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DISPENSING CONTAINER HAVING A SPOUT WITH SEPARABLE ATTACHING MEANS THEREFOR

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Fig. 1

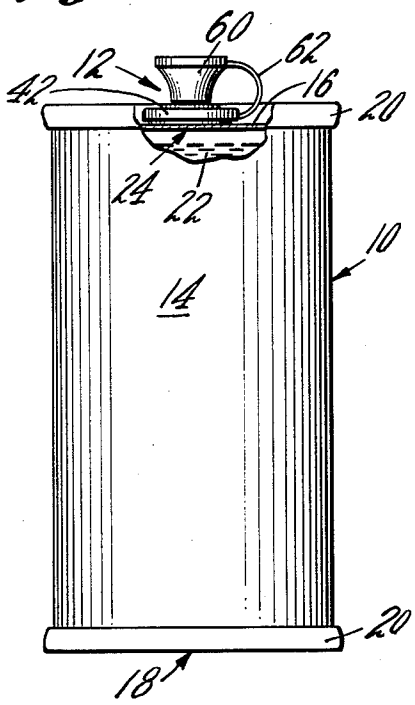



Fig. 3

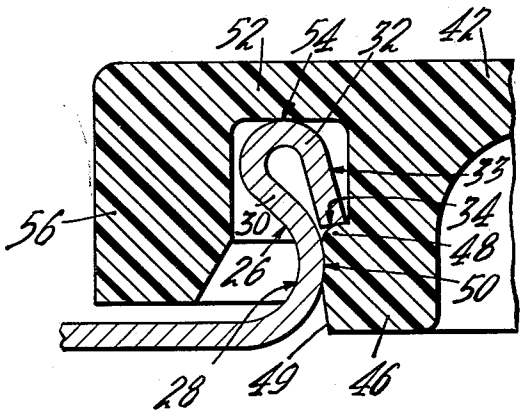
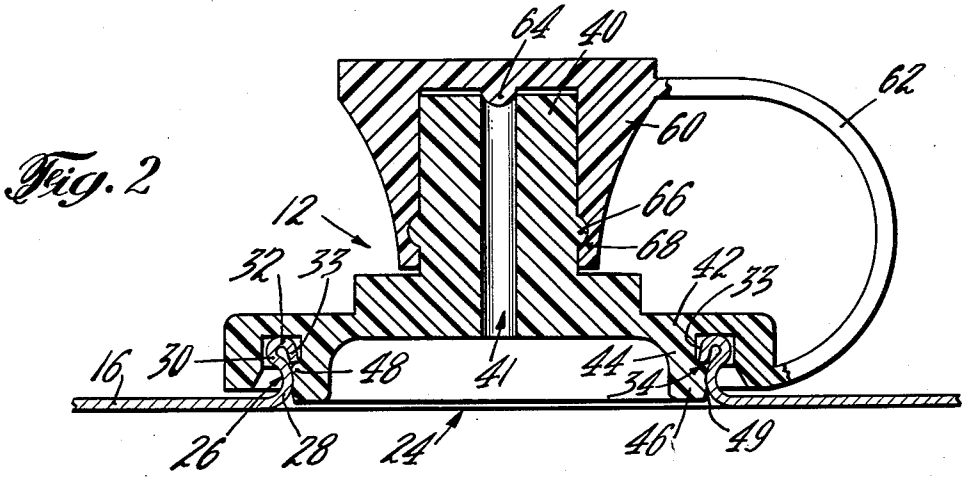



Fig. 2




INVENTOR.
ALEXANDER GEORGE MAKOWSKI
BY George P. Fielmer Jr.
AGENT

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# DISPENSING CONTAINER HAVING A SPOUT WITH SEPARABLE ATTACHING MEANS THEREFOR

Alexander George Makowski, Fayville, Mass., assignor to American Can Company, New York, N.Y., a corporation of New Jersey

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The present invention relates to dispensing containers fitted with plastic dispensing spouts, and has particular reference to a container construction wherein a metal end of the container is formed with an upstanding neck which receives the plug-like base of a push-in plastic spout and is provided with an inwardly turned upper edge portion which securely locks the spout in place and in turn is shielded from the container contents by the spout.

There is at the present time considerable interest in plastic dispensing spouts of the type which can be assembled to a container body by a straight push-in operation after the container has been filled with a product. Many designs for such spouts have been developed, but only a few such spouts are suitable for use with metal can ends, and most of those are objectionable in some respect, usually because they permit a raw edge of the metal end to be exposed to the product within the container, or require that the metal end, in order to receive the spout, be drawn into a configuration which subjects the metal to excessive stretching and is thus difficult to produce on a commercial basis.

The present invention contemplates a push-in spout construtcion which does not have these objectionable features and is thus particularly suitable for use in conjunction with metal container ends.

An object of the invention is the provision of a dispensing container wherein a plastic push-in spout is held in place by the inwardly and downwardly turned raw edge of a shallow neck which can be readily formed in the upper metal end of the container.

Another object of the invention is the provision of such a construction wherein the spout is brought into pressured sealing contact with a portion of the container neck below the raw edge so that the exposed metal in the raw edge is shielded from contact with the container contents to eliminate rusting or other corrosive reaction therebetween.

Still another object is the provision of a dispensing container wherein the bottom of the plug portion of a push-in plastic spout is disposed at or above the plane of the container end so that all of the container contents can be dispensed.

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 side elevation of a dispensing container embodying the principles of the instant invention, parts being broken away and other parts being shown in section;

FIG. 2 is an enlarged vertical section of a portion of the container of FIG. 1, the view being taken through the dispensing spout and the adjacent upper end portion of the container; and

FIG. 3 is a vertical section on an enlarged scale, showing the details of the connection between the dispensing spout and the metal container end.

As a preferred and exemplary embodiment of the instant invention, the drawings show a dispensing container 10 which is provided with a push-in dispensing



spout 12 which is preferably formed of a suitable, flexible plastic material such as polyethylene, polypropylene, or the like. The container comprises a tubular body 14, which may be formed of any suitable material such as metal, coated fibre, or plastic, and has its ends closed by means of an upper end member 16 and a lower end member 18 which are formed of steel or aluminum sheet metal secured to the body in suitable end seams 20. In practice, both the inner and outer surfaces of the sheet metal end members 16, 18 are covered with an adherent layer of a suitable protective coating (not shown), which may be either metallic or resinous and is normally applied to the stock from which the end members are made while the stock is in the flat, prior to the formation of the end members.

The container 10 is designed to hold a flowable liquid, granular or powdery product 22 which is preferably filled into it through a centrally disposed circular opening 24 which is formed in the upper metal end member 16. After the container is thus filled, the opening 24 is closed by the dispensing spout 12 which is pressed into position therein.

In order to receive the spout 12, the upper end member 16 is provided with a shallow upwardly extruding neck 26 which surrounds and defines the opening 24. The lower portion of the neck 26 comprises a smoothly rounded throat 28 which at its upper end merges into an outwardly flared wall 30 which in turn merges into an inwardly and downwardly turned curl 32. The curl 32 includes an inwardly and downwardly tapered wall or flange 33 which terminates in a downwardly facing raw edge 34 which is disposed inwardly of the rounded throat 28, as clearly seen in FIGS. 2 and 3. The raw edge 34 is created during formation of the neck 26 in the precoated upper end member 16, and is thus not protected by any coating material.

The spout 12 comprises an upstanding cylindrical body portion 40 which is provided with a dispensing passageway or bore 41 and at its bottom end is widened to form a base portion 42 which is firmly secured to the container neck 26. The base portion 42 includes a flexible depending ring 44 which at its bottom is formed with an external sealing bead 46. The bead 46 comprises an upper shoulder 48 and an external wall 49 which, before assembly of the spout 12 to the neck 26, is of straight tapered configuration.

When the spout 12 is positioned on the neck 26 and pressed downwardly, the tapered spout wall 49 rides along the tapered neck wall 33 with the result that the flexible ring 44 is cammed inwardly, thus enabling the sealing bead 46 to snap past the curl 32 and thereafter expand outwardly into pressured engagement against the curved throat 28. In this position, the raw edge 34 of the neck 26 overlies and contacts the bead shoulder 48, thus locking the spout 12 permanentiy in place on the neck 26, and the bottom of the ring 44 is positioned at or slightly above the level of the base of the neck 26, so that none of the contents 22 is trapped in the container 10 by the ring 44 when the container 10 is inverted to dispense its contents 22 through the bore 41.

Since the external diameter of the contacting portion of the sealing bead 46 is greater than the internal diameter of the mutually contacting portion of the throat 28, the wall 49 is deformed by the rigid throat 28 along an annular area of contact, generally designated by the numeral 50 in FIG. 3, thus forming a tight hermetic and liquid-tight seal which shields the raw edge 34 from the container contents 22.

The depth of insertion of the spout 12 is limited by a flat annular wall 52 which extends laterally beyond the depending ring 44 and seats on the upper edge 54 of the neck curl 32. The relative dimensions of the spout 12

and neck 26 are preferably such that the vertical distance between the shoulder 48 and the undersurface of the annular wall 52 of the spout 12 is slightly less than the vertical distance between the raw edge 34 and the upper edge 54 of neck 26 so that the wall 52 is held tightly against the neck 26 in order to hold the spout against vertical movement and to prevent atmospheric moisture or other external corrosive from coming into contact with the raw curl edge 34. If desired, the wall 52 may terminate in a peripheral depending skirt 56 which conceals the neck 26 from view and enhances the appearance of the container.

The spout 12 is provided with a captive sealing cap 60 which is preferably formed integral with the base portion 42 and is connected thereto by a flexible strap 62. A small boss 64 is provided in the cap 60 to fit into and plug the dispensing bore 41, the cap 60 being held in sealing position on the body portion 40 by an annular locking bead 66 which is formed integral with the body portion 40 and which snaps into an annular groove 68 formed in the inside surface of the cap 60.

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 dispensing container comprising a body having an upwardly extending neck formed therein defining an opening, said neck merging at its upper end into a downwardly projecting flange adjacent said neck internally thereof, said flange terminating in a downwardly facing raw edge, a spout of resilient material, and means for securing said spout to said neck by axial movement thereof from externally of the container and also for sealing said raw edge from contacting with the container contents, said means including a projecting peripheral bead on said spout of slightly greater diameter than said neck opening, and, a portion of said spout immediately above said bead having a diameter less than that of said bead, whereby upon axial insertion of said spout into said neck, said bead is compressed in passing said flange but once therepast expands into fluid-tight sealing relation with said neck and locks against said raw edge therebeneath to thereby secure said spout to said neck and protect said flange raw edge from contact with the container contents.



2. The container of claim 1 wherein said spout is further provided with a second portion disposed in overlying engagement with said neck to limit the inward movement of said spout into said neck.

3. A dispensing container, comprising in combination, a body, a sheet metal neck formed at the upper end of said body, said neck comprising an upwardly and outwardly curved throat which at its upper end merges into an inwardly and downwardly bent curl terminating in a downwardly facing raw edge closely adjacent said neck, and a spout carried by said neck, said spout including a resilient depending ring which extends into said neck, said ring having a bead in underlying engagement with said raw neck edge to lock said spout onto said neck, said bead also projecting outwardly beyond said raw edge and into contact with said curved neck throat in pressured sealing engagement therewith to shield said raw edge from the contents of said container, and said spout further including a wall in overlying engagement with the upper end of said neck curl to lock said spout against inward movement relative to said neck and to shield said raw edge against external corrosives.

4. A dispensing container, comprising in combination, a body, a sheet metal neck formed at the upper end of said body, said neck comprising an upwardly and outwardly curved throat which at its upper end merges into an inwardly and downwardly bent curl terminating in a downwardly facing raw edge closely adjacent said neck, and a spout carried by said neck, said spout including a resilient depending ring which depends into said neck, said ring having a bead provided with a downwardly and inwardly conically tapered peripheral surface which merges at its upper end into an upwardly facing shoulder, said bead shoulder lockingly engaging said raw neck edge therebeneath, and said conical bead surface contacting said neck throat in wedged sealing engagement therewith to shield said raw edge from the contents of said container.

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