

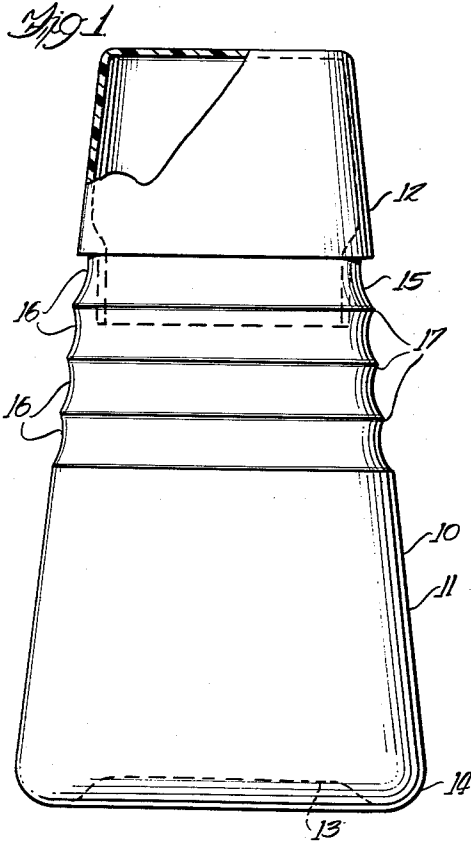
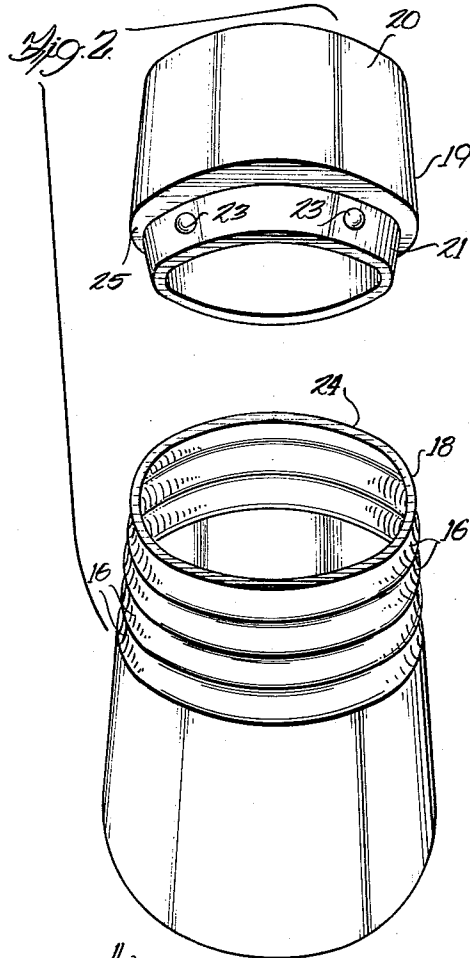
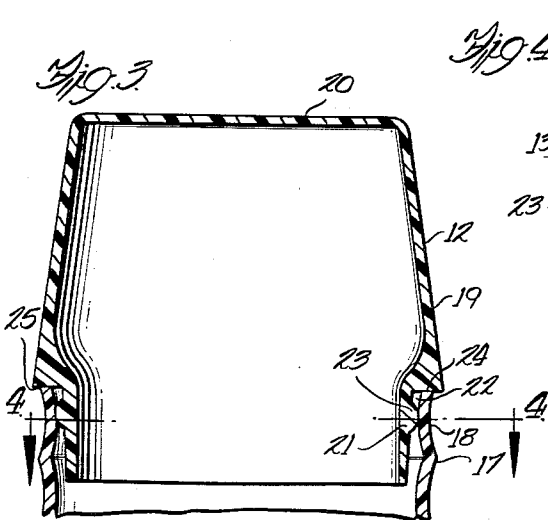
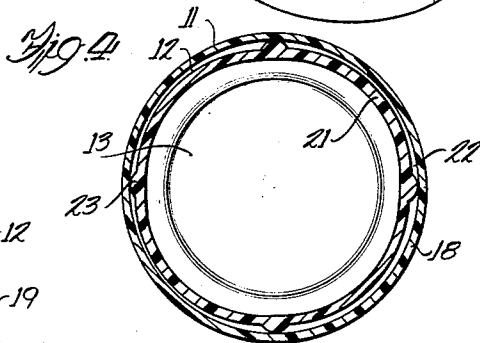
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CONTAINER

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1

3,118,562 CONTAINER

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This invention relates to a container, and more specifically, to a carafe and cup combination particularly suitable for use in hospitals and other institutions where extreme care must be taken to avoid the spread of contagious disease.

The serving of drinking water from a carafe has long been a problem in that the interior of the container, being dark and moist, is an excellent harbor for bacteria to multiply and infect the user. This is particularly true in hospitals where the user, the patient, requires a continual source of water near the bedside.

As a matter of convenience, the closure for a carafe is sometimes made in a fashion to serve as a drinking cup, thus eliminating the necessity of a separate drinking glass. Such a combination cup and carafe is continually exposed to the settling of minute particles of dust and lint, and other air-borne bacteria-carrying debris. It is easily seen that if this contamination settles on the lips of the carafe or of the cup then it is possible for it to be carried into the patient by the normal procedure of pouring and drinking, as well as being carried back into the carafe to multiply and contaminate the patient or the next user.

It is, therefore, a principal object of this invention to provide a carafe and cup combination which may be assembled to form an effective seal against contamination settling on either the lip of the carafe or the lip of the cup. Another object is to provide a carafe and cup which are inexpensive, unbreakable and capable of being easily cleaned and sterilized. A further object is to provide a combination in which the components may be easily separated, assembled and manipulated by patients and by other users.

Other objects will appear from the specification and drawings in which:

FIGURE 1 is a side elevational view of a container embodying the present invention, the cup component thereof being partially broken away to illustrate structural features thereof;

FIGURE 2 is an exploded perspective view of the carafe and cup combination;

FIGURE 3 is an enlarged broken vertical sectional view illustrating the inverted cup supported upon the mouth of the carafe;

FIGURE 4 is a horizontal sectional view taken along line 4-4 of FIGURE 3.

In the embodiment of the invention illustrated in the drawings, the numeral 10 generally designates a container comprising a carafe 11 and a cup 12. Both components are preferably formed of plastic materials which are flexible but not stretchable to any appreciable extent such as, for example, polypropylene or polyethylene. Polypropylene is particularly suitable because it is capable of withstanding the elevated temperatures of heat or steam sterilization. However, other plastic materials having lower melting points but having other properties similar to polypropylene may be used where gas sterilization is to be practiced or where the containers are to be incinerated following use.

As shown most clearly in FIGURE 1, the container 10 is generally frusto-conical in shape, as are the components from which it is formed. The bottom surface 13 of the carafe is concave (when viewed from beneath) and merges smoothly with the frusto-conical side surfaces of the carafe along rounded edges or corners 14. Because

2

of its frusto-conical shape and the concave bottom construction of the carafe, the container is extremely stable and, when subjected to lateral impact, will tend to slide rather than tip upon a table surface. Also, the particular configuration of the container, and the fact that each of its parts may be blow molded in one piece, results in the avoidance of sharp crevices or cracks on the interior of the container which might otherwise harbor bacteria and make the unit difficult to clean.

The neck portion 15 of the carafe is provided with a series of four annular and concentric depressions 16 separated by annular ribs or ridges 17. The size and location of the annular depressions are such that they greatly facilitate the secure gripping of the carafe by a user. Also, since the depressions 16 are located near the mouth 18 of the carafe, the carafe may be handled more easily by weak patients or by patients with small hands.

Cup 12, shown in inverted condition in FIGURES 1 through 3, is also frusto-conical in shape, having tapered side walls 19 and a flat end wall 20. As shown most clearly in FIGURE 3, the cup is provided adjacent its open end with a sleeve portion 21. The sleeve portion has its outer surface tapering gradually towards the cup's open end and has an external diameter sufficiently smaller than the carafe to form an annular space 22 therebetween when the parts are assembled. In FIGURE 3 it will be seen that the circumferential spacing 22 extends the full axial extent of sleeve 21. Along the outer surface of the sleeve are a plurality of circumferentially spaced projections 23 and the rounded surfaces of these projections or knobs bear against the inner surface of the carafe adjacent the mouth thereof. Since a circle circumscribing the outer limits of these projections is larger than the inner dimensions of the carafe's mouth, the projections urge the side wall of the carafe outwardly as the inverted cup is fitted in place. While the plastic of the container is flexible it is substantially non-stretchable; therefore, as the parts are urged together the application of outward forces at spaced points about the mouth of the carafe causes a slight quadrangulation of that mouth. Similarly, the inward forces directed against the sleeve of the cup at each of the projections or knobs 23 causes the sleeve to flex inwardly in the vicinity of those knobs, thereby producing an opposing quadrangulation of the sleeve.

Referring to FIGURE 4, it will be observed that when the parts are assembled both the sleeve of the cup and the mouth of the carafe are out of round. Annular space 22 has its greatest radial dimensions immediately adjacent each of the projections 23, such dimensions gradually decreasing and reaching their smallest value intermediate the projections. It is at these intermediate points between the spaced projections 23 that the wall of the sleeve 21 is forced outwardly to its greatest extent and the mouth of the container is forced inwardly to its greatest extent. As soon as the parts are separated, both the mouth of the container and the sleeve of the cup return to their original un-flexed state, both the mouth and the sleeve normally being of circular cross section.

From the above, it is believed apparent that a secure frictional connection is achieved between the cup and carafe and this connection is obtained even though there should be slight differences or irregularities in the wall thickness of either of the parts, such irregularities occurring as a result of the blow molding of the container or other techniques for producing the same. Despite the presence of an annular space 22 beneath the connected parts, the sleeve of the cup and the lip or upper edge 24 at the mouth of the carafe are fully protected against contamination when the container is assembled.

Since the maximum external diameter of sleeve 21 is

3

substantially less than the maximum external diameter of the cup's side wall 19, an annular shoulder 25 is formed therebetween. This shoulder is carefully formed to engage the entire lip 24 of the carafe when the parts are assembled, even though the mouth portion of the carafe is slightly radially deformed because of the outward force exerted by projections or knobs 23. In addition to being coplanar with the lip or upper edge 24 of the carafe, shoulder 25 substantially overhangs that lip, as shown most clearly in FIGURES 1 and 3.

When the container is to be used, a patient or an attendant simply removes the inverted cup from the mouth of the carafe and pours the water or other liquid from the carafe into the upright cup. During the pouring operation, the liquid will necessarily flow over the lip 24 of the carafe but, since the lip has been protected against contamination by the overhanging shoulder 25 of the cup, such contact does not result in the contamination of the liquid. Similarly, the sleeve portion 21 of the cup and the lip extending around the open end thereof are not exposed to contaminating external agents until the parts are separated. When the carafe and cup are assembled as illustrated in FIGURES 1 and 3, the sterilized internal surface of the parts, the lip 24 of the carafe, and the sleeve and lip of the cup are fully protected against contamination by dust, lint and other airborne bacteria-carrying agents.

While in the foregoing I have disclosed an embodiment of the invention in considerable detail for purposes of illustration, it is to be understood by those skilled in the art that many of these details may be varied without departing from the spirit and scope of the invention.

I claim:

1. A carafe and cup combination comprising a carafe having an open mouth at the upper end thereof, a cup having a sleeve portion of reduced external diameter adjacent the open end thereof for insertion into the mouth of said carafe when said cup is inverted, said sleeve portion having an external diameter substantially smaller than the internal diameter of said mouth to define an annular space between said sleeve and said mouth when the parts are assembled, said cup being provided with a plurality of circumferentially-spaced projections along the outer surface of said sleeve portion, said projections being engageable with the inner surface of said mouth for frictionally holding the carafe and cup together, said cup having a shoulder adapted to engage and extend laterally and substantially beyond the upper edge of said mouth when said cup is inverted and fitted upon said carafe, said cup when inverted and fitted upon said carafe

4

having the sleeve portion thereof below said projections spaced inwardly of said carafe and out of contact with the side wall thereof.

2. The structure of claim 1 in which said carafe is provided with a series of annular external depressions adjacent the mouth thereof to provide finger-gripping surfaces.

3. The structure of claim 1 in which said sleeve portion tapers gradually towards the open end of said cup.

4. A two-part container formed from a flexible but substantially non-stretchable plastic material comprising a carafe and a closure therefor, said carafe having an upper mouth terminating in a flat upper surface portion, said closure comprising a cup having a sleeve portion of reduced diameter adjacent the open end thereof, said sleeve portion being receivable within the mouth of said carafe and having an external diameter sufficiently smaller than the internal diameter of the mouth of said carafe to define an annular space therebetween, a series of circumferentially-spaced projections provided by one of said parts in said annular space and being of a size greater than the radial dimensions of said space to flex portions of the sleeve and mouth in opposite radial directions, said cup also having a shoulder resting upon the upper surface portion of said mouth and extending laterally a substantial distance beyond said mouth, said cup when inverted and fitted upon said carafe having the sleeve portion thereof below said projections spaced inwardly of said carafe and out of contact with the side wall thereof, whereby, said cup when inverted and fitted upon said carafe is frictionally held in place thereon and protects the mouth of said carafe and said sleeve portion against contamination, the mutually engaging surfaces of said shoulder and mouth being generally parallel with the directions of flexure of the parts when the same are assembled and disassembled.

5. The structure of claim 4 in which said carafe and said cup are of frusto-conical configuration.

References Cited in the file of this patent

UNITED STATES PATENTS

2,706,065	Stone	Apr. 12, 1955
2,717,619	Whitman	Sept. 13, 1955
2,849,144	Southwell	Aug. 26, 1958
2,941,562	Ripin	June 21, 1960
2,950,813	Koones	Aug. 30, 1960
2,961,128	Cochran	Nov. 22, 1960
2,987,212	Scanlon	June 6, 1961
2,998,896	Miller	Sept. 5, 1961