United States Patent

[11] 3,624,788

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[45] Patented **Nov. 30, 1971**

[54] **DISPOSABLE LIQUID SERVING SYSTEM**
8 Claims, 7 Drawing Figs.

[52] **U.S. Cl.** ..... **220/94 R,** 220/85 H, 229/1.5 H, 294/27 H, 294/32, 215/100 A
[51] **Int. Cl.** **B65d 25/28**
[50] **Field of Search** ..... 215/100 A; 220/85 D, 85 H, 94 R; 294/27 H, 29, 32, 33; 222/465; 229/1.5 H

[56] **References Cited**

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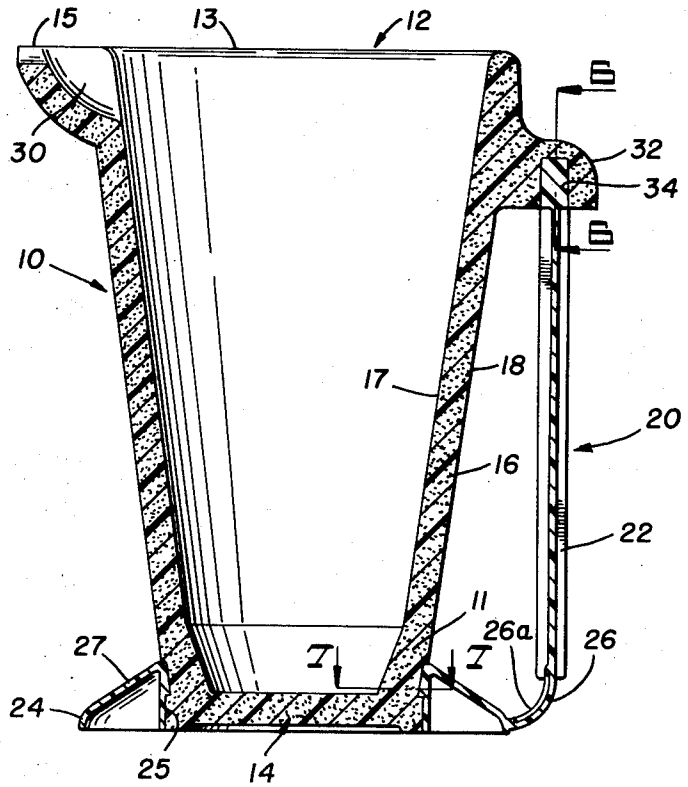
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Assistant Examiner—Stephen Marcus
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ABSTRACT: A disposable carafe comprises a container of cellular plastic material, such as expanded polystyrene, in combination with a detachable handle of higher density, easily moldable plastic material. The container is tapered from an open top to a closed bottom such that it will nest with other similarly designed containers for purposes of storing and/or shipping. The handle is a one-piece, injection molded member having a base into which is fitted the bottom of the container. A thin, flexible or bendable hinge section extends from the base to an elongated, stiffened, gripping portion. The end of the gripping portion is adapted to connect with a lug which extends from the container near the top thereof.



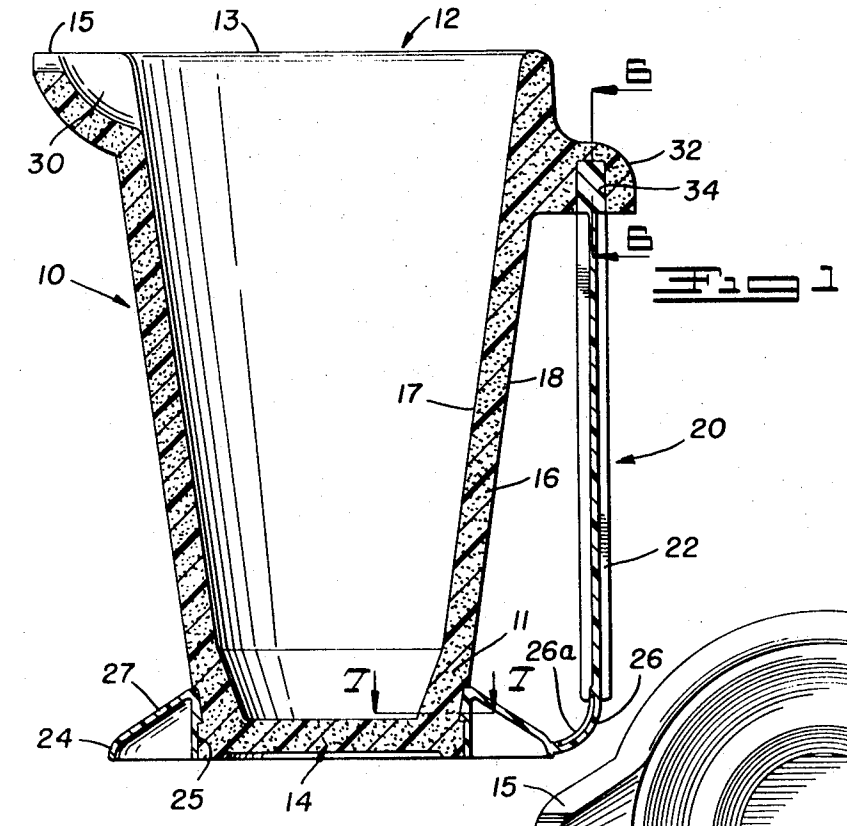


Fig 1

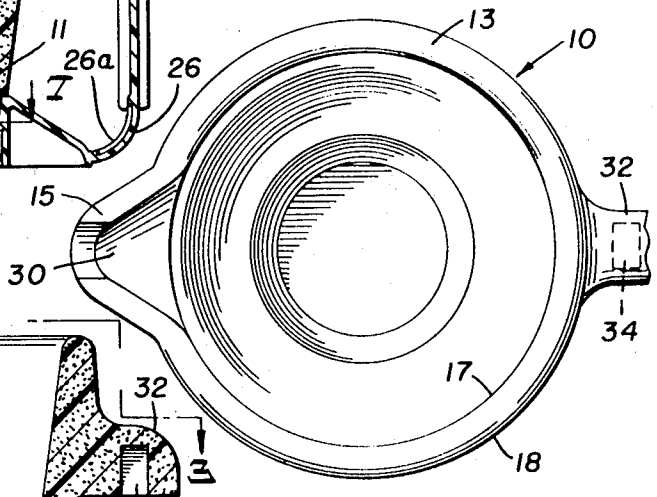


Fig 3

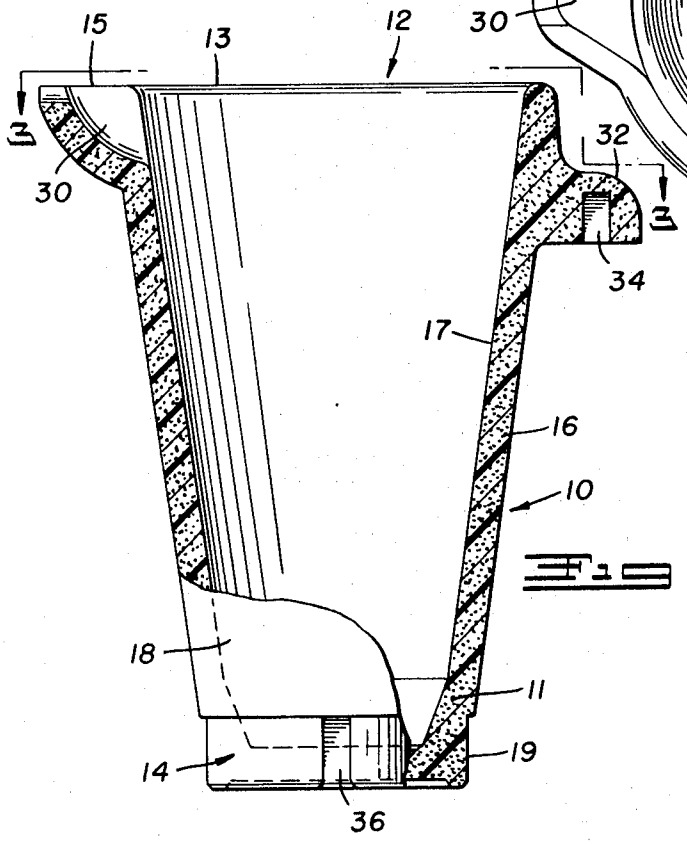


Fig 2

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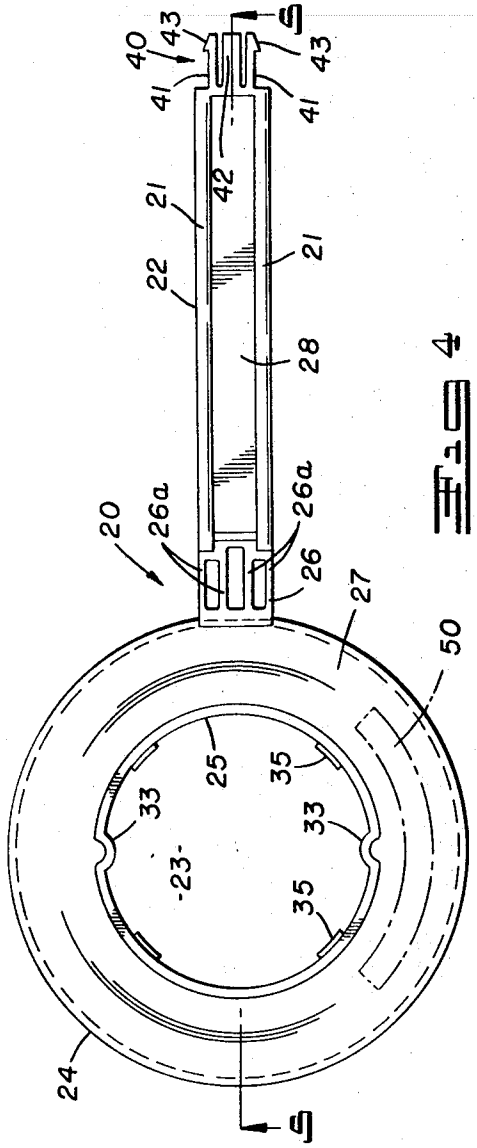


FIG 4

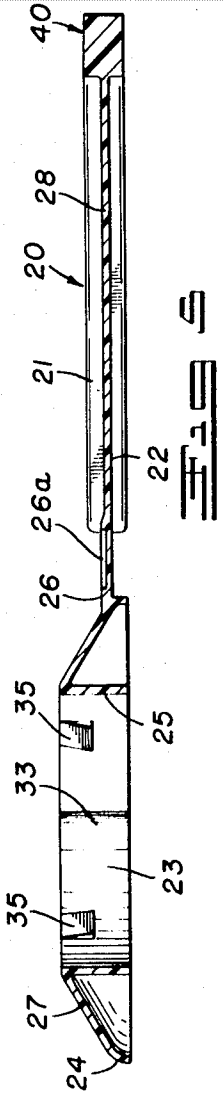


FIG 5

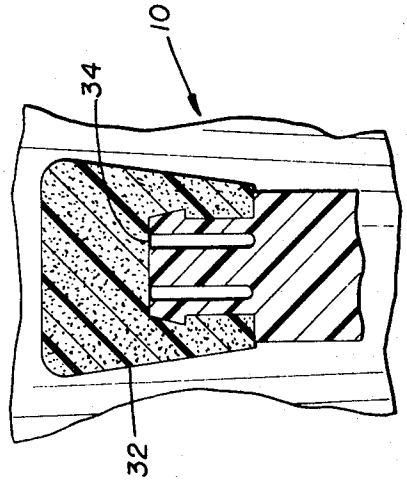


FIG 6

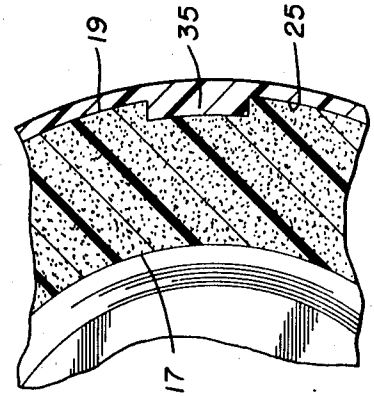


FIG 7

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DISPOSABLE LIQUID SERVING SYSTEM

BACKGROUND OF THE INVENTION

The invention relates to liquid decanters or carafes, and particularly to carafes which are disposable.

Much of the equipment now used in hospitals, nursing homes and the like is disposable. The salubrious reasoning behind using such equipment is basically that chances of cross-infection are minimized when equipment which comes into contact with one individual is destroyed or disposed of before coming into contact with a second individual. Nondisposable equipment can, of course, be thoroughly cleaned during, and sterilized after, each contact with, or use by, a given individual. This requirement obviously adds to hospital operating expenses and is time consuming. Therefore, disposable articles are also usually attractive from the standpoint of cost and convenience.

Bedside articles are good examples of day to day equipment which require the hygienic considerations mentioned. Hospitals, nursing homes and other similar institutions normally provide each patient with a bedside carafe or decanter from which the patient may obtain liquid refreshment when desired. Many different styles of carafes are used for this purpose which are disposable or nondisposable.

In the past, stainless steel carafes were the most widely used and continue to be popular because they are sturdy, easily cleaned and sterilized, and can be made to possess satisfactory insulation properties. These carafes are, however, relatively expensive to manufacture and require the frequent, usually daily cleaning and sterilization mentioned previously.

Lower cost, rigid plastic carafes are becoming increasingly popular. These plastic carafes are generally "blow" molded or "injection" molded articles and are either "thin" gauge or "heavy" gauge depending upon whether they are to be disposable or nondisposable. The thin gauge plastic carafes are usually considered disposable with the intent to avoid the costs and inconvenience of frequent cleaning and sterilization. However, these thin gauge containers are notably poor insulators. While the thicker or heavier gauge plastic containers are generally better insulators, higher manufacturing costs make single patient use and disposability questionable. In choosing between two nondisposable carafes, one plastic and one stainless steel, hospitals invariably will select the latter.

In addition, both thin and thick rigid plastic carafes of this type gradually develop a scum-like layer on the inner surfaces thereof after only a short period of use. This may be due to the characteristically higher surface area of plastic articles when compared to metallic or glass articles. This scum harbors bacteria and is difficult to remove. Thus, the plastic carafes possibly require more frequent and sometimes more difficult cleaning operations than their stainless steel counterparts.

The above disadvantages attributable to plastic carafes have been overcome to some degree by recently designed carafes which are composed of expanded polystyrene. A carafe of this type is disclosed in U.S. Pat. No. 3,362,590. These carafes are lightweight, clean, odorless, fungus or scum-free, inexpensive and possess good insulation properties. With these characteristics evident, hospitals and the like are beginning to change to these carafes. Use of expanded polystyrene carafes is generally on a single-patient basis. In other words, a carafe is assigned to a patient upon his arrival at the hospital and upon his leaving, the carafe is destroyed or the patient is free to take it with him.

A disadvantage common to all the aforementioned disposable-type carafes yet to be rectified is their inconvenient and cumbersome designs. All known designs are difficult and expensive to handle from shipping and storage standpoints. For example, the blow-molded plastic carafe mentioned above features a bottom portion which is unusually larger than its open top. A blow molded plastic carafe, therefore, cannot nest in other similar-type structures. This increases shipping bulk, adding additional costs. Also, a quantity of these carafes will present the purchaser with storage problems. While an injection molded, thin gauge plastic carafe can be manufactured with a top tapering toward the bottom, it is normally not nestable because of its integrally connected handle. Similar disadvantages exists with regard to expanded polystyrene carafes. In order that the price remain attractive enough to consider disposability, these carafes are normally made with integral handles which restrict nestability. Because of added costs in shipping and storage, the disposability of such carafes becomes less attractive.

It can be seen that a need exists for a disposable carafe which is inexpensively made, conveniently shipped and stored, remains clean and relatively germ free and keeps contained liquids hot or cold.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a carafe which is inexpensive to manufacture, convenient to ship and/or store, sanitary, insulated and disposable.

It is another object of the present invention to provide an improved, disposable carafe particularly designed to substantially reduce associated shipping costs and storage problems.

It is a further object of the present invention to provide an improved, inexpensive carafe which consists of two conveniently attachable and detachable parts.

The foregoing objects as well as others to become evident in the following description are achieved by a two part carafe comprising a cellular plastic, tapered container member and a higher density, easily moldable plastic handle member. The container member features a short projecting connector lug near the open top thereof into which one end of the handle member is secured. The bottom of the container telescopically registers into an opening in an appropriately designed base portion at the other end of the handle member. The carafe is thus shipped and stored in an unassembled condition and assembled at the time it is to be used.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is illustrated in a preferred form in the accompanying drawings in which:

FIG. 1 is a sectioned elevation view of a carafe assembly according to the present invention which is assembled and ready for use.

FIG. 2 is a partially sectioned elevation of the container member of the carafe assembly according to the present invention.

FIG. 3 is a view taken along lines 3—3 in FIG. 2.

FIG. 4 is a plan view of the handle member of the carafe assembly.

FIG. 5 is a sectional view taken along lines 5—5 of FIG. 4.

FIG. 6 is an enlarged view taken along lines 6—6 in FIG. 1 with parts omitted and shown in section.

FIG. 7 is an enlarged view taken along lines 7—7 in FIG. 2 with certain parts omitted and others shown in section.

DETAILED DESCRIPTION

For a better understanding of the invention and the advantages attendant thereto, reference is made to the accompanying drawings which illustrate a presently preferred embodiment.

FIG. 1 shows a carafe or decanter assembled and ready to use. The carafe is a composite article with two basic parts, a vessel or container member 10 and a handle member 20. Each part is plastic, the container 10 preferably of a cellular-type plastic, such as expanded polystyrene. Each of the two parts are formed as illustrated by suitable molding techniques. The container member 10 is basically frustoconical, tapering from an open top portion 12 to a closed bottom 14. The handle member 20 is a one-piece article comprising a gripping portion 22 and a base portion 24 joined by a flexible hinge portion 26.

Further details of container member 10 may be understood by directing attention to FIGS. 2, 3, 6 and 7 along with FIG. 1.

The open top portion **12** is generally defined by a substantially circular edge **13**, a portion **15** of which flares to define the upper edge of a spout **30** which controls the egress of liquid from the container **10**. The container **10** includes a wall **16** of substantially uniform cross section defined by substantially equally tapered inner and outer surfaces **17** and **18**, respectively, extending from the top portion **12** to the bottom portion **14**. Adjacent the bottom **14** of the container **10** the cross section of the wall **16** is increased, as shown at **11**, caused by a greater taper of inner surface **17**. This provides additional foundation strength in the lower portion of the container. The lowermost portion **19** of outer surface **18** is substantially cylindrical, rather than tapered, for reasons to become evident hereinafter. This lower cylindrical portion **19** of surface **18** is provided with a pair of diametrically opposed grooves, one of which is shown in FIG. **2** as **36**.

A lug **32** extends from the container **10**, integral with outer surface **18**. The lug **32** is provided with a rectangular recess **34** on the underside thereof. The lug is located on the upper portion of surface **18** closely adjacent to top edge **13** and is disposed substantially diametrically opposite to spout **30**.

The container **10** is made entirely of a cellular plastic, preferably expanded polystyrene. However, other suitable plastics may be used, such as a rigid-type polyurethane foamed plastic. The container member is formed in a suitable mold by known techniques. For example, polystyrene beads may be placed in a mold appropriately conformed to the final shape of container **10** and heated. The beads will fuse to form the article defined by the mold. Expanded polystyrene is preferred because articles formed by such material are inexpensive, clean, sanitary, odorless, resistant to fungus or bacterial growth, lightweight but sturdy, and possess good insulation properties. Therefore, a container such as **10** made of such a material becomes immediately attractive to hospitals, nursing homes or the like, as a disposable item.

The general structural simplicity and convenient shape of container **10** are significant features of the present invention. As seen particularly in FIGS. **1**, **2** and **3**, the container **10** is designed to allow nesting in similar containers. That is, a quantity of containers such as **10**, may be stacked in a nested fashion, an important convenience from storage and shipping standpoints. The container **10**, designed as shown is approximately 70 percent nestable. The only portions of container **10** which might restrict nesting are the spout **30** and lug **32** which are located on the upper portion of the container such that hardly no restriction occurs.

It should be immediately apparent that other equally nestable shapes are possible in addition to the frustoconical design specifically shown. For example, the container **10** can be a tapered, generally polygonal structure within the contemplated scope of the invention.

Of course, the container **10** in an of itself cannot practically function as a carafe or decanter. A wider base would be preferable to assure stability. Also, an effective means for grasping the container would be desirable. These additional details are provided by the one-piece attachable handle member **20**.

The handle member **20**, as seen in FIGS. **4** and **5** along with FIG. **1**, is provided at one end with a circular base portion **24** from which an elongated gripping portion **22** extends. The base **24** is integrally connected to the gripping portion **22** by a thin, flexible hinge **26**.

The handle member is a one-piece, molded article of easily moldable plastic of higher density than the material used in making container **10**. The specific material is preferably polyethylene or polypropylene. However, other easily moldable plastics having a specific gravity of about one may be used, if desired. The handle member **20** is easily and economically injection molded flat and in one piece as it appears in FIG. **4** and **5**.

As shown in FIGS. **4** and **5**, the base portion **24** includes a central opening **23** defined by a vertically extending annular wall **25**. The wall **25** is provided with two integral, diametrically opposed, ridges **33** and four symmetrically spaced barb extensions **35**. The upper surface or wall of base portion **24** extends angularly outwardly from the central opening to form a wide, annular, support flange **27**.

In the embodiment illustrated, the opening **23** is shown substantially circular to conform to the bottom of tapered container **10**. It is understood that if the container were not made frustoconical, but rather in an alternative shape, then the opening **23** would obviously be changed to conform to whatever shape was required.

An integral hinge portion **26** extends from a portion of the lower periphery of flange **27** in a direction generally perpendicular to the axis of circular opening **23**. The hinge **26** is of a selected cross section so as to be flexible or bendable. As seen in FIGS. **4** and **5**, longitudinal ribs **26***a* vary the cross section of hinge portion **26**. This varied cross section effects a good structural compromise between desired strength and bendability.

Integrally joined to the hinge portion **26** is an elongated gripping portion **22**, which also as seen in FIGS. **4** and **5**, extends substantially perpendicular to the axis of the opening **23**. The gripping portion **22** is of larger cross section at its edges **21** than in its center **28**. These thickened edges **21** prevent any undesirable bending or flexing of gripping portion **22**. These variations in cross section in a given portion of an article, as well as from one portion to another, are readily attained in conventional injection-type molds. The specific cross section of the gripping portion shown is not particularly critical, since other equally satisfactory cross-sectional designs will suffice. The gripping portion is usually designed with hand comfort and strength in mind. Thus, several variations are possible which achieve a good compromise between these desired characteristics.

The gripping portion **22** terminates in a three-pronged connector member **40**. Two outer prongs **41** flank a center prong **42**. The cross section of these prongs is substantially equal to the cross section of the edges **21** of gripping portion **22**.

The prongs **41** are each provided with a barb extension **43**. The length of the member **40** is approximately equal to the depth of the recess **34** in lug **32**. The width of the extension **40** is slightly larger than the width of recess **40**. Here again, the specific design of this connector member **40** is but one of several designs possible. In other words, connector member **40** should be designed principally to effect a satisfactory connection to the upper portion of the container **10**.

The carafe assembly as shown in FIG. **1** is easily and quickly assembled and disassembled. To assemble the carafe, the handle member **20** as shown in FIG. **4** may be placed on a flat surface and the bottom portion **14** of container member **10** snapped, or slightly forced into opening **23** whereby the cylindrical portion **19** of the container is telescopically engaged by annular surface **25**. The ridges **33** on surface **25** cooperate with grooves **36** in cylindrical portion **19** to properly position the container **10** within base **24**. The container is then lifted slightly in order that barbs **35** penetrate the cylindrical portion **19** and thereby lock the container relative to base **24**. The gripping portion **22** is then bent upwardly by means of the flexible hinge portion **26** bringing the pronged extension **40** toward the lug **32** of container **10**. As stated previously, the overall width of extension **40** is slightly greater than recess **34** in lug **32**. However, the two prongs **41** may be squeezed slightly in order that extension **42** can be inserted into recess **34**. Once within recess **34**, the prongs **41** relax and return to their normal position, causing barbs **42** to penetrate and lock the gripping portion **22** relative to the container.

As a practical matter, beside carafes or decanters used in hospitals and the like usually include a lid or cover. Although no such lid or cover is specifically shown, it is understood that such an article may be used, if desired. A suitable lid for the carafe disclosed could be one made of expanded polystyrene, typically shaped to close the open top portion **12** of the container **10**.

It is evident that while several of the dimensional aspects of each part are independent, others are interdependent. In other words, certain portions of a handle member must be particularly designed to cooperate with a specific container member. For example, the size of opening **23** in handle member **20** is dependent upon the size of the cylindrical portion **19** of container member **10**. The overall length of handle member **20** depends upon the height of container **10**, and more particularly upon the position of lug **32** in relation to that height. The length and width of extension **40** depends upon the length and width of recess **34** in lug **32**.

The independent dimensions are of course the relative thicknesses or cross sections of each part. Also, the degree of taper designed into each surface **17** and **18** of container **10** is dependent upon the extent of desired container nestability. Nestability also determines the relative location of lug **32**. The minimum and maximum cross sections of both hinge portion **26** and gripping portion **22** are independent parameters selected to assure that the hinge portion will flex while the gripping portion remains substantially stiff.

Following are several of the dimensions found suitable for purposes of a practical embodiment which may be of further significance toward a complete understanding of the invention. It is understood that these dimensions are exemplary only, and in no way limit the scope of the invention.

An expanded polystyrene container member, such as **10**, may be molded to an overall height of 7.7 inches. The basic wall thickness, for example, the cross section of wall **16**, can be about 0.35 inches. A suitable taper of the inner and outer surfaces (i.e. **17** and **18**) is 8° relative to the vertical axis of the container. The inner surface, such as **17**, increases to a taper angle of about 21° at the increased cross-sectional portion **11**. The maximum inside diameter of the open top portion is approximately 4.3 inches. For suitable nesting, no part of the integral lug extending from surface **18** (i.e. lug **32**) should be disposed lower than about 1.75 inches from the top edge of this exemplary container. In other words, about 6 inches of the height of the container is free from encumbrances on the outer surface thereof.

A practical handle member, such as **20**, which can be used in conjunction with the container just described, would have an overall length as seen in FIGS. **4** and **5** of approximately 11 inches. The maximum outside diameter of base member **24** (including support flange **27**) is approximately 5 inches with the diameter of opening **23** being 2.875 inches, and the length of the three-pronged extension **40** is approximately 0.375 inches. The minimum thickness of the hinge portion is about 0.06 inches while the cross section of the ribs **26***a* is about 0.1 inches. The maximum cross section (i.e. edges **21**) of gripping portion **22** is 0.375 inches. The center **28** of gripping portion is approximately equal to the minimum thickness of hinge portion **26**.

Several other important advantages should be evident from the foregoing. For example, once a container member, such as **10**, is disassembled from a handle member **20**, the barbs, such as **35** and **42**, will tear the container **10** to such an extent that reuse of the container is not possible. This feature would be a built-in safeguard to assure that each container member will be disposed of and not inadvertently reused. Also, the handle member **20** may be made in different key colors, each representing a particular use, i.e. isolation wards, or nonisolation wards in a hospital. Each handle member **20** can be provided with an identifying label—e.g., such as indicated at **50** on base portion **24** in FIG. **4**. This will insure against any possible inadvertent mixup as to room or patient assignment.

From the foregoing, it is clear that there are several important advantages accompanying the use of the type of carafe disclosed. These same advantages can be realized with carafes which incorporate modifications from that which is specifically disclosed. Such modifications, however, are considered readily obvious and within the scope of the invention measured by the content of the accompanying claims.

What is claimed is:

1. A disposable, liquid serving assembly comprising in combination, a hollow container member of cellular plastic material and a handle member of higher density plastic material, wherein said container member comprises:

a. an open top portion,
b. a closed bottom portion,
c. a wall portion tapering from said top portion to said bottom portion, and
d. a handle engaging lug portion having a recess therein, said lug extending from and integral with said wall portion adjacent said top portion, and wherein said handle member comprises
a. a base portion having
1. an opening dimensioned to telescopically receive said base portion of said container member.
b. a thin, bendable hinge portion extending from an integral with said base portion,
c. a substantially stiff, elongated, gripping portion extending from and integral with said hinge portion, and
d. a terminal connector portion extending from and integral with said gripping portion, said connector portion
1. adapted to fit within the recess in said handle engaging lug portion of said container member, and
2. having a barb extension for penetrating at least one wall of said recess.

2. The serving assembly as defined in claim **1** wherein said base portion of said handle portion includes a surface symmetrically disposed about the center of said base portion, wherein said surface

a. defines said opening in said base portion,
b. substantially conforms to the periphery of said bottom portion of said container member, and
c. includes at least one barb extension to penetrate said periphery of said bottom portion of said container member whereby said container member is secured within said base portion of said handle member.

3. The assembly as defined in claim **1** wherein said container member is frustoconical and said opening in said base portion of said handle member is circular.

4. The assembly as defined in claim **2** wherein said container member is frustoconical and said opening in said base portion of said handle member is circular.

5. The assembly as defined in claim **1** wherein said hollow container member is expanded polystyrene and said handle member is polypropylene.

6. The assembly as defined in claim **2** wherein said hollow container member is expanded polystyrene and said handle member is polypropylene.

7. The assembly as defined in claim **3** wherein said hollow container member is expanded polystyrene and said handle member is polypropylene.

8. The assembly as defined in claim **4** wherein said hollow container member is expanded polystyrene and said handle member is polypropylene.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,624,788 Dated November 30, 1971

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It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In the heading to the printed specification, between line 8 and 9, the following should be inserted: [72] Assignee The General Tire & Rubber Company, a corporation of Ohio.

Column 3, line 53, the word "an" should read -- and --.
Column 5, line 63, the word "e.g." should read -- etc. --.

Signed and sealed this 8th day of August 1972.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patents