

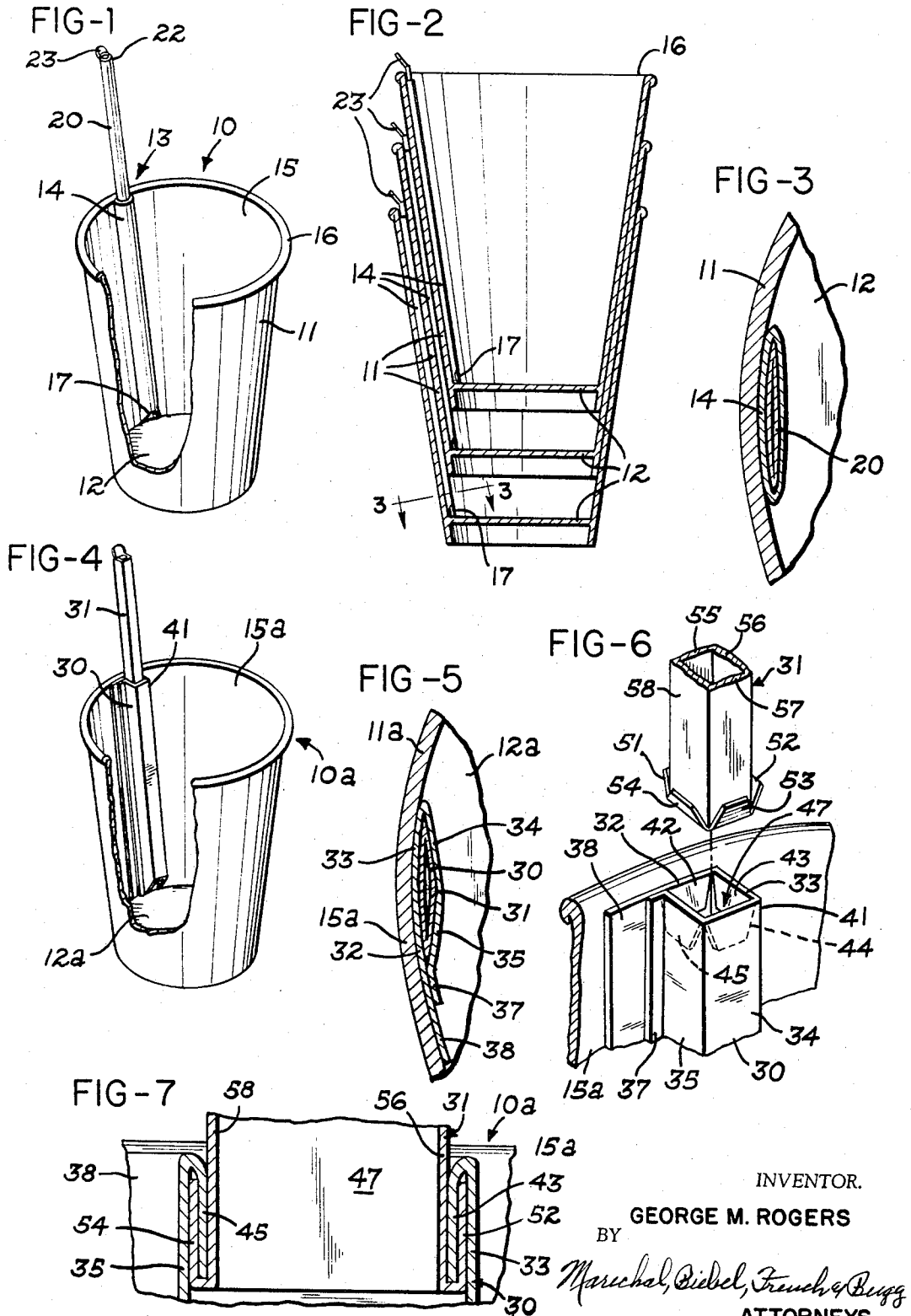
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CUP WITH ATTACHED DRINKING STRAW

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CUP WITH ATTACHED DRINKING STRAW

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ABSTRACT OF THE DISCLOSURE

A drinking cup having a telescoping straw secured along one surface on the inside thereof and movable between a retracted position wherein the straw is completely below the upper lip of the cup and an extended position wherein it is adapted to be used. A tab is provided for withdrawing the inner straw, and the lower end of the outer straw is tapered to provide a free inlet to the straw. In another form, interleaved lips are used to interconnect the inner and outer straws, and the straws are at least partially collapsible so that the cups can be stacked.

This invention relates to improvements in drinking vessels and the like, and particularly to a cup having a telescoping straw for use in withdrawing liquid therefrom.

An important object of this invention is to provide an improved cup or drinking vessel which has a built in suction tube or straw through which the liquid in the cup can be removed.

Another object of this invention is to provide a cup with dispensing tube of the aforesaid type wherein the dispensing tube is collapsible so that the cups can be stacked one within another and which will allow the dispensing member to operate effectively even after the cups are stored in a stacked position for a substantial period of time.

A further object of the invention is to provide a cup with telescoping straw of the aforesaid type wherein the straw is made of paper or plastic material which can be easily secured to the inner side wall of the cup, particularly to provide a straw arrangement wherein the inner straw cannot be withdrawn accidentally from the outer straw.

Another object of the invention is to provide an improved cup-straw combination which is simple in construction and therefore dependable in operation and inexpensive in cost, and further to provide such a combination which use cups constructed of plastic, paper, glass or other materials.

These and other objects of the invention will be apparent from the following description, the accompanying drawings and the appended claims.

In the drawing:

FIG. 1 is a perspective view partially broken away showing the cup-straw combination in accordance with the invention;

FIG. 2 is a horizontal sectional view showing several cups stacked one within the other;

FIG. 3 is a sectional view taken along the line 3-3 of FIG. 2;

FIG. 4 is a perspective view similar to FIG. 1 showing another embodiment of the invention;

FIG. 5 is a sectional view similar to FIG. 3 but taken through the embodiment shown in FIG. 4;

FIG. 6 is an exploded view showing the inner and outer tubes separated; and

FIG. 7 is an enlarged sectional view showing the manner in which the inner and outer sections of the FIG. 4 embodiment are interconnected.

Referring to the drawings wherein preferred embodiments of the invention are shown, FIG. 1 illustrates the conventional drinking cup 10 which may have the frusto-

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conical or tapered side walls 11 with the flat bottom wall 12. This cup may be made of paper, plastic, metal, or substantially any material without departing from the scope of the invention, and it is important that they be tapered so that they may be stacked, as shown in FIG. 2.

The telescoping suction tubes 13 include an outer tube 14 made preferably of plastic or paper and secured to the inner surface 15 of the side wall of the cup, as shown in FIG. 1. It can be secured in place by suitable adhesive material and, when the cup is made of plastic, it is possible to heat seal the outer tube in place. This outer tube extends from the upper edge 16 on the cup to a position adjacent the bottom wall 12 but the bottom thereof is tapered so that the liquid may flow freely into the bottom opening 17 of the tube 14.

The inner tube 20, as shown in FIG. 1, reciprocates within the outer tube 14 and has an outer diameter which is substantially equal to or slightly greater than the inner diameter of the outer tube so that there is a snug fit therebetween sufficient to hold the inner tube 20 against relative movement with respect to the outer tube 14. The upper end 22 of the inner tube 20 has lip 23 extending upwardly and outwardly therefrom so that this tube cannot be forced entirely into the outer tube 14 where it would be difficult to grasp. The lip 23 also facilitates extension of the inner tube when necessary. The length of the tube 20 can vary depending on the distance that it is to extend above the cup. Since there is no means to stop complete withdrawal of the inner tube 20, it is desirable for it to be of sufficient length that in normal use it would not be withdrawn.

Both the inner and outer tubes are made of a resilient material which can be folded against the inside surface 15 of the cup 10, as shown in FIG. 3, so that a plurality of cups can be stacked one inside another, as shown in FIG. 2. This stacking facilitates shipping, storage, and handling of the cups which thus can be used in an automatic vending machine of the types presently used to dispense coffee and soft drinks. However, when the cups are unstacked the tubes 14 and 20 return to their original shape so that passage is provided in the center of each for the flow of liquid therethrough in the usual manner when suction is applied on the top end 22 of the inner straw 20.

In use, the container is filled with the liquid to be consumed, and it is merely necessary for the user to grasp the lip 23 and withdraw the inner tube 20 to the desired position. The cooperating inner and outer tubes 14 and 20 thus provide means for sucking the liquid from the cup 10 and the fact that the outer tube 14 extends to a point adjacent the bottom wall 12 permits substantially all of the liquid to be drawn through the tubes. Since the construction is relatively inexpensive, the cup can then be discarded if desired.

Another embodiment of the invention is shown in FIGS. 4-7 wherein an alternate form of the outer and inner tubes 30 and 31 are disclosed. Specifically, the outer tube 30 includes a base wall 32 which can be glued or otherwise secured to the side wall 15a of the cup 10a. The tube 30 also has three connecting side walls 33, 34, and 35 which form the other three walls of the square outer tube, with the flap 37 on the wall 35 glued or otherwise secured to the base wall 32. Since the base wall 32 is wider than the other walls, a tab 38 extends beyond the side of the outer tube 30 to facilitate securing this tube to the surface 15a. The inner tube 31 is also square in cross-section and has a configuration which is equal to or slightly greater in size than the corresponding inner dimensions of the outer tube so that there is a snug fit therebetween to hold the inner straw 31 in position within the outer tube.

The upper end 41 of the outer tube 30 has the lips 42,

43, 44 and 45 formed on each of the side surfaces 32, 33, 34 and 35, respectively, and each of these lips is deformed to extend downwardly into the inner passage 47 of the tube 30. Similarly, the inner tube 31 has a plurality of lips 51, 52, 53 and 54 formed on the lower end thereof and they are deformed so that they are adjacent the outer side surfaces 55, 56, 57 and 58 of this tube. Consequently, when the inner tube 31 is forced into the outer tube 30 a distance greater than the length of the lips, the lips 51-54 on the inner tube are forced outwardly by their resiliency to become interleaved with the lips 42-45 on the outer tube when the inner tube is withdrawn to its outermost position, as shown in FIG. 7. Thus there is provided an inner connection between the tubes 30 and 31 which prohibits separation thereof when the inner tube 31 is extended. Also, this arrangement permits a fluid tight seal between the tubes to prevent loss of suction.

The inner and outer tubes can also be folded against the side 15a of the cup 10a since they will pivot about the four corners of each tube to be flattened, as shown in FIG. 5. Likewise, the tubes 30 and 31 can be flattened by folding them in the opposite direction to the right, as viewed in FIG. 6, where the folded thickness is reduced slightly since the extension 37 is not over folded. Accordingly, the cups 10a can be stacked as described above for shipment and storage and, since the tubes or straws 30-31 are flexible or resilient, they can be easily returned to their original shape when placed into use. This embodiment of the invention operates in substantially the same manner as that described above in connection with the embodiment shown in FIGS. 1-3.

Accordingly, the invention has provided an improved cup-straw arrangement which permits a plurality of the cups to be stacked for use in conventional coin-operated dispensing machines. The inner and outer tubular members are flexible so that they fold against the inside surface of the cup so that they can be easily stacked together without damage or requiring much additional space. In addition, one of the embodiments provides interleaved lips which prevents the inner straw from being separated from the outer straw. The inner and outer tubes may be made of paper, plastic, or other flexible or resilient materials, and the cups may be made of these or any conventional materials. It is not necessary that the tubes be constructed of the same material of which the cups are made.

While the forms of apparatus herein described constitute preferred embodiments of the invention, it is to be understood that the invention is not limited to these precise forms of apparatus, and that changes may be made therein without departing from the scope of the invention which is defined in the appended claims.

What is claimed is:

1. A paper or plastic cup having tapered side and bottom walls, comprising an elongated outer tubular member secured to the inside surface of said side wall and being substantially coextensive with the height of said side wall, means defining an opening adjacent said bottom wall for the flow of liquid into said outer tubular member from the cup, said outer tubular member being flexible so that it will collapse when flattened when two or more cups are stacked together, an inner tubular member snugly telescoped within said outer tubular member for reciprocation therein so that said inner tubular member can extend above the cup, said inner tubular member also being flexible for collapse with said outer tubular member, said inner tubular member adapted to be moved upwardly to

cooperate with said outer tubular member to provide a suction tube through which liquids can be withdrawn from the cup, said inner and outer tubular members adapted to collapse against the side walls of the cup when two or more cups are stacked one within another, cooperating means on said inner and outer tubular members to limit withdrawal of said inner tubular member from said outer tubular member, said cooperating means includes first lip means extending downwardly from the upper end of said outer tubular member into the passage defined by said outer tubular member and second lip means on the lower edge of said inner tubular member, and said second lip means extending outwardly and upwardly to become interleaved with said first lip means when said inner tubular member is moved upwardly to hold said tubular members together.

2. A cup as defined in claim 1 wherein said inner and outer tubular members are adapted to be at least partially folded against the side of the cup.

3. A cup as defined in claim 2 wherein said inner and outer tubular members are substantially square in cross-section and are foldable about the corners thereof to fold flat against the side of the cup.

4. A paper or plastic cup, comprising tapered side walls and a bottom wall, a radial outwardly extending peripheral flange on the upper edge of said tapered side walls adapted to provide means for handling in a conventional vending machine, an elongated outer tubular member secured to the inside surface of said side wall and having its uppermost end disposed below said upper edge, said outer tubular member having its lower end cut at an angle with the longer portion being disposed adjacent said bottom and side wall and the shorter portion disposed opposite said longer portion defining an opening adjacent said bottom wall for the flow of liquid into said outer tubular member from the cup, said outer tubular member being flexible so that it will at least partially collapse when two or more cups are stacked together, an inner tubular member snugly telescoped within said first tubular member for reciprocation therein so that said inner tubular member can extend above the cup or be stored externally within said outer member so that a cover can be placed on said peripheral flange in the conventional manner, said inner tubular member also being flexible to collapse with said outer tubular member, said inner tubular member adapted to be moved upwardly to cooperate with said outer tubular member to provide a suction tube through which liquids can be withdrawn from the cup, and a tab on the upper end of said inner tubular member for use in grasping said inner member to withdraw it from said outer tubular member.

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