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RETRACTABLE RIGID SPOUTS AND MOUNTINGS THEREFOR

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Fig. 1.

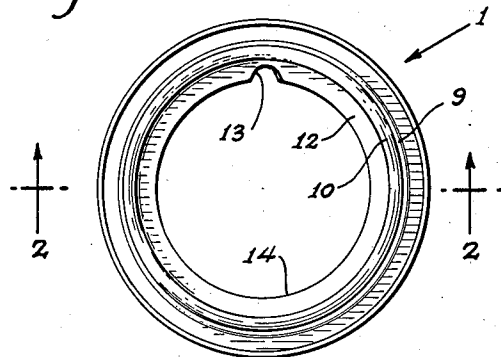


Fig. 5.

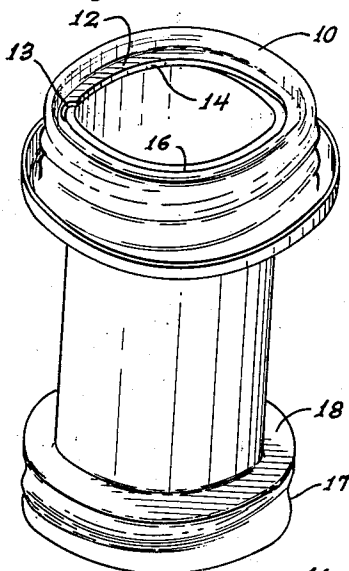


Fig. 2.

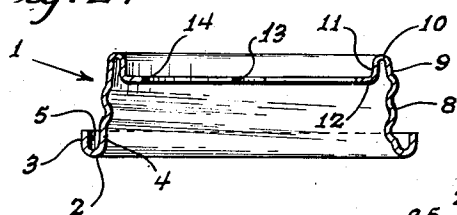


Fig. 3.

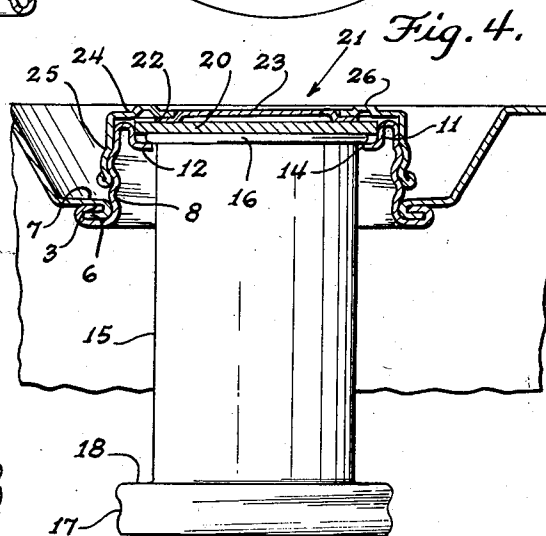
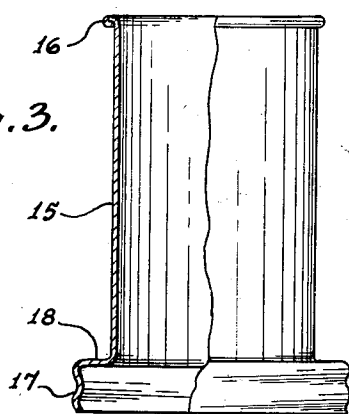
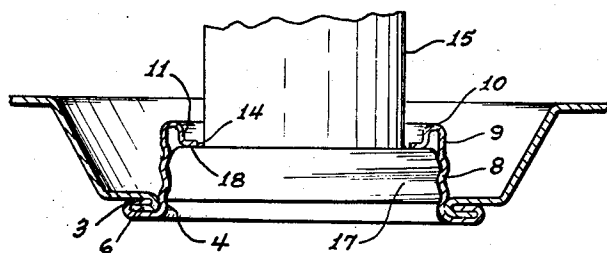


Fig. 6.



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RETRACTABLE RIGID SPOUTS AND MOUNTINGS THEREFOR

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4 Claims. (Cl. 222—478)

This invention relates to filling and pouring constructions for containers and is particularly concerned with captive spouts and the mounting of the same in container wall openings.

In the manufacture of containers for the transporting and dispensing of fluid materials, it is often desirable to have the openings in the same equipped with captive, retractable pouring spouts i. e. spouts which are carried by the container in such a manner that they are restrained against removal therefrom but can be moved from a retracted shipping position where they seat substantially within the container into an extended position where they project outwardly of the container wall when pouring is to be effected. Commonly captive spouts, and their mountings are secured in place in openings in the container wall at the time the wall portion—preferably the head—is applied to the body of the container by the manufacturer of the container. Thus the container is complete when it reaches the filler.

Provision for facilitating the speedy filling of such completed containers is a must under present day requirements. The prior art constructions are lacking in this regard. They slow down the filling by failing to provide for exhausting the air from the container while filling is being effected through the single opening.

Prior art captive spout construction have generally involved a machine operation in assembling the spout with its nozzle. This generally limits such assembly to a time prior to the application of the nozzle to the container wall, thus ties down a certain proportion of nozzles manufactured to use with a particular spout. The invention construction, on the contrary, enables captive spouts to be applied right up to the time the head is secured to the container. Furthermore, if it is decided to use removable spouts with the nozzles, the application of captive spouts is omitted and the removable spouts can be applied later on.

It is desirable that when the spout is raised into pouring position for the dispensing of the contents of the container, such spout will not only stay in raised position but will be held in that position with sufficient security and rigidity to provide a rest for the container while pouring is being effected. Nevertheless, for modern requirements, the spout, and its mounting, must be economical, thus be formed of light weight material, must be capable of being readily secured to a container and they must be easily closed against leakage besides being tight against leakage when used for pouring. The prior art constructions have also failed to make adequate provision for these features but the invention construction, on the contrary, makes full provision for all of them.

It is accordingly a principal object of the invention to provide improved retractable captive spouts for containers and mountings therefor.

Another object is to provide such spouts and mountings out of light weight economical material.

Another object is to provide such spouts and mountings

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which facilitate rapid filling of the container to which they are applied.

Another object is to provide a secure and rigid seating of the spout in extended position to serve as a rest for the container while the contents are being poured therefrom.

Still another object is to provide a leakproof closure for such spout assembly.

A further object is to employ the closure securing facilities for retaining the spout rigid when in extended position.

A still further object is to provide venting means, effective during the filling of the container, which also serves to facilitate the assembly of the spout and nozzle.

A still further object is to provide retractable spout assemblies of a simple, highly effective and economical nature.

Further and more detailed objects of the invention will be in part obvious and in part be pointed out as the description, of the invention, taken in conjunction with the accompanying drawing proceeds.

In that drawing:

Fig. 1 is a top plan view of the nozzle forming part of the spout assembly of the invention.

Fig. 2 is a vertical section taken on lines 2—2 of Fig. 1 and looking in the direction of the arrows.

Fig. 3 is an elevation of the spout member of the invention per se, with a portion thereof broken away and shown in section.

Fig. 4 is an assembly view, partly in vertical section, of a section of container wall carrying the spout member, nozzle and closing means of the invention assembled together in closed position with the spout retracted within the container.

Fig. 5 is a perspective view of the nozzle and spout member illustrating the manner in which the spout member is engaged in captive position within the nozzle; and

Fig. 6 is a fragmentary vertical section of an assembly of container wall, nozzle and spout member showing the spout seated in rigid extended position.

The nozzle of the invention, generally indicated at 1, has a base portion 2 of U-shape in cross-section, providing an upstanding collar 3 in spaced relation to the body portion 4 which formations facilitate the seaming of the nozzle in place in a container wall opening. From the showing of Figs. 4 and 6 it will be seen that these formations engage with comparable formations around the container wall opening. Thus a collar 6, carried by the container wall around the opening, seats in the channel 5 of the nozzle and the container wall portion 7, taken in conjunction with the portion 6, forms a similar channel for the reception of the collar 3 of the nozzle. When these formations are seated together and seamed together by turning them at a right angle, a rigid leak-tight joint is provided. A preformed gasket, of flowed-in gasket material, can be employed in the base of the channel 5 if desired.

Above its U-shaped base portion the nozzle 1 is formed with an upstanding screw-threaded neck 8. The threads are rolled into the thin metal of the side wall so that thread formations are present, both interiorly and exteriorly of the side wall. Above its threaded portion 8 the side wall tapers inwardly at 9 and is reversed through a rounded bead 10 into a collar 11 which extends downwardly in opposed relation to the portion 9 and terminates in a directly inwardly extending shelf portion 12. The shelf 12 is continuous around the inside of the nozzle save for a deep notch or recess 13 extending in from its edge 14 well towards the portion 11. This notch serves both for venting the container during filling and for facilitating the application of the spout member to the nozzle.

The spout member itself, as shown in Fig. 3, has a generally cylindrical tubular body portion 15 of slightly less external diameter than the diameter of the inner edge 14 of the shelf 12. At its upper end the tube 15 is formed with a small out-turned bead 16 while at its lower end it is substantially enlarged into a short threaded end 17. This enlargement is abruptly effected to provide a directly outwardly extending shoulder 18 between the body 15 and the threaded portion 17. The threads of the end 17 are dimensioned for threaded engagement with the interior of the side wall 8 of the nozzle. When the spout is in upstanding position with the threaded portion 17 tightly engaged with the threaded side wall 8, the shoulder 18 will come up tightly under the shelf 12 as seen in Fig. 6, providing a leak-tight joint therebetween, though there is merely a metal to metal contact. A gasket may be employed between such surfaces if desired, but a good tight joint can be effected without it.

As already indicated the notch 13 facilitates the introduction of the spout into assembled relation with the nozzle. The notch is hardly necessary for this purpose due to the light weight of the metal of the nozzle and the fact that the bead 16 is of only slightly greater external diameter than the diameter of the edge 14. Actually, in the absence of a notch, if the spout member is brought up under the nozzle at the proper angle it can be forced through the opening bordered by the edge 14 without appreciably deforming either the spout or the nozzle. With the notch 13 present, however, the spout 16 can be brought up from beneath the nozzle at an angle, a portion of the bead can be seated in the notch 13 and the rest of the bead can be readily forced through the opening. Once through the bead will seat on top of the shelf 12 and cannot be forced back through the opening without materially deforming the shelf 12. Thus when the spout is lowered into the container for filling or shipping purposes, the bead 16 will overlie the shelf 12. It will never close more than a portion of the notch 13, so that a substantial air passage remains. This enables air to escape past the spout, facilitating rapid filling of the container through the spout.

When the spout is in extended position, screwed up tight within the nozzle 1, the shoulder 18 is of sufficient extent that it completely overlies the notch 13. Accordingly the threaded engagement of the nozzle and spout and the seating of the shoulder 18 beneath the shelf 12 effectively precludes leakage when the spout is being used for pouring. Besides this the substantial engagement of the spout and nozzle enables the spout to be used as a steady rest during the pouring out of the contents of the container, even though the container be full at the start.

Liquid tight closing of the container when the spout is in retracted position is effected as illustrated in Fig. 4. Here the beaded end 16 of the spout member is seated down on the shelf 12. A compressible disk-like gasket member 20 overlies the beaded end 16 and engages the inclined surface 11 around its periphery. The gasket 20 is held down by means of the metallic disk generally indicated at 21, whose annular border 22 lies on the border of the gasket and presses that border down into sealing position. The disk 21 also has a raised center portion 23 which is exposed on the outside of the container and may carry suitable instructions for the actuation of the closure and spout or the trade mark of the shipper.

The outer surface of the annular border 22 is engaged and held down by the flange 24 of a retaining ring 25 whose screw threaded collar portion is engaged with the screw threads on the exterior of the side wall 8. The flange 24 may be formed with a rib 26 to strengthen if desired.

Though the use of a metal instruction disk, such as 21, is a desirable thing and forms part of a combination here, since its center portion extends up into and fills the opening provided by the flange of the securing ring, it is, of course, to be understood that the presence of the disk

is not necessary for the formation of a tight closure. It may be eliminated and the gasket 20 be made of sufficient thickness for the flange 24 to engage directly on the gasket, compress it around its border to form a liquid tight seal and hold the spout down rigidly in retracted position. Alternatively a complete screw cap, which covers the whole of the gasket, may be employed in place of the ring-type member shown.

It is believed that the operation and use of the spout will be generally apparent from the foregoing description of the construction thereof. It is to be noted that the assembly of nozzle, spout member, gasket, information disk and retaining ring can readily be pre-assembled and inserted in the container merely by the seaming operation involved in seaming the portions 6 and 7 of the container with the portions 3 and 4 of the nozzle. If desired, however, the nozzle can be seamed in place in the container wall opening and the spout can subsequently be inserted in it, as already pointed out.

No particular means is needed for engaging the spout member to raise it up from retracted position within the nozzle. The spout is in no way held down on the shelf 12 so one merely has to insert the fingers inside the spout, engage the inner surface of it and raise it up sufficiently for the bead 16 to be grasped by the hand. When the spout is sufficiently raised that the enlarged threaded end 17 thereof begins to seat in the side wall 8, a moderate turning action is all that is needed to draw it up into tight operating position where it can also be used as a steady rest for pouring.

Other variations and modifications of the spout assembly, herein shown and described, will readily suggest themselves to those skilled in the art and it is, of course, to be understood that certain changes may be made in the spout assembly above described and various embodiments of the invention can be made without departing from the scope thereof. It is accordingly intended that all matter contained in the above description, or shown in the accompanying drawing, shall be interpreted as illustrative and not in a limiting sense.

Having described my invention what I claim is new and desire to secure by Letters Patent is:

1. In spout construction, a nozzle formed as an inverted cup having a perforation through the bottom thereof, a shelf bordering said perforation, said shelf having a portion thereof notched outwardly from said perforation, a spout member having a cylindrical body with a diameter slightly less than the diameter of said perforation, said spout member being assembled with said nozzle, with said cylindrical body and perforation in slideable relation and a bead formed on one end of said spout member, said bead having an external diameter greater than the diameter of said perforation but less than the depth of said notch, whereby said bead will prevent said spout from falling into said container through said perforation but will leave a portion of said notch open for the escape of air while said container is being filled through said spout.

2. In spout construction a nozzle formed as an inverted cup, having a perforation through the bottom thereof, a shelf bordering said perforation, said shelf having a portion thereof notched outwardly from said perforation, a spout member having a cylindrical body with a diameter slightly less than the diameter of said perforation, said spout member being assembled with said nozzle, with said cylindrical body and perforation in slideable relation, a bead formed on one end of said spout member and extending outwardly from said body for a shorter distance than the depth of said notch, whereby said bead will prevent said spout from falling into said container through said perforation but will leave a portion of said notch open for the escape of air while said container is being filled through said spout, said body being formed at its other end with a laterally extending surface having a greater width than the depth

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of said notch, whereby said notch will be closed when said laterally extending surface is brought into engagement with said shelf.

3. In spout construction, a nozzle formed of light weight sheet metal material in the form of an inverted cup, means at the mouth of said cup for engagement with the stock of a container wall around an opening therein, internal and external screw threads formed in the side wall of said cup whereby a closure member may be screw-threadedly engaged with the exterior of said cup and a pouring member may be threadedly engaged with the interior thereof, said side wall being tapered inwardly at the end of said cup remote from said securing portion and the material of said side wall being returned within the same in an inwardly inclined collar, said inwardly inclined collar terminating in an inwardly flanged shelf, said shelf being formed with a notch extending from its periphery to substantially the joinder of such shelf with said collar.

4. In spout construction, a nozzle formed as a sheet metal cup-shaped member, formed with interiorly extending threads in its side wall, one end of said nozzle being formed with a perforation therethrough of reduced diameter with respect to the diameter of said side wall, said perforation being bordered by a seat, said seat having a portion extending directly downwardly from the upper end of said nozzle and having a portion extending inwardly from said downwardly extending por-

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tion and in a plane at right angles to the axis of said nozzle, a retractable sheet metal spout member having a cylindrical body portion of slightly less diameter than said perforation, said spout member being assembled with said nozzle with the major part of the body of said spout member slidably received in said perforation, the remainder of the body of said spout member being integrally formed into a radially extending enlargement, extending upwardly from the bottom end of said spout, said enlargement being formed with screw threads mated to the interior screw threads formed in said nozzle, and an integrally abrupt, radially extending shoulder connect the main body of said spout with said enlarged portion thereof, whereby said spout may be drawn upward and maintained in rigid position with said shoulder engaging the undersurface of said inwardly extending portion of said seat and with said spout threads and said nozzle threads interengaged.

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