

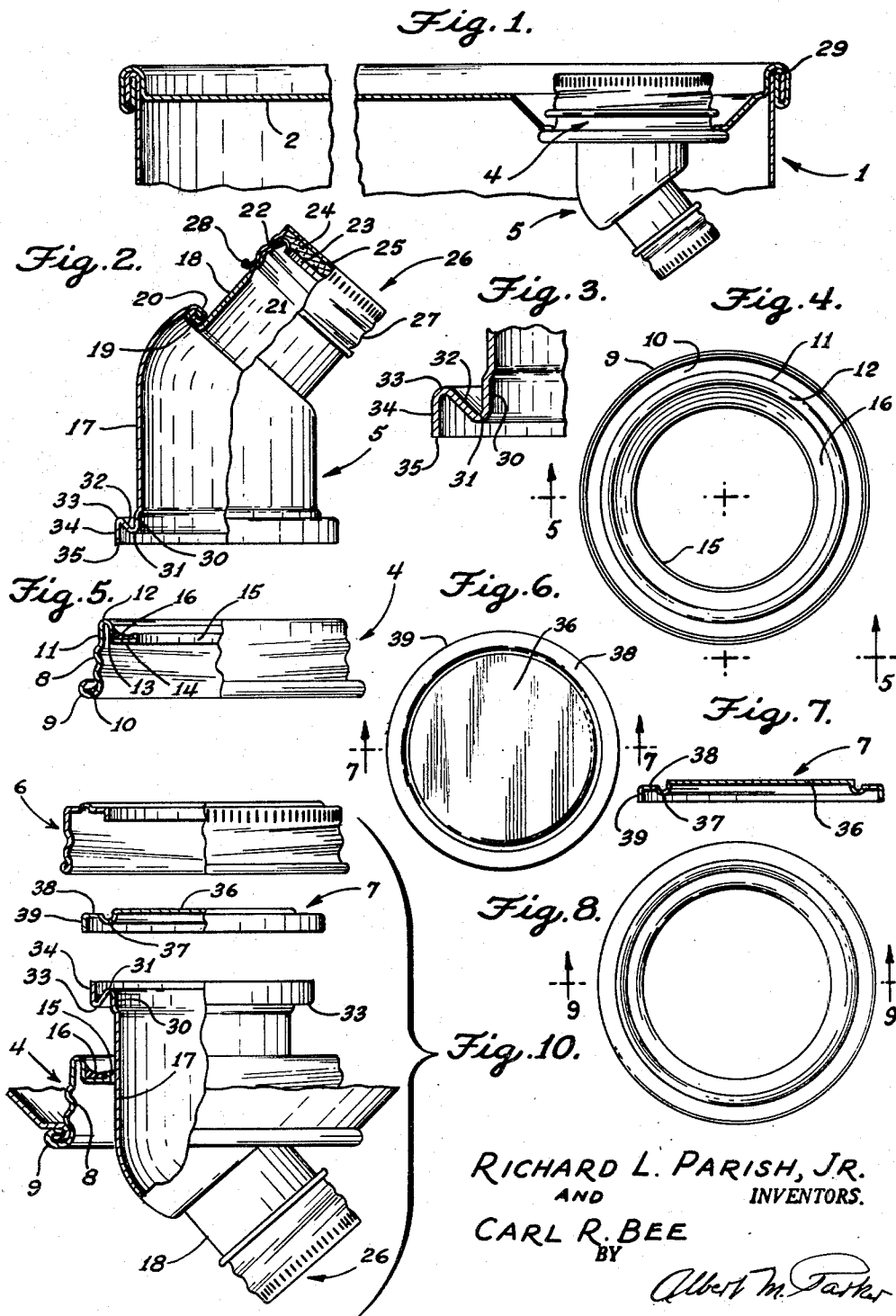
Aug. 2, 1960

R. L. PARISH, JR., ET AL
CLOSURE AND REVERSIBLE SPOUT
ASSEMBLIES FOR CONTAINERS

2,947,453

Filed April 19, 1956

2 Sheets-Sheet 1



RICHARD L. PARISH, JR.
AND
INVENTORS.

CARL R. BEE
BY

Albert M. Parker
ATTORNEY.

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Fig. 9.

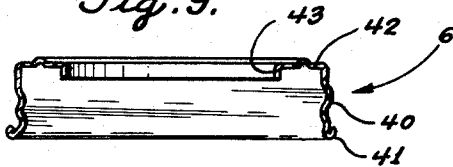


Fig. 12.

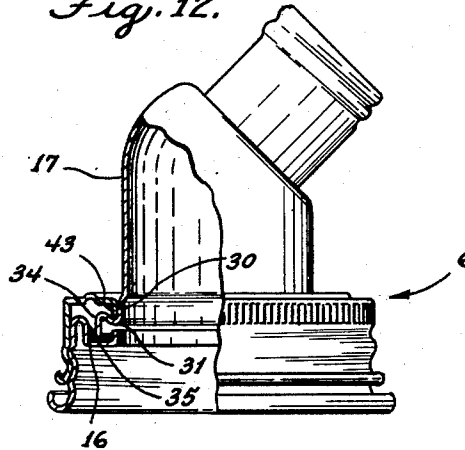


Fig. 11.

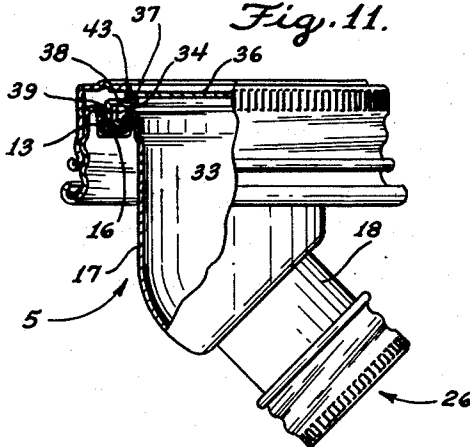


Fig. 13.

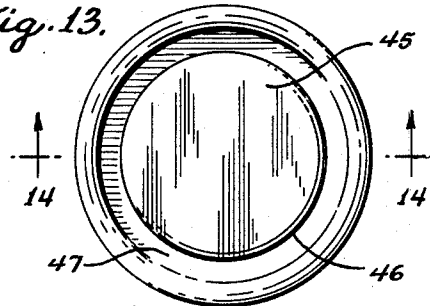


Fig. 14.

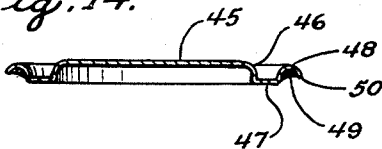


Fig. 15.

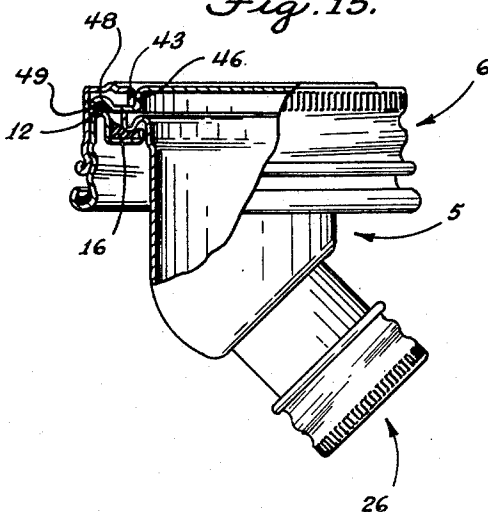
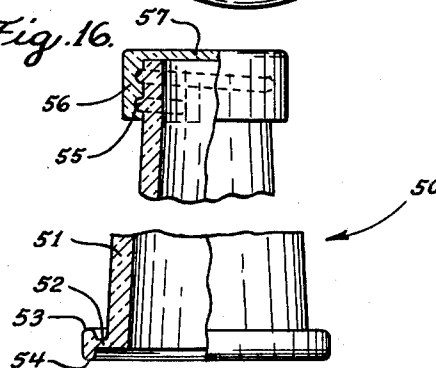


Fig. 16.



RICHARD L. PARISH, JR.
AND
CARL R. BEE
INVENTORS.
BY

Albert M. Parker
ATTORNEY.

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CLOSURE AND REVERSIBLE SPOUT ASSEMBLIES FOR CONTAINERS

Richard L. Parish, Jr., North Salem, N.Y., and Carl R. Bee, Warren, Ohio, assignors to American Flange & Manufacturing Co., Inc., New York, N.Y., a corporation of Delaware

Filed Apr. 19, 1956, Ser. No. 579,180

8 Claims. (Cl. 222—539)

This invention relates to spout constructions for containers and is particularly concerned with spouts, and nozzles for mounting the same, for facilitating the carrying of the spout and the forming of a tight closure when in transit, and for supporting the spout in reversed extended rigid position, for pouring.

The principal object of this invention is to provide for reversible spouts and nozzles for mounting the same about a container wall opening, where all the requirements for effective closing during transit or storage and for effective pouring, are met in simple and economical manner.

Another object is to provide spout and nozzle combinations wherein the same gasketing serves to prevent leakage, whether the spout be extended for pouring or reversed for storage.

Another object is to provide unitary structure for effectively closing the container with the spout inverted therein and for rigidly mounting the spout for pouring.

Still another object is to provide for quick filling of the container.

A further object is to form nozzles and screw caps therefor, capable of rigidly mounting a spout in inverted storage or extended pouring positions, but which nozzles and screw caps will also form a tight closure whether or not the spout be present.

A still further object is to accomplish the foregoing with a minimum of parts related in a simple and self-explanatory manner and capable of suggesting the proper utilization thereof to any recipient of the container.

Further and more detailed objects will in part be 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 vertical section of a fragment of a container, including the head thereof, illustrating the application of the spout and nozzle of the invention thereto, with the spout in inverted position for shipment or storage.

Fig. 2 is a side elevation, partly in section, of the spout per se in extended position.

Fig. 3 is an enlarged fragmentary section of a portion of the skirt, around the base of the spout, showing the particular formation thereof.

Fig. 4 is a top plan view of a nozzle in accordance with the invention.

Fig. 5 is an elevation of the nozzle, partly in section, taken on lines 5—5 of Fig. 4 and looking in the direction of the arrows.

Fig. 6 is a top plan view of one form of closure and instruction disc.

Fig. 7 is a section thereof taken on lines 7—7 of Fig. 6.

Fig. 8 is a top plan view of a screw cap in accordance with the invention.

Fig. 9 is a vertical section thereof, taken on lines 9—9 of Fig. 8 and looking in the direction of the arrows.

Fig. 10 is an exploded view, partly in elevation and

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partly in section, of a fragment of container wall stock with a nozzle secured thereto as in Fig. 1 and illustrating the positional relationship of the spout, instruction disc and screw cap therefor with the spout in inverted position.

Fig. 11 is an elevation, partly broken away and shown in section, of the parts as shown in Fig. 10, assembled in closed position.

Fig. 12 is a reverse view showing the spout in extended pouring position.

Fig. 13 is a plan view of a modified form of instruction disc.

Fig. 14 is a vertical section thereof, taken on lines 13—13 of Fig. 11 and looking in the direction of the

arrows.

Fig. 15 is a view similar to Fig. 11, with the instruction disc of Fig. 13 replacing that of Fig. 6; and

Fig. 16 is an elevation, partly broken away and shown in section, of a modified form of spout construction capable of use with the nozzle of the invention.

Considering the construction of the invention in detail, wherein like parts are given like reference characters, the container 1, as shown in Fig. 1, is provided with a head 2 suitably formed at 3 for the securement thereto of the bordering element for the opening and for mounting the spout, which element is generally indicated at 4 and is known in the trade as a "nozzle." Such nozzle is formed to receive the spout, generally indicated at 5. The opening through the nozzle may be closed against leakage, whether or not the spout is present, by means of a screw cap 6 and the closing or instruction disc 7.

Considering first the construction of the nozzle 4, it will be seen it is preferably a sheet metal member, though it may be made of other suitable material and generally takes the form of an inverted cup. Around the bottom of the side wall 8 thereof, the nozzle 4 is formed with an upwardly and outwardly turned clinching or securing ring 9. This ring, prior to application to the container wall, forms an upwardly opening channel on the base of which an annular gasket 10 is seated. This gasket is preferably composed of gasketing material of a nature that can be applied in a fluid state and which will set to the proper composition and resilience for gasketing purposes. It may, however, be a pre-formed gasket which is merely seated in place in the channel.

The side wall 8 of the nozzle is generally cylindrical and is threaded throughout the major portion of its height by working the metal into a thread formation which provides proper threads on both its inner and outer sides. Above the threaded portion the side wall 8 terminates in a small upwardly extending cylindrical section 11 which is turned inwardly in a bead form at 12 and then is reversely bent downwardly in a small downwardly extending portion 13.

From the portion 13 the stock of the nozzle is bent directly inwardly in a ledge 14, which terminates in a short upwardly extending annular lip 15. This formation of the ledge 14, bordered on one side by the downturned portion 13 and the other by the lip 15, provides an upwardly opening annular channel for the reception and retention of an annular gasket 16. Again the gasket 16 is preferably applied by running the gasketing material into the channel in fluid state and allowing it to set into the gasketing condition for which it is intended. When applied this way the gasketing material flows throughout the channel and, while conforming itself thereto, seats itself therein in a manner to retain itself on its seat, though it is subjected to engagement at different positions and different manners by the various parts of the spout and instruction disc.

The reversible spout 5 has a generally cylindrical body 17 which may, if desired, be merely a straight cylinder

or a section of a cone. As here shown, however, it terminates at its upper end in an inclined mouth lying in a plane at an angle with respect to the axis of the cylindrical body. This provides for the securement thereto of an obliquely directed cylindrical extension 18, which is seamed at 19 to the material 20, bordering such mouth. The extension 18, as here shown, is generally cylindrical, is screw threaded at 21, adjacent its outer end, and is beaded inwardly at 22, at that end, in an annular rim around the pouring opening 23. The bead 22 provides for the effective sealing reception of a gasket 24 lying within the base 25 of a screw cap generally indicated at 26.

From the periphery of its base 25, the screw cap 26 extends down in a generally cylindrical side wall 27, formed with screw threads to mate with the screw threads 21 at the end of the extension 18. The free end of the side wall 27 is preferably beaded or otherwise formed over the member 28 in order to stiffen or reinforce it. The oblique extension 18 enables the contents of the container to be poured past the chime 29 of the container. Also it enables the spout to be used as a rest, during the pouring of the contents of the container. This form of spout body, with oblique extension, is generally referred to as being of the offset type.

At its end, remote from the extension 18, the spout body 17 is integrally formed into a special base which performs a variety of functions. First there may be a short outwardly offset portion 30, of a slightly greater diameter than that of the body 17. The portion 30, or the side wall of the body 17 in the event there is no offset portion 30, terminates in a downwardly extending rounded annular bead 31, from whence the stock is inclined upwardly and outwardly at 32 into an upwardly extending rounded bead 33. From the bead 33 the base terminates in a straight downturned sleeve portion 34, having a straight end face 35.

Referring to Figs. 10, 11 and 12, it will be seen that the body portion 17 of the spout slides freely in the nozzle opening bordered by the lip 15. Thus when the spout is to be assembled with the nozzle in inverted position for shipping purposes, it is merely necessary to apply the screw cap 26 to the end of the portion 18, insert that end in the opening bordered by the lip 15 and let the spout drop down. When an enlarged portion 30 is used and it reaches the lip 15, it will fit within the opening therethrough but may do so relatively snugly so that it will need a light push to seat the spout down all the way. When this is done the bead 33 will seat down on to the gasket 16 to form a leakproof joint therewith.

The securing of the spout in inverted position and the completion of the closure is effected by the application of the instruction and sealing disc 7, followed by the application of the screw cap 6. The disc is circular in outline, has a raised center circular portion 36 bordered by a downwardly concaved annular channel 37. Outwardly of the channel 37 the disc extends into an upwardly formed portion 38, continuing outwardly from the channel 37 and lying in a plane below that of the top 36. The portion 38 terminates in a short downturned cylindrical collar portion 39.

Reverting now to Fig. 11, it is seen that when the spout 5 is seated in fully retracted position and the disc 7 is in place, the center portion 36 of the disc will overlie the opening through the spout body 17, the portion 38 will overlie the end face 35 of the sleeve portion 34 of the spout and will engage therewith, while the collar 39 will extend down between the sleeve portion 34 of the spout and the downturned portion 13 of the nozzle in a light press fit with that portion 13. The end face of the collar 39 seats down on, or into, the gasket 16.

Effective seating and retaining of the spout and disc, in the assembled position just indicated, is effected by the application of the screw cap 6 thereover. This screw

cap, or ring, has a generally cylindrical threaded side wall 40 which mates with the threaded formation of the nozzle wall 8. The side wall 40 is beaded or otherwise formed around, at its lower end 41, to stiffen it. At its opposite end the wall 40 is returned in the form of a ledge 42 which may have an intermediate corrugation to stiffen it.

The inner end of this ledge terminates in a downturned collar 43 bordering an opening through the screw cap dimensioned to receive the raised center portion 36 of the instruction disc. Thus, as seen in Fig. 11, on the application of the screw cap 6 and tightening the same down over a nozzle to which a spout and disc have already been applied, the screw cap received the portion 36 up in the opening therethrough and the downturned collar 43, being properly dimensioned therefor, seats in the channel 37 of the disc. The screwing down of the screw cap pushes the disc 7 downwardly, thus pushing the beaded rim 33 of the spout on to the gasket 16 as well as forcing the collar 39 of the disc down along the side wall 13 of the nozzle and into engagement with the gasket 16 carried by the nozzle. Preferably the collar 43 and the border of the raised portion 36 are dimensioned to form a friction fit so that the disc will be removed as the screw cap is removed. It can then be pushed out of the screw cap by simple hand pressure.

The engagement of the collar 39 with the gasket is an additional safeguard which is not needed so long as the screw cap 26 has been properly applied to the extension 18 of the spout. Proper application of that cap with its gasket 24 will prevent any leakage up through the spout while the gasketing at 16 precludes leakage between the spout and the nozzle. Should either of the cap 26 or the spout 5 fail to form a tight joint with their respective seats, assurance against leakage is provided by the engagement of the portion 39 with the gasket 16.

The seating of the spout in pouring position first calls for it being removed from the opening and reversed into the Fig. 12 position. Here, again, it will be seen that the end face 35 on the sleeve 34 at the base of the spout, seats down on to the gasket 16 so that leakage between the spout and the nozzle is precluded. The spout is effectively held in this position by the application of the screw cap 6 after the disc 7 has been removed therefrom.

Here the collar 43 performs other important functions. Not only does the end face of the collar 43 seat in the channel formed by the downturned bead 31, around the flange base, but the opening through the collar is dimensioned to snugly receive the outer surface of the offset portion 30 of the spout when that offset is present. Thus when the screw cap is seated over the spout in its extended position and the cap is screwed home, it not only holds the spout in leakproof engagement with the gasket 16, but it also holds it rigid and in upright position through the engagement of the portions 30 and 43. Hence the spout can be used as a rest while pouring, without disturbing the tight seal at the gasket 16. For pouring purposes, of course, the small screw cap 26 is removed. In the absence of the offset at 30 the collar 43 holds the spout rigid principally by having its end face forced against the incline between the bead 31 and the reverse bend at the beginning of the sleeve 34.

An alternate form of sealing and instruction disc is shown at Figs. 13 and 14. Here the disc has a raised circular center portion 45, which is turned down at 46 into a flat annular shelf 47. Outward of the shelf 47 the disc turns upwardly again into an upwardly rounded annular beaded portion 48. The channel on the underside of the portion 48 is filled with gasketing material 49, preferably flowed into place therein. The disc terminates in the marginal edge 50 forming the outer border of the gasket channel.

This disc seats in place on the nozzle and over the spout in a somewhat different manner from the disc 7

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of the form of Figs. 1 to 11. The structure of the nozzle is just the same as in those figures, but the provision of the outwardly extending channel formed by the beaded portion 48 enables the gasket 49 to seat down on the rounded bead 12 formed at the upper end of the nozzle. Thus if any liquid should leak by the gasket 16, or past the cap 26, and up through the spout 5, it would be prevented from escaping any further by the seal made by the additional gasket 49 on the bead 12.

The disc as here shown is held down tightly over the nozzle by the screw cap 6 and is also properly aligned axially with respect to the axis of the nozzle. This results from the downturned collar 43 of the screw cap making a close fit with the downturned surface 46 between the top 45 and the ledge 47 of the disc.

An alternative form of spout for use with the nozzles, screw caps, etc., is generally illustrated at 50 in Fig. 16. In this instance the spout is shown as straight rather than offset and formed of a plastic of sufficient resilience to be self-gasketing. Polyethylene is an illustrative though not a limiting example of such a plastic. The spout body is shown as a right section of a cone having a side wall 51 of substantial thickness though the thickness here shown is somewhat exaggerated for the purposes of illustration. The wall thickness would be such as would be needed for the forming of an effective spout out of the particular plastic selected. On its lower, larger end the spout body is formed with an outwardly extending collar commencing in a reduced section 52 and terminating in an enlarged section providing upwardly and downwardly extending annular beads 53 and 54.

The size and shape of the spout body 50 is such and the sections 52 and 53 and 54 are so dimensioned that the spout can be effectively seated in either the extended position, as shown in Fig. 12, or in the inverted position of Figs. 11 and 15. If in extended position the bead 54 will seat on the gasket 16. The end face of the collar 43 of the screw cap will seat down on the upper surface of the section 52 and the inner face of the collar 43 will engage the outer surface of the spout to retain its rigidity.

In inverted position the bead 53 of the spout will engage the gasket 16 and will be held down on that seat by the ledge portion 38 of the disc 7, or the portion 47 of the disc 45, as the case may be. In fact the gasket 16 can, if desired, be eliminated in this instance, so long as the material has the self-gasketing characteristics of polyethylene.

The outer end of the spout body 51 has integrally formed threads 55 extending outwardly therefrom for engagement with mated recesses in the side wall 56 of the integral screw cap 57. This screw cap, if made of self-gasketing material like the spout, will gasket against the end of the spout and will make a liquid-tight joint therewith.

From the foregoing description of the structure and operation of the spout assembly of the invention, it is apparent that the objects claimed therefor are fully achieved and that the spout introduces improvements in the art, going well beyond anything heretofore contemplated. It will be apparent, however, that though several embodiments of the invention have been shown and described, the invention is not necessarily limited thereby but encompasses, also, such other embodiments as might suggest themselves to one skilled in the art. It is accordingly to be understood that the foregoing description of the invention, taken in conjunction with the accompanying drawing, is to be construed in an illustrative sense.

Having described our invention, what we claim is new and seek to obtain Letters Patent for is:

1. A reversible pouring spout for containers, which comprises an elongated hollow sheet metal spout body formed with a pouring end and a mounting end, said mounting end including an outwardly offset portion adjacent the end of said body, said end continuing from said

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offset portion into a downwardly extending annular bead, and said end continuing from said downwardly extending bead into an upwardly extending annular bead, said end terminating in a downwardly extending cylindrical portion terminating in a free end face.

2. In container closure constructions, a screw cap composed of a generally cylindrical body having a cylindrical side wall with a screw threaded formation imparted thereto, the upper end of said body extending inwardly in an annular shelf portion and said shelf portion terminating in a downturned cylindrical collar surrounding the opening through said screw cap, the cylinder of said collar being concentric with respect to the cylinder of said side wall and said collar terminating in a free end face lying in a plane extending at right angles to the axis of said cylinders, whereby a spout having an outer surface of substantially the same diameter as the inner surface of said collar and having an outwardly extending flange at the base thereof with an annular channel formed in said flange and bordering said outer surface of said spout will be held in rigid position by the engagement of said inner surface of said collar with said outer surface of said spout and by the seating of said free end face of said collar in said channel.

3. In container closure constructions, a closure disc formed of a disc-like element of lightweight sheet material, said disc-like element being formed with a center raised circular portion, an outwardly extending ledge around said raised portion, the portion of said ledge, where the same joins with said center raised portion, being formed downwardly to provide an upwardly opening annular channel, said ledge extending radially outwardly from said channel, said ledge and said channel being at a lower level than the level of said raised portion, said ledge terminating in a downwardly extending lip, said channel being formed for the reception of the end of a collar extending downwardly from a screw cap and said downwardly extending lip being formed to seat into an annular gasket on the downward forcing of said disc by the application of said screw cap thereto.

4. A container closure comprising a nozzle, a screw cap and a closing disc, said nozzle being formed of lightweight sheet material with screw threads in the side wall thereof, and having an inwardly extending ledge adjacent its upper end, a gasket secured in place on said ledge, said screw cap having a side wall formed with screw threads for mated engagement with the exterior of said side wall of said nozzle, said screw cap being formed with a downwardly extending annular collar inwardly spaced with respect to the side wall thereof, said closing disc being formed with a bordering edge portion for engagement with said gasket on said nozzle and a channel portion for reception by said collar of said screw cap, said screw cap, disc and nozzle being assembled with said disc mated with said screw cap and said edge of said disc engaging said gasket to provide a leakproof joint.

5. A container closure comprising a nozzle, a screw cap and a closing disc, said nozzle being formed of lightweight sheet material with screw threads in the side wall thereof, and having an upwardly extending bead at its upper end, the side wall of said nozzle being formed with screw threads, a screw cap having a side wall formed with screw threads for mated engagement with the exterior of said side wall of said nozzle, said screw cap being formed with a downwardly extending annular collar inwardly spaced with respect to the side wall thereof, said closing disc being formed with a downwardly facing peripheral channel mated to said bead on said nozzle, a gasket secured in said channel and said disc having a portion for reception by said collar of said screw cap, said screw cap, disc and nozzle being assembled with said disc mated with said screw cap and said gasket carried by said disc engaging said bead on said nozzle to provide a leakproof joint.

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6. In reversible spout and nozzle constructions, a nozzle and a spout, said nozzle formed as a generally cylindrical member having the upper end thereof turned inwardly to form an annular shelf, a gasket secured on said shelf, said spout formed as a hollow elongated member having a body portion with a pouring end and a mounting end, said body portion being slideably receivable within the inner periphery of said shelf of said nozzle and said mounting end of said spout being formed with concentric annular beads, one of said beads extending downwardly with respect to the length of the spout and the other extending upwardly with respect thereto, said beads lying in an annular zone within the width of the zone of said gasket on said nozzle, whereby said spout may be seated in reverse positions with respect to said nozzle, with one of said beads engaging said gasket to form a leakproof joint.

7. In reversible spout and nozzle constructions, a nozzle and a spout, said nozzle formed as a generally cylindrical member having the upper end thereof turned inwardly to form an annular shelf, a gasket secured on said shelf, said spout formed as a hollow elongated member having a body portion with a pouring end and a mounting end, said body portion being slideably receivable within the inner periphery of said shelf of said nozzle and said mounting end of said spout being formed with radially spaced concentric annular beads, one of said beads being directed downwardly with respect to the length of the spout and the other being directed upwardly with respect thereto, said beads lying in an annular zone within the width of the annular zone of said gasket on said nozzle, whereby said spout may be seated in reverse positions with respect to said nozzle, with one of said beads engaging said gasket to form a leakproof joint.

8. In reversible spout constructions, a nozzle, a spout

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and a screw cap, said nozzle formed as a generally cylindrical screw threaded member having the upper end thereof turned inwardly to form an annular shelf, a gasket secured on said shelf, said spout formed as a hollow elongated member having a body portion with a pouring end and a mounting end, said body portion being slideably receivable within the inner periphery of said shelf of said nozzle and said mounting end of said spout being formed with radially spaced concentric annular engaging faces extending outwardly from said cylindrical portion, one of said faces extending downward with respect to the length of the spout and the other extending upward with respect thereto, said faces lying in an annular zone within the width of the zone of said annular gasket on said nozzle, a screw cap having an outer side wall formed for threaded engagement with said nozzle and having an inner concentric cylindrical lip terminating in an engaging end, said end being dimensioned to engage the outer surface of said mounting end of said spout, whereby said spout may be seated in reverse positions with respect to said nozzle, with one of said engaging faces engaging said gasket to form a leakproof joint and, in extended position, be held rigidly in place by said screw cap.

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