This invention relates to vessels for holding liquids and particularly to a baby cup which is non-spillable.

Various types of baby cups, suitable for use by babies for weaning and subsequently for drinking, are well known. The present cup may serve as a weaning cup or as a normal drinking cup for babies and has the advantage of being non-spillable. To provide this result, the cup is formed with conduits having exits at diametrically opposite positions on the edge of the cup, each conduit having an entrance at a point above the normal level of the liquid in the cup. Once the liquid is drawn into the tube, it may be withdrawn in the normal drinking manner. To prevent the liquid from continuing to flow through the siphon action, a small opening is made in each conduit to permit air to enter and break the flow of liquid.

Several modifications having the same basic principle are disclosed hereinafter, the conduits being either formed from tubing of a metal or plastic nature or by grooves molded in an insert within the outer shell of the cup to form conduits. This grooved type of cup lends itself to easy and complete cleaning, since when the insert is removed from the shell, the grooves may be easily reached with a cleaning brush.

The principal object of the invention, therefore, is to facilitate the drinking of liquids by babies.

Another object of the invention is to provide an improved weaning or drinking cup for babies.

A further object of the invention is to provide a drinking cup for babies which is non-spillable.

A better understanding of this invention may be had from the following detailed description when read in connection with the accompanying drawings, in which:

Fig. 1 is a plan view of a drinking cup embodying the invention;
Fig. 2 is a cross-sectional view of the cup shown in Fig. 1 and taken along the line 2—2 of Fig. 1;
Fig. 3 is a cross-sectional view of the cup shown in Fig. 1 and taken along the line 3—3 of Fig. 1;
Fig. 4 is a partial cross-sectional view of the cup shown in Figs. 1, 2 and 3 showing an opening for breaking the siphon;
Fig. 5 is a cross-sectional view of another modification of a drinking cup embodying the invention;
Fig. 6 is a partial side view of the modification shown in Fig. 5 and taken along the line 6—6 of Fig. 5;
Fig. 7 is an elevational cross-sectional view of a third modification of a drinking cup embodying the invention;
Fig. 8 is a cross-sectional view of the modification shown in Fig. 7 and taken along the line 8—8 of Fig. 7;
Fig. 9 is a cross-sectional view of a fourth modification of a drinking cup embodying the invention;
Fig. 10 is a flattened view of the surface of the insert of the modification shown in Fig. 9;
Fig. 11 is a bottom view of the insert of a fifth modification of a cup embodying the invention; and
Fig. 12 is a sectional view of a modification of the cup shown in Fig. 11.

Referring now, to the drawings in which the same reference numerals refer to the same elements, and particularly to Figs. 1 to 4, inclusive, an outer shell 5 having one or more handles 6 has an upper collar portion 7 serving as a lid or cover with lip portions 9 and 10. The collar portion 7 has a flat closure base 12, the portion 7 being insertable in the shell 5, as indicated in Figs. 2 and 3.

An opening is provided in each of the lips 9 and 10 in which are two tubes or holes 14 and 15, respectively, tube 14 being shaped in a circle and terminating at 16. Tube 15 has the same but a reverse configuration and terminates at 17. Each tube is provided with a small opening 19 as shown in Figs. 3 and 4. After the shell 5 is supplied with the liquid, the collar 7, with its tubes 14 and 15, is inserted therein.

To obtain the liquid 21 from the cup, it is tilted as shown in Fig. 3 and suction applied to the tube 14. The liquid will then flow into the tube 16 and be obtained at the exit or lip 9, since the level of the liquid is above the entrance 16 as shown at 21. Should the cup be turned completely over on its side and the liquid is below the opening 19, the liquid will not flow through either tube by siphon action because air will enter the openings 19. In this manner, the cup becomes non-spillable, except perhaps for a slight amount of liquid between the points 22 and 23 and the exit points of the tubes 14 and 15. The openings do not prevent the removal of the liquid when it is being drawn out of the cup when the liquid level is below the openings 19, because the openings are proportional to the size of the tubes and insufficient air enters the tube during the withdrawal function. By the use of the two tubes, an air vent is always present regardless of which tube is being used to withdraw the liquid.

Referring now, to Figs. 5 and 6, another modification using tubes is illustrated. In this modification, the shell 25 has an insert 26 therein, the insert 26 having an upper collar portion 27 with a central handle knob 28. Diametrically opposite one another are tube exits 30 and 31, the exit 30 being at the end of a tube 33 which goes downwardly and to the rear in Fig. 5 and then circles around at the bottom of the insert 26 and terminates at point 34. The exit 31 is from the tube 36 which goes downwardly and around the opposite side of the insert 26 and terminates at point 37. In this modification, the liquid is placed in insert 26 as shown at 38.

The modification shown in Figs. 5 and 6 operates on the same principle as the modification shown in Figs. 1 to 4, inclusive; namely, that when the cup has liquid there in and is laid on its side, the liquid will not flow out of the cup except for a small amount from the high points on the tubes 33 and 36 and the exit points. To prevent the siphon action, small openings 40 and 41 are made through the insert 26 and into the respective tubes 33 and 36, the openings being of a size in accordance with the size of the tubes as mentioned above.

A third modification embodying the same principle as that described in connection with Figs. 1 to 6, inclusive, is shown in Figs. 7 and 8. In this modification, the shell 44 with its handles 45 has an upper collar 47 similar to the modification shown in Figs. 1 to 4, inclusive. That is, the collar 47 has a base portion 48 and two lip portions 49 and 50. Attached to the collar 47 is a tapered insert 52 having a hand knob 53 which has been molded with two conduits. One conduit 54 extends through the lip portion 49 and goes downwardly and to the opposite side of the cup and then around and exits at 55. The other conduit 56 from lip 50 extends to the opposite side of the cup and then around and exits at 57. The liquid in this modification is placed in the shell 44 and may be withdrawn in the same manner as described above, the cup being non-spillable in the same manner.
In this modification also, the siphon action is broken by the small holes 58 extending through the insert 62 and into the bottom of the two conduits. A fourth modification is shown in Figs. 9 and 10, in which a shell 60 with its handle 61 has an insert 62 having an upper portion 63 with lip sections such as shown at 64. In this modification, conduits are formed between the grooves in insert 62 and shell 60, the rear conduit being shown by dotted lines 65 as extending downwardly, then to the right and then reversing itself and going upwardly and exiting at 66. On the opposite side of the cup, a conduit 68 goes downwardly and to the right, reverses itself, and has an exit at 69. To prevent siphoning, two openings 70 and 71 are provided in the conduits 65 and 68, respectively. As mentioned above, this modification is easily cleaned by simply removing the insert 62 and brushing the grooves in the insert with a brush.

The fifth modification shown in Fig. 11 is of the general type having a shell 73 and an insert 74. The exits of the grooves cut in the sides of the insert are in the same position as shown in Figs. 9 and 10. However, the lower portions of the conduits formed between the shell 73 and the insert 74 are positioned in the bottom of the insert 74 as shown at 76 and 77, this modification having a bottom while the modification shown in Figs. 9 and 10 has no bottom to the insert. The siphon-breaking holes in the conduit are shown at 78 and 79.

A modification of the lower end of the inserts 62 and 74 is shown in Fig. 12. In this form, the grooves may be in a tapered bottom section of insert 82 in a shell 83, the conduit 85 being formed in portion 81 and conduit 86 being formed in portion 87 of the tapered section.

In all of the above modifications, the same principle of operation is embodied. That is, the liquid is obtained through an exit of a tube or conduit which causes the cup and has a portion thereof at the opposite side of the cup from the exit. The entrance to the tube or conduit is at the same side as the exit so that all of the liquid may be easily removed from the cup. At the same time, however, since the tubes have sections at the opposite sides of the cup, the cup becomes non-spillable except for a small portion of liquid near the exit ends of the tubes or conduits. The small openings in the bottom portion of the tubes or conduits prevent siphon action from continuing after the suction is removed from the exit ends of the tubes or conduits.

It is to be noted that the handles are positioned between the exit points to prevent the cup from rolling to spillable positions, although other means to prevent excessive rolling may be used.

1. A non-spillable, liquid-dispensing cup comprising a shell, a closure member for said shell having a pair of exit openings adjacent the edge thereof and positioned diametrically opposite one another, said closure member having a substantially flat portion near the top of said shell, and a pair of conduits extending from said exit openings to a point adjacent the bottom of said cup into and terminating within said shell, said conduits having entrance openings within said shell and adjacent said flat portion of said closure member and on the same side of said shell as said exit openings with a portion of each conduit being positioned along the opposite sides of said shell from the positions of said exit and entrance openings of each of said respective conduits, one of said conduits providing an air vent when any liquid in said cup is being withdrawn therefrom through said other conduit.

2. A non-spillable cup in accordance with claim 1 in which said conduits are tubes having circular portions extending substantially across the internal diameter of said shell.

3. A non-spillable cup in accordance with claim 1 in which said conduits are grooves formed in the walls of said closure member.

4. A non-spillable cup in accordance with claim 1 in which small openings are provided in said conduits at points substantially the maximum distance from said exit openings, said cup having at least one handle positioned equidistant from each exit opening.

5. A drinking cup comprising a substantially cylindrical shell having a fixed closure member at one end thereof, an attachable and detachable closure member at the other end of said shell, said last-mentioned closure member having a substantially flat portion near the top of said shell and having a pair of diametrically positioned openings in the rim thereof, and a pair of conduits having an end of each at one of said openings and extending into and terminating within said shell, each conduit extending to a point adjacent said fixed closure member and back to a point adjacent said detachable closure member, the other end of each conduit being on the same side of said shell as its respective first-mentioned end, a portion of each conduit being positioned adjacent said shell opposite from its respective ends.

6. A drinking cup in accordance with claim 5 in which said conduits have openings therein smaller than the size of said conduits, said openings being positioned at substantially the maximum distance from said first-mentioned openings, each conduit having one handle positioned equidistant between said rim openings.

7. A drinking cup in accordance with claim 5 in which said conduits are tubes connected to said openings and attached to said attachable and detachable closure member, openings smaller than said first-mentioned openings being positioned in said conduits at substantially the maximum distance from said first-mentioned openings.

8. A drinking cup in accordance with claim 5 in which said attachable and detachable closure member is a substantially cylindrical insert adapted to be accommodated within said shell, and said conduits are formed by grooves in said insert and the inner surface of said shell, openings smaller than said first-mentioned openings being positioned in said conduits at substantially the maximum distance from said first-mentioned openings.

9. A drinking cup in accordance with claim 8 in which each of said grooves pass within said shell along one side of said shell, form a loop at the bottom of said shell and then return along the same side of said shell.

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