

Title: BABY BOTTLE ASSEMBLY

BACKGROUND OF THE INVENTION

Baby Bottles of the type intended for reuse, that is of glass or an equivalent rigid synthetic resinous material capable of being washed and sterilized, have conventionally been provided with rather narrow mouths.

The narrow mouth, or more particularly the mouth rim, directly receives the annular flange of a conventional nipple which is in turn sealed to the rim by a mounting collar.

In order to facilitate cleaning of the bottles, it has been proposed to provide bottles with wide mouths, that is mouths with a diametric dimension only slightly less than that of the bottle itself. A bottle so formed is easily cleaned and sterilized, with the interior of the bottle readily visible through the wide mouth and with the actual filling of the bottle greatly simplified.

However, a problem arises in accommodating the conventionally sized nipples to the wide mouth bottles. One solution to this problem involves the use of removable adapters which can overlies and project inwardly of the mouth rim to provide a support for the conventional nipples.

The provision of an adapter, while allowing use of a conventional size nipple, also gives rise to problems. Most particularly, it is not an infrequent occurrence that the nipple is mounted to the bottle without first positioning the adapter. Basically, the nipple is lightly frictionally retained within the mounting cap and the cap and nipple mounted as a unit. As such, the nipple will appear to be properly seated even in the absence of the adapter. However, the absence of the adapter will become immediately apparent in that as the bottle is inverted or as soon as any pressure is applied to the nipple, the nipple will retract into the bottle through the wide mouth and the liquid in the bottle will discharge in an uncontrolled manner. Thus, the proper positioning of the adapter is essential.

SUMMARY OF THE INVENTION

The present invention involves a baby bottle assembly utilizing a wide mouth bottle, a conventional size nipple, an adapter to accommodate the nipple to the wide mouth, and a mounting collar. In addition, and more specifically, the invention, through a unique interrelationship between the components, provides a system for physically indicating the absence of the adapter, as the nipple is mounted.

More particularly, the mounting collar and bottle neck are provided with cooperating fasteners, preferably aligned discontinuous threads peripherally about the exterior of the neck and similar threads about the interior of the collar. With the adapter properly seated on the bottle rim, the annular top panel of the collar will, upon a mounting of the collar on the bottle, engage the adapter, either directly or through the nipple, and define the extent of telescopic engagement of the collar over the bottle neck. This engagement is such as to position the complementary fastener means or screw threads for positive and continuous engagement, thus providing for a mounting of the assembly in a substantially conventional manner.

However, the respective positioning of the threads on the bottle neck and collar skirt are such whereby in the absence of the adapter upwardly positioning the collar, a continuous threading of the collar on the neck will quickly move the collar threads below the neck threads at which point the collar will freely spin on the neck, providing both a visual and tactile indication that the adapter is missing and the assembly cannot be sealed. At this stage, the nipple remains loosely frictionally retained by the collar, and as

such, the problem can be easily remedied by removing the collar and nipple and positioning the adapter.

Further specifics of the invention will become apparent from the details of the invention as more fully hereinafter presented and claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is an exploded elevational view of the assembly components;

Figure 2 is a vertical cross-section through the mounted nipple with the adapter positioned; and

Figure 3 is a vertical cross-section through the mounted nipple with the adapter missing.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring now more specifically to the drawings, the baby or nursing bottle assembly of the invention includes a bottle 10 preferably of constant diameter or cross-sectional area for the full height thereof to an upper neck 12. The neck 12 will normally be of slightly less cross-sectional area or diameter than the main body of the bottle with a bottle shoulder portion 14 defined between the neck and body of the bottle 10. The neck 12 defines the mouth 16 through which the

contents of the bottle 10 are introduced and removed. This mouth 16 is a wide mouth, that is substantially larger than the mouth of a conventional baby bottle and of a size which cannot in itself accommodate a conventional baby bottle nipple, herein indicated by reference numeral 18.

The annular mounting flange 20 of the nipple 18 is diametrically substantially smaller than the rim 22 of the bottle mouth 16 and cannot directly seat thereon peripherally thereabout. The relative size relationship will be readily apparent from Figures 2 and 3 of the drawings.

In order to accommodate the nipple 18 to the wide mouth 16, an annular adapter 24 is provided. The adapter 24 includes a peripheral lip 26 which seats on the mouth rim 22 completely thereabout, and a depending peripheral skirt 28 which is received within the mouth 16 immediately below the rim 22 for a positioning of the adapter 24. It is contemplated that the exterior surface of the positioning skirt 28 be slightly downwardly and inwardly inclined, as in fact is the inner face of the rim portion of the mouth to provide complementary guide surfaces facilitating an alignment and insertion of the adapter in conjunction with surfaces which both effect a positive liquid seal therebetween and are readily releasable for removal of the adapter 24.

The adapter extends sufficiently radially inward of the positioning skirt 28 to define a support ledge 30 with an upwardly directed support or seating surface upon which the planar mounting flange 20 of the nipple 18 engages. It will of course be appreciated that the inner periphery of the adapter 24 or ledge 30 is outwardly positioned relative to the central flow passage through the nipple 18 so as to not interfere with use of the nipple in the conventional manner. As illustrated, the adapter 24 can also include spaced rigidifying gussets between the skirt 28 and ledge 30.

The nipple flange 20 is directly supported on the adapter 24, which in turn extends radially and circumferentially therebeyond and into supported engagement on the rim 22 of the bottle mouth 16. In the absence of the adapter, and the support provided thereby, the nipple is unsupported and will freely move through the bottle mouth, dropping into the bottle. As such, the presence of the adapter is essential to use of the bottle assembly.

A mounting collar 32 is provided to peripherally enclose and overlies the nipple flange 20, the adapter 24 and the neck 12 of the bottle to mount and secure the nipple in operative position. The collar 32 includes a slightly domed annular top panel 34 with a central opening therein. The top

panel 34 has the inner periphery thereof defined by an annular lip 36 which is adapted to engage immediately below an annular convex protuberance or bulge 38 in the nipple 18 in slightly spaced relation above the nipple mounting flange 20. The undersurface 40 of the top panel 34 radially outward of the lip 36 simultaneously engages the upper surface of the nipple flange 20. The size of the central opening of the collar 32 defined by the annular lip 36 is such as to require a slight elastic compressing of the nipple projection 38 to upwardly engage the nipple through the opening and into mounted position on the collar 32. This provides for a slight frictional retention of the nipple 18 for mounting to the bottle 10 as will be explained subsequently.

The top panel 34 of the collar 32 is surrounded by an integral depending mounting skirt 42 which encircles the bottle neck 12 in slightly outwardly spaced relation thereto. Threaded fastener means, in the nature of complementary threads 44 on the exterior surface of the neck 12 and 46 on the interior surface of the collar skirt 42, provide for a mounting of the collar 32 on the bottle neck by, in an obvious manner, rotating the collar 32.

It is contemplated that both sets of threads 44 and 46 comprise a series of discontinuous threads peripherally spaced

and slightly overlapped as suggested in Figure 1 to provide for a quick connect and release.

The internal threads 46 on the collar skirt 42 are provided toward the lower end of the skirt 42. The external threads 44 about the bottle neck 12 are positioned at generally mid-height on the neck 12 in spaced relation above the bottle shoulder 14 providing, between the threads 44 and shoulder 14, a smooth or unencumbered external surface 48 on the neck 12.

The vertical positioning of the threads 44 and 46 is such whereby with the nipple and adapter positioned, as in Figure 2, the threads 44 and 46 engage and remain in engagement for the full downward travel of the mounting collar 32 into sealed clamping engagement with the nipple and adapter. Under such circumstances, it will be recognized that downward movement of the mounting collar 32 is limited by engagement of the undersurface 40 of the collar top panel 34 against the nipple flange 20.

Noting Figure 3, in the absence of the adapter 24, downward travel of the mounting collar 32 will not be limited until such time as the top panel 34 engages the mouth rim 22. At that point, the collar threads 46 will be positioned below the neck threads 44 and aligned with the unencumbered exterior

surface 48 of the neck whereby the collar will freely rotate about the neck and immediately indicate to the user that the adapter is missing and there is no sealing of the nipple to the bottle. As will be appreciated, the height of the collar skirt 42 between the undersurface of the top panel 34 and the uppermost extent of the collar threads 46 is greater than the vertical height of the neck 12 between the rim 22 and the lowermost extent of the neck threads 44. Thus, in the absence of the adapter 24, and as the nipple flange 20 will not engage directly on the rim 22, continued mounting rotation of the collar 32 in the absence of the adapter will ultimately move the collar flanges 46 below the neck flanges 44 at which point the collar will merely freely spin on the neck and provide an immediate indication of the absence of both the adapter and an effective seal of the nipple to the bottle.

With the additional height provided by the adapter 24, and the nipple flange 20 supported solely by the adapter, the threads 46 and 44 remain in engagement, thereby allowing for a positive clamping and sealing of the nipple to the bottle.

Incidentally, while the nipple has been illustrated in its feeding position, it will be appreciated that the nipple can be inverted into a stored position and similarly supported on the adapter. The assembly will also of course provide an

immediate indication of an absence of the adapter in the stored position of the nipple.

From the foregoing, it will be recognized that the invention involves a mounting system for enabling utilization of a conventional nipple with a wide mouth container which, without any external means, additional components beyond those required for the mounting of the nipple, or the like, provides an automatic indication of the proper mounting and sealing of the feeding nipple prior to use.

The foregoing is illustrative of the invention with the scope of the invention being defined by the claims following hereinafter.

The features disclosed in the foregoing description, in the following claims and/or in the accompanying drawings may, both separately and in any combination thereof, be material for realising the invention in diverse forms thereof.



CLAIMS

1. A baby bottle assembly including a bottle (10) with a wide mouth (16) defined by a peripheral rim (22), a feeding means (18) alignable over said mouth (16) radially inward of said rim (22) and dimensionally of a size for free movement through said mouth (16), an adapter (24) overlying and engaged with said rim (22), said adapter (24) extending radially inward of said rim (22) peripherally thereabout and partially overlying said mouth (16), said adapter (24) defining a support for and receiving said feeding means (18) thereon whereby passage of said feeding means (18) through said mouth (16) is precluded, a collar (32) for clamping said feeding means (18) and said adapter (24) against said rim (22), and cooperating means (44, 46) on said collar (32) and said bottle (10) for indicating the presence and absence of said adapter (24).

2. The baby bottle assembly of claim 1 wherein said collar (32) comprises an annular top panel (34) at least partially overlying said feeding means (18) and said adapter (24), and a depending peripheral skirt (42) encircling said bottle (10) below said rim (22).

3. The baby bottle assembly of claim 2 wherein said cooperating means (44, 46) on said collar (32) and said bottle (10) comprise internal threads (46) on said skirt (42)



projecting inward thereof, and cooperating external threads (44) on said bottle (10) projecting outward thereof whereby rotation of said collar (32) relative to said bottle (10) will effect a vertical travel of said collar (32) on said bottle (10) for a selective clamping and release of said feeding means (18) and adapter (24), said skirt (42) being of a depth, and said internal threads (46) thereon being so located as to, with the presence of said adapter (24), maintain threaded engagement between said internal threads (46) and said external threads (44) throughout the full extent of inward movement of the collar (32) relative to said bottle (10), and so as to, in the absence of said adapter (24), position said internal threads (46) on said skirt (42) inward of and disengaged from said external threads (44) on said bottle (10) for free rotation of said collar (32) relative to said bottle (10) whereby absence of said adapter (24) is indicated.

4. The baby bottle assembly of claim 3 wherein said top panel (34) of said collar (32) defines a central opening receiving said feeding means (18) therein, and means (36, 38) for frictionally releasably retaining said feeding means (18) in said opening.

5. The baby bottle assembly of claim 4 wherein said feeding means (18) comprises a nipple (18) with an integral mounting flange 20.