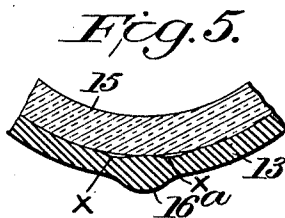
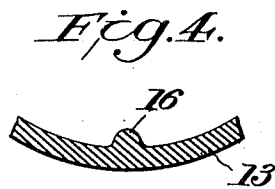
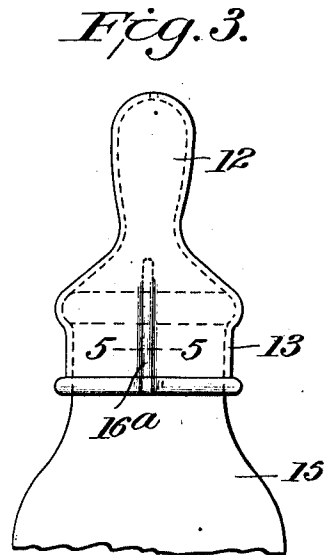
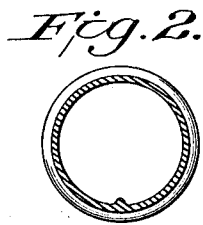
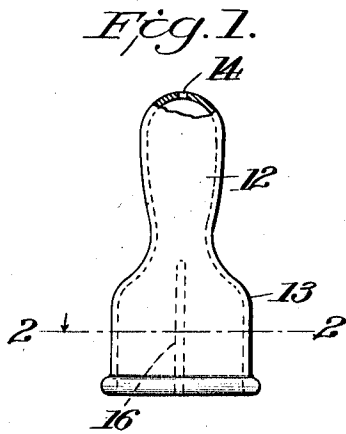


G. R. SHEPHERD.
NIPPLE FOR NURSING BOTTLES.
APPLICATION FILED APR. 22, 1911.

1,004,304.

Patented Sept. 26, 1911.



WITNESSES

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NIPPLE FOR NURSING-BOTTLES.

1,004,304.

Specification of Letters Patent. Patented Sept. 26, 1911.

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To all whom it may concern:

Be it known that I, GEORGE R. SHEPHERD, a citizen of the United States, and resident of Cambridge, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Nipples for Nursing-Bottles, of which the following is a specification.

This invention relates to elastic nipples for nursing bottles and has for its object to enable the socket of the nipple which engages the neck of the bottle to maintain a liquid tight connection with said neck, thus preventing the leakage of liquid, and at the same time permit air to be forced by atmospheric pressure between the socket wall and bottle neck when liquid is withdrawn from the bottle so that a vacuum in the bottle and the collapsing of the nipple is prevented.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings which form a part of this specification,—Figure 1 represents a side view of a nipple embodying my invention; Fig. 2 represents a section on line 2—2 of Fig. 1; Fig. 3 represents a side view showing the socket portion of the nipple distended and engaged with a bottle neck; Fig. 4 represents an enlargement of a portion of Fig. 2; Fig. 5 represents an enlarged section on line 5—5 of Fig. 3.

Similar reference characters indicate the same or similar parts in all the figures.

In the drawings, 12 represents the body portion, and 13 the bottle-neck-engaging socket portion of an elastic nipple which may be of any suitable form, the body portion of the nipple being provided with the usual orifice 14 for the withdrawal of milk from its outer end, and the socket being expansible and adapted to contract upon and yieldingly embrace the neck 15 of a nursing bottle. The elasticity of the socket 13 is relied upon to maintain a liquid tight joint with the external surface of the neck 15 so that the contents of the bottle cannot leak between the neck and the wall of the socket. Heretofore, in nipples of this character, the pressure of all portions of the socket wall on the bottle neck has been practically uniform and has been sufficiently forcible at all points to prevent air from being forced by atmospheric pressure between the socket wall

and the bottle neck, to take the place of the liquid withdrawn from the bottle. It is a well known fact that when a nursing bottle is used, a partial vacuum is formed within the bottle, which causes the collapsing of the body portion of the nipple and thus prevents the free withdrawal of liquid from the bottle. Automatic valves have been provided to permit the entrance of air and prevent the formation of a vacuum within the bottle and nipple, but these, besides adding to the expense and complication of the bottle, have been objectionable for other reasons among which are liability of leakage and difficulty of keeping clean.

In carrying out my invention, I provide means for causing a portion of the wall of the socket 13 to bear less forcibly on the bottle neck than the major portion of the socket wall, said portion being adapted to yield outwardly from the neck and form one side of a path of decreased resistance through which air is forced into the bottle by atmospheric pressure when liquid is withdrawn from the bottle, the said air-admitting portion extending from the outer end of the socket across the portion of the socket wall which bears on the bottle neck.

The socket is provided with an inwardly projecting rib 16 which is preferably integral with the socket and therefore composed of the same elastic material, said rib extending from the outer end of the socket across the portion of the socket which bears on the neck 15, as indicated by Figs. 1 and 3. The rib 16 is so proportioned that when the socket is expanded and allowed to contract upon the bottle neck, the contractile pressure of the socket flattens the ridge 16 against the neck and causes the external surface of the socket to bulge outwardly, as shown at 16^a, Fig. 5. The outward displacement of the rib 16 causes an increased pressure of the thickest part of the rib against the bottle neck, and a correspondingly decreased pressure thereon of narrow portions *x, x*, of the socket wall extending beside the thickest part of the rib, so that, while there is normally no interruption of the liquid tight joint between the socket wall and the neck, the said portions *x, x*, form the outer sides of air-admitting ducts or paths of least resistance, through which air is forced into the nipple and bottle by atmospheric pressure when liquid is being withdrawn from the bottle, as illustrated by Fig. 5, where the

portions x, x , are shown as slightly separated from the bottle neck by pressure of air between the socket and the surface of the bottle neck. When the bottle is not in use the portions x, x , are in contact with the bottle neck so that liquid cannot leak between the socket and the neck. The air thus entering takes the place of the liquid withdrawn, and prevents the formation of a partial vacuum and the collapsing of the nipple. The entering air of course prevents the leakage of liquid through said ducts which are closed by the contraction of the socket wall when there is no suction on the nipple. The air-admitting capacity of said ducts may be varied by external pressure of a finger on the bulged portion 16^a when the bottle is in use, so that the nurse is enabled to regulate the quantity of milk drawn through the nipple by the baby.

My invention may be embodied in other forms providing for a limited portion of the socket wall in less forcible contact with the bottle neck than the major portion of the wall, while normally maintaining a continuous or uninterrupted bearing of the wall on all parts of the socket-supporting surface of the neck.

It will be seen that the wall of the socket is solid or imperforate, that is to say, it has no duct or passage between its inner and

outer surfaces, and therefore no surfaces which are inaccessible and difficult to clean.

I claim:—

As an article of manufacture, an elastic nipple having an expansible socket, the wall of which is imperforate and is adapted to yieldingly embrace a bottle neck and form a continuous liquid tight joint therewith, the inner surface of said socket having a longitudinal inwardly projecting rib extending from the mouth of the socket beyond the portion of the socket wall which bears on the bottle neck, said rib being displaceable outwardly by the embracing pressure of the socket portion on the neck, whereby the pressure on the neck of the portions of the socket wall adjacent to and parallel with said rib is reduced sufficiently to permit a flow of air into the bottle between the socket wall and the neck when liquid is withdrawn from the bottle, the said portions of the socket wall being adapted to contract upon the neck and prevent leakage when the nipple is not in use.

In testimony whereof I have affixed my signature, in presence of two witnesses.

GEORGE R. SHEPHERD.

Witnesses:

C. F. BROWN,

P. W. PEZZETTI.