May 6, 1947. L. M. WILEY 2,420,215

STACKING CUPS AND CONTAINER FOR SAME

Filed Nov. 4, 1944

FIG. 1

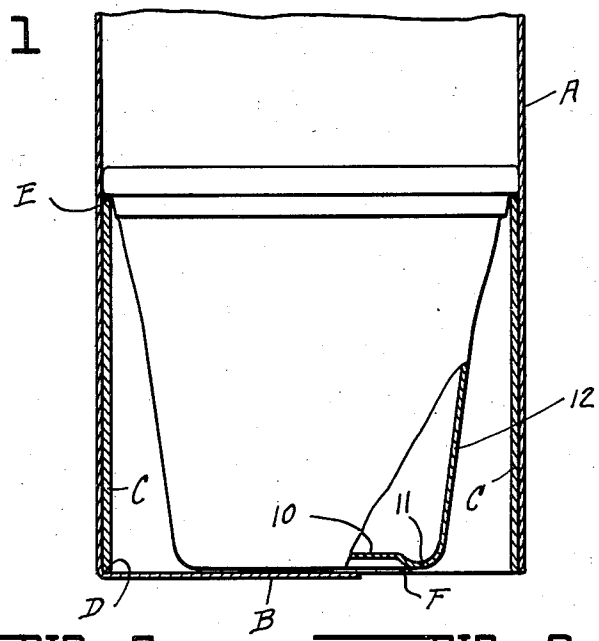


FIG. 2

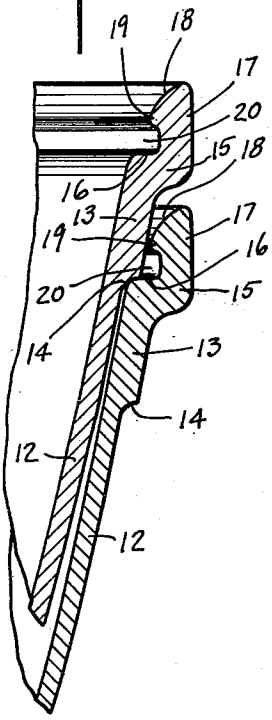
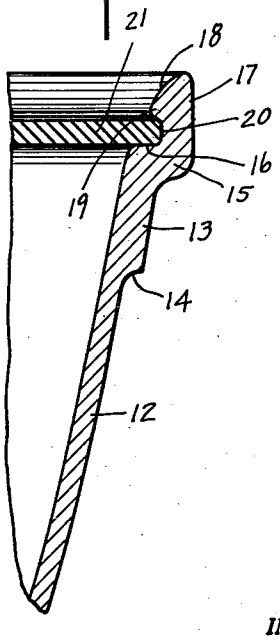


FIG. 3



INVENTOR.
LEE M. WILEY.

BY
Lockwood, Goldsmith & Galt,
ATTORNEYS.

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STACKING CUPS AND CONTAINER FOR SAME

Lee M. Wiley, Marion, Ind., assignor of one-half to Julian T. Lett, Marion, Ind.

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2 Claims. (Cl. 206—65)

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The invention relates to a cup structure and associated stacking tube.

One chief object of this invention is to provide a cup or container suitable for cup use or suitable for container use with an associated cover and in either case the structure has no false bottom, etc., giving a misleading visual indication of actual volume.

Another chief object of this invention is to provide a cup or container that, when associated with others in stacked relation, requires an overall length for fifty of but fifteen inches, whereas other stacking cups of like volume require from twenty-two to twenty-six inches of length, thereby effecting a saving of from about one-half to one-third in storage and transportation space and tube cost if all cups cost the same and weigh the same.

A still further object of the invention is to provide a cup which will stack "free" for dispensing holders, that is the bottoms do not touch.

Another object of the invention is to provide a flared sidewall so that the cup can be held in the hand without requiring squeezing thereof, which, of course, when the cup is used for hot drinks, such as coffee, eliminates much of the heat transference to the hand.

Another object of the invention is to provide a solid top rim structure, which is of thickened character, giving greater strength than conventionally rolled edge cups.

A further feature of this invention is that this top thickness permits the formation of a much wider ledge or cover seat, which prevents the cover from being pressed beyond the cover seating groove and into the container contents when the cover is applied.

One chief feature of the present invention resides in the peculiar shape of the cup whereby the several objects aforesaid are accomplished.

Another chief feature of the present invention resides in the liner support tube for the lowermost cup, whereby the body and bottom thereof are relieved of the weight of the other cups in the stack.

Other objects and features of the invention will be set forth hereinafter.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims:

In the drawings,

Fig. 1 is a central sectional view through the bottom of a stacking tube with the lowermost cup therein and an included support liner.

Fig. 2 is a central sectional view (enlarged approximately four times) of the nested interfitting portions of two stacked cups.

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Fig. 3 is a central sectional view of a portion of a cup with a cover applied thereto.

In Fig. 1 of the drawings A indicates a stacking tube having closed end B of any suitable type. Within the same is a tubular liner support C, the bottom D of which may bear on end B if said support C is not otherwise secured to the tube A. The upper edge E of sleeve or liner C serves as a support for the lowermost cup of the stack and slightly spaces the bottom of that cup from the end B of the tube, as indicated at F. This takes the weight of the stack off of the sidewall and bottom of the bottom cup.

Reference will now be had to Fig. 3, as well as Fig. 1. In the former the cup has a centrally embossed bottom 10 terminating in a peripheral bearing portion 11, which merges with an upwardly and outwardly directed sidewall 12. This wall is slightly flared or concaved for hand grip purposes as shown in Fig. 1. This embossing not only strengthens the bottom, but, as stated, provides a preformed annular bearing 11 for cup support.

Reference will now be had to Figs. 2 and 3. Herein the upper end of the sidewall is enlarged laterally and outwardly as at 13, forming an outer lower shoulder 14. This enlarged portion is offset laterally and outwardly as at 15, forming seat or shoulder 16.

Portion 15 is then extended upwardly as at 17 and terminates in an inwardly rounded mouth 18 that overhangs at 19 the seat 16 in spaced relation thereto to form a cover seating groove 20 in which may be pressure seated cover 21 that when seated is retained by lock portion 19. All of the aforesaid are peripherally coextensive with the cup, which is annular in cross section, although obviously it may have any other desired cross section.

When the cups are stacked, the several cup bottoms 10, even though of embossed character, do not engage each other. When stacked, the outer shoulder 14 of each inner cup bears or rests upon the inner seat 16 of the outer cup. When so nested and seated the several portions 17 are aligned.

Merely by way of example, the following dimensions are given relative to an eight ounce cup. The mouth diameter is $3\frac{19}{64}$ inches, the bottom 10 and bearing 11 diameter is 2.144 inches. The cup heighth is $3\frac{3}{32}$ inches. The radius of curvature of the junction between portions 10 and 11 may be $\frac{3}{32}$ inch, while that of portion 11 may be

$\frac{3}{16}$ inch. The depth of embossment may be $\frac{1}{16}$ inch.

The bottom may have the thickness of .018 inch, the bottom of the sidewall .020 inch and the top adjacent shoulder 19 .040 inch, the sidewall obviously becoming thicker toward the mouth. The flare has a radius of $5\frac{23}{32}$ inches and in reality the sidewall is the resultant of two reverse curves of that radius, the upper portion being convex and the lower portion concave.

The overhang aforesaid is about .020 inch and the width of seat 16 is about .063 inch. The width of shoulder 14 is about .032 inch. The projection of one cup above the other is approximately .242 inch. The distance from the mouth edge to shoulder 14 is about $\frac{3}{8}$ of an inch. Note that the thickened portion 13 of the inner cup just clears the overhang 19 of the outer cup.

The groove 20 is bead rolled into the cup, which is of pressure molded character and is seamless and of solid pulp.

While the invention has been illustrated and described in great detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character.

The several modifications described herein as well as others which will readily suggest themselves to persons skilled in this art, all are considered to be within the broad scope of the invention, reference being had to the appended claims.

The invention claimed is:

1. A plurality of bottom nestable cups capable of stacking relation, each supportable exteriorly and near the upper end thereof, each cup having a mouth at its uppermost upper end, an internal seat spaced therefrom and an external cup supporting shoulder spaced from the mouth slightly greater than the said seat but comparatively close together, the shoulder of the upper cup having appreciable facial bearing upon the seat of the lower cup, each cup adjacent the seat having an inwardly projecting overhang of a lesser internal diametric dimension than that of the seat and spaced therefrom to form a groove between the seat and mouth for cover reception, said inwardly projecting overhang being further of greater internal diametric dimension than the external diametric dimension of the shoulder.

2. A plurality of bottom nestable cups capable of stacking relation, each supportable exteriorly and near the upper end thereof, each cup having a mouth at its uppermost upper end, an internal seat spaced therefrom and an external cup supporting shoulder spaced from the mouth slightly greater than the said seat but comparatively close together, the shoulder of the upper cup having appreciable facial bearing upon the seat of the lower cup, each cup adjacent the seat having an inwardly projecting overhang of lesser internal diametric dimension than the seat and spaced therefrom to form a groove between the seat and mouth for cover reception, said inwardly projecting overhang being further of greater internal diametric dimension than the external diametric dimension of the shoulder, each cup having a downwardly and inwardly directed sidewall of flared character for hand grip purposes, the flaring being of reverse curve type, the upper curve portion being convex externally and the lower curve portion being concave externally and the radii of curvature being of similar order, the length of the curved portions being approximately of the order as 1 to 2, respectively.

LEE M. WILEY.

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