

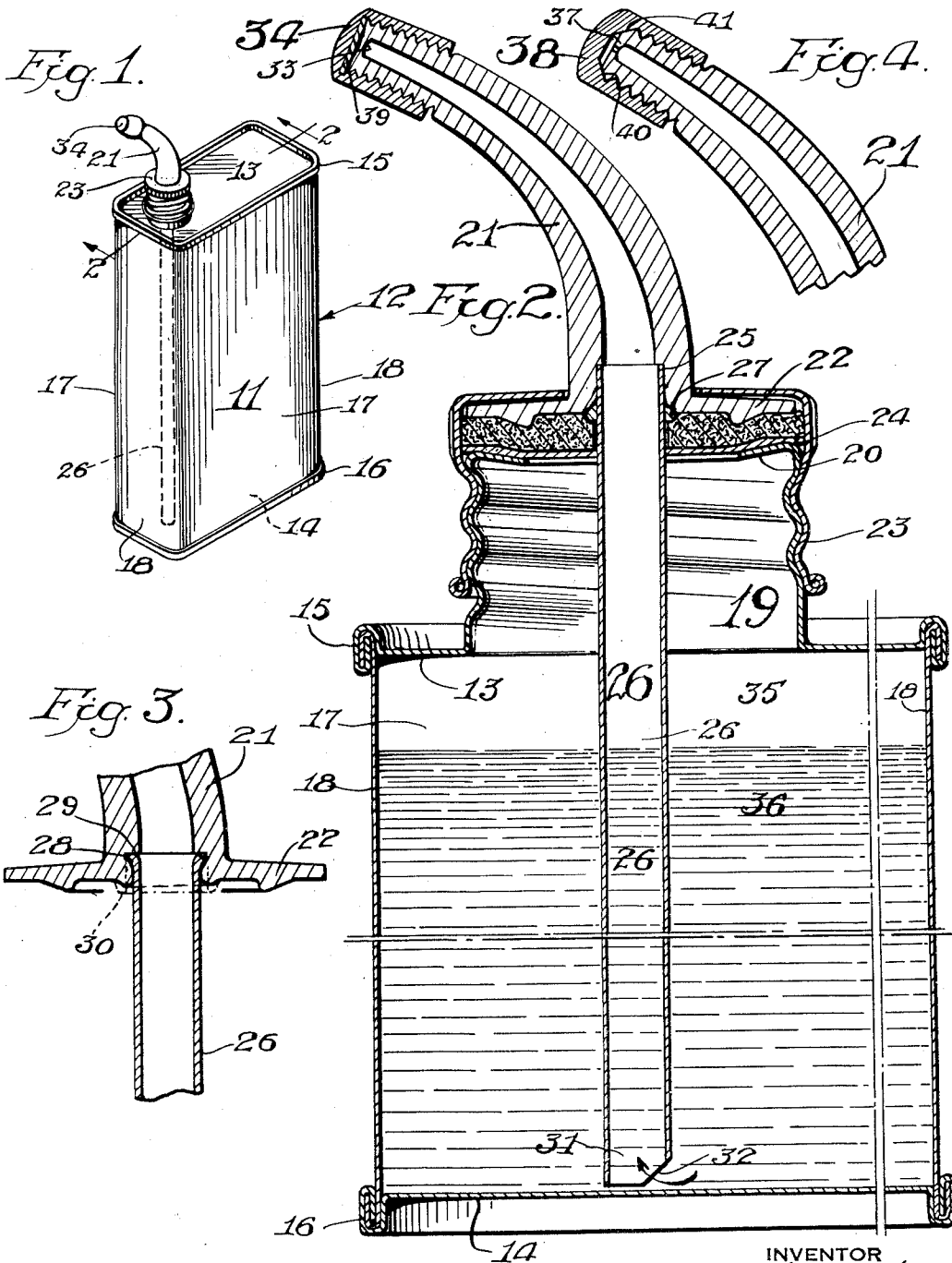
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SQUIRT CAN CONSTRUCTION

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## SQUIRT CAN CONSTRUCTION

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The present invention relates to devices for squirting liquids, and it relates more particularly to an arrangement for squirting liquids, as for instance, window-cleaning fluids, from original bellows-like containers onto glass surfaces, such as windows, windshields, mirrors or the like.

An object of the present invention is to provide an improved arrangement for squirting a liquid from an original container.

Another object of the present invention is to provide a generally flat-sided original liquid container with an efficient dispensing arrangement which may be manufactured at low cost.

Another object of the present invention is to provide an arrangement whereby liquids may be squirted from original bellows-like containers held in an upright position.

With the above and other objects in view, which will appear more fully from the following detailed description and accompanying drawings, the present invention consists of a dispensing arrangement for squirting liquid from an original container, and includes a bellows-like can, having an outletted discharge neck provided with a coarse external screw thread, a flanged one-piece dispensing nozzle adapted to be positioned over the discharge outlet of said neck, a riser tube secured to said nozzle and extending through said discharge outlet into said can and terminating in proximity to and preferably near an end of the bottom thereof, sealing means interposed between said flanged dispensing nozzle and said discharge neck, and an apertured cap for receiving the flanged portion of said dispensing nozzle, said cap being arranged to screw-threadedly engage said discharge neck.

For the purpose of illustrating the invention, there is shown in the accompanying drawing forms thereof which are at present preferred, since the same have been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which the invention consists can be variously arranged and organized and that the invention is not limited to the precise arrangement and organization of the instrumentalities as herein shown and described.

Referring to the drawing, in which like reference characters indicate like parts;

Figure 1 represents a front perspective view of a closed squirt-can constituting an embodiment of the present invention;

Figure 2 represents an enlarged fragmentary sectional view taken on line 2—2 of Figure 1, looking in the direction of the arrows.

Figure 3 represents an enlarged fragmentary sectional view showing an alternative method of securing the riser-tube to the base of the curved discharge spout.

Figure 4 represents a fragmentary vertical sectional view taken through a pierced or originally open discharge spout, and shows the manner in which the end of the spout may be operatively sealed, when the device is not in use, through the metal-to-metal engagement of the bevelled end portion of the spout with the correspondingly sloped inner surface of a closure cap.

The rectangular squirt-can 11 illustrated in the drawing is preferably constructed from thin sheet metal, or the like, and may include a body portion 12, and top and bottom panels 13 and 14 generally permanently secured to opposite edges of the body 12 by any suitable means, as for instance, by means of the lapped seams or beads 15 and 16. The body portion 12 may be formed from a single continuous blank, bent upon itself to provide the opposite side panels 17, 17 and 18, 18, respectively, and having the free ends thereof lapped, soldered, or otherwise suitably secured together. The opposite generally flat side panels 17, 17 are somewhat flexible and may be manually urged toward each other and then released, thus providing a bellows-like action utilized to squirt the contained liquid from the can 11.

Although the squirt-can illustrated in the drawing is rectangular in shape, it is to be understood that a rectangular or round can may also be used, and in the latter case the bottom panel might be manually pressed inwardly and then released, to provide the hereinabove described bellows-like action.

In any case, however, the can is preferably provided with a projecting discharge-neck 19 which may be formed integrally with the particular panel bearing said neck, or which may be formed separately therefrom and soldered or otherwise suitably secured thereto. A coarse screw-thread may be rolled, pressed, or otherwise formed on the exterior cylindrical portion of the discharge-neck 19. The outer end of the discharge-neck 19 is preferably provided with an aperture of somewhat smaller diameter than the cylindrical portion of the discharge-neck, and surrounded by an annular land or surface 20.

A flanged single-piece nozzle or spout, 21, provided with a longitudinal bore, is preferably operatively seated upon this annular surface 20 in fluid tight relation thereto. This single-piece nozzle or spout 21 is preferably provided with an integral annular flanged portion 22 and may be

constructed in any suitable fashion. Thus, this flanged nozzle or spout may be die-cast or hot cast from any suitable low melting point alloy or metal, such as lead or the like, and might even be cast from suitable plastic compounds. However, the flanged nozzle or spout may, if desired, be shaped by a cold process, that is to say, the metal or material may be extruded or cold-pressed or cold-flown into its ultimate shape.

The spout 21 may be retained operatively on the discharge neck 19 through the screw-threaded engagement of an apertured cap-piece 23 which receives the flanged portion 22, with the screw-threaded discharge-neck 19. A suitable sealing washer or washer-assembly 24 is preferably interposed between flange 22 and annular surface 20 to insure the establishment and maintenance of a proper seal therebetween when cap 23 is screwed down on discharge-neck 19.

The base portion of the spout 21 is preferably provided with a suitably shouldered socket or recess 25 for receiving the upper end of a riser tube 26. The socket-like recess 25 is preferably so proportioned as to fit snugly around the upper end portion of the riser tube 26.

The riser tube 26 may be anchored in the socket against the shoulder thereof in any suitable manner. Thus, as illustrated in Figure 2, the upper end portion of riser tube 26 may be annularly fused or soldered to the nozzle or spout 21, as at 27. The deposited material may, if desired, be disposed within the illustrated countersunk entrance into recess 25. The provision of such countersunk portion also serves to initially guide the upper end of riser tube 26 into operative position in the recess 25.

The riser tube 26 may be suitably secured to the spout 21 in several other fashions, one of which has been illustrated in Figure 3. Thus, riser tube 26 may be secured mechanically to spout 21, instead of being fused or soldered thereto. The upper end of tube 26 may be flared outwardly, as at 28, and then operatively secured against shoulder-stop 29 by pressing or bending the projecting lip-portion 30 around and over this flared end. This lip 30, being formed integrally with the spout 21, may be deformed readily to engage the outwardly flared end of tube 26, thus mechanically retaining the same in the socket 29.

If desired, the riser tube 26 may be secured to the nozzle or spout 21 by first turning an annular groove into the upper end portion of the riser tube 26, and then spinning and pressing the downwardly depending annular lip 30 of the spout 21 into operative engagement with said annular groove.

The riser tube 26 is preferably constructed from any suitable rust-resistant material, such as brass, copper, tin, or the like. If tin-coated metal is used, it is preferably subjected to a re-tinning operation after assembly.

The riser-tube 26 depends downwardly from spout 21 into the body of the can 11, and preferably terminates either in proximity to, or in contact with, the bottom panel 14. In order to insure a non-obstructed flow of liquid into and up through the riser tube 26, the lower end 31 thereof may include the sloped portion 32 illustrated in the drawing, or it may include one or more notches, apertures, or the like.

The free end of the nozzle 21 projects through an aperture centrally provided in cap-portion 23, and may be either straight, or curved as illustrated. The discharge end of the nozzle or

spout 21 is preferably, although not necessarily, restricted. Thus, this discharge end may be provided with the annular restriction 37 shown in Figure 4, or it may be completely obstructed by a readily perforable mass of metal 33, shown in Figure 2, which either may be formed integrally with the discharge spout 21, or else may be suitably pressed thereinto. The mass 33, when subsequently pierced with a needle or other pointed article, will resemble the annular restriction 37 illustrated in Figure 4.

A closure cap 34 or 38 is preferably screw-threadedly engageable with the projecting discharge end of the spout to close said end when not in use. The closure cap 34 may be provided with an interiorly disposed sealing disc or gasket 39, as illustrated in Figure 2, or as illustrated in Figure 4, the closure cap 38 may establish a metal-to-metal seal through the annular engagement of the bevelled end portion 40 on the discharge spout 21 with the correspondingly-sloped inner surface 41 of the closure cap 38.

In use, closure cap 34 or 38 is removed, obstruction 33 pierced, if present, by a pointed object, and the container panel or panels periodically pressed inwardly and then released. The resultant alternate decrease and increase in can volume effects an alternate compression and expansion of the air in the confined space 35 disposed immediately above the liquid 36 in squirt can 11. The resultant periodic increase in air pressure forces the liquid 36 into the non-obstructed lower end 31 of riser-tube 26, up through said tube, through the longitudinal bore in nozzle or spout 21, and out to the atmosphere through either the restricted free end 37 thereof, or past the perforated obstruction 33. The contained liquid may thus forcibly be ejected or squirted for a considerable distance and will accordingly suitably bespatter the surface at which it is directed. This can is therefore peculiarly adapted for use in spraying windows, windshields, mirrors, or the like, with liquid cleaning preparations.

The nozzle or spout 21, if curved, may be rotated to point in any desired direction by merely loosening the apertured cap-portion 23, rotating the nozzle 21 to the desired degree, and then re-establishing the seal between flange 22 and can surface 20 by re-tightening the cap 23. This arrangement thus permits the nozzle to be freed and rotated at will, without destroying the structure of the device and without deleteriously effecting the subsequent operation thereof. An added advantage resides in the fact that a curved nozzle or spout, which may project beyond the horizontal outline of the squirt can body when operatively positioned as shown, may be rotated into a non-projecting position relative to said outline, to permit a plurality of such squirt-cans to be stored side by side in non-obstructing relation. In the preferred embodiment, however, the curved spout does not project beyond the horizontal outline of the can in any position.

The hereinabove described squirt-can arrangement minimizes waste by providing an efficient means for expelling all the liquid contents of the can. Thus, the riser-tube 26 is preferably disposed at one side of the can as illustrated, and even the last bit of liquid may be effectively expelled by merely tilting the can to cause this last liquid portion to accumulate in the vicinity of the lower end 31 of the riser-tube 26.

If desired, the combination of apertured cap 23, flanged nozzle 21 and riser-tube 26 may be removed bodily from any one can and operatively associated with any other can provided with a similar discharge neck, to permit the liquid contents thereof to be dispensed in the manner described. Indeed, riser-tube 26 may even be constructed from two telescoping sections with an annular packing disposed therebetween, so as to permit the combination to be used most effectively with cans of varying height.

The foregoing inexpensive arrangement permits liquids to be squirted from generally flat-sided or bellows-like containers held in a generally upright position. This feature is of great advantage when the liquid is to be squirted on generally vertical surfaces, such as windows, windshields and the like.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and it is therefore desired that the present embodiments be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

Having thus described the invention, what is hereby claimed as new and desired to be secured by Letters Patent is:

1. A flat squirt-can having a generally oblong top and bottom and being generally high compared to its crosssection taken parallel to said top and bottom, and having two opposed side-walls between said top and bottom capable of being flexed towards each other for expelling portions of the fluid contents thereof, and having a screw-threaded discharge neck at one end of the top thereof, a single-piece soft-metal discharge-spout provided with a flanged portion seated over said discharge neck and provided with a longitudinal bore terminating in a restricted opening at the discharge end thereof, a riser-tube of relatively harder metal secured to said discharge spout in communication with said longitudinal bore and extending into said squirt-can and terminating at the corresponding end of the bottom of said squirt-can, and sealing means interposed between juxtaposed surfaces of the flanged portion of said discharge-spout and said discharge neck, said flanged portion and said sealing means being disposed within an apertured cap screw-threadedly engaging said discharge neck.

2. A liquid-dispensing riser-spout for use with an original liquid container of the character described and provided with a screw-threaded discharge flange; said riser-spout comprising a soft-metal spout portion having an annular soft-metal basal flange formed integrally therewith and disposed co-axially with respect to the adjoining zone of the spout portion, and a riser-tube of relatively harder metal secured to said spout portion at the basal flange thereof and having a terminal portion thereof telescoped into said spout portion.

3. A liquid-dispensing riser-spout for use with an original liquid container of the character described and provided with a screw-threaded discharge flange; said riser-spout comprising a soft-metal spout portion having an annular soft-metal basal flange formed integrally therewith and disposed co-axially with respect to the adjoining zone of the spout portion, and a riser-tube of relatively harder metal having a terminal portion thereof telescoped into said spout portion at the basal flange thereof and fused thereto.

4. A liquid-dispensing riser-spout for use with an original liquid container of the character described and provided with a screw-threaded discharge flange; said riser-spout comprising a soft-metal spout portion having an annular soft-metal basal flange formed integrally therewith and disposed co-axially with respect to the adjoining zone of the spout portion, and a riser tube of relatively harder metal interlocked with said spout portion at the basal flange thereof.

5. A dispensing container having flexible side walls, a top wall and a bottom wall, a spout mounted on and projecting above said top wall and having a jet passage and a narrow tube mounted at its upper end in the lower end of the jet passage of said spout and extending downwardly to approximately the bottom of said container, said tube being approximately of uniform cross-section throughout its length.

6. A dispensing container having flexible side walls, a top wall and a bottom wall, a spout mounted on and projecting above said top wall and having a jet passage and a narrow tube having its upper end in communication with the lower end of the jet passage of said spout and extending downwardly to approximately the bottom of said container.

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