May 7, 1968 T. H. McCLAIN ET AL 3,381,838

COMBINATION RECEPTACLE AND BOTTLE SEALING APPARATUS

Filed Oct. 5, 1966

Fig. 2

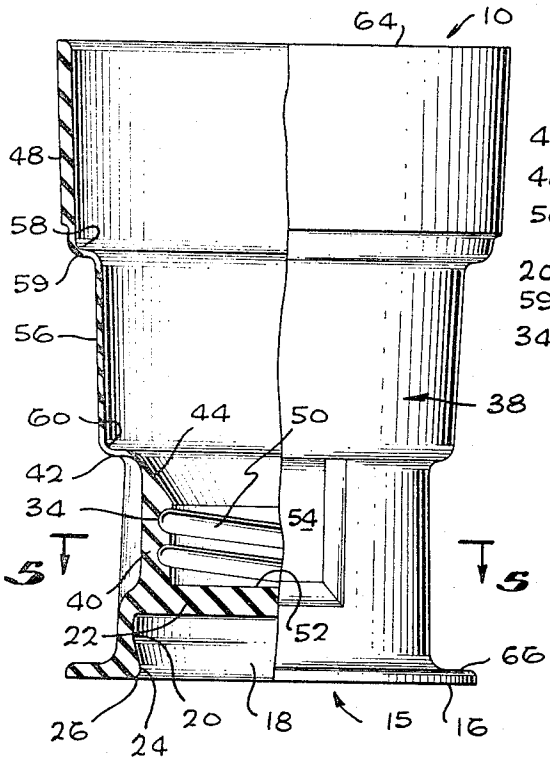


Fig. 3

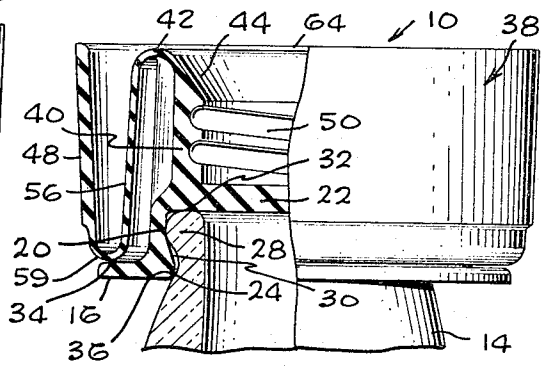
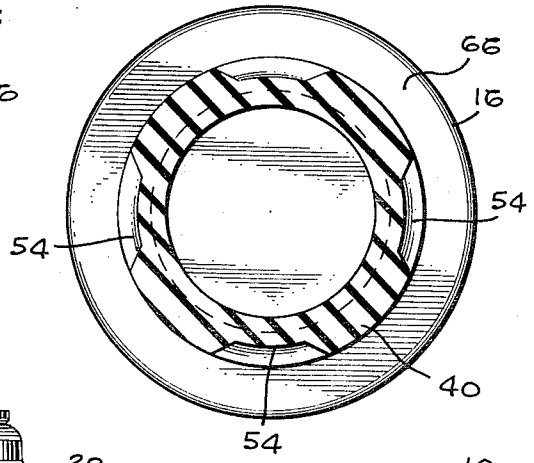


Fig. 5



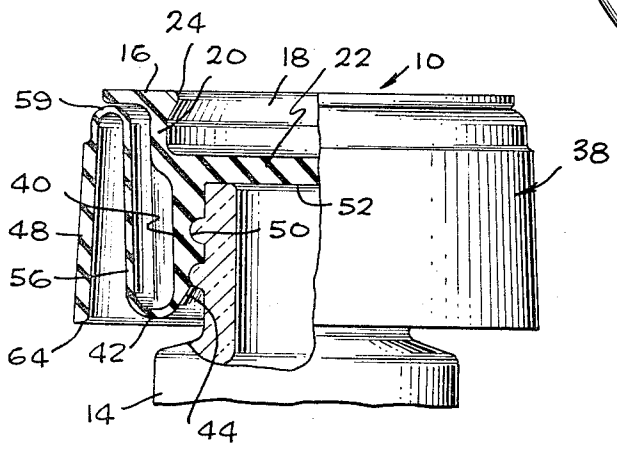
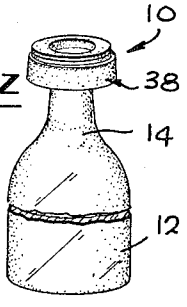


Fig. 4

Fig. 1



INVENTORS
THOMAS H. McCLAIN
CARL T. IGO
BY
Roger A. Marrs

United States Patent Office 3,381,838 Patented May 7, 1968

3,381,838

COMBINATION RECEPTACLE AND BOTTLE SEALING APPARATUS

Thomas H. McClain, 357 Knight Way, La Canada, Calif. 91011, and Carl T. Igo, 8342 Woodley Ave., Sepulveda, Calif. 91343

Filed Oct. 5, 1966, Ser. No. 584,384
13 Claims. (Cl. 215—41)

ABSTRACT OF THE DISCLOSURE

The combined drinking receptacle and bottle sealing apparatus disclosed herein provides a cylindrical base portion having a transverse member constituting the bottom of the receptacle. A flexible circular sidewall of tapering longitudinal cross-section is integrally formed at one end of the base portion and is adapted to fold on itself about the base portion in a series of coaxial convolutions and to unfold therefrom so as to provide a fluid vessel. The base portion is further provided with a socket means adapted to detachably accept and seal with the dispensing mouth of a bottle.

The present invention relates in general to a combination receptacle and bottle sealing apparatus and more particularly to an apparatus which is adapted to seal either bottles utilizing threaded sealing means or those sealed by compressible sealing caps, while concurrently providing a compact receptacle for receiving liquids.

In many instances, it becomes desirable, or necessary, to seal bottles of various common configurations before the contents thereof have been totally consumed. To this end, a wide variety of seals including spring biased, plunger type, and threadably engaging configurations have heretofore been proposed. These devices while permitting bottles to be sealed, do not accommodate a multiplicity of applications but are singularly restricted in use to a distinct variety of bottle.

In addition, each of these types of bottle seals requires the consumer to drink directly from the bottle itself unless a separate drinking container is available. Consequently, when it is desired to share the contents of the bottle, each consumer must, under the aforementioned circumstances, risk the possibility of germs and disease being transmitted by the bottle mouth. Under normal conditions, it is generally impractical and often impossible to cleanse the area of oral contact because of the lack of facilities. Consequently, the risk of germs being transmitted is correspondingly increased by the amount of individuals who desire to drink from the bottle.

The use of glasses and cups have heretofore been restricted in many every day life activities such as camping, picnics and outings as well as while driving in a car because of their bulk and the danger of their breaking, being crushed or getting lost. One attempt to develop a sealing cap and drinking vessel resides in the disclosure of U.S. Letters Patent 3,159,298 that set forth a closure cap including a frusto-conical body open at one end and closed at its other end. Near its closed end, the cap is provided with a screw thread molded on the inner curved surface thereof adapted to be coupled with mating screw threads carried on the outer extremity of the bottle neck. Supported from its closed end, there is provided a substantially rigid and non-collapsible skirt that encircles the bottle neck when the cap is coupled thereto so that the annular terminating end of the skirt couples in sealing relationship with the flared portion of the bottle where the body thereof merges with the neck. However, this prior device is totally unsuited for coupling with a bottle mouth intended to receive a cap of the compressible type.

The invention of the present application overcomes the

aforementioned disadvantages in that it permits the utilization of a drinking container adapted for varying utility having minimum bulk and weight while providing a design which is sturdy, economical to manufacture, and simple in its construction and operation. Perhaps more importantly, the subject invention permits the user to remove and cleanse the container after every usage, if desired, as well as to protect the bottle and consumer from possible chipped or sharp edges on the bottle mouth. A duality of sealing means is provided for attachment to common and/or conventional bottles which allows a much greater utilization of purpose. A collapsible and telescoping relation between the wall sections of the sealing means also acts to absorb shocks when the apparatus is in the retracted position and thereby affords greater protection against breakage. The novel unitary construction of the receptacle wall when in the retracted or folded position acts as a cushion and therefore functions cooperatively with the sealing means to resist detachment.

The problems and difficulties encountered with conventional bottle seals and drinking containers are obviated by the present invention which provides, in one embodiment thereof, a novel apparatus having a central portion integrally formed with a collapsible and foldable unitary side wall adapted to coaxially extend in either of two directions to provide a receptacle for a drinking vessel with the central portion serving as the vessel bottom. One side of the central portion is provided with means for sealingly engaging with a bottle requiring a compressible fit while the other side of the central portion is provided with means for sealingly engaging a bottle requiring a screw thread fit. A feature of the invention resides in the fact that the side wall portions provide a series of spaced apart rings about the central portion when the side wall is folded or collapsed.

Therefore, it is a primary object of the present invention to provide a novel drinking vessel apparatus having a telescoping unitary side wall with a threadably engaging sealing means disposed about the bottom of a receptacle portion and having a discrete compressible sealing means located adjacent the base of the receptacle.

It is another object of the present invention to provide a novel dual bottle sealing means in combination with a drinking receptacle having a unitary extendable side wall.

Another object is to provide a combination receptacle and dual sealing means for attachment to conventional bottles and which is compact, economical to manufacture and is of simple construction.

Still another object is to provide a combination receptacle and dual bottle sealing means wherein the retracted side wall acts in cooperative relation to the sealing portion so as to resist detachment from the bottle.

Another object is to provide a combination receptacle and dual sealing means of unitary construction which is simple to clean and which may be attached to both types of conventional bottles.

The foregoing objects, advantages, features and results of the present invention, together with various other objects, advantages, features and results thereof which will be evident to those skilled in the art in the light of this disclosure, may be attained with the exemplary embodiment of the invention described in detail hereinafter and illustrated in the accompanying drawings, in which:

FIGURE 1 is a perspective view of the novel combination receptacle and bottle sealing means of the present invention shown as being in the retracted position and installed on a conventional bottle;

FIGURE 2 is an enlarged view, partially sectionalized of the combination receptacle and bottle sealing means and illustrating the dual sealing means;

FIGURE 3 is an enlarged view of the combination

receptacle and bottle sealing means shown in FIGURE 1 and illustrating a portion thereof broken away to expose the compressive sealing means and associated bottle neck and being in the retracted position;

FIGURE 4 is an enlarged view of the combination receptacle and bottle sealing means shown in FIGURE 1 and illustrating a portion thereof broken away to expose the threaded sealing means and associated bottle neck and being in the retracted position; and

FIGURE 5 is an enlarged cross-sectional view taken in the direction of arrows 5—5 of FIGURE 2 and illustrating the plurality of finger engaging grooves disposed about the periphery of the receptacle wall.

Referring to FIGURE 1, the novel combination receptacle and bottle sealing apparatus of the present invention is illustrated in the general direction of arrow **10** and is shown as being detachably secured in its retracted position to a conventional bottle **12** having a neck portion **14**. The apparatus of the present invention, when in the retracted position, affords easier storage and the inherent cushioning effect of the configuration acts to prevent detachment as well as breakage of the bottle **12** due to external forces.

FIGURE 2 illustrates apparatus **10** detached from the bottle **12** and in its extended or unfolded position ready to be filled. The apparatus **10** includes a base portion indicated in the general direction of the arrow **15**. The base **15** has a flat annular flange **16** protruding about its periphery which serves to facilitate easier attachment and detachment from the bottle **12** as well as to support the present invention and its contents when in its extended position.

Interior of the flange **16**, a bottle receiving cavity **18** is defined by the wall **20** and the partition **22** extending transversely across the base **15**. The cavity **18** is adapted so as to receive the neck **14** of a conventional bottle and is constructed to be detachably secured to the bottle **12**. The wall **20** has a shoulder **24** of reduced diameter **12** having a conventional locking shoulder on its head and is placed thereon by pressure applied to the flange **16** such that it is bent downwardly and inwardly until the interior annular portion **24** of the flange **16** is forced beneath and into reliable engagement with the locking shoulder, as seen in FIGURE 3, as found on a conventional bottle.

Adjacent to the shoulder **24**, an edge **26** is beveled outwardly and by reason of a rounded lip **28** of the bottle **12**, thereby affords a free annular space **30** around the circumference of the bottle neck **14**. The annular space **30** acts to receive any suitable instrument for prying the flange **16** and to facilitate easier detachment and attachment. Under normal conditions, however, the force required for engagement or disengagement of the apparatus **10** from the bottle **12** would not require a prying action but would in the case of small children afford a distinct advantage.

As is best illustrated by FIGURE 3, the wall **20** and the partition **22**, when in compressible engagement with the neck **14** of bottle **12**, serves to seal the contents thereof at sealing points **32**, **34** and **36** and thereby prevent liquid from escaping through the connection. These plurality of sealing points act as redundant sealing means to assure a complete and pressure tight seal. It is to be noted that any extension or retraction of the apparatus **10** will not affect the seal since it is independent of the telescoping action thereof.

A collapsible side wall **38** of the present invention is comprised of a plurality of non-uniform annular and coaxial sections **48** and **56** which are of alternately rigid and flexible thicknesses but which comprise a unitary structure. The base portion **40** of the side wall **38** is fabricated of a substantially rigid cross section for which mold setting rubber of approximately 60 shore is suitable. Being rigid, the base section **40** is adapted so as to carry the weight of the upper portions of the side wall **38** as well as the contents of the apparatus **10**.

Interior the annular shoulder **42** and adjacent thereto lies a funnel **44** which is adapted to receive the neck **14** of a conventional bottle having a threadably engaged cap or seal as illustrated in FIGURE 4. The larger diameter of the funnel **44** permits the neck of the bottle to be guided or directed into engagement with the small diameter portion. The base portion **40** defining the funnel **44** is threaded as indicated by numeral **50** such that the bottle fits substantially flush against a wall surface **52** of the transverse partition **22**. The thickness of the base section **40** permits the apparatus **10** to be in rigid engagement with bottles having either the threaded sealing cap or the conventional locking shoulder.

A plurality of grooves **54** are disposed about the outer periphery of the base section **40** to facilitate easier handling of the apparatus. The thickness of the side wall **38** of the base section **40** adjacent the grooves **54** is sufficient so as to restrict the flexing or bowing of the container when being held as shown in FIGURE 5. The grooves **54** are tapered and of sufficient area so as to receive the width of a human finger.

Intermediate a pair of flexible shoulders **42** and **59** of the side wall **38**, is the reduced intermediate wall section **56**. Preferably the wall section **56** is of a slightly funnel shape rather than cylindrical to facilitate the required folding action. The shoulder **59** is therefore of slightly larger diameter than the shoulder **42**. The wall itself is fabricated from a material which affords a substantially rigid structure and which is flexible when comparatively thin material is employed. Such a material may be a mold setting rubber of approximately 60 shore. The shoulders **42** and **59** are chosen to be of sufficient thinness so as to permit the intermediate wall section **56** to be folded without sacrificing its ability to carry required loads.

The width of the shoulders **42** and **59** is a function of the material from which the wall **38** is fabricated. The horizontal or transverse annular areas **58** and **60** while permitting the intermediate wall section **56** to fold, cannot be so large as to permit the fluid resting thereon to overcome the resistance to folding afforded by the nature of the material itself.

The top wall section **48** is fabricated of a sufficient thickness so as to be substantially rigid. Similar to the intermediate wall section **56**, the top wall section is slightly funneled in shape from the shoulder **59** to the annular edge **64**. The flexibility of the intermediate wall section **56** permits the top wall section **48** to move in telescoping relation with respect to the base section **40** and the height of the wall sections is chosen such that the shoulder **59** rests on a shoulder **66** of the flange **16** when the container **10** is in the retracted position.

Therefore, it can be seen from the foregoing that the novel drinking vessel of the present invention includes a hollow base portion **40** having a central partition **22** extending transversely through the hollow base of the base portion which divides the base portion into a pair of coaxial sockets, each having a sealing means **24** and **50**, respectively, capable of accommodating a sealing detachable coupling with the bottle neck of either the threadable or compressive cap types. One sealing means of the pair includes an inwardly projecting annular rib or bead adapted to be removably placed on the bottle neck of the compressible type while the other sealing means includes internal thread turns adapted to mate with the threaded bottle neck of the threadable cap type. The flexible partition **22** disposed between the pair of sealing means serves as a common wall wherein one surface thereof functions as the bottom for a fluid receptacle formed from the telescoping sections **48** and **56** of the flexible side wall **38**.

By folding or collapsing the side wall **38**, a compact storage configuration is derived for the receptacle which

is readily carried on the neck of a bottle of either the compressible cap type or threadable cap type. The varying side wall thicknesses of the coaxial wall sections permit the receptacle to be folded and unfolded with relative ease. Although the extendable receptacle is shown to unfold from the recess having the threaded sealing means **50**, it is to be understood that annular flange **16** may be formed adjacent the opening to the recess having sealing means **50** while the receptacle is arranged to unfold from the base portion **40** so that the recess having the inwardly projecting lip may serve as the bottom of the drinking vessel.

While particular embodiments of the present invention have been shown and described, it will be obvious to those skilled in the art that changes and modifications may be made without departing from this invention in its broader aspects and, therefore, the aim in the appended claims is to cover all such changes and modifications as fall within the true spirit and scope of this invention.

What is claimed is:

1. A collapsible receptacle and bottle sealing apparatus comprising:

a receptacle having a cylindrical base portion and a flexible collapsible wall carried on said base portion adapted to unfold therefrom to an extended position to provide a drinking vessel and to retract about said base portion to a stored position;

said base portion including a transverse partition constituting the bottom of said receptacle and a pair of open recesses separated by said partition;

first bottle sealing means disposed within one of said recesses being adapted to receive and seal the mouth of a bottle of the compressive lip type; and

second bottle sealing means disposed within said other recess being adapted to receive and seal the mouth of a bottle of the threaded lip type.

2. A collapsible receptacle and bottle sealing apparatus as defined in claim **1** wherein said flexible wall comprises:

a first collapsible wall section adjacent with and flexibly connected to said base of said receptacle;

a second substantially rigid wall section flexibly connected to said first collapsible wall section; and

said first and said second wall sections being coaxially related whereby said first and said second wall sections move in telescoping relation with respect to said base via said flexible connections.

3. A collapsible receptacle and bottle sealing apparatus as defined in claim **1** wherein

said wall comprises at least one pair of coaxial rigid and collapsible wall sections of varying diameter which move in telescoping relationship to one another, said wall sections being connected by integral flexible connections of reduced thickness whereby said wall sections are disposed in alternate end-to-end relationship when extended and in alternate overlapping coaxial relationship when retracted.

4. A collapsible receptacle and bottle sealing apparatus as defined in claim **3** wherein

said base portion and said wall sections are characterized by dissimilar wall thicknesses with said base portion having the thickest wall dimension.

5. A collapsible receptacle and bottle sealing apparatus as defined in claim **4** wherein

said base portion, said wall and said first and said second sealing means are integrally formed to provide a unitary foldable structure.

6. A collapsible receptacle and bottle sealing apparatus as defined in claim **5** wherein

said collapsible wall includes an extreme end terminating in a beveled edge marginal region suitable for communicating with the mouth of a drinker consuming the fluid contents of said drinking vessel.

7. A collapsible receptacle and bottle sealing apparatus as defined in claim **1** including

a plurality of grooves formed about the external periphery of said base, said grooves being adapted to more easily facilitate the gripping of said receptacle.

8. A collapsible receptacle and bottle sealing apparatus as defined in claim **1** wherein

said first bottle sealing means comprises a threaded portion for detachable engagement to a bottle of the threaded lip type and wherein said second bottle sealing means comprises an annular lip at the opening of said recess for biased engagement with a bottle of the compressive lip type.

9. A collapsible receptacle and bottle sealing apparatus as defined in claim **1** wherein

said first bottle sealing means includes a funnel shaped opening formed in said base at the opening to said recess.

10. A collapsible receptacle and bottle sealing apparatus as defined in claim **1** including

an annular outwardly projecting flange integrally formed about said base and being disposed to limit the collapsing movement of said wall so that said stored wall takes the form of a plurality of annular telescoping convolutions coaxially related about said base.

11. A collapsible fluid receptacle and bottle sealing apparatus comprising:

a cylindrical base portion including a transverse member constituting the bottom of the receptacle;

a flexible circular side wall of tapering longitudinal cross-section integrally formed at one end to said base portion and being adapted to fold in itself about said base portion in a series of coaxial convolutions and to unfold therefrom so as to provide a fluid vessel; and

a socket portion formed in said base portion and defined by the circular wall thereof and said member and being adapted to detachably accept and seal with the dispensing mouth of a bottle.

12. A collapsible fluid receptacle and bottle sealing apparatus of claim **11** wherein

said socket portion includes a threaded coupling means and wherein the bottle mouth seats against said transverse member.

13. A collapsible fluid receptacle and bottle sealing apparatus of claim **11** wherein

said socket portion includes an inwardly projecting rounded lip and wherein the bottle mouth seats against said transverse member.

References Cited

UNITED STATES PATENTS

2,208,899	7/1940	Freeman	215—41
2,582,934	1/1952	Parsons	215—100
2,880,902	4/1959	Owsen.	

FOREIGN PATENTS

79,447	10/1962	France.
6,699	3/1909	Great Britain.
574,572	3/1958	Italy.

DONALD F. NORTON, *Primary Examiner.*