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NURSING BOTTLE ASSEMBLY

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FIG. 1.

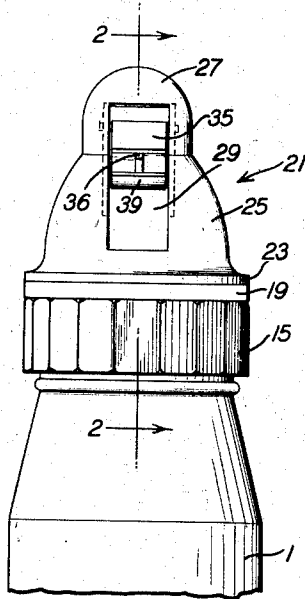


FIG. 2.

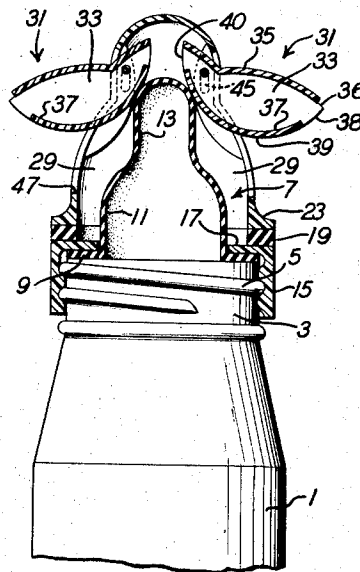


FIG. 3.

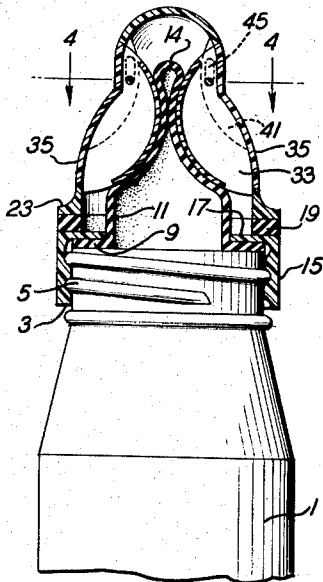
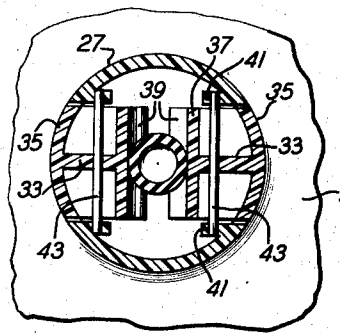


FIG. 4.



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NURSING BOTTLE ASSEMBLY

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11 Claims. (Cl. 215-11)

This invention relates broadly to the art of covers for nipples on nursing bottles and in its more specific aspects it relates to such covers provided with means operable to seal the nipple when the bottle is not in use; and the nature and objects of the invention will be readily recognized and understood by those skilled in the arts to which it relates in the light of the following explanation and detailed description of the accompanying drawings illustrating what we at present believe to be preferred embodiments or mechanical expressions of our invention from among various other forms, arrangements, combinations and constructions, of which the invention is capable within the spirit and scope thereof.

It is conventional practice to provide a nipple formed of rubber or other suitable flexible and elastic material, on the open end of a bottle through which the infant sucks the fluid contained in the bottle. The head or bulbous outlet end of the nipple is, of course, provided with a perforation through which the fluid is adapted to flow in a feeding operation.

In the feeding of infants, cleanliness and sanitation is a prime consideration and in prior art feeding arrangements, there has been no simple and satisfactory way of protecting the nipple while it is on the bottle between feedings. Structural arrangements on the nipple and neck of the bottle permitting inversion of the nipple so that it will extend into the bottle when not in use have been proposed. While this does offer protection for the nipple it will be appreciated that it is a time consuming and bothersome operation and the structural arrangement required adds to the expense of producing both the nipple and the bottle.

With the conventional bottle mounted nipple, dripping and leakage of the fluid through the nipple has presented a problem. This problem is particularly present when the loaded bottle is being moved about or carried in a bag or the like where it will not necessarily be in upright normal position at all times. While the nipple inversion method mentioned above will prevent dripping it constitutes merely a corrective measure and not a true solution of the problem. This is so because of the reasons mentioned above, and for other reasons.

We have solved the above mentioned and other problems which are inherent in present day practices in this art by devising a combination protective cover for the nipple which also functions as a drip preventing means when the bottle is not being used.

Our protective cover functions not only as a cover for the nipple but also provides means which are operable to act on the nipple to close it so that fluid cannot leak therefrom regardless of the position of the bottle. In accomplishing this highly advantageous result we also seal the nipple against ingress of air, dirt or other foreign matter. The advantages of these results will be evident.

In accomplishing our purposes we have devised an ingenious arrangement whereby the means which seal the nipple also function to maintain the entire device in protective position about the bottle. Thus, our cover and

the sealing means combined therewith require no threading or extraneous means in order to attach the cover in operative position relative to the nipple. We are enabled to achieve the result by using the natural elasticity and configuration of the conventional nipple in combination with certain components of our device.

The results outlined above, and others which will become apparent hereinafter, have been achieved without sacrificing simplicity of design, ease of operation, compactness and economy of manufacture.

With the foregoing general objects, features and results in view, as well as certain others which will be apparent from the following explanation, the invention consists in certain novel features in design, construction, mounting and combination of elements, as will be more fully and particularly referred to and specified hereinafter.

Referring to the accompanying drawings:

Fig. 1 is a view in elevation of the protective cover in operative position on a nipple which is fastened to the bottle.

Fig. 2 is a view taken on line 2-2 of Fig. 1.

Fig. 3 is a view in section illustrating the protective cover in position sealing the nipple.

Fig. 4 is a view taken on line 4-4 of Fig. 3.

In the accompanying drawings we have used the numeral 1 to designate a bottle which may be a nursing bottle and may be formed of glass, plastic or other suitable material. The bottle is formed with the usual neck 3 having external screw threads 5 thereon. The end of the bottle which is provided with the neck, is open, as is customary, and is adapted to receive thereon a nipple through which the infant sucks the fluid from the bottle.

We provide a nipple designated in its entirety by the numeral 7, the nipple being formed of any suitable flexible and elastic material. The nipple is formed with an annular base 9 from which a body 11 rises and a neck 13 of reduced diameter relative to the body extends from the body. The nipple may, if desired, be formed with a more or less bulbous head 14. The nipple constitutes a unitary structure and is adapted to be removably mounted on the open ended neck of the bottle.

We provide a nipple mounting and retainer ring having an internally threaded circular body part 15 and a radially inwardly directed flange 17 extending from the top of said part 15. The nipple is removably attached to the neck 3 of the bottle 1 by placing the nipple on the top edge of the neck with base 9 seated and resting on the top edge of the neck and then screwing the retainer ring on the neck until flange 17 clamps base 9 against the top edge of the neck of the bottle.

A soft rubber gasket 19 may be cemented or otherwise affixed to the top surface of the retainer ring as is clearly illustrated in the drawings.

The combined protective cover or housing and sealing means for the nipple we have designated in its entirety by the numeral 21, the cover preferably being formed of any appropriate imperforate plastic material. The plastic material cover is formed with a circular base 23 having a diameter substantially the same as those of the body part 15 of the retainer ring and of the gasket 19, and is of greater diameter than that of the body part 11 of the nipple 7. The cover may include a hood portion 25 upstanding from the base, the hood being topped by a dome 27. The parts of the cover so far described constitute an integral unit and may follow, the general configuration of the nipple though dimensionally enlarged so as to encompass, cover and protect the nipple.

The hood portion 25 and a part of dome 27 are provided with a pair of oppositely disposed elongated apertures or openings 29 therein through which the sealing arms, designated generally by the numeral 31, are adapted to operate. We provide two sealing arms, one

operating in each aperture, and each such arm comprises a web 33, an external body or closure portion 35 and an internal body or bearing portion 37. The external body portion is fixed centrally to the web and the external edge of the web and the external body portion are shaped to conform to the longitudinal configuration of the cover while the body portion is also shaped to conform to the circumferential curvature of the cover so that when the arms are in closed nipple sealing position they will close the apertures and will develop a surface conforming to the cover surface. The length of the web is greater than the corresponding length of the external body portion and slightly greater than the length of the aperture to provide an extending nose 36. It will be understood from consideration of the drawings that the width and length of the external body portion are approximately the same as the corresponding dimensions of the opening. The internal body portion 37 is fixed centrally to the web and the internal edge of the web is arcuately shaped to present an inwardly extending curve and the internal body portion is similarly curved to provide a bearing surface 39 adapted to engage and compress the nipple. The length of the internal body portion is preferably less than that of the web to provide free ends 38 and 40. On each side of each opening 29 we provide inwardly extending brackets 41 each of which journals a pivot pin 43 which extends through web 33 to swingably mount the sealing and closure arms 31 in operative position within the openings. The pivot pins 43 are journaled in elongated slots 45 in the brackets, it will thus be understood that the sealing arms are capable of limited vertical movement and are, in effect, floating elements.

In assembling the nipple on the bottle and the cover and sealing means in operative position with respect thereto the nipple is first positioned on the bottle with the base 9 thereof seated on the rim of the neck 3 and the retainer ring is threaded on the neck of the bottle until the flange 17 engages and clamps the nipple base 9 in position on the rim of the neck. The protective cover and nipple sealing means is then placed over the nipple with the circular base 23 seated on the soft rubber gasket 19. When the cover is initially positioned on the bottle and over the nipple the sealing arms 31 are in outwardly swung inoperative position as illustrated in Figs. 1 and 2. To apply the cover in fixed protective position it is merely necessary to apply inward and downward pressure on the external closure body 35 of each arm and since each arm is floatingly supported by the pins 43 in the elongated slots 45 the downward motion will be possible and the arms will swing on their pivots toward the nipple and through the apertures 29. As the arms swing inwardly the portions 38 of the web will override the bottom edges 47 and when the arms are in fully closed, operative position the ends or noses 36 of the webs will be positioned behind the edges 47 to maintain the arms in operative sealing position as disclosed in Fig. 3 of the drawings. As the arms are swung inwardly as described the curved bearing surfaces 39 of the internal body members 37 will engage the nipple 13 on opposite sides and will compress the nipple into sealed position as shown in Fig. 3. It will now be recognized that with the arms in operating position the nipple will be closed and no fluid can leak or drip therefrom regardless of the position of the bottle, and it will also be recognized that the apertures 29 will be closed so that the nipple will be fully covered and protected against contamination.

With the parts in operative position as described the inherent elasticity of the nipple will generate a constant outward or separating pressure on the arms thereby constantly urging ends 36 of the webs against the edges 47, so that the arms may not swing outwardly into inoperative position. It will also be understood that the configuration of the bearing surfaces 39 of the arms and

the points of compression on the nipple prevents vertical or lifting removal of the cover or housing from the bottle. We have evolved a relative arrangement of components of this assembly in such manner that the top end of the nipple expands when the nipple is compressed to provide a bulb preventing upward movement of the cover unless there is outward swinging of the arms and this is prevented by the latching of the ends of the web behind the lower edges of the apertures. While the plastic material from which the housing is made has a degree of flexibility, the rubber gasket 19 may give or be slightly compressed as the surfaces 38 ride thereover in an arm closing operation.

With the sealing arms in operative position as illustrated in Fig. 3, in order to release them it is merely necessary to push upwardly on surfaces 35 and the arms will move upwardly (pins 43 sliding upwardly in slots 45) releasing nose 36 from edge 47 so that the arms will swing outwardly to inoperative position under the elastic action of the nipple.

It will now be appreciated that we have devised a highly practical and efficient protective cover and sealing means for a nipple.

We claim:

1. A nursing bottle assembly, including in combination, a bottle, a nipple removably mounted thereon, and a cover and sealing organization for said nipple, said organization being removably mounted on said bottle and enveloping said nipple, a pair of arms pivotally mounted in opposing positions on said organization with said nipple therebetween, and said arms being swingable toward each other to positions engaging and compressing said nipple to prevent leakage of fluid therefrom, said arms having curved surfaces engaging said nipple, and means on said organization coactive with said arms to maintain them in operative position.

2. A nursing bottle assembly, including in combination, a bottle, a nipple formed of elastic material removably mounted on said bottle and enveloping said nipple, a pair of arms pivotally mounted in opposing positions on said organization with said nipple therebetween, said arms being capable of limited movement perpendicular to the axis of pivotal movement and being swingable toward each other to positions engaging and compressing said nipple below the top thereof to prevent leakage of fluid therefrom, said arms having curved surfaces engaging said nipple and said nipple when compressed exerting separating pressures on said arms, and means on said organization coactive with said arms releasably resisting said separating pressures.

3. A nursing bottle assembly in accordance with claim 2, wherein said nipple when compressed by said arm is formed with an enlargement at the top thereof preventing removal of the organization.

4. A cover and sealing organization for a nipple adapted to be mounted on a bottle in position enveloping a nipple which is mounted on the bottle, said organization having a pair of oppositely disposed apertures therein and a pair of arms pivotally mounted on the organization, each arm being swingable through an aperture toward each other to operative position engaging and compressing a nipple therebetween and further means for releasably maintaining said pivotally mounted means in operative position.

5. A cover and sealing organization in accordance with claim 4, wherein each arm is capable of limited movement perpendicular to the axis of pivotal movement.

6. A nursing bottle assembly, including in combination, a bottle, a nipple removably mounted thereon and a ring of compressible material fixed to the bottle, and a cover and sealing organization for said nipple, said organization having a base and said base being mounted on said ring of compressible material and the organization enveloping said nipple, said organization having a pair of oppositely

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disposed apertures therein and a pair of arms pivotally mounted on said organization each arm being swingable through an aperture to engage and compress the nipple between the arms, and each arm having a nose thereon rideable over the edge of an aperture for releasably maintaining the arms in operative position.

7. A nursing bottle assembly, including, in combination, a bottle, a nipple mounted thereon, means for removably mounting said nipple on said bottle, and a cover and sealing organization for said nipple, said organization being removably mounted on said bottle and enveloping said nipple and including means pivotally mounted thereon and swingable to operative position engaging and compressing said nipple to prevent leakage of fluid therethrough, said means comprising a pair of arms oppositely mounted on said organization with the nipple therebetween.

8. A nursing bottle assembly, including, in combination, a bottle, a nipple mounted thereon, means for removably mounting said nipple on said bottle, and a cover and sealing organization for said nipple, said organization being removably mounted on said bottle and enveloping said nipple and including means pivotally mounted thereon and swingable to operative position engaging and compressing said nipple to prevent leakage of fluid therethrough, said means comprising a pair of arms oppositely mounted on said organization which in operative position engage and compress said nipple below the top thereof.

9. A nursing bottle assembly, including in combination, a bottle, a nipple removably mounted thereon, and a cover and sealing organization for said nipple, said organization being removably mounted on said bottle and enveloping said nipple and having oppositely disposed apertures therein and said organization including means pivotally mounted on said organization and swingable through said apertures to operative position engaging and compressing said nipple to prevent leakage of fluid therethrough, and said means being capable of limited movement perpendicular to the axis of pivotal movement thereof, and further means on said organization and coactive with said pivotally mounted means for releasably maintaining said latter means in operative position.

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leasably maintaining said latter means in operative position.

10. A nursing bottle assembly, including in combination, a bottle, a nipple removably mounted thereon, and a cover and sealing organization for said nipple, said organization being removably mounted on said bottle and enveloping said nipple and having oppositely disposed apertures therein and said organization including means pivotally mounted on said organization and swingable through said apertures to operative position closing said apertures and engaging and compressing said nipple to prevent leakage of fluid therethrough, and said means being capable of limited movement perpendicular to the axis of pivotal movement thereof, and further means on said organization and coactive with said pivotally mounted means for releasably maintaining said latter means in operative position.

11. A nursing bottle assembly, including in combination, a bottle, a nipple removably mounted thereon, and a cover and sealing organization for said nipple, said organization being removably mounted on said bottle and enveloping said nipple and having oppositely disposed apertures therein, a pair of arms pivotally mounted on said organization, each being provided with a nose on the end thereof and each arm being mounted to swing through one aperture to operative position engaging and compressing said nipple between the arms to prevent leakage of fluid therethrough, and said arms being capable of limited movement perpendicular to the axis of pivotal movement thereof, and further means comprising an edge of each aperture behind which the noses are positioned when the arms are in operative position for releasably maintaining the arms in operative position.

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