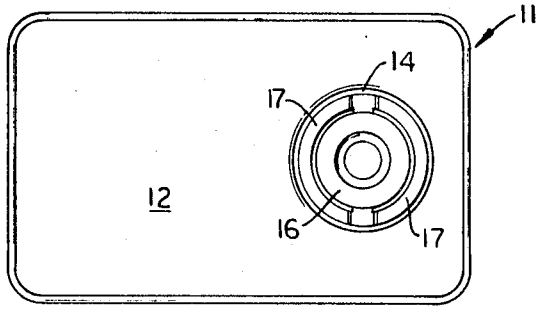


Fig. 1.

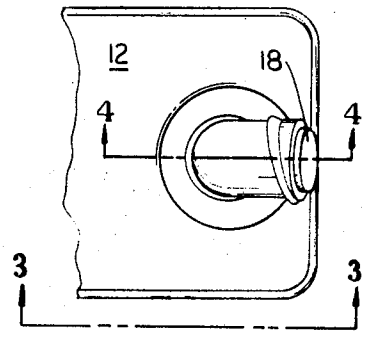


Fig. 2.

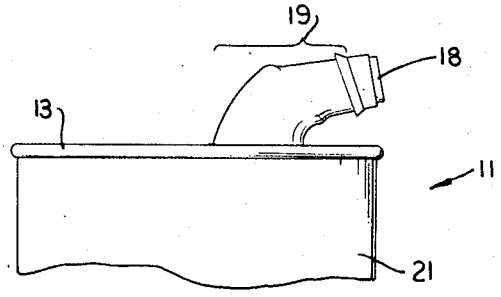


Fig. 3.

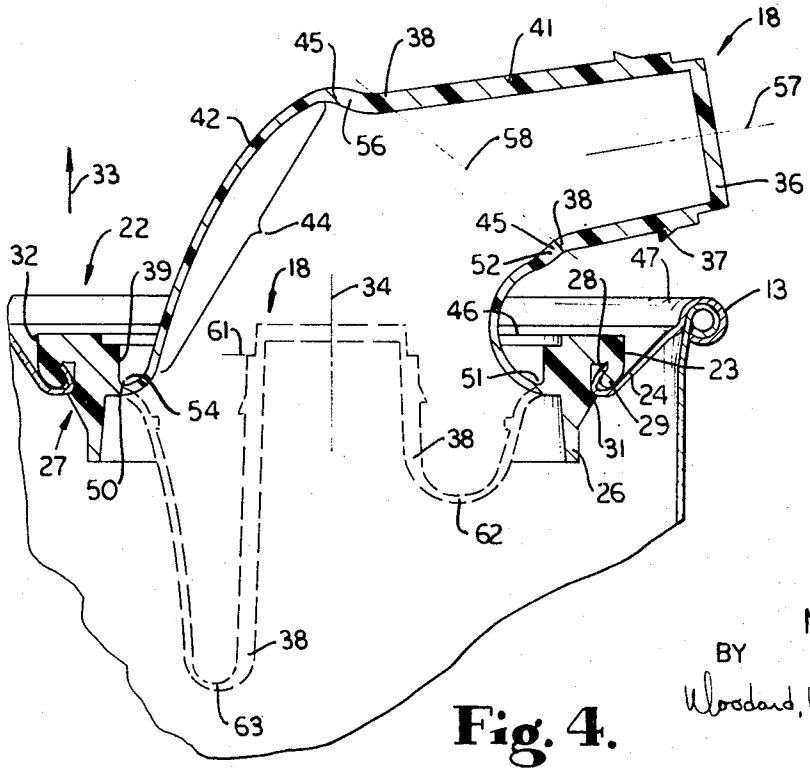


Fig. 4.

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LONG REACH LATERALLY EXTENDABLE AND RETRACTABLE POURING SPOUT

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to container closures, and more particularly to a normally nesting spout extendable vertically and laterally to facilitate pouring from a container.

2. Description of the Prior Art

A variety of nestable and extendable flexible pouring spout assemblies can be found in the prior art. Examples appear in the following U.S. Pat. Nos.:

2,561,596	Irvin H. Rieke	July 24, 1951
2,565,699	Irvin H. Rieke	Aug. 28, 1951
2,661,128	Irvin H. Rieke	Dec. 1, 1953
2,895,654	Glenn T. Rieke	July 21, 1959
3,250,428	Glenn T. Rieke	May 10, 1966

In addition to the above group, there are patents on retractable container spouts U.S. Pat. Nos. 2,804,242; 3,075,676; and 3,093,273 issued to John E. Borah.

Although the above-mentioned Rieke U.S. Pat. No. 2,565,699 mentions the possibility of flexing the spout thereof at an angle as shown in FIG. 4A, there has remained a problem of directional control of such spouts, as well as the problem of marginal operation in the event the spout mounting is set inwardly from the bead of the container a significant distance. The present invention is directed to the solution of these problems.

SUMMARY OF THE INVENTION

Described briefly, in a typical embodiment of the present invention, the pour spout is provided with a body portion and neck portion, both of which are generally frustoconical so that as the body portion unfolds from the nested position, it moves the neck portion outwardly and laterally to a point where the outlet thereof is well outside of the axial projection of the mounting, so that none of the content of the container will be spilled on the container itself during pouring, regardless of how full the container is.

BRIEF DESCRIPTION OF THE DRAWING

The full nature of the invention will be understood from the accompanying drawings and the following description and claims.

FIG. 1 is a top plan view of a container with the pouring spout of the present invention nested in an opening in the top, illustrating a possible environment therefore.

FIG. 2 is a fragmentary illustration similar to FIG. 1, but showing the spout extended for pouring.

FIG. 3 is a fragmentary elevational view taken at line 3—3 in FIG. 2 and viewed in the direction of the arrows.

FIG. 4 is a section taken at line 4—4 in FIG. 2 and viewed in the direction of the arrows, this section being on a much larger scale than the other views, to facilitate explanation of details.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings in detail, the container 11 has a top 12 secured to the side wall by the usual rolled bead 13. A closure incorporating the present invention may be provided at 14 and mounted generally in the manner described in the above-mentioned Rieke U.S. Pat. No. 3,250,428. A cap 16 having integral bail handles 17 similar to the type described in Rieke Pat. No. 2,895,654, can be used. By gripping the bail 17 of this cap, and pulling upwardly thereon, the spout can be pulled from its nested position of FIG. 1 to the extended position of FIG. 2, and the resilience of the polyethylene material urging it outward is helpful in maintaining it in its extended position. In that position, the outlet 18 (shown with the cap 16 removed therefrom), is extended laterally outside the vertical projected area of the container top opening 19. The advantage of such an arrangement in facilitating the discharge of contents from the container by pouring, will be immediately apparent. Details of how this is accomplished will now be described.

Referring now to FIG. 4, the spout has a mounting portion 22, which happens to be circular in the illustrated embodiment, and includes a flexible, downwardly projecting rim 23 having its outer periphery received in the depressed annular flange 24 in the container top as the frustoconical portion 26 of the spout is passed downwardly through the container top opening 27 where the flange is turned backwardly to provide the lip 28 engaged by the collar 29 of the closure rim 23 to provide a seal much in the manner described in the above-mentioned Rieke Pat. No. 3,250,428. The annular ridge 31 of the frustoconical portion 26 prevents removal of the unit from the container lid in spite of any pulling force exerted on the bail 17 to extend the spout from the nested position shown in the dotted outlines to the position shown in the solid outline. In the latter position, the outlet end of spout 18 is well outside an axial projection of the periphery of the container opening and also outside an axial projection of the outermost circumference 32 of the spout, this axial projection being in the direction of the arrow 33 parallel to the central axis 34 of the unit. The spout is shown with an integral seal 36 at the outlet end, and which can be pierced or cut off when it is desired to dispense the contents of the container. The thread 37 provided adjacent the outlet end threadedly receives the bail-handled closure cap 16 (FIG. 1).

The portion of the spout from the outlet end 18 to the region 38 is thicker than the portion from the region 38 to the inner cylindrical surface 39. This region 38 thereby defines what may be described as a neck portion 41 and body portion 42 of the spout, the former being comparatively rigid to receive the cap and retain its configuration at all times, and the latter being comparatively flexible to permit reversal of the curvature therein, particularly in the area 44 and half way around the spout therefrom, during rolling of the body portion outside in as the spout is moved from the extended, pouring position shown in the solid outline, to the retracted nesting position shown in the dotted outline in FIG. 4. As can be seen in FIG. 4, the location of the outlet 18 when the spout is in the retracted position, is both within the container opening and within the circumference of the mounting portion of the spout, and also to the interior of the container with respect to a plane 46 containing the top of the mounting portion of the spout. Plane 46 is normally below the plane 47 of the top bead of the container.

To accomplish the substantial lateral offset of the outlet upon extension of the spout, and at the same time retain the central location of the outlet along axis 34 when the spout is nested, the length of the intermediate portion 42 is varied substantially below the transition portion or shoulder 45. In other words, the length of the portion 42 from a circle at 51 to an oval at the region 38 varies around the circumference of the ring and the oval, being the shortest from point 51 to point 52 on the cutting plane of FIG. 4, and being the longest from point 54 to point 56 on the cutting plane and gradually increasing around the circle 50 both ways from the point 51 to the point 54.

It was mentioned that the region 38 is of the shape of an oval, this being true because the length of the neck from point 56 to the outlet 18 is much greater than the length from the point 52 to the outlet 18. In effect, the neck is frustoconical, being cut by a plane perpendicular to the axis 57 at the outlet, and by a plane disposed at an angle with respect to the axis 57 at 58.

By way of an example, where the spout of the present invention would be formed of an integral molded unit of polyethylene, with a 0.375-inch-diameter outlet opening, the distance from the outlet opening 61 to the bottom of the body portion at point 62 on the short side can be 0.446 inches and the distance from line 61 to the point 63 on the long side could be 0.960 inches. The thickness of the material of the body portion can be 0.018 inches and the thickness of the material of the neck portion, 0.050 inches. The diameter of the cylindri-

cal surface 39 at the juncture of the body portion with the mounting portion of the spout can be 1.180 inches.

While the invention has been disclosed and described in some detail in the drawings and foregoing description, they are to be considered as illustrative and not restrictive in character, as other modifications may readily suggest themselves to persons skilled in this art and within the broad scope of the invention, reference being made to the appended claims.

The invention claimed is:

1. A normally nesting, extensible spout for a container and comprising:

a mounting portion,

a neck portion having an outlet at an end thereof,

said neck portion being comparatively rigid to retain its configuration at all times,

an intermediate portion having one end at said mounting portion and the other end at said neck portion,

the length of said intermediate portion from end-to-end being different at different locations around said mounting portion,

said intermediate portion being foldable from a stored position within an axial projection of said mounting portion to a pour position locating said outlet outside an axial projection of said mounting portion, the said differences in length of said intermediate portion thereupon maintaining said location of said outlet, said intermediate portion being then foldable back from said pour position to said stored position.

2. The spout of claim 1 wherein:

said intermediate portion is made of a material having a resilience tending to maintain it in said pour position.

3. The spout of claim 1 wherein:

said intermediate portion is of sufficient length at all of said different locations to permit said outlet to be located and remain in said stored position with all of said intermediate portion retracted.

4. The spout of claim 1 wherein:

said intermediate portion is more flexible than said neck portion for rolling into a reverse disposition sufficiently to retract said neck to said stored position nesting said outlet interiorly of an outer plane of said mounting portion.

5. The spout of claim 4 wherein:

said neck has different end-to-end lengths at different locations around its perimeter.

6. The spout of claim 5 wherein:

the minimum length location on said intermediate portion joins the minimum length location on said neck.

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