

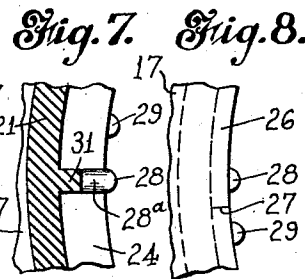
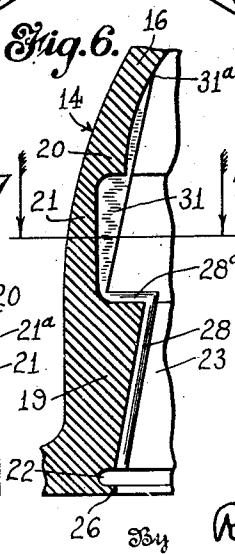
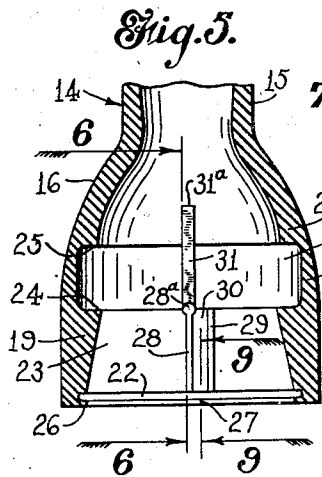
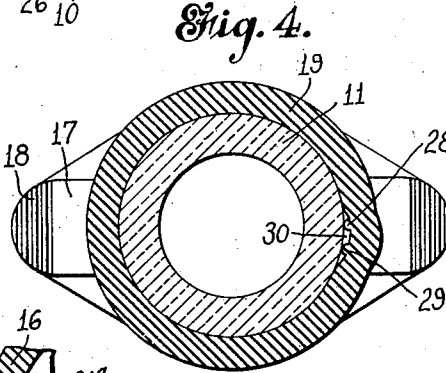
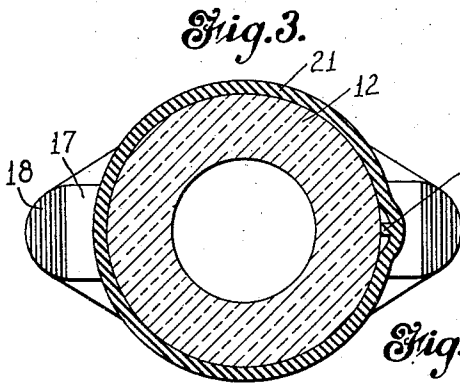
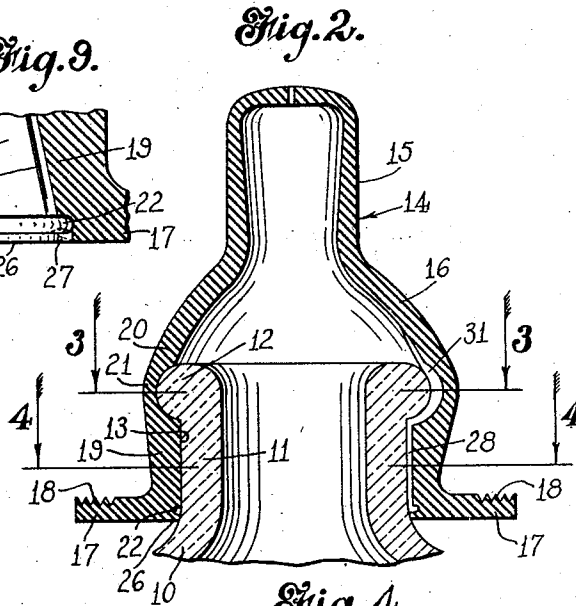
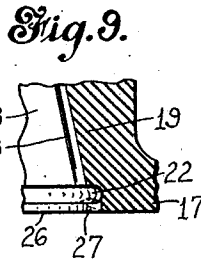
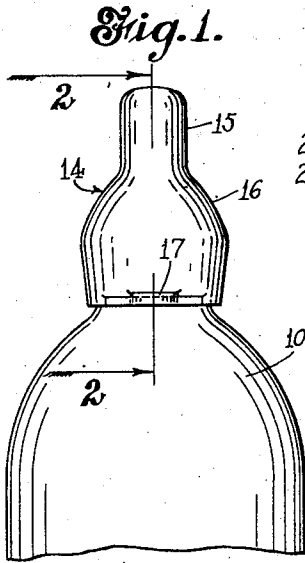
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NURSING NIPPLE

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3 Claims. (Cl. 128—252)

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This invention relates to nursing nipples, and more particularly to those constructed of rubber molded in the final shape, the term "rubber" being used in a broad sense.

One of the objects is to provide an improved rubber nipple.

Another object is to provide a nipple having effective provisions for preventing collapse of the nipple during feeding.

Another object is to provide a nipple which is very effectively held on the bottle neck and through which the milk or other liquid can be drawn in an even and uniform manner.

In the accompanying drawings:

Fig. 1 is a fragmentary view of a bottle equipped with a nipple embodying the invention;

Fig. 2 is an enlarged section on line 2—2 of Fig. 1;

Figs. 3 and 4 are, respectively, sections on lines 3—3 and 4—4 of Fig. 2;

Fig. 5 is a partial sectional view of the nipple, showing it removed from the bottle;

Fig. 6 is an enlarged sectional view of a portion of the side wall of the nipple, the section being taken on line 6—6 of Fig. 5;

Fig. 7 is a section on line 7—7 of Fig. 6;

Fig. 8 is a fragmentary bottom plan view of a portion of the nipple wall; and

Fig. 9 is an enlarged section on line 9—9 of Fig. 5.

The nipple selected for illustration is one made of rubber molded to provide the required external and internal contours, the nipple having an upper generally cylindrical portion, and below this portion a portion shaped generally as a narrow dome, the dome being adapted for distention by an external bead at the bottle mouth, the nipple having, when engaged with the bead, a relatively thick side wall snugly engaged with the side surface of the bottle neck, and the lower end of the nipple dome having laterally extended tabs which are convenient in grasping the nipple to apply it to the bottle and to remove it therefrom. The side wall of the dome is, as indicated, rather thick where it engages the side surface of the bottle neck, and the upper slopping or slanting wall of the dome is relatively thick, but in the band or zone where there is engagement with the curved side face of the bottle bead, the rubber wall is of reduced thickness. By constructing the nipple in this manner and having it properly dimensioned with respect to the adjacent parts of the glass bottle, the nipple, while easily applicable to and removable from the bottle, is, when mounted, very securely held. In addition to these fea-

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tures, the nipple is also provided with novel provisions enabling the liquid to be drawn easily and uniformly from the nursing end of the nipple and preventing collapse by insuring a supply of air to the nipple interior as the liquid is being withdrawn.

In the drawing, the bottle is indicated at 10, the same having a neck 11 and an encircling bead 12 at the mouth, and the neck being provided with a smooth external cylindrical surface 13. The nipple is indicated generally at 14, the same having a generally cylindrical upper end portion 15, the dome 16, and the manipulating tabs 17, there being in this case diametrical lateral tabs flush with the base of the nipple, each having near the tip an upper serrated grasping surface 18.

Referring to Fig. 5, it will be seen that the dome 16 is normally rather narrow, but it is capable of distention when applied over the bottle mouth in the manner shown in Fig. 2. The relatively thick portion of the dome below the bottle bead is shown at 19, and the relatively thick portion above the bead is shown at 20, these two portions being joined by a band or zone 21 in the nipple wall, which is relatively thin, as appears from Fig. 5. The portion 19 of the dome wall is shaped to provide a shoulder engaging under the bead 12, as hereinafter described, and the wall portion 20 is provided interiorly near the lower end thereof with an annular groove 22, for a purpose that will hereinafter appear.

In the lower part of the dome, that is to say, in the portion 19, the external surface is normally approximately cylindrical, as appears from Fig. 5. The thickness of the portion 19 is, however, progressively increased from the bottom upwardly, and this causes the recess 23 in the lower part of the dome to have its diameter decreased in an upward direction, providing at the upper boundary of recess 23 a sharp bead-engaging shoulder 24, the upper surface of which is horizontal, and the inner surface of which tapers inwardly and upwardly. At the lower boundary of the wall portion 20 a shoulder 25 is created.

At a slight distance above the bottom plane of the nipple, the groove 22, previously mentioned, is provided. Defining this groove at the lower side is a small inwardly extending flange 26, this being an annular flange which in this instance is at the base of the nipple. At one point in its circumference (in this particular case) a slit or kerf is formed in flange 26 crosswise, this slit or kerf being indicated at 27, and the same serving to permit air to enter the nipple during feeding,

as will hereinafter appear. In the particular case shown, the inner surface of recess 23 is provided with a pair of projecting members in the nature of ribs, these ribs being indicated at 28 and 29, and said ribs extending from the groove 22 to the upper boundary of recess 23. These ribs are of service in causing air to be conducted into the upper part of the nipple, as will hereinafter appear. Between the two ribs is an air space 30, which air space is in line with the slit 27 so that air can readily pass upward from the slit into this space. The rib 29 is cut off at the upper boundary of recess 23, but the rib 28, after reaching the upper boundary of recess 23, is continued laterally in an extension portion 28^a that extends laterally into the recess 21^a by which the thin wall portion 21 is created. The rib extension 28^a extends to and merges into the lower part of a wall 31 that extends into the upper portion of the dome. This wall 31 extends upwardly across portion 21 to a point such as 31^a on the wall portion 16. The wall 31 has flat parallel sides, as appears from Figs. 5, 6 and 7, and its inner edge is substantially straight from one end to the other of this wall, and the straight edge is at an inclination, as shown in Fig. 6. The wall 31 extends completely across the bead-engaging zone of the nipple wall, and somewhat beyond this zone, so as to provide a means whereby entering air is carried beyond the upper boundary of the bottle bead so as to insure its reaching the upper part of the nipple to prevent collapse thereof.

When the nipple is in position on the bottle, the lower dome portion of the nipple is under some distention, and the small flange 26 is in engagement with the side surface of the bottle neck. When the infant draws the liquid out of the upper end of the nipple, the portions of flange 26 which are at opposite sides of the slit 27 are free to move upward under the suction so as to take the position shown by the dotted line in Fig. 9 and allow a certain amount of air to enter the nipple over the edge of flange 26. This incoming air is free to move into the upper part of the nipple through the air conduit which is at the right of Fig. 2, such conduit being provided by the somewhat distended nipple wall lying against the bottle neck and bottle bead, the structure in question involving the ribs 28, 29, the rib extension 28^a, and the wall 31. The air entering over the flange 26 passes into the channel provided between the ribs 28 and 29, and then moves laterally along one side of the rib extension 28^a, which extension is then conformed to the bottle bead 12, as indicated in Fig. 2. Air then passes upwardly in a conduit provided at one side of the wall or septum 31, as shown in Fig. 3, this septum conforming at its inner edge to the bottle bead in the manner shown in Fig. 2, and air passes upwardly at the side of the wall or septum into the part of the nipple lying above the bottle bead. This inwardly moving air acts very effectively to prevent collapse of the nipple. When suction on the nipple tip is discontinued, that portion of the flange 26 adjacent slit 27 which acts as a valve is restored to the initial position, shown in Fig. 5, thus closing the space between the bottle

neck and the base portion of the nipple and preventing leakage of milk at this region.

The improved nipple can be inexpensively produced and it provides a rugged structure having a strong side wall, the lower part of which is very firmly engaged with the neck, while at the same time the nipple can be mounted very readily, even when in a dry condition, and removed from the bottle very readily. The thinner portion of the side wall conforms closely to the bottle bead so as to prevent leakage of milk in this region. The provisions for preventing collapse of the nipple have already been referred to. These include the wall or septum 31, which provides an air passage at the side thereof, and which causes entering air to be carried upwardly beyond the shoulder 25.

Various modifications and changes in the details can be made without departing from the principles of the invention or the scope of the claims.

What I claim is:

1. A nursing nipple having a relatively thick wall extending to the lower end of the nipple, said wall being provided at the lower end with a flange extending inwardly and adapted to impinge against the bottle neck, said wall being cut away above said flange to provide a groove extending transversely to the bottle neck, said flange being cut across to provide air-valve means serving to admit air from the atmosphere to said groove, the nipple being provided with a wall portion of reduced thickness to engage a bead at the mouth of the bottle, and the nipple being provided with means for conducting air from said groove across the bottle bead and to the upper part of the nipple.

2. A nursing nipple having a relatively thick side wall with a thin zone in the wall to engage a bead at the mouth of the bottle, said nipple having air-inlet provisions including an interior wall extending across and upwardly beyond the thin zone and impinging at its edge against the side surface of the bead, said air-inlet provisions also including a lateral flange on the nipple wall bearing laterally against the bottle neck and slit transversely to provide movable valve means.

3. A nursing nipple having a lower end portion with a relatively thick wall, said nipple having air inlet provisions including an internal groove in said wall directed transversely to the nipple axis and formed in part by a flange located at the lower end of the nipple adapted to engage the bottle to exclude air, and with the groove in communication with upwardly leading air passage means, said flange having a slitted air-inlet portion to provide movable valve means for said nipple.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,919,537	Stock	July 25, 1933
2,269,223	Porthouse et al.	Jan. 6, 1942