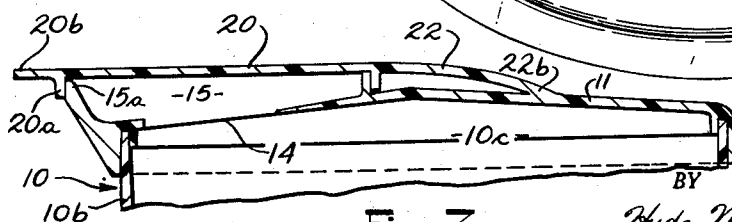
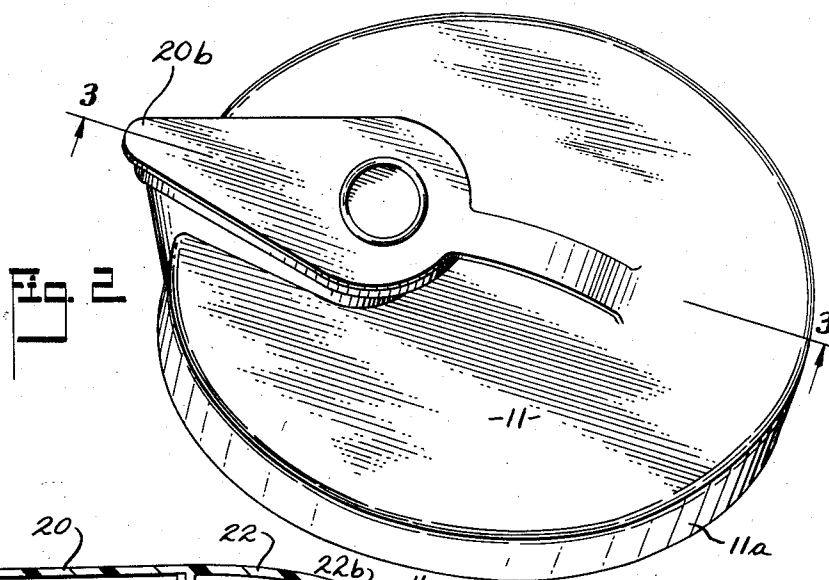
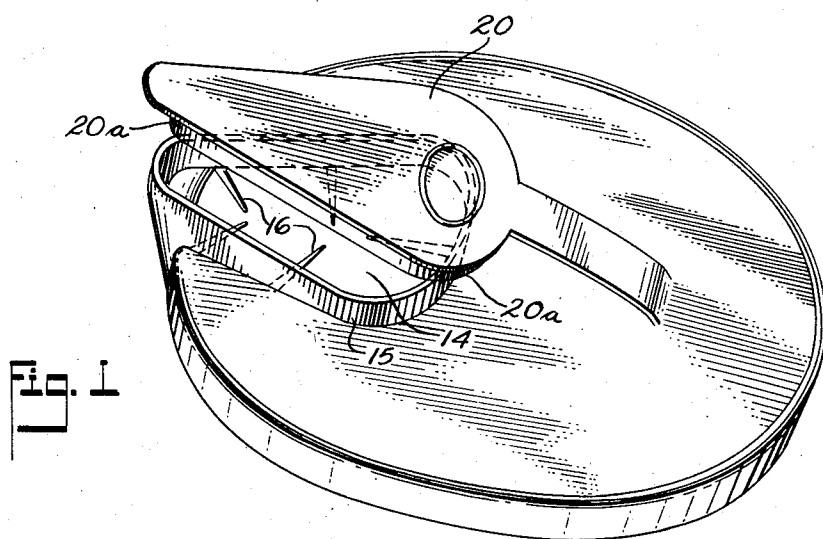


W. MARCUS
CONTAINER CAP

2 Sheets-Sheet 1

Filed March 26, 1957



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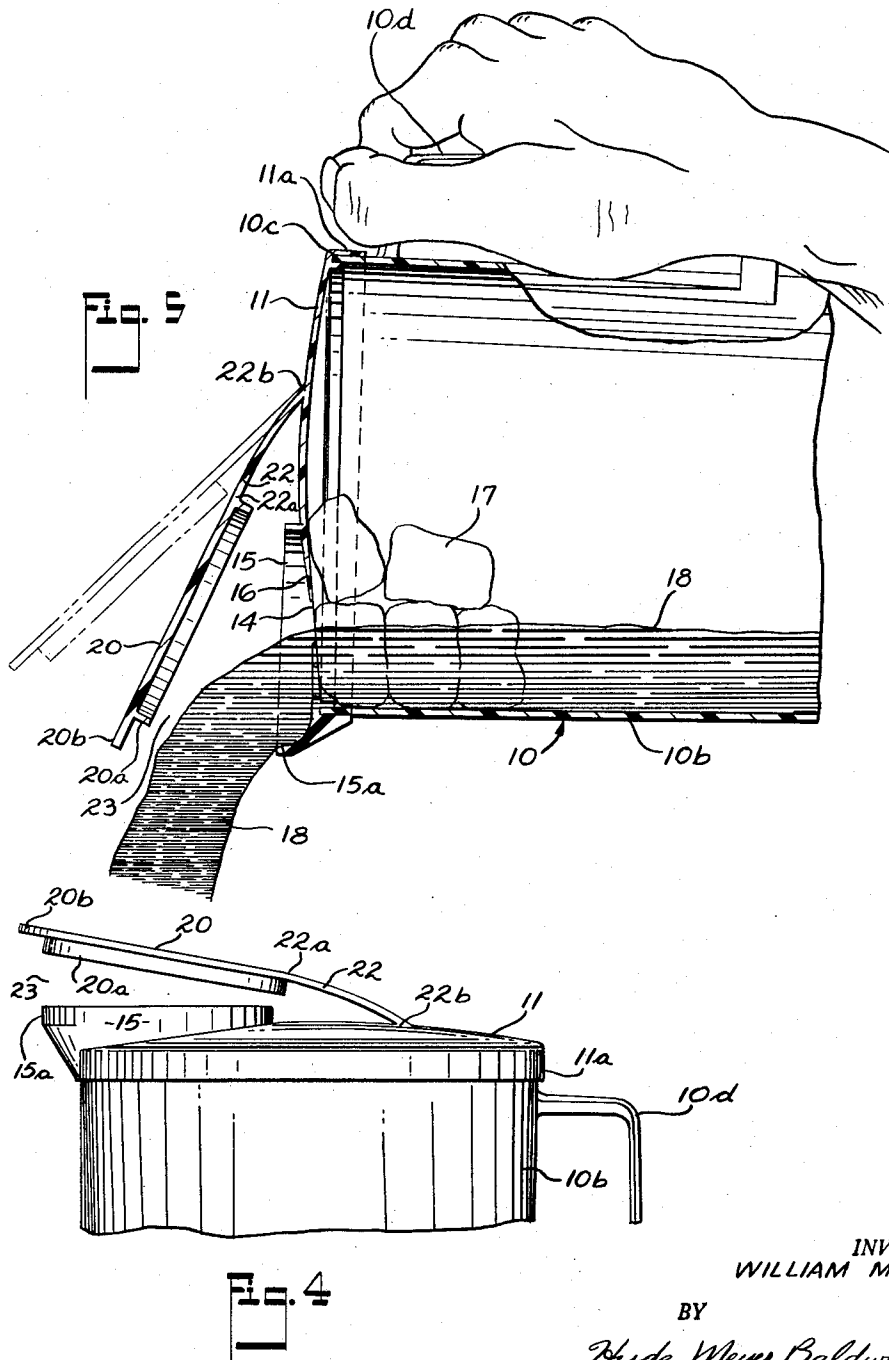
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W. MARCUS
CONTAINER CAP

2,886,218

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2 Sheets-Sheet 2



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1

2,886,218

CONTAINER CAP

William Marcus, Cleveland, Ohio

Application March 26, 1957, Serial No. 648,614

3 Claims. (Cl. 222—517)

This invention relates to improvements in a container cap or dispensing and closure construction and relates more particularly to a cover for a pouring pitcher.

One of the objects of the present invention is to provide a container wall portion having a pouring opening, a cap for closing said opening, and a connecting means between said cap and wall portion.

A further object of the present invention is to provide said connecting means in the form of a narrow flexible strap attached to the intermediate portion of the outer surface of the wall portion and/or extending out of the outer surface thereof.

A further object of the present invention is to provide said wall portion, said connecting means, and said cap as an integral member, preferably formed of polyethylene material.

A further object of the present invention is to provide said connecting means with a biasing construction resiliently biasing the cap into an open position less than 90 degrees away from the opening but with said cap adapted to be held by friction over said opening in the closed position to overcome this resilient bias.

A further object of the present invention is to provide a cover with a pouring opening and means extending across this opening to permit insertion of ice cubes therethrough but to prevent gravity fall-out and liquid wash-out of the cubes through the opening during liquid dispensing therethrough.

A further object of the present invention is to provide the means in the immediately preceding paragraph so positioned that the ice cubes do not interfere with smooth liquid pouring flow through the opening over a pouring lip associated therewith.

A further object of the present invention is to provide a base portion of a container wall having a pouring opening therein, a cap, and means, such as a flexible strap, operatively connecting the cap and base portion for movement between an open position spaced from said opening and a closed position frictionally engaged with said opening wherein one or more of the following advantages are obtained: (1) the greatest separation between the cap and said opening is over the pouring surface of said opening, (2) the cap is frictionally held in closed position by snapping over said pouring surface, (3) the cap is securely held to the base portion to prevent loss thereof, (4) the cap is automatically biased to a position substantially spaced from said opening but never more than 90 degrees therefrom while in open position, (5) as the pouring pitcher is swung between non-pouring and pouring positions, the space between the cap and pouring surface in the open position is automatically increased in response to the swing of the pitcher to provide a large pouring gap, and/or (6) this gap is automatically decreased in response to swinging the pitcher back from the pouring to the non-pouring position to reduce automatically the distance between the cap and opening so as to minimize the distance of cap movement required to move it to closed position.

2

A further object of the present invention is to provide a dispensing and closure construction having structural simplicity, inexpensive manufacturing cost, attractive appearance, and many desirable operating features.

Other features of this invention reside in the arrangement and design of the parts for carrying out their appropriate functions.

Other objects and advantages of this invention will be apparent from the accompanying drawings and descriptions and the essential features will be set forth in the appended claims.

In the drawings:

Fig. 1 is a perspective view of the pitcher cover with its cap in the open position;

Fig. 2 is a perspective view of the pitcher cover with its cap in the closed position;

Fig. 3 is a vertical sectional view taken along the line 3—3 of Fig. 2;

Fig. 4 is a side elevational view with the cap in its open position and the pitcher in its non-pouring position; while

Fig. 5 is a sectional view along the line 3—3 of Fig. 2 of the pitcher in the pouring position with the cap thereof shown in solid lines in its open position and shown in dot-dash lines in its maximum open position when the empty pitcher is turned upside down.

Before the structure here illustrated is specifically described, it is to be understood that the invention here involved is not limited to the structural details or arrangement of parts here shown since a dispensing and/or closure construction embodying the present invention may take various forms. It also is to be understood that the phraseology or terminology herein employed is for purposes of description and not of limitation since the scope of the present invention is denoted by the appended claims.

While the present invention might be adapted to various uses, it has been chosen to show the same as applied to a cover for a pouring pitcher. However, it should readily be apparent that the invention may take the form of a dispensing, a closure, or a dispensing and closure construction for completing at least a portion of a wall of any type container.

In the drawings, the pouring pitcher includes a tubular body 10 and a cover 11 adapted to be detachably connected thereto. Tubular body 10 has a closed bottom (not shown), a tubular side wall 10b, an open top 10c and a handle 10d attached, either by being integrally formed therewith or manufactured as a separate part joined by adhesive or any other type joining means, to the outer surface of one vertical side wall thereof.

Cover 11 is detachably secured to the tubular body over open end 10c by telescopic engagement of its downwardly extending coacting coaxial flanges 11a telescopically engaging within and around the outside of the annular flange formed by the upper end of the pitcher side wall 10b. However, it should be readily understood that many aspects of this invention work equally well if the cover 11 were to take the form of a wall portion for completing at least a portion of a container wall with this wall portion serving as a base portion for the remainder of the structure to be mentioned hereinafter.

Cover 11 has a dispensing construction associated therewith. This takes the form of an elongated pouring opening 14 in this cover having its length dimension generally in the plane of the handle 10d when cover 11 is properly secured to the body 10 in the manner shown in Figs. 4 and 5. An endless wall 15 extends around this opening and upwardly out of the plane of cover 11, to which the wall is attached, with opening 14 and wall 15 having their opposite inside surfaces converging along the longer dimension of the opening away from the handle

3

10d to form a pouring lip or surface 15a most remote from the handle for liquid 18 to be poured from the pitcher. This pouring lip is shaped to give a good, smooth pouring action when the pitcher is in the pouring position of Fig. 5. Also, when the pitcher is swung back to the non-pouring position of Fig. 4, the pouring lip cuts off the flow of liquid sharply and no dripping over this pouring lip will occur.

The dispensing construction also includes a suitable means extending across this pouring opening 14 to permit insertion of ice cubes 17 into the body 10 of the pitcher through this opening 14 but to prevent the gravity fall-out or liquid washout of the cubes 17 through this opening during dispensing of liquid 18 from the pitcher in the manner shown in Fig. 5. This takes the form in the present disclosure of a plurality of inwardly directed, tapering, flexible fingers 16 in Figs. 1 and 5, here shown as five in number, each attached to the edge of opening 14 in cover 11 and extending across the opening 14 generally in the plane of the cover. They permit insertion of the ice cubes into the pitcher by having sufficient flexibility to bend or otherwise deform in the inward direction as an ice cube is pushed down from the top through the pouring opening 14 with sufficient pressure by the user. However, these fingers do not have sufficient flexibility to permit the cubes 17 to be washed-out by the liquid through the opening while the liquid 18 is being poured from the pitcher. They are sufficiently rigid to prevent gravity fall-out of the cubes through the opening at this time. It should be noted that the fingers 16 hold the ice cubes 17 well back from the pouring lip 15a so that the ice cubes 17 provide no substantial interference with the fluid flow and good pouring action will result. However, the ice cubes jammed around the opening 14 in the manner shown in Fig. 5 and the inwardly extending direction of the fingers 16 tend to prevent splashing of the liquid if the pitcher is swung rapidly from the non-pouring to the pouring positions in Figs. 4 and 5 respectively.

A closure construction is provided for this dispensing construction. This closure construction includes a cap 20 and means operatively connecting the cap 20 and cover 11, such as any type compacting member but here shown as a flexible strap 22 attached respectively to the cap and cover by opposite ends 22a and 22b. Cap 20 has a downwardly extending endless wall 20a of generally the same shape as the opening wall 15 and is adapted to telescopically engage with this opening wall, here shown as over the outside of the opening wall 15, so as to be held by friction in a closed position over the opening 14. Cap 20 has a lift tab 20b attached thereto and extending horizontally outwardly opposite handle 10d in the closed position illustrated in Fig. 3 to permit manual manipulation of the cap between the aforesaid closed position in Fig. 3 and the open position in Fig. 4.

Flexible strap 22 is attached at opposite ends to cap 20 and cover 11. Here, strap 22 is attached to cap 20 on the same side as handle 10d and opposite the lift tab 20b at one end 22a; and to the cover 11 at the opposite end 22b at an anchor point on the top outer surface of cover 11 generally in the plane of the opening 14 and between opening 14 and handle 10d but not to the periphery of the outer cover flange 11a. Both attachment points 22a and 22b are located remote from the pouring surface or lip 15a. This strap 22 is so attached at point 22b and so constructed that it resiliently biases cap 20 into the open position of Figs. 4 and 5 less than 90 degrees away from the opening 14 with this angle having its vertex at attachment point 22b. This strap 22 has sufficient stiffness so that cap 20 in the open position cannot be swung by the static force of gravity in any orientation of the pitcher beyond 90 degrees from the closed position of Fig. 3. For example, the dot-dash line position in Fig. 5 illustrates the position of the cap 20 and strap 22 when the empty pitcher is turned upside down

4

so that the cap 20 is moved by the force of gravity the maximum distance away from opening 14. Even when the pitcher is in the upright and non-pouring position of Fig. 4 with gravity exerting its greatest force to move the cap 20 down over the opening 14, cap 20 is still held up by strap 22 out of contact with the pouring opening wall 15. However, the resilient bias of strap 22 is easily overcome by the friction between walls 15 and 20a in the Fig. 3 position to hold the cap in this closed position.

The illustrated and preferred construction has all dispensing and closure construction components attached to cover 11 by integrally molding in one-piece cover 11, opening wall 15, fingers 16, cap 20, lift tab 20b, cap wall 20a, and strap 22 preferably of a polyethylene material so that the strap 22 has the characteristics mentioned heretofore and hereinafter. Polyethylene has sufficient stiffness or "memory" so that cap 20 will remain open in the Fig. 4 position when not pressed closed into the Fig. 3 position. However, it should be readily understood that the aforesaid pitcher components may be "attached" together in any suitable manner, not only by molding as an integral part, as shown in the present disclosure, but also by adhesively or otherwise joining together separate component parts, and the word "attached" is intended to cover both constructions. However, the integral construction is the preferred construction.

Although any suitable resilient material, polyethylene or other flexible rubber-like material may be satisfactory, it has been found that the aforesaid preferred construction operates in the manner disclosed herein when composed of the following suitable polyethylene composition:

Monsanto polyethylene 935

Specific gravity (ASTM D-792-50 test)=0.92

Melt index (ASTM D-1238-52 T test)=7.0

Softening temperature=221-230° F.

Tensile modulus (ASTM D-638-52 T test)=22,000 p.s.i.

Hardness, shore (ASTM D-676-49 T test)=C-73

Apparent (bulk) density (ASTM D-1182-54)=33 lbs./cu. ft.

It has been found that a strap made of the aforesaid suitable polyethylene material, having a width tapering from $\frac{5}{8}$ inch at point 22b to $\frac{1}{2}$ inch at point 22a, having a thickness of about $\frac{1}{20}$ inch, and having a length of about $1\frac{3}{8}$ inches performs satisfactorily.

It has been found that the five flexible fingers 16 made of the aforementioned suitable polyethylene material will perform satisfactorily if each is approximately $\frac{1}{20}$ inch thick at the base tapering to $\frac{1}{32}$ inch at the tip in the vertical direction in the plane of the drawings in Fig. 3 and with each approximately $\frac{5}{64}$ inch at the base tapering to $\frac{1}{20}$ inch at the tip in a plane perpendicular to the plane of the drawings in Fig. 3 and coplanar with the length of the finger.

This dispensing and closure construction for a pouring pitcher has many advantages.

First, attaching the strap 22 at point 22b to cover 20 at an intermediate portion of its top surface between its edges not only permits the use of a shorter strap length than if the strap were secured to the outer surface of a vertical portion of the pitcher, such as the outer surface of the cover flange 11a or tubular body side wall 10b but also provides a compact design, a pleasing appearance and many other advantages.

Second, the flexibility of strap 22 permits easy manual manipulation of cap 20 but the stiffness of strap 20 restricts the movement to only a short distance between the closed position in Fig. 3 and the open position in Fig. 4.

Third, the cap 20 is always securely attached to cover 11 by strap 22 so that it cannot be lost or misplaced.

Fourth, the resiliency of strap 22 always biases the cap 20 to an open position to move the cap wall 20a out of contact with opening wall 15 so that the pitcher is always

5

ready for pouring and so that a faucet spout may be easily inserted between cap 20 and pouring lip 15a for easily filling the pitcher through opening 14.

Fifth, the location of strap ends 22a and 22b remote from pouring lip 15a assures that the greatest separation between cap 20 and cover 14 will be over the pouring lip or surface 15a so that pouring flow can easily take place.

Sixth, the component parts are so dimensioned that cap 20 is frictionally held in the closed position of Fig. 3 by frictional engagement between cap wall 20a and the pouring lip wall 15a, lift tab 20b may be easily used to move the cap between open or closed position, and the pouring lip 15a is properly shaped to provide a good pouring action with no dripping therefrom when flow is cut off. Here, a first dimension is provided by the distance from anchor point 22b to the outer surface of the pouring lip wall 15a. This first dimension is approximately the same as or slightly greater than a second dimension provided, when side walls 15 and 20a are disengaged but in contact, by the distance from anchor point 22b to the portion of the cap wall 20a engageable in the closed position of Fig. 3 with the pouring lip wall 15a. Then, as cap 20 is moved from the open position of Fig. 4 to the closed position of Fig. 3, strap 22 is arched about a decreasing radius until these walls 15 and 20a come into contact. Then, as the cap wall 20a is pulled toward the left in Fig. 3 to telescope down over the pouring lip 15a and wall 15, the arch is flattened so as to provide the proper resilient stretch in this second dimension to frictionally and resiliently engage the cap wall 20a on the pouring lip wall 15a in this closed position to seal closed the opening 14 and to retain by friction the cap 20 in the closed position of Fig. 3. However, upward pressure of lift tab 20b will move cap 20 upwardly from the Fig. 3 to the open position of Fig. 4. When the cap is in the open position, the pouring lip 15a will provide a good pouring action, as shown in Fig. 5, without dripping after flow is cut-off even though the lip must provide a multiplicity of functions.

Seventh, when the cap is in its open position, it is always located in the best possible position with respect to the pouring opening 14 for any given position of the pitcher. For example, the pitcher is swingable between the non-pouring position in Fig. 4 and the pouring position in Fig. 5 wherein the liquid flow path through opening 14 is directed more downwardly. Whenever the cap is in its open position, it is always spaced from pouring lip 15a and its endless wall 15 to provide a gap therebetween to permit the cap 20 to move freely relative to the pitcher, to assure a large and unobstructed pouring zone over the pouring lip 15a, and to assure that the walls 15 and 20a will not be frictionally engaged to impede the movement of the cap 20. The gap 23 between the cap 20 and pouring lip 15a will automatically vary in size between the dimension in Fig. 4 and the larger dimension in Fig. 5 in response to swing of the pitcher between the non-pouring and pouring positions. The flexibility of strap 22 permits gravity operation of cap 20 since the cap 20 is hung by the strap 22 from the cover 11 at anchor point 22b in the open and pouring position of Fig. 5. Hence, as the pitcher is swung counterclockwise from the non-pouring position of Fig. 4 to the pouring position of Fig. 5, this gap 23 increases in response to the swing of the pitcher so that a maximum gap is provided over the pouring lip in the pouring position of Fig. 5 to assure unimpeded liquid flow from the pitcher. For example, the fast pouring rate illustrated in Fig. 5 would hit the cap 20 if it had remained in the Fig. 4 position. However, as the pitcher is swung clockwise from the pouring position of Fig. 5 back to the non-pouring position of Fig. 4, this gap 23 is decreased in size so that the user may easily move the cap down to the closed position of Fig. 3 with the minimum length movement. In Fig. 4, the force of gravity acts on cap 20 in direct opposition to the bias of strap 22 so that cap 20 is brought down close to wall

6

15 and gap 23 assumes its smallest dimension. In Fig. 5, only a component of the force of gravity acts on cap 20 in the closing direction so gap 23 is larger. When the empty pitcher is inverted, the full force of gravity adds to the opening force exerted on cap 23 by strap 22 to move cap 22 to the dot-dash line position in Fig. 5. Also, if the pitcher is swung counterclockwise through an arc from the Fig. 4 position toward or past the pouring position, a greater liquid volume would flow over pouring lip 15a and a larger gap 23 would be required when the pitcher was swung through a large arc rather than through a small arc. This greater gap 23 would be automatically provided in response to the need because the cap 20 will move from the Fig. 4 position, to the solid line position in Fig. 5, and then to the dot-dash line position in Fig. 5 as the pitcher is swung counterclockwise from the Fig. 4 position to the Fig. 5 position and then to an inverted position. However, it should be readily apparent that gravity and the orientation of the parts causes the gap 23 to always be large enough so that the liquid 18 will not strike cap 20 as it flows over the pouring lip 15a in any usually assumed pitcher pouring position. However, the cap 20 may be swung to a more open and larger gap position by the force of the liquid striking its undersurface. Then, the liquid flowing over the pouring lip 15a either assists gravity in the movement of the cap or provides the entire moving force for the cap. Then, the construction may be either the illustrated design or one having less stiffness in strap 22 so gap 23 is normally smaller. However, movement of the cap 20 solely by gravity instead of liquid flow is preferred because less splashing of the liquid and spreading of the liquid flow stream will occur.

Various changes in details and arrangement of parts can be made by one skilled in the art without departing from either the spirit of this invention or the scope of the appended claims.

What I claim is:

1. A pouring pitcher, comprising two one-piece units, one of said units including a tubular body with an open top and having a handle secured to one vertical wall thereof; the other of said units including a cover adapted to be detachably attached to said tubular body over said open end by telescopic engagement of coaxing flanges thereon, said cover having an elongated pouring opening therein with its length dimension being generally in the plane of said handle when said cover is properly secured to said body, an endless wall extending around said opening and upwardly out of the plane of said cover, said opening and wall having their opposite inside surfaces converging along the longer dimension away from said handle to form a pouring lip most remote from said handle, means integral with said cover and extending across said opening to permit insertion of ice cubes into the container or pitcher but to prevent gravity fall-out or liquid wash-out of said cubes through said opening during liquid dispensing while providing no substantial interference with liquid flow from said pitcher because said ice cubes are held back from said pouring lip by said means, said means including a plurality of inwardly directed flexible fingers integral with said cover and extending across said opening, a cap having a downwardly extending endless wall of generally the same shape as said opening wall telescopically engageable over said opening wall to be held by friction in a closed position over said opening, a lift tab attached to said cap and extending horizontally outwardly therefrom opposite said handle in said closed position, and a flexible strap attached to the cap on its handle side opposite said tab and to said cover remote from said pouring surface at an anchor point on an outer surface of said portion generally in the plane of said opening between said opening and handle to permit movement of said cap for only a short distance between said closed position and an open position and to provide greatest separation between said cap and cover at said pouring lip,

7

said cover and its opening wall and fingers, said cap and its lift tab and wall, and said flexible strap being integrally formed as said other unit of polyethylene material constructed to resiliently bias said cap into said open position less than 90° away from said opening and pouring lip out of contact with the wall surrounding said opening but with said bias overcome by said friction to hold said cap in said closed position, said flexible strap having sufficient stiffness so that said cap in said open position cannot be swung by the static force of gravity in any orientation of said pitcher beyond 90° from said closed position, the shortest distance from said anchor point to the outer surface of the pouring lip wall being approximately slightly greater when said walls are disengaged but in contact than the distance from said anchor point to the portion of said cap wall engageable in said closed position with the outer surface of said pouring lip wall, said strap being constructed so that moving said cap from said open to closed positions arches said strap to provide resilient stretch in said second mentioned distance to frictionally and resiliently engage said cap wall on said pouring lip wall in said closed position to seal said opening and whereby upward pressure on said lift tab will move said cap to said open position, said pitcher being swingable between a non-pouring position and a pouring position with the liquid flow path out through said opening being directed more downwardly in said pouring position, said cap in said open position being spaced from said pouring lip to provide a gap therebetween, said strap operatively connecting said cap and cover to provide gravity operation of said cap by hanging it from said cover in said open and pouring position so as to increase said gap in response to swing of said pitcher from non-pouring to pouring positions and to decrease in said open position said gap back to its original dimension in response to swing of said pitcher back from pouring to non-pouring positions so that said gap is larger in said pouring position to permit

8

good pouring and is smaller in said non-pouring position to minimize required cap movement between said open and closed positions.

2. A dispensing construction for completing at least a portion of a container wall, comprising a base portion of moldable material adapted to form at least a portion of one wall thereof, said base portion having a pouring opening therein, and means integral with said base portion and extending across said opening to permit insertion of ice cubes into the container but to prevent gravity fall-out or liquid wash-out of said cubes through said opening during liquid dispensing while providing no substantial interference with liquid flow from said container, said means including at least one inwardly directed flexible finger of the same material as said base portion and integral with said base portion and extending across said opening with each said finger having its base rigidly attached to said base portion.

3. The combination of claim 2 wherein said base portion is formed of synthetic resin material having some resiliency when molded, and a plurality of said inwardly directed flexible fingers is provided which are molded of the same material as the base portion.

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