

PATENT SPECIFICATION

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(54) FEEDING BOTTLES

(71) I, CHUN-CHENG LIN, a Citizen of the Republic of China, of No. 430, Simen Road, Tainan, Taiwan, Republic of China, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to feeding bottles, and more particularly concerns an infant's feeding bottle with a suction tube.

In using a conventional feeding bottle, the infant has to lie down and hold the bottle downwardly inclined, so that the liquid in the bottle is able to be sucked out through a teat in the bottle mouth. When in a sitting or standing position, the infant has to tilt his head backwards, thus not only causing fatigue but also having the danger of choking.

An object of the present invention is to provide a feeding bottle which may be used at an angle, so that an infant may suck out the contents of the bottle however he is positioned.

According to the present invention, there is provided a tubular feeding bottle having an axial suction tube therein with an outlet rotatably supported in the mouth of the bottle, the tube being provided with a pair of inlets located near the bottom and the mouth of the bottle respectively, said inlets being offset from the axis of rotation of the tube such that the tube is caused by gravity to rotate to a position where said inlets depend downwardly from the tube when the bottle is non-vertically oriented, each inlet including a respective valve adapted to close said inlet when the bottle is oriented with said inlet uppermost relative to the other inlet and to open said inlet when lower than the other inlet.

With such a bottle, almost all the liquid in the bottle may be sucked out through the tube at any orientation of the bottle.

The invention will now be more particularly described by way of example with reference to the accompanying drawings, in which:

Figure 1 is a side view of an infant's feeding bottle;

Figure 2 is a sectional view of the bottle of Figure 1;

Figure 3 shows the configuration of an inlet of the suction tube of the bottle;

Figures 4 and 5 depict inclined using positions of the bottle, the former showing the bottle inclined downward and the latter upward; and

Figure 6 depicts an alternative embodiment of the teat of the bottle in longitudinal cross section.

The feeding bottle shown in Figures 1 and 2 comprises a bottle 1 of conventional tubular shape, an axial suction tube 2, a fixing disc 3, a teat 4 and a cap 5.

The suction tube 2 is provided with two inlets 21 and 22 offset from the axis of the tube 2 in a common vertical plane and extending respectively upwardly toward the cap 5, and downwardly toward the bottom of the bottle. An outlet 23 of the suction tube extends axially from the tube 2 towards the centre of the cap 5 and is connected by screwing threads 23a of the outlet to a flanged bushing 231 which extends through an aperture in the disc 3 and has its flange rotatably received in a recess of the disc 3 around the aperture thereof. The disc 3 is placed on top of the bottle mouth, the teat 4 being disposed thereon with its inlet 41 aligned with the bushing 231. The teat 4 has an outlet hole 42, and extends through a central aperture 51 of the cap 5 which is screwed tightly to threads provided on the neck of the bottle around the mouth.

At the ends of the outlets 21, 22 respectively are snapped or screwed on caps 21a, 22a with a plurality of openings 211, 221

221, as shown also in Figure 3. The ends of inlets 21, 22 are enlarged to receive balls 212, 222 respectively which will fall within the frusto-conical enlarged parts 213, 223 according to the orientation of the bottle, to close the inlets 21, 22 respectively.

In use, as shown in Figure 4, the bottle is held at an angle inclined downwardly, liquid 6 within the bottle accumulating at the bottle mouth. Gravity causes the suction tube to rotate to a position where the inlets 21, 22 depend from the tube and inlet 21 is submerged in the liquid, while the balls 212, 222 also move down under gravity. The ball 212 moves away from the frusto-conical part 213 of inlet 21 to open the inlet 21 while ball 222 falls into the frusto-conical part 223 of inlet 22 to close this inlet. When suction is applied by an infant at the teat 4, liquid 6 passes successively through openings 211, inlet 21, outlet 23 inlet 41 of teat 4, outlet 42 of the teat and into the infants mouth, the infant in this case feeding in a lying down position with face up.

In the case of the infant feeding in a sitting or standing position, the bottle is oriented as shown in Figure 5. The inlet 22 is immersed in the liquid 6 accumulated at the bottom of the bottle, and the inlet 21 is closed by the ball 212, while the inlet 22 is open. Liquid 6 passes through openings 221, inlet 22, outlet 23 and teat 4 when being sucked out. The infant can easily feed without tilting his head backwards. As the inlets 21, 22 are located close to the cap and bottom of the bottle respectively, the contents of the bottle can be sucked out almost completely. The suction tube can easily be cleaned after use by dismantling from within the bottle and washing with water.

Figure 6 depicts an alternative embodiment wherein a conventional larger teat 4' with a hole 42' is used. In this case, to eliminate the difficulty of suction due to the larger space 41' inside the teat compared with that within the teat described above, the bushing 231 in the former embodiment is substituted by a bushing 231' having an upward extension adapted to take a second teat 4' of a smaller size. Teat 4' also has a hole 42' on top.

As conventional feeding bottles and teats have already been standardized, the suction tube of the present invention may be manufactured in corresponding standardized sizes. In preparing milk in the bottle with milk powder, the free rotation of the suction tube would also serve as a stirring means.

WHAT I CLAIM IS:—

1. A tubular feeding bottle having an axial suction tube therein with an outlet rotatably supported in the mouth of the bottle, the tube being provided with a pair of inlets located near the bottom and the mouth of the bottle respectively, said inlets being offset from the axis of the tube such that the tube is caused by gravity to rotate to a position where said inlets depend downwardly from the tube when the bottle is non-vertically oriented, each inlet including a respective valve adapted to close said inlet when the bottle is oriented with said inlet uppermost relative to the other inlet and to open said inlet when lower than the other inlet.

2. A bottle as claimed in claim 1, wherein said inlets are offset from the tube in a common vertical plane.

3. A bottle as claimed in claim 1 or 2, wherein the inlet near the bottom of the bottle is open towards said bottom, and the inlet near the mouth of the bottle is open towards said mouth.

4. A bottle as claimed in claim 1, 2 or 3, wherein the valve of each inlet comprises a ball displacably received in a pocket, said pocket communicating with the suction tube via a frusto-conical seat adapted to receive the ball to close the inlet, the ball being retained in the pocket by a closure having a plurality of openings located on the side of the pocket remote from said frusto conical seat.

5. A bottle as claimed in any preceding claim wherein the outlet of the suction tube is connected to a flanged bushing rotatably received in an apertured disc located on the mouth of the bottle.

6. A bottle as claimed in claim 5 wherein a top incorporating a teat is screwed on to the mouth of the bottle, said teat communicating with the suction tube via said bushing and contacting said disc.

7. A bottle as claimed in claim 5 wherein said bushing has an upward extension over which an inner teat is attached, a top incorporating an outer teat disposed over the inner teat being screwed on to the mouth of the bottle.

8. A feeding bottle substantially as herein described with reference to Figures 1 to 5 of the accompanying drawings.

9. A feeding bottle substantially as herein described with reference to Figure 6 of the accompanying drawings.

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Figure 6 depicts an alternative embodiment wherein a conventional larger teat 4' with a hole 42' is used. In this case, to eliminate the difficulty of suction due to the larger space 41' inside the teat compared with that within the teat described above, the bushing 231 in the former embodiment is substituted by a bushing 231' having an upward extension adapted to take a second teat 4' of a smaller size. Teat 4' also has a hole 42' on top.

As conventional feeding bottles and teats have already been standardized, the suction tube of the present invention may be manufactured in corresponding standardized sizes. In preparing milk in the bottle with milk powder, the free rotation of the suction tube would also serve as a stirring means.

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2. A bottle as claimed in claim 1, wherein said inlets are offset from the tube in a common vertical plane.

3. A bottle as claimed in claim 1 or 2, wherein the inlet near the bottom of the bottle is open towards said bottom, and the inlet near the mouth of the bottle is open towards said mouth.

4. A bottle as claimed in claim 1, 2 or 3, wherein the valve of each inlet comprises a ball displacably received in a pocket, said pocket communicating with the suction tube via a frusto-conical seat adapted to receive the ball to close the inlet, the ball being retained in the pocket by a closure having a plurality of inlet openings located on the side of the pocket remote from said frusto conical seat.

5. A bottle as claimed in any preceding claim wherein the outlet of the suction tube is connected to a flanged bushing rotatably received in an apertured disc located on the mouth of the bottle.

6. A bottle as claimed in claim 5 wherein a top incorporating a teat is screwed on to the mouth of the bottle, said teat communicating with the suction tube via said bushing and contacting said disc.

7. A bottle as claimed in claim 5 wherein said bushing has an upward extension over which an inner teat is attached, a top incorporating an outer teat disposed over the inner teat being screwed on to the mouth of the bottle.

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