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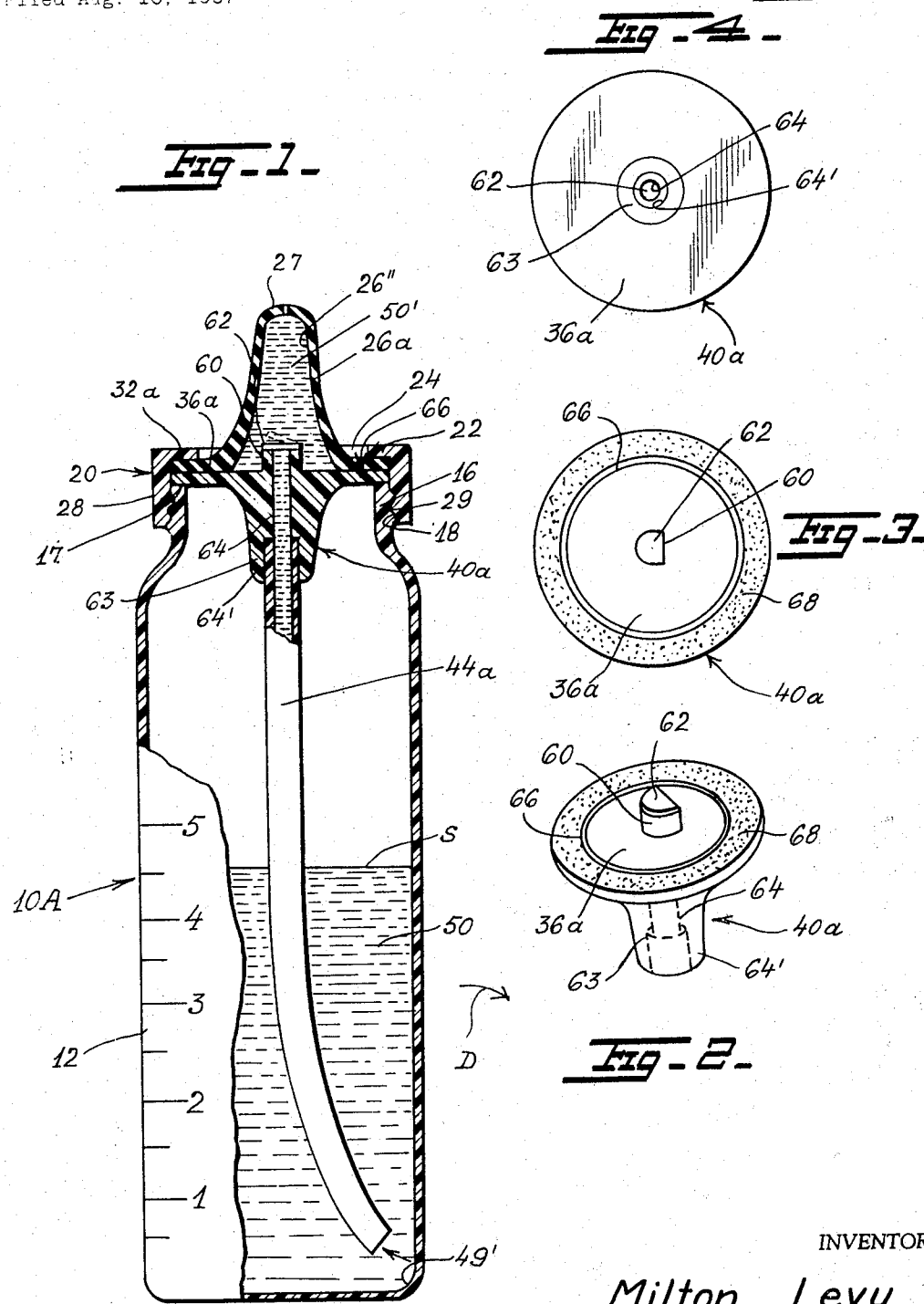
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3,441,160

ANTICOLIC STRAW FOR NURSING BOTTLES

Filed Aug. 16, 1967

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ANTICOLIC STRAW FOR NURSING BOTTLES
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ABSTRACT OF THE DISCLOSURE

An anticollic straw for nursing bottles having an elongated tubular body with a valve device at one end thereof whereby milk is permitted to flow into the nipple but cannot flow back into the bottle. The other end of the body is open and slanted.

This invention relates to valve and siphon attachments particularly suitable for nursing bottles of any size and shape and for use with any size or shape nipples.

A number of difficulties are experienced in using nursing bottles in the feeding of infants. Among these difficulties are the following:

(1) The bottle has to be held in an inverted position which is awkward and causes strain in the arm, neck and shoulder muscles of the baby.

(2) It is believed responsible for a common type of colic in infants caused by air swallowing. Causes of air swallowing include collapsing of the nipple requiring excessive sucking action and the partial filling of the nipple with air rather than replacement with liquid as liquid is withdrawn.

The object of this invention is to provide a nursing bottle straw which will prevent an infant from swallowing large amounts of air which is believed responsible for a common type of colic known as aerophagia (air swallowing).

Another object of this invention is to provide a nursing bottle straw which will siphon the liquid from any size or shape nursing bottle used with any shape or size nipple while said bottle is held in any position, permitting the baby to drink the liquid from a sitting position which will greatly reduce the strain on arm, neck and shoulder muscles.

Still another object of the invention is to provide an attachment which may be fitted to a nursing bottle to transfer the liquid from the bottom portion of the bottle to the nipple in such a manner that the bottle may be maintained with the nipple end of the bottle upward so as to permit the user to imbibe the liquid while in a sitting position.

It is another object of this invention to provide a nursing bottle straw with a valve which prevents collapse of the nipple by keeping the internal portion of the nipple filled with liquid.

It is a further object of this invention to provide a nursing bottle straw which is sanitary, inexpensive to manufacture, long lasting, durable and more reliable in operation than other anti-colic nursing devices.

Still another object of this invention is to provide an efficient, low-cost straw which can be easily cleaned and sterilized and can be readily placed in a nursing bottle without being inserted into the nipple.

This invention overcomes the difficulties and disadvantages of prior valve structures used in anti-colic nursing devices which must be inserted by the mother into the nipple. This anti-colic nursing bottle straw is placed on the neck of the bottle and does not necessitate the handling of the nipple by the mother after it has been sterilized.

Still another object of this invention is to provide a siphon device which will enable the baby to empty the bottle completely while in a sitting position.

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It is still another object of this invention to provide a siphon device suitable for nursing bottles which because of its two-piece construction is readily accessible for inspection and sterilization and which may also be easily stored in a clean bottle between use.

It is a further object of this invention to provide a nursing bottle arrangement which greatly reduces the swallowing of air by use of a flexible flap valve.

It is a further object of this invention by use of the flexible flap valve to greatly minimize the swallowing of air by the user.

It is another object of this invention to provide a valve and assembly which is simple in construction, inexpensive to manufacture, reliable and foolproof in operation, which can be readily inspected, easily cleaned and effectively sterilized.

It is another object of this invention to provide an anti-colic nursing bottle straw which can be used on any size neck bottle and with any size nipple. Prior anti-colic nursing devices can only be used on one particular size bottle and nipple whereas this invention, by means of trimming the circumference of the valve to fit the neck of the bottle, can be universally used and will fit any bottle (small or wide neck) and any size nipple.

Another object of this invention is to provide a valve which will keep the nipple filled with liquid drawn up from the siphon tube and to prevent said liquid from leaking back into the bottle. This liquid which is held in the nipple is another means of preventing air from collecting therein and results in the baby getting a continuous flow of liquid out of the nipple without said liquid being mixed with air thus minimizing the injurious effects of air swallowing which is one of the predominant causes of colic in nursing infants.

Brief description of the views of the drawings

FIGURE 1 is a vertical sectional view partially in side elevation of an anti-colic straw embodying the invention shown applied to a nursing bottle.

FIGURE 2 is a perspective view of the flap valve member employed in the bottle of FIGURE 1.

FIGURES 3 and 4 are top and bottom plan views respectively, of the valve member of FIGURE 2.

FIGURE 5 is a vertical sectional view similar to FIG. 1 of an anticollic straw embodying a modified form of the invention.

FIGURE 6 is an exploded perspective view of parts of the straw and associated parts of the modified form of the invention.

FIGURE 7 is an enlarged vertical sectional view of a flap valve member taken on line 3-3 of FIGURE 6.

FIGURE 8 is a transverse sectional view taken on line 4-4 of FIGURE 7.

Detailed description of the views of the drawings

Referring in detail to the various views of the drawings, in FIG. 1 there is shown a nursing bottle 10A generally cylindrical having a neck 16 with external threads 18 and a flat upper end edge 17.

In accordance with the invention, an anti-colic straw is positioned in the center of the bottle extending the length thereof. The straw comprises an elongated body 44a open at the both ends, with one end, the bottom end as viewed in FIG. 1, slightly curved and terminating adjacent the juncture between the side and bottom walls of the bottle as indicated at 49'. The other top end of the body carries an anti-air sucking valve device 40a. The valve device consists of an elongated tapered body 63 with a central bore 64. The top end as viewed in FIG. 1 terminates in an annular flange 36a which seals off the top end of the bottle. The body is formed with a tubular extension 60 at the top around the bore 64, the upper

end of the extension being closed by a movable flap 62. The lower surface of the flange is provided with an annular coating of adhesive 68 adjacent the periphery of the surface thereof whereby the flange device is secured to the top end edge 17 of the neck 16 of the bottle 12. The flange can also be adhered to the nipple. At its bottom end, the bore 64 is enlarged and fitted therein is a top open end of the body 44a of the straw.

A flexible rubber nipple 26a is provided with a bottom flange portion 32a seated on the top surface of the flange 36a and secured in position by an angled internally screw-threaded cap 20 threaded on the external threads 18 of the neck 16 of the bottle.

In the use of the straw 44a, the bottle 12 will be filled with milk, fruit juice or other beverage or liquid 50 to any desired extent. By pressing the external nipple manually a few times between the fingers, the interior 26' of nipple 26a, the straw 44a will be filled with liquid 50' and without need for inverting the bottle. Now the bottle can be turned upright to the position shown in FIG. 1 or can be inclined to any desired extent, and can be given to a baby for self-feeding.

If the bottle 12 is slightly inclined in a clockwise direction, as indicated by arrow D in FIG. 1, more thorough effective removal of the entire body of liquid 50 in the bottle will be effected. The flange 36a of the valve device and nipple 26a defined a closed chamber 26'' which is adapted to be filled with liquid 50'.

Flange 36a of the valve member may be provided with a circumferential groove or grooves 66 in order to facilitate trimming the flange to fit the valve member to various sized bottle necks.

When the baby sucks and compresses the nipple 26a, air pressure on the surface S of the body of liquid will force the liquid up through straw 44a and lift flap 46. Compression of the nipple and suction exerted thereon will result in a continuous flow of liquid out of nipple 26a through hole 27, without a mixture of air bubbles.

In FIGS. 5 to 8, inclusive, a modified form of tubular anticolic straw is shown. In this form, the straw is connected to the nipple 26. The body 44 of the straw is shown extending straight downwardly axially of the bottle 12 with a slanted bottom open end 47. A valve member 40 is fitted over the top open end of the body of the straw. The valve member has a tubular body open at the bottom and closed at the top. The top end of the body of the valve member is provided with an arcuate-shaped slit 45, thereby forming a flap 46.

A nipple assembly closes the top end of the bottle 12 and includes a nipple 26 formed with an annular groove 34 defining an upper flange 32 and a bottom flange 30. A flat disc 36 is secured to the bottom surface of the lower flange 30 by adhesive 39. The top portion 22 of an angled cap 20 fits in the groove 34 of the nipple 26 and the side portion 28 of the cap is formed with internal screw threads and mesh with the threads 18 on the neck 16. A central hole 38 is formed in disc 36 and receives the squeezed closed top end of the valve member 40, the diameter of the valve member being larger than the diameter of the hole 38.

The straw 44 functions similarly to straw 44a of FIG. 1. In both forms of the invention, a flow controlling device in the form of a movable flap is provided. The valve member is simple in construction, inexpensive to manufacture,

reliable and foolproof in operation, easily cleaned and effectively sterilized.

I claim:

1. A device of the kind described for use with a nursing bottle of the type having a nipple provided with a flange adapted to be compressed against the open neck of the bottle so as to close said bottle, comprising a valve member having an elongated tapered plastic body with a central bore, an integral peripheral flange on the top end of the body adapted to be sealed between the flange of the nipple and the neck of the bottle, and an anticolic tubular straw operatively connected to the bottom end of the body, communicating with the bore in the body and extending substantially the length of the bottle.

2. A device of the kind described for use with a nursing bottle of the type having a nipple provided with a flange adapted to be compressed against the open neck of the bottle so as to close said bottle as defined in claim 1, wherein the bore at its bottom end is enlarged to receive fittingly the top end of the straw.

3. A device of the kind described for use with a nursing bottle of the type having a nipple provided with a flange adapted to be compressed against the open neck of the bottle so as to close said bottle, as defined in claim 1 wherein the surface of the flange on the body is provided with a coating of adhesive along its periphery.

4. A device of the kind described for use with a nursing bottle of the type having a nipple provided with a flange adapted to be compressed against the open neck of the bottle so as to close said bottle, as defined in claim 1, and an integral tubular extension on the top of the body around the bore therein, said extension communicating with the bore in the body and being closed at the top thereof by a movable flap.

5. A device of the kind described, for use with a nursing bottle of the type having a nipple provided with a flange adapted to be compressed against the open neck of the bottle so as to close said bottle, as defined in claim 2, and an integral tubular extension on the top of the body around the bore therein, said extension communicating with the bore in the body and being closed at the top thereof by a movable flap.

6. A device of the kind described for use with a nursing bottle of the type having a nipple provided with a flange adapted to be compressed against the open neck of the bottle so as to close said bottle as defined in claim 3, and an integral tubular extension on the top of the body around the bore therein, said extension communicating with the bore in the body and being closed at the top thereof by a movable flap.

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