June 17, 1958 R. K. POTTLE 2,839,230

DISPENSING NOZZLE WITH NON-DRIP COLLAR

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Fig. 1

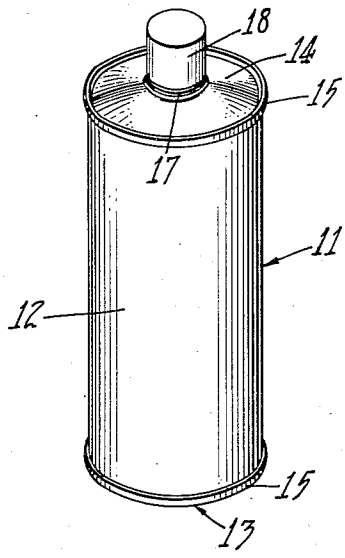


Fig. 3

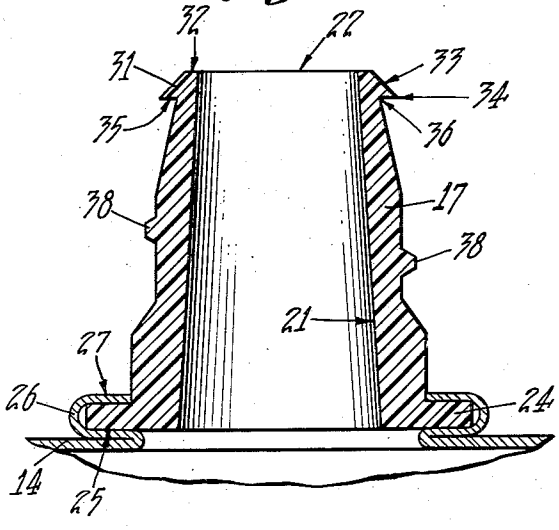
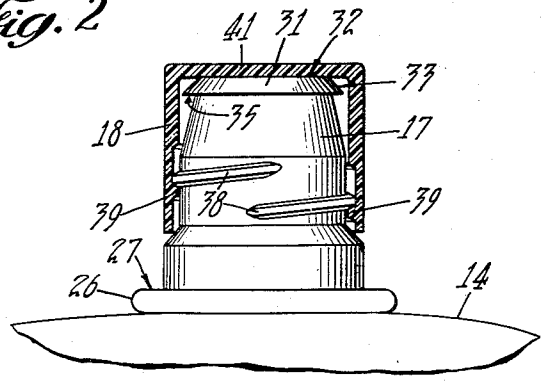


Fig. 2



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DISPENSING NOZZLE WITH NON-DRIP COLLAR

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3 Claims. (Cl. 222—571)

The present invention relates to nozzles and closures for cans or containers of various kinds, especially cans or containers for marketing corrosive liquid products such as detergents and the like and has particular reference to nozzles made from a non-corrosive plastic material and having a non-drip pouring face.

An object of the invention is the provision of a nozzle for a container wherein the nozzle is made from a plastic material which is resistant to the corrosive action of the liquid contents of the container and which is elastic or resilient enough to provide a tight closure seal between it and a gasketless closure applied thereto and yet is capable of providing a sharp edged overhanging pouring face which arrests the flow of liquids to provide a non-drip pouring face.

Another object is the provision of such a nozzle which can be readily molded, by existing machinery, into the particular shape having a non-drip pouring ledge.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

Referring to the drawings:

Figure 1 is a perspective view of a container for liquids having a dispensing nozzle and closure embodying the instant invention;

Fig. 2 is an enlarged elevational view of the nozzle and a portion of the container, with the nozzle closure shown in section; and

Fig. 3 is an enlarged sectional view of the nozzle and a portion of the container to which it is connected.

As a preferred or exemplary embodiment of the invention the drawings illustrate a sheet metal container **11** (Fig. 1) for corrosive liquid products, such as detergents and the like. The container **11** preferably comprises a cylindrical tubular body **12** having end closures consisting of a bottom **13** and a top convex breast **14** secured thereto in suitable end seams **15**.

An upright dripless nozzle **17** (Figs. 1, 2 and 3) having a closure element or cap **18** is carried on the breast **14** to dispense repeated amounts of liquid products from the container. The nozzle **17** is a molded, plastic material, relatively thick walled, tubular member preferably made from polyethylene, although it may be made from other plastic materials which are partially resilient and having at least a slight degree of elasticity. The term "plastic" as used herein is intended to include all such materials as synthetic and natural resins, polymers and elastomers.

The nozzle **17** preferably is cylindrical in shape and is formed with a centrally located smooth bore **21** (Fig. 3) which terminates at its upper end in an annular dispensing mouth **22**. The lower end of the nozzle is secured to the breast **14** in any suitable manner. For this purpose the drawings show the lower end of the nozzle **17** formed with a surrounding thick compressible flange **24** which is incorporated in an annular channel **25** of a short neck **26** formed on the breast **14** and folded under

and over the flange **24** of the nozzle to provide a seam **27** to tightly hold the nozzle in place.

At its top or dispensing end, the nozzle **17** is formed with a non-drip, annular, solid material collar **31** (Figs. 2 and 3) which surrounds the dispensing mouth **22** of the nozzle. This collar **31** is formed with a flat, outer, annular elastic or resilient sealing face or seat **32** which immediately surrounds the nozzle mouth **22**. At its outer peripheral edge, the sealing seat **32** merges into an outwardly and downwardly, preferably tapered annular face **33** projected from the mouth of the nozzle, although the face **33** may be slightly concave or of other contour if desired. The face **33** terminates in a sharp annular continuous edge **34** which surrounds the nozzle in an outwardly spaced relation thereto and connects with a substantially horizontal flat and annular bottom face **35** which preferably is in a plane normal to the axis of the bore **21** of the nozzle. The bottom face **35** surrounds the outer face of the nozzle and merges into the outer face of the nozzle in an abrupt sharp corner **36**.

The sharp annular edge **34** and the flat substantially horizontal bottom face **35** thus set off on the outer face of the nozzle an abrupt overhanging sharp ledge providing a stop barrier against continued gravitational or liquid flow along the outer face of the nozzle. Hence when the nozzle is held upright or turned into a vertical position to terminate a dispensing of the liquid contents of the container any residual liquid that tends to flow by gravity down the outside face of the nozzle is stopped at the sharp overhanging edge **34** of the nozzle and remains as a globule or drop on the tapered face **33** since it is held in spaced relation to the remaining outer face of the nozzle and is thereby prevented from continuing down the exterior of the nozzle. In this manner dripping of residual liquid from the nozzle mouth is prevented when a pouring action is terminated.

Intermediate the annular collar **31** and the bottom flange **24**, the nozzle **17** is formed with screw threads **38** which cooperate with screw threads **39** on the inner face of the closure element or cap **18** to permit of screwing the cap **18** tightly in place on the nozzle to seal the nozzle dispensing mouth **22**. The cap **18** may be made of any suitable material, such as metal or non-metal, and preferably is formed with a flat top **41** for sealing engagement against the resilient top face or sealing seat **32** of the nozzle so that the usual gasket required in the cap may be dispensed with.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A dripless sealable nozzle of resilient plastic material for dispensing a corrosive liquid from a sheet metal container, comprising an upstanding tubular member having an unobstructed outer wall and a smooth walled central bore terminating at its outer end in a relatively wide dispensing mouth, said nozzle member having a laterally extending peripheral flange on its inner end for securing the nozzle to the open end of said container, a thin laterally extending annular collar integrally formed on the outer end of said nozzle, said collar including a flat narrow upper sealing face surrounding the nozzle mouth and thence tapering downwardly and outwardly in a smooth annular face terminating in a sharp peripheral edge spaced laterally outwardly from and overhanging the immediately subjacent upstanding unobstructed outer nozzle wall to constitute a stop barrier preventing

the gravital flow of residual liquid against said nozzle wall, and a gasketless cap for closing said nozzle, said cap having a flat top wall for sealing engagement against said narrow sealing face of said thin collar without an interposed gasket.

2. A dripless sealable resilient nozzle structure as defined in claim 1, wherein external screw threads are provided on the outer wall of the nozzle and cooperating internal screw threads are present on said cap for axially forcing the flat top wall of the cap into sealed pressure engagement against said flat upper sealing face on the nozzle collar when the cap is screwed home.

3. A sheet metal liquid container having an upstanding plastic dripless nozzle secured to its open upper end by means of an annular flange on the container permanently seamed to an outwardly extending annular flange on the nozzle bottom, said upstanding nozzle comprising an unobstructed externally threaded outer wall and a smooth walled central bore terminating at its outer end in a relatively wide dispensing mouth, a thin laterally extending integral collar on the outer end of said nozzle, said collar including a flat narrow top sealing face surrounding said mouth and thence tapering downwardly and outwardly in a smooth annular face terminating in a sharp peripheral edge spaced laterally outwardly from and overhanging said unobstructed outer wall to constitute a stop barrier to prevent flow of residual liquid against said wall, and an internally threaded cap for closing said nozzle, said cap having a flat top wall surface for flat sealing engagement against said narrow sealing face of said nozzle collar without the aid of an interposed gasket.

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