

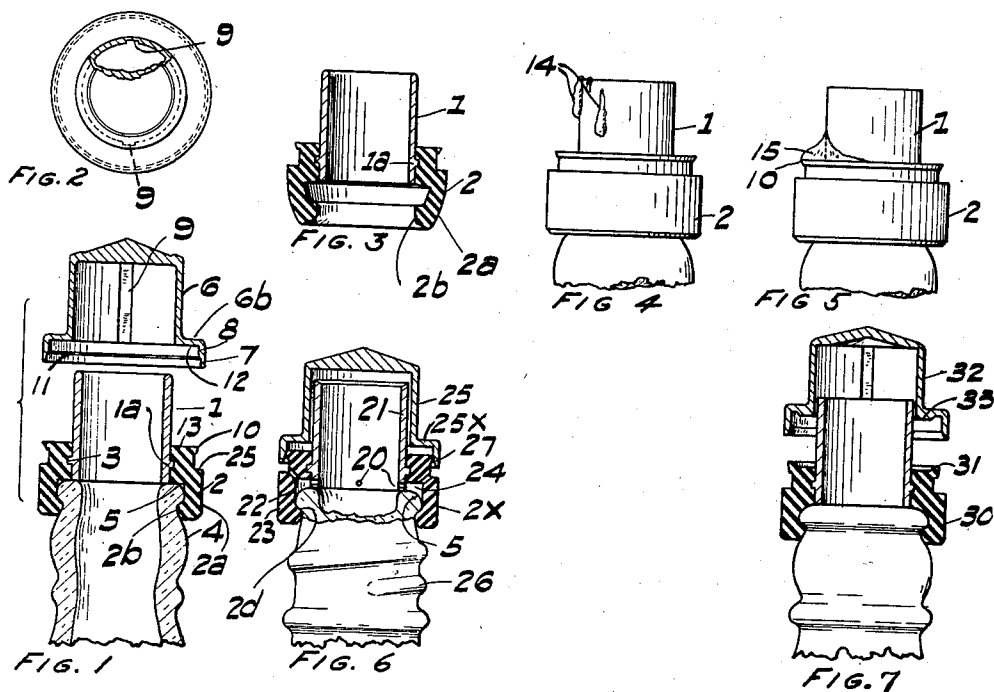
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SANITARY CLOSURE FOR RECEPTACLES CONTAINING POURABLE SUBSTANCES

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SANITARY CLOSURE FOR RECEPTACLES  
CONTAINING POURABLE SUBSTANCES

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This invention pertains to a closure construction applicable to bottles or jars and the like, and capable of forming an air tight seal for such containers and possessing the further advantage of being readily applied and removed, and of furnishing an efficient means, of returning to the container any liquid which may remain outside of the mouth portion of the container after pouring liquid therefrom, such means including a pocket or recess where such exteriorly located liquid portion will be temporarily entrapped; in any case the liquid drippage being prevented from adhering to the exterior surface of the container after the closure means provided therefor have been replaced after a pouring operation.

More specifically the invention pertains to the combination, with the closure element proper of a novel elastic gasket applicable externally to the mouth portion or neck of the discharge portion of the container and of a cap member fittable externally around both said gasket and said mouth or neck portion of the container.

A further object of the invention is to combine with other improved features, a gasket having an edge portion so shaped as, to cooperate with the liquid surface tension of the substances to be entrapped to arrest to a considerable extent back flow of liquid thereover after a pouring operation.

Other objects of the invention are to provide a removable and replaceable bottle closure means which includes a rubber or elastic element arranged to compensate for variations in size and inequalities of manufactured closures and containers; to provide a gasket construction which not only efficiently holds the closure in its applied position but forms a better air tight seal; to more readily adapt the closure to different sizes and types of containers; and to provide a construction wherein the closure is better adapted to be semi-permanently sealed to a container with a minimum of expense and time.

Other objects, advantages and features of invention will hereinafter appear.

Referring to the accompanying drawing, which illustrates what are at present deemed to be preferred embodiments of the invention:

Fig. 1 is a vertical mid section through the closure means and upper or neck portion of the container, the cap being shown slightly detached in the position it assumes when about to be applied.

Fig. 2 is a top plan view of the cap shown in Fig. 1, an upper portion thereof being broken

away in order to show its interior construction more clearly.

Fig. 3 is a vertical mid section showing in their assembled relation, the closure sleeve and gasket of Fig. 1. Because of its detached condition, the lower portion of the gasket has contracted.

Fig. 4 is a side elevation of the structures shown in Fig. 3, a fragment of the upper portion of the bottle neck being included in the view and some residue clinging thereto.

Fig. 5 is a reproduction of the showing of Fig. 4 except that a portion of the liquid drippage or overflow, which has accumulated after one or more pouring operations, is included in the view.

Fig. 6 is a vertical mid section of a modification showing the closure means in the applied position except that the cap is not quite seated. The bottle neck is of the screw type and all except its mouth portion is shown in elevation.

In Fig. 7 still another form of gasket and cap is shown. In this view a fragment of the bottle neck is shown in elevation and the remaining parts are shown in vertical mid section.

Referring in detail to the drawing, the elastic combined gasket and coupling member 2 shown in Figs. 1, 3, 4 and 5 is furnished with an internal annular groove 3 which receives with a liquid tight grip the tubular pouring spout 1, said spout having an external annular bead or rib 1a over which the grooved portion 3 of the annular member 2 fits. The container 4 is formed with the standard arcuate crown bead 5 which is used on beer bottles, pop bottles, ketchup bottles, syrup bottles and other bottles for analogous uses.

Below its groove 3 the annular coupling member 2 is furnished with an expansible skirt 2a having a contracted mouth portion or internal lip or bead 2b which is rounded, as viewed in cross section, thus adapting said skirt portion of the annular member 2 to fit around the mouth portion of the container in an efficient, liquid tight manner. From Fig. 3 it will be seen that in its normal, detached condition the mouth portion of the skirt 2a of the elastic member 2 is contracted to a considerable less internal diameter than the external diameter of the beaded portion of the bottle neck to which it is shown applied in Fig. 1, hence aforesaid efficient close fit is secured.

The cap 6 is furnished with a diametrically expanded base portion 6b which has a larger internal diameter 7 at its mouth and a smaller internal diameter 8 farther from its mouth. Said larger diameter 7 barely contacts around rubber

bead 10 of member 2 as the cap 6 is applied, but diameter 8 forms a good tight fit when it contacts around said bead. There is a tapered shoulder 11 between the diameters 7 and 8, and as this shoulder slips over the beveled edge of bead 10 said bead snaps inside the diametrically reduced portion 8. A fair amount of force must be applied to cap 6 to make it snap into place as stated, but when said cap is thus fully applied it jumps down into place with its horizontal portion 12 abutting firmly against the flat top surface 13 with which the annular member 2 is provided, and with its lower edge snugly engaging the upper surface of gasket shoulder 25. This snapping action insures the complete seating of cap 6 and this in turn insures the removal of the maximum amount of residue from surface 13 and the exterior surface of neck 1. The cap 6 has a greater diameter than the outside diameter of the neck 1 which it surrounds and is provided with internal longitudinal grooves 9 to form additional passages for liquid residue adhering exteriorly to the neck 1 after a pouring operation.

As shown in Fig. 4, after pouring liquid drops 14 may remain exteriorly upon the neck or pouring spout 1, but these drops tend to run down and form a collection of the residue at 15 without running down over the sharp, annular shoulder 10. This is due to surface tension of the liquid, and may also be seen when a glass is filled so full of water that the water stands above its sides, but yet does not run over. The sharper the upper, outside edge of the shoulder 10, the more efficiently said shoulder will thus retain the liquid. An advantage is secured by using rubber, which may be molded to a sharper edge than is possible when glass is used.

In Fig. 6 is shown a vented type of bottle closure construction wherein the pouring spout 21 has a plurality of vent holes 20 near its lower end and the annular coupling member 2x has a plurality of ports 22 therethrough at the juncture of its skirt 23 and body portion. Aside from said ports 22 the annular members 2 and 2x are shown identical except that the skirt portion of the latter member is longer than that of the former thus leaving an annular space 24 above the upper end of the bottle neck 26 after the member 2x has been applied. When the cap 25 of this modification is applied air compressed in the bottle neck 26 finds its way out through aforesaid passages 20 and 22. Liquid carried out through the ports 20 by the escaping air is caught in the space 24 where it remains until the member 2x is removed for transference to another bottle. Then the member 2x is washed thereby removing the residue from it. The lower expanded portion 25x of the cap 25 is internally beveled at 27, being in this particular a modification of the cap first described, and aiding in the quick application of the cap. No snapping action occurs when the cap 25 is applied.

As shown in Figs. 1 and 6, when the device is applied to a bottle neck, the internal beads 2b and 2d undergird closely the standard crown bead 5 which surrounds the mouth portion of each bottle shown.

In Fig. 1 the top surface of the gasket forms, in conjunction with the spout, an annular barrier, and the sharp peripheral bead 10 around the upper end of said barrier with the beveled surface below it, assists the action of the liquid's surface tension in preventing overflow of liquid entrapped. Said bead cooperates with the

greater and lesser diameters of the skirt portion of the cap which envelops the bead with increasing stages of tightness. As the annular bead 10 passes across the beveled shoulder 11 the bead is deflected outwardly and as the cap is forced farther down to the completely closed position of the cap the bead assumes its original shape by snapping into place giving an additional impetus to the liquid being forced back into the bottle.

The various rubber gaskets shown take care of the irregularities in bottle neck contours and in the mouth portions of other glass containers to which the coupling means afforded by this invention are applicable, these irregularities necessarily resulting from present methods of glass manufacture.

The annular surfaces of the tops of the elastic coupling members shown in the views thus far described form barriers in conjunction with the spout members (1 and 21) to obstruct residual overflow after a pouring operation. When either of these caps is applied to the spout the clearance between the outside of the spout and the inside of the cap permits the residual overflow to accommodate itself to said annular space. As the cap is more fully applied, the depending skirt thereof engages the angular shoulder of the bead (10 in Fig. 1) thus entrapping overflow liquid. After this engagement takes place in the form shown in Fig. 6, as the cap is more fully applied, air is expelled outwardly through the ports 20 and vent 22, and the liquid thus entrapped is entrained back into the bottle.

In Fig. 7 the coupling ring 30 is made with an upstanding peripheral bead 31, said ring to be used when very thin liquids are to be poured from the containers to which it is applied. The further modified cap 32 has an annular, downwardly directed internal rise 33 shaped to conform to the dished upper surface of the ring 30.

It should be understood that the present disclosure is for the purpose of illustration only and that this invention includes all modifications and equivalents which fall within the scope of the subject matter claimed.

What is claimed is:

1. A composite closure comprising a cylindrical pouring spout, an elastic gasket-coupling ring secured to an end portion of said spout, said gasket-coupling having a depending skirt engageable in a liquid tight manner with the open end of a bottle, a portion of said ring serving to obstruct drippage gravitating down the outside of said spout after a pouring operation, an annular bead on said ring adjacent the liquid entrapping portion and cooperating with the surface tension of the substance entrapped to retard the further downflow of the liquid, and a cap having a liquid entrapping skirt of different diameters to envelop the beaded portion of said ring with different degrees of tightness during the stages of applying the cap to the bottle, there being clearance between the applied cap and the mouth of the spout thru which the residual liquid is conveyed from the liquid entrapping means to the container.

2. A detachable spout having an opening registrable with the bore of a bottle's neck, an elastic gasket coupling ring securing the end of said spout in an abutting relation with said neck with their openings in registry, said ring having a liquid entrapping surface circumscribing said spout, and said surface terminating in an annular bead having an undercut edge.

3. A detachable spout having an opening registrable with the bore of a bottle's neck, an elastic gasket coupling ring securing the end of said spout in an abutting relation with said neck with their openings in registry, said ring having a liquid entrapping surface circumscribing said spout, said surface terminating in an annular bead having an undercut edge, and a cap having a crown for enveloping said spout with a clearance between it and said cap at its sides and top, and a skirt having progressively diminishing diameters for successively engaging said bead with different degrees of tightness during the application of said cap.

4. A bottle having a neck, a tubular spout, an elastic combined gasket and coupling member joining said spout to said neck, a cap having parts enveloping said spout with clearance between them at all times during the cap's application and after it is fully applied, and additional parts provided by said cap for enveloping said gasket with different degrees of tightness during the application operation, the greater degree of tightness accompanying the complete application of the cap.

5. As an article of manufacture, a pouring neck comprising a tubular spout having an external annular bead, a combined elastic gasket coupling ring having an internal annular recess engaging said bead, said ring having a body portion which forms, in a spaced relation to the mouth of said spout an annular barrier, said barrier at its peripheral portion being undercut so as to provide a circumferential acute edge, and a skirt depending from said body portion expandible in a liquid tight manner about the mouth portion of a bottle.

6. As an article of manufacture, a pouring neck comprising a tubular spout having an external annular bead, and a combined elastic gasket coupling ring having an internal annular recess engaging said bead, said ring having a body portion which forms, in a spaced relation to the mouth of said spout, an annular barrier, said barrier at its peripheral portion being undercut so as to provide a circumferential acute edge, a skirt depending from said body portion expandible in a liquid tight manner about the mouth portion of a bottle and a cap having a crown portion and a skirt portion for enveloping respectively said tubular spout and said barrier, there being a passageway at all times in the assembled article leading from said barrier to the mouth of said spout.

7. As an article of manufacture, a pouring neck comprising a tubular spout having an external annular bead, a combined elastic gasket coupling ring having an internal annular recess engaging said bead, said ring having a body portion which forms, in a spaced relation to the mouth of said spout, an annular barrier, said barrier at its peripheral portion being undercut so as to provide a circumferential acute edge, a skirt depending from said body portion expandible in a liquid tight manner about the mouth

portion of a bottle and a cap having a crown portion and a skirt portion for enveloping respectively said tubular spout and said barrier, there being a passageway at all times in the assembled article leading from said barrier to the mouth of said spout, said skirt portion having a greater diameter at its mouth than at the base thereof.

8. In combination, a detachable bottle spout having an external bead therearound, and an elastic combined coupling ring and gasket having an internally grooved portion fitting over said bead with a liquid tight fit, said ring having a diametrically enlarged skirt furnished with an internal bead in a downwardly spaced relation to the top of said skirt, said bead being adapted to undergird the conventional bead around the mouth of a bottle neck when the device is applied to such neck, the length of said skirt being sufficient to produce an annular clearance between said spout and the upper portion of said skirt, there being vents through the wall of the inner end portion of said spout and other vents through said ring and communicating with said annular clearance.

9. The subject matter of claim 8 and, a cap which, when the device is applied to a bottle neck, is fittable over said spout in an air releasing relation thereto, said cap having an expanded inner end portion which is fittable closely around the exterior surface of the upper portion of said ring.

10. In combination, a detachable bottle spout, an elastic combined gasket and coupling ring gripping said spout in a spaced, adjacent relation to one of the ends of said spout, said ring having an expanded skirt portion which surrounds that end of said spout in a radially outward spaced relation thereto, there being vents through said spout within said skirt, there also being vents through said ring which communicate with the space between said skirt and spout, said skirt having a contracted lower end portion adapted to undergird the conventional bead around the mouth of a bottle's neck, said skirt being longer than the beaded portion of the conventional type of bottle to provide, when applied, the aforementioned annular space therewithin.

11. In a device of the kind described, a tubular spout forming an extension for the mouth of a container, an elastic gasket coupling securing the open end of said spout in an abutting relation with said container, said gasket having an annular barrier in spaced relation to the mouth of said spout, and a cap having parts fittable over the spout and barrier with a passageway at all times extending from the barrier to the inside of the container, said barrier and the part of said cap which encloses it being constructed in such a manner that during the final stage of fully applying the cap, a snap action is given to a portion of said barrier by the part of said cap engaged thereby.

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