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(54) **DUAL DRINKING CUP**

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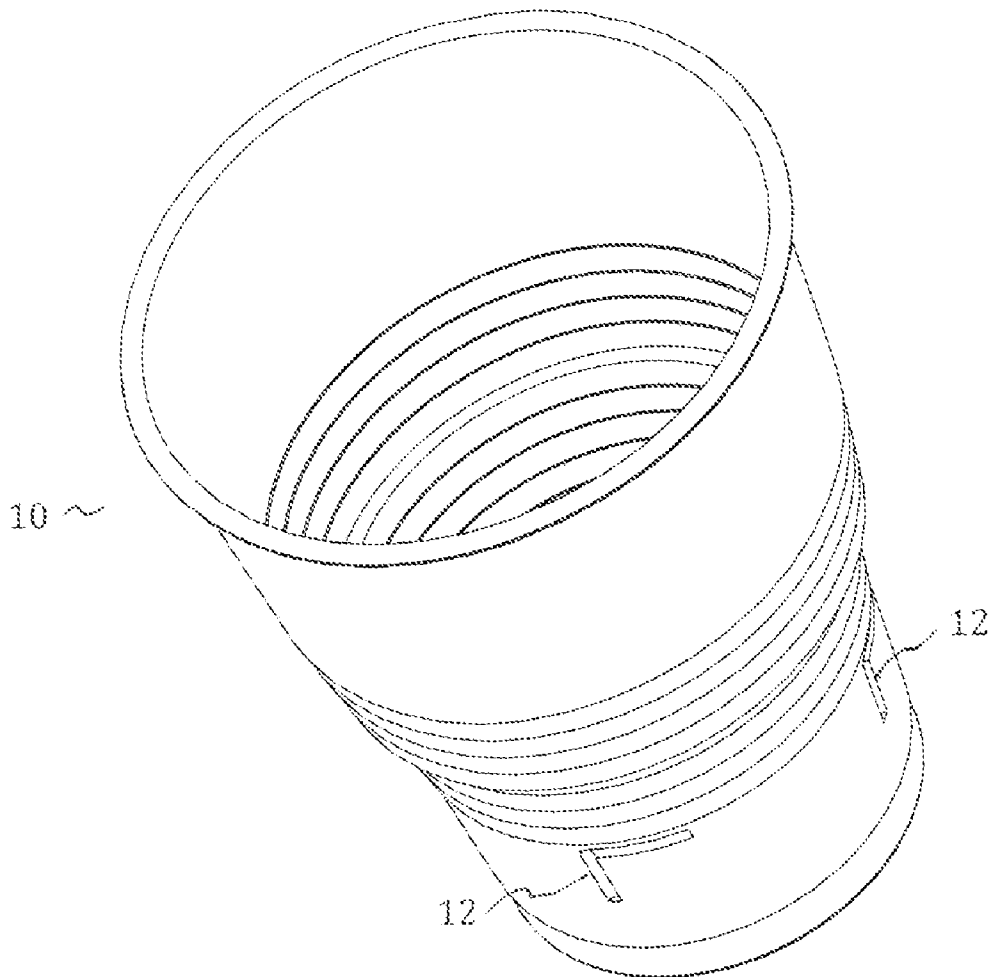
(57) **ABSTRACT**

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The invention provides a reversibly-attached and easily-separated set of nested cups. The outer cup can quickly and easily be detached from the inner cup, and the two cups used to share a single drink. When not in use, the outer cup remains securely attached, and provides a degree of insulation for the contents of the inner cup.



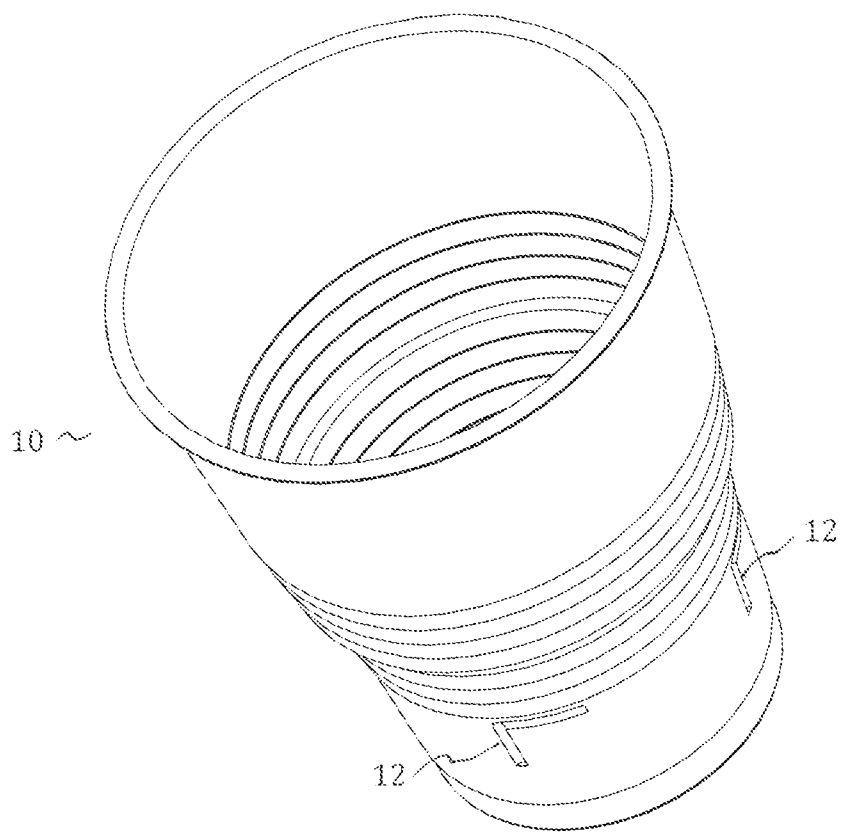


Fig. 1

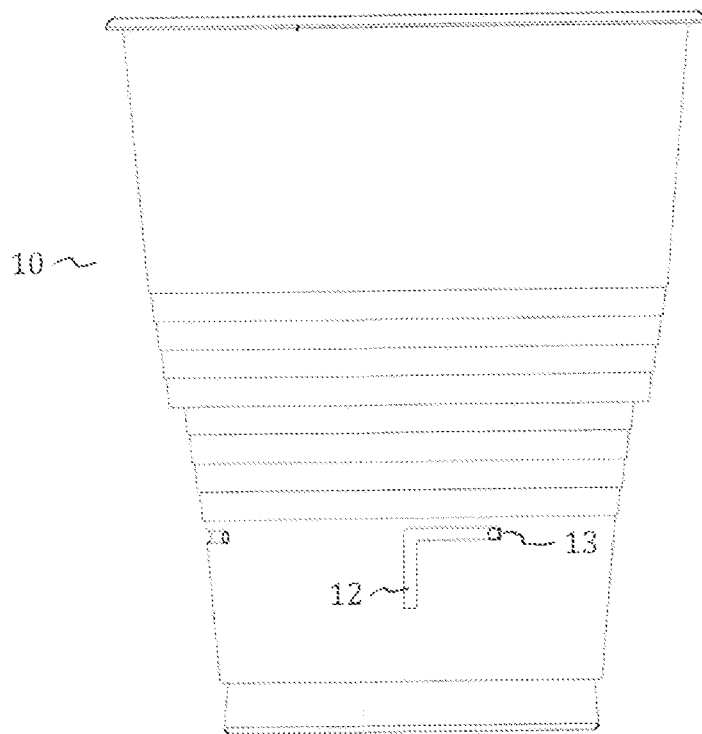


Fig. 2

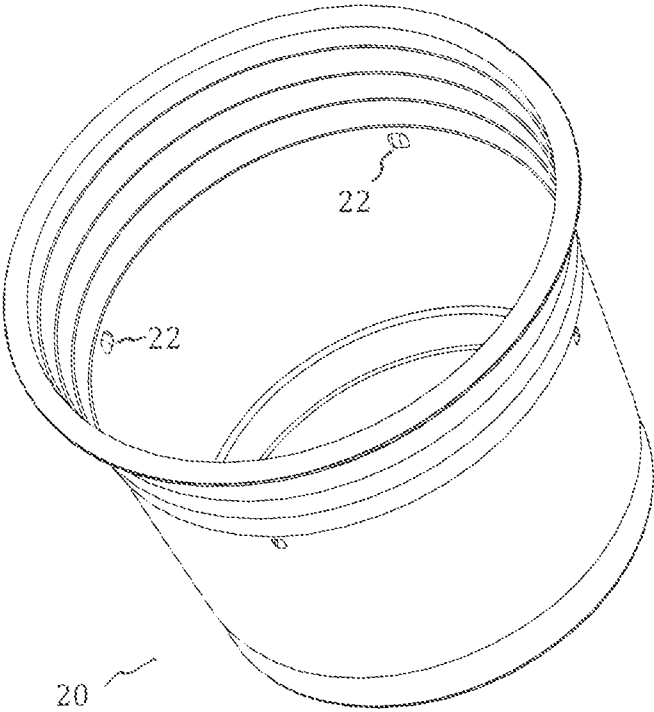


Fig. 3

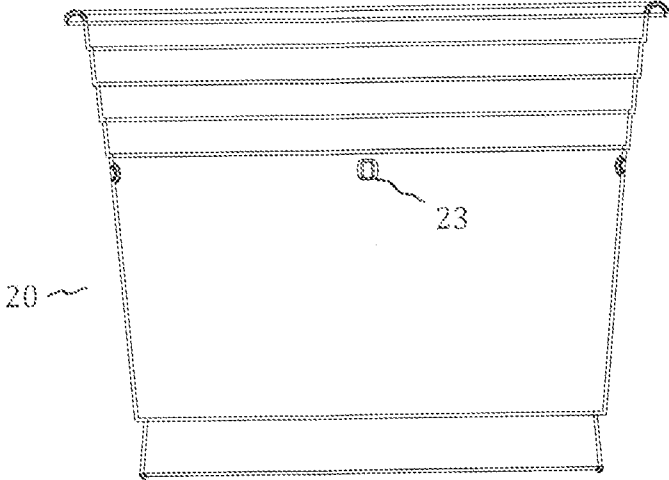


Fig. 4

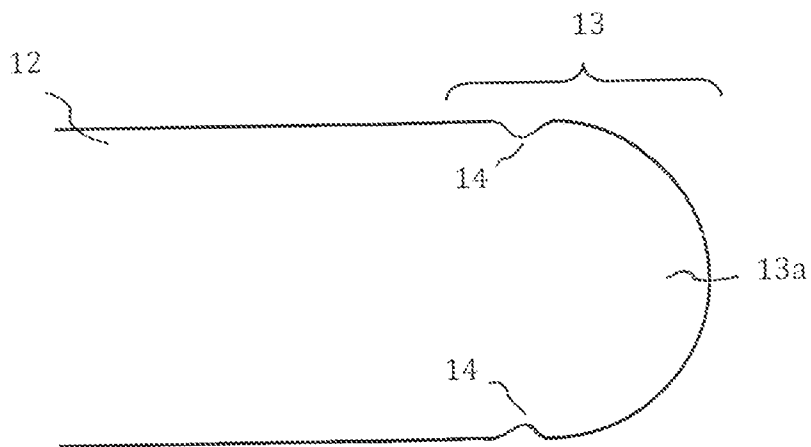


Fig. 5

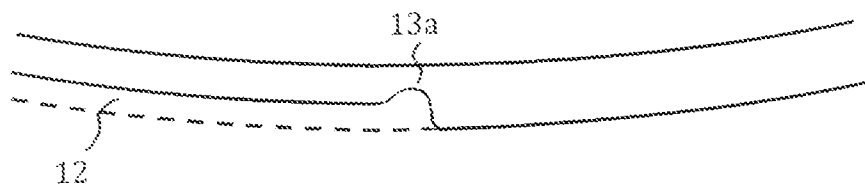


Fig. 6

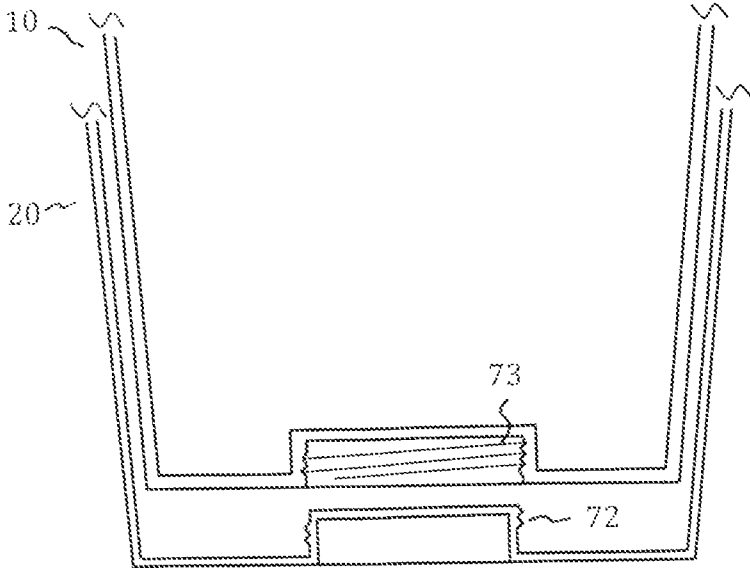


Fig. 7

DUAL DRINKING CUP

FIELD OF THE INVENTION

[0001] The present invention relates to drinking cups and, more particularly, to a cup assembly formed by the reversible nesting of two drinking cups.

BACKGROUND OF THE INVENTION

[0002] It has become a common practice to offer for sale very large soft drink portions, with 32-ounce and even 40-ounce cups being made available to consumers at fast-food restaurants. Souvenir cups of such sizes are commonly sold, or included with a drink purchase, at theme parks, amusement parks, and other tourist destinations. Many consumers have no intention of drinking such a large portion, but purchase it with the intent of sharing the drink with a partner. Some consumers, however, hesitate to share a cup or a straw, or even use a separate straw in a single drink, out of sanitary concerns. Even if that hesitation is not present, it is inconvenient to pass a bulky, cold, and usually wet drink container back and forth between the individuals. Few people plan their days so meticulously that they will be carrying with them a second cup for use in such a situation.

[0003] The problem has attracted some attention from inventors. For example, US patent publication No. 2002/0195451 describes a multi-sectioned cup, where different individuals are expected to drink from separate compartments, each having its own straw. The need to pass such a device from person to person remains a disadvantage.

[0004] Cups have been attached by various means to the exterior of bottles and cans; see for example U.S. Pat. Nos. 4,505,390 and 4,984,723. Such an attached cup could be used to share the contents of the can or bottle, but the disclosed means for attachment are inconvenient when dealing with a large, wet, and not necessarily rigid cup full of liquid. In general, the prior art means for attachment involve spiral threads requiring several revolutions to effect disengagement of the parts, or call upon additional parts such as handles, straps, and the like. In dealing with an inner cup full of liquid, however, where the contents are not effectively sealed, there is a need for means of attachment which permit rapid engagement and disengagement of the outer cup, without inducing large or sudden movement that might spill the contents.

[0005] There is a need for a set of mutually engaged cups, that enables a couple to share a large drink that is provided in a single cup, with the conveniences of having individual cups. Designs for such a device, which requires minimal force and minimizes motion of the cups during the engagement and disengagement, are accordingly provided in the present invention.

SUMMARY OF THE INVENTION

[0006] The present invention provides a first cup, intended to contain a drink dispensed as a single portion by a vendor or vending apparatus. Nested around the bottom of the first cup is a second cup, which is affixed to the first cup by an easily reversible means of attachment. The means of attachment may take several forms, but in general they are molded into the mutually facing surfaces of the cups, and are of such design as to permit disengagement of the two cups with a simple pull along the axial direction, optionally accompanied by a short twisting motion.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. 1 is a perspective view of a first cup of the invention, in an embodiment that features L-shaped slots in the outer surface.

[0008] FIG. 2 is a side view of the first cup of FIG. 1.

[0009] FIG. 3 is a perspective view of a second cup of the invention, in an embodiment that features four inwardly-projecting lugs on the inner surface.

[0010] FIG. 4 is a side view of the second cup of FIG. 3.

[0011] FIG. 5 is a side view of a channel with a restriction type of detent.

[0012] FIG. 6 is a top view, in cross section, of a channel with a well type of detent.

[0013] FIG. 7 is a side view, in cross section, of nested cups, featuring threaded attachment means on the bottoms of the cups.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0014] The present invention provides a first or inner cup, and a second or outer cup nested around the bottom of the first cup. The cups are fastened to one another by an easily reversible means of attachment. The means of attachment comprises mutually interlocking structures on the opposing surfaces of the nested cups.

[0015] The reversible means of attachment may comprise two or more lugs formed on the outer cup, the lugs being engageable with two or more channels formed on the inner cup. The structures may be reversed, in that the lugs can be formed on the inner cup and the channels formed on the outer cup. The channels optionally include detent means for reversibly detaining the lugs, which are formed at the ends of the channels.

[0016] The reversible means of attachment may, alternatively, comprise two or more male threads formed on one cup, the threads being engageable with two or more female threads formed on the other cup. Here also, the roles of the inner and outer cup can be interchanged. Preferably, the male threads subtend an angle of less than 180 degrees, more preferably less than 90 degrees, and most preferably less than 45 degrees, so as to minimize the amount of twisting required to engage and disengage the two cups. The threads will preferably have a large pitch, on the order of at least 0.25 inches, more preferably on the order of 0.5 inches or more. In these embodiments, engagement and disengagement of the two cups is a simple matter of screwing and unscrewing them.

[0017] In an alternative embodiment, the outer cup features a threaded protrusion on the bottom of the cup, and the inner cup features a complimentary threaded recess on its bottom. Threading the protrusion into the recess effects the reversible engagement of the two cups.

[0018] One preferred means of attachment is a set of projecting lugs on one cup that engage channels in the opposing surface of the other cup. The path of the channels on the surface may be linear, angular, spiral, or a combination thereof; in a preferred embodiment the channels are L-shaped. Each channel preferably guides an engaging lug to a detent means, also molded in the outer surface of the inner cup, which can reversibly trap the engaging lug. Depending upon the shape of the channels, the two cups are readily disengaged with a simple pulling action and/or a short twisting motion, which draws the lugs out of any detents and out

through the channels. The lugs, channels, and detent means are preferably molded into the surfaces of the cups during manufacturing.

[0019] An alternative means of attachment is an annular ridge on one cup which engages a mating annular groove or channel on the other cup. Application of a light force, by hand, causes the outer cup to stretch slightly in diameter, to a degree sufficient to permit the annular ridge on one cup to enter or escape the complimentary groove on the other cup. An example of such a means of attachment is described in U.S. Pat. No. 4,548,348 (Oct. 22, 1985 to Clements), the disclosure of which is incorporated herein by reference for the purpose of providing an enabling description of an annular ridge and a complimentary groove as reversible means of attachment between nested cups.

[0020] Preferred means of attachment will be those which permit engagement and disengagement of the cups without inducing large and/or sudden motions that would risk spilling the contents of the inner cup. Designs which require minimal force and minimize motion of the cups during the engagement and disengagement are accordingly provided.

[0021] For comfort and ease of use of the outer cup, the means of attachment are preferably located within the cup, and do not impinge on the lip of the cup. The means for attachment are preferably situated at a distance from the lip, so as not to interfere with liquid flow to and past the rim. This permits the rim to be rolled out, or otherwise thickened and made smooth and suitable for drinking.

[0022] Referring now to the drawings, where corresponding reference characters indicate corresponding components, the inner cup of the present invention is exemplified by the embodiment shown in FIGS. 1 and 2, and indicated by reference character 10. The inner cup in this example features an L-shaped channel 12 for receiving a lug (22 in FIG. 3) when the inner cup 10 and outer cup 20 are engaged.

[0023] The cups 10 and 20 are typically of integral thermo-plastic construction. In this particular embodiment, the horizontal portion of the L-shaped channel subtends approximately twenty degrees of the circumference of the cup, and therefore the engagement and disengagement of the cups involves only a twenty-degree rotation of the outer cup relative to the inner cup, followed by separation along the axial direction. Variations in the length of the channel will be readily envisioned by those of skill in the art. In general, a channel subtending less than 180 degrees is greatly preferred, so that the cups can be disengaged in a single motion, without the need to release either cup to re-position one's grip. More preferably, the angle subtended (and thus the necessary rotation) is less than 90 degrees, and most preferably it is less than 45 degrees. The channel 12 may be formed by machining or impressing, but it is most preferably molded into the outer surface of cup 10 during manufacture. In FIG. 4, the sidewalls of outer cup 20 are thin, so that the lugs give rise to visible indentations 23 on the outer surface of the cup.

[0024] In preferred embodiments, the channel 12 will terminate in a detent means 13 as shown in FIG. 2. The detent means shown in the drawings is a cavity into which a lug 22 can snap into place. Referring to FIG. 5, the cavity may be defined by a necking, or restriction, 14 at the end of the channel 12, through which the lug must be forced before entering the cavity 13a. Alternatively, it may take the form of a well 13b extending deeper into the surface of the cup than the channel 12, as shown in FIG. 6. In the latter embodiment, the depth of the channel will preferably decrease as the lug

approaches the detent means, so that a moderate force and accompanying deformation are required for entry of the lug into the well. In either embodiment, the lug 22 cannot enter or escape the detent means 13 without application of a force sufficient to cause slight deformation of the plastic, to the extent needed to force the lug out of the detent means. The dimensions of the detent means and lugs are chosen so that the lugs will not accidentally or inadvertently disengage from the detent means, yet can be intentionally disengaged upon gentle, deliberate application of force by the user.

[0025] In the embodiments shown, simply grasping the outer cup 10, and rotating it with respect to the inner cup 20, will cause mutual deformation of the lugs 22 and detent means 13, sufficient to effect the release of the lugs from the detent means. The user then completes the rotation, so the lugs 22 traverse the channels 12, and separates the cups by pulling them apart axially.

[0026] FIG. 7 shows an alternative embodiment, wherein the means of attachment are male and female threads (72 and 73, respectively) formed in the bottoms of the cups. A single-start thread is illustrated, but two or more threads of comparable or higher pitch are alternatives that can provide the user with more rapid engagement and disengagement of the cups. Embodiments with two-start, three-start, and four-start threads are particularly contemplated.

[0027] Both cups may be shaped from sheets of extruded plastic material using a vacuum forming process, or alternatively, one or both may be manufactured by injection molding. Selection of an appropriate means for forming the cups, including for example injection molding or thermo-forming, will be a function of such technical considerations as the particular polymer to be used and the intended thickness of the cup. Making such a selection is routine, and well within the abilities of those skilled in the art of manufacturing plastic items. The processes themselves are well-known to those of skill in the art, and need not be further discussed here.

[0028] The thickness of the cups' sidewalls and bottom portions are not limited, but typically they will independently range from about 0.01 inches to about $\frac{3}{16}$ inch, depending on how sturdy and durable a cup one wishes to manufacture. Cups of the invention may be formed from any of the polymer resins commonly used in the art, and known to be suitable for disposable, re-usable and souvenir drinking cups, including but not limited to polyethylene (LDPE and HDPE), polypropylene, polyethylene terephthalate (PET), acrylonitrile-butadiene-styrene (ABS) and polystyrene (PS, OPS, and closed cell foam), as well as the known blends and co-polymers thereof. Re-usable and souvenir cups can also be formed from aluminum or other metals, if desired, with the means for attachment formed directly in the metal or in a polymer layer covering the metal surface.

[0029] The inner and outer cups need not be of the same material. In certain embodiments, the outer cup will be made of an insulating, foamed plastic, and/or will feature an elastomeric surface, thereby providing a dry, comfortable, and secure grip for the inner cup, when not being used to serve a separate portion of the drink. A multi-functional outer cup of this nature can be affixed to a plastic or metal inner cup, giving the present invention additional functionality. One of the cups may be customized with vendor logos, team or school insignia, souvenir images and messages, and the like, while the other cup can be standardized and produced in high volume at low cost. The durable and re-usable embodiments of the present invention, if adopted by vendors and made attractive

to consumers, will also reduce the volume of plastic waste currently being generated by the fast-food industry, and accordingly reduce the operating costs of the vendors.

[0030] Several embodiments having been described in the present specification and drawings, it will be recognized by those of skill in the art that various modifications, alternative constructions, and equivalents may be used without departing from the spirit of the invention. The invention is not limited to the embodiments shown in the drawings, which are intended to be illustrative and not limiting in any way.

1. A pair of nested drinking cups, consisting of an inner cup and an outer cup, the inner and outer cups each comprising a sidewall and a bottom portion and being suitable for containing a drink, wherein the inner cup nests within the outer cup and is fastened to the outer cup by a reversible means of attachment, said reversible means of attachment consisting of either:

- (a) two or more lugs formed on the outer cup, the lugs being engageable with two or more channels formed on the inner cup; or
- (b) two or more lugs formed on the inner cup, the lugs being engageable with two or more channels formed on the outer cup.

2. (canceled)

3. The pair of nested cups according to claim 1, wherein the channels further comprise detent means for reversibly detaining the lugs.

4-20. (canceled)

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