May 8, 1934. J. LITTLE 1,957,969

NIPPLE CONSTRUCTION

Filed Jan. 21, 1933

Fig. 1

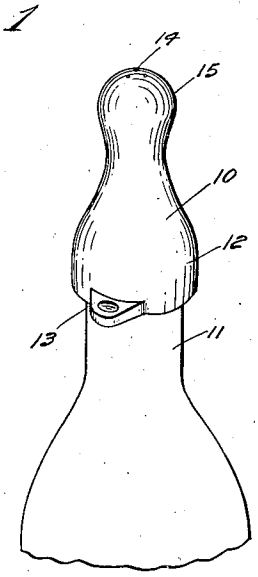


Fig. 2

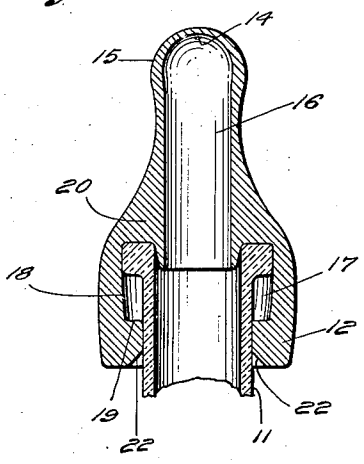


Fig. 3

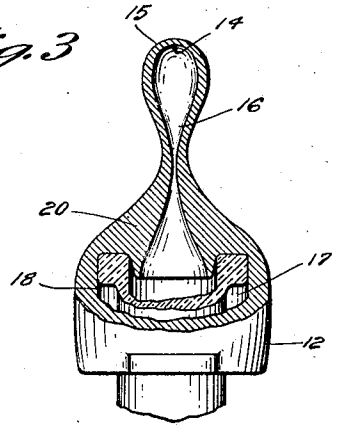
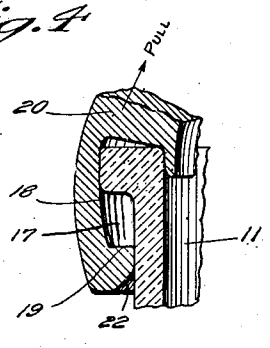


Fig. 4



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NIPPLE CONSTRUCTION

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4 Claims. (Cl. 128—252)

My present invention relates to nipples used on nursing bottles and has particular reference to constructions that will render the nipples non-collapsible.

Nipples have heretofore been provided with air vents or with air check valves for admitting air to the bottle to prevent formation of a vacuum within the bottle and resultant collapse of the nipple. It is the principal object of my invention to provide a construction that will permit suitable pressing of the nipple parts but will exert a continually increasing force to open the nipple as the nipple parts approach each other, to thus prevent collapsing.

It has also been found that germs are readily transmitted to the top of a nursing bottle, and that a nipple of ordinary construction does not cover the top of the bottle neck and does not prevent contact of the milk with the top and with any germs transmitted thereto. It is an additional object of my invention to provide a nipple construction which has a sealing flange entering into the neck of the bottle and preventing contact of the milk with the top of the bottle.

A further difficulty encountered when using a nipple of ordinary construction results from the leakage resulting from the stretching of the rim of the nipple incident to its continuous application to and removal from the bottle neck. It is a further object of my invention to provide a nipple construction which will remain leak proof regardless of the stretching of the nipple rim.

Another difficulty encountered in the use of a nipple of standard type resides in the tendency to pull the nipple from the neck of the bottle when a sufficiently strong force or suction is exerted on the nipple tip. It is still another object of my invention to provide a nipple construction in which the material forming the nipple is so distributed that the nipple rim will lock more tightly upon the bottle neck when the nipple tip is pulled.

With the above and other objects and advantageous features in view, my invention consists of a novel arrangement of parts more fully disclosed in the detailed description following, in conjunction with the accompanying drawing, and more specifically defined in the claims appended thereto.

Referring to the drawing:

Fig. 1 is a perspective view of the novel nipple positioned on the neck of the nursing bottle;

Fig. 2 is a vertical section thereof showing the contacting surfaces of the nipple and the bottle neck;

Fig. 3 is an enlarged sectional view, partly broken away, showing the form assumed by the nipple when pressed inwardly by pressure of the baby's mouth; and

Fig. 4 is an enlarged sectional detail showing the locking of the rim of the nipple to the bottle neck when the nipple tip is pulled.

Referring now to the drawing, and particularly to Fig. 1, the nipple 10 is shown seated on the neck 11 of a nursing bottle, the base 12 of the nipple being provided with a tab 13 adapted to be grasped by the fingers for facilitating the application of the nipple to and its removal from the bottle neck. The nipple 10 has the usual outlet perforations 14 in the tip portion 15, communicating with an inner cylindrical flow channel 16, see Fig. 2, and a base groove 17 for receiving the rim of the bottle, the groove 17 being formed by the cylindrical inner surface of the wall 18, the flat lower shoulder of the rim 19, the flat upper shoulder of the conical intermediate section 20, and the triangular flange 21 depending from the conical intermediate section 20; the junctures of the upper shoulder with the cylindrical inner wall surface and the depending triangular flange are preferably rounded. The wall 18 is preferably of extended height in relation to the width of the shoulders, in order to produce a slight bulge at the region of the bottle edge, and to readily fit bottles having edges of different shapes and sizes.

The base of the nipple is preferably designed to closely hug the neck of a standard size nursing bottle, and has a tapered edge 22 to facilitate pulling the rim over the bottle neck. The conical section gradually curves towards the wall of the flow chamber 16, the point of closest approach being at the base of the tip 15; the outer surface is preferably not cylindrical, and the smooth curve rounds into and merges with the outer rounded surface of the tip.

The conical intermediate section functions as a resilient compression spring when the nipple is pressed or squeezed by the mouth of the infant, see Fig. 3, as there is no cylindrical wall portion; the strains set up in the conical section by the pressing increase as the nipple is squeezed, and continually tend to force the nipple parts apart. This effect is due to the cross-section form, as there is no localized weak section. The novel nipple thus prevents collapsing, and has the desirable effect of stimulating proper movements of the infant's lips.

The depending flange extends down into the bottle neck and contacts the inner surface, thus effectively sealing the top of the bottle and keep-

ing the milk from contacting the top; since it is easy in drawing the nipple on to touch the top of the bottle, but almost impossible to touch the interior of the neck, the described construction ensures maintaining the sanitary effects of sterilization.

The engagement of the flange with the inner surface of the bottle neck also functions as an inner seal to effectively prevent leakage of fluid through the groove and out below the nipple rim, despite stretching of the nipple resulting from continual drawing of the nipple over the bottle top and removal therefrom. The flange also cooperates with the extended height of the nipple groove to snugly fit bottles having edges or rims of different heights and sizes.

The extended height of the base groove permits the bottle edge to be forced upwardly into contact with the upper portion of the groove and away from the nipple rim; the base of the nipple thus freely contracts to firmly engage the rim with the bottle neck.

If the infant pulls on the nipple tip, it has been found that the nipple rim hugs the neck more closely, and that the lock effect increases as the pull increases. Although the exact reason for this has not been determined, it is apparently due to the slight bulge of the base wall over the neck edge which results from the groove elongation, this slight bulge making the inner wall surface shorter than the outer wall surface and under less tension; the conical section transmits a pull on the tip to the inner wall, thus increasing the relative tension of the outer wall and forcing the nipple rim inwardly.

While I have described one specific constructional embodiment of the novel nipple, desired changes in the relative size, form, and arrangement of the parts may be made to suit different requirements for nipples, within the spirit and the scope of the invention as defined in the appended claims.

I claim:—

1. In a nipple, a base, an intermediate section, and a tip, said base being engageable with the neck of a bottle, said tip being generally spherical and with a wall of substantially uniform thickness, and said intermediate section having an inner generally cylindrical surface and an outer surface flaring from the tip to the base to provide a wall of conical cross section.

2. In a nipple, a base, an intermediate section, and a tip, said base being engageable with the neck of a bottle, said tip being generally spherical and with a wall of substantially uniform thickness, and said intermediate section having an inner generally cylindrical surface and an outer surface flaring from the tip to the base to provide a wall of conical cross section, said base being generally cylindrical in form and having a lower annular rim, and said intermediate section having a depending annular flange extending appreciably below the intermediate section and spaced from the inner wall of said base, whereby an annular recess for receiving the top of a bottle is provided by the contiguous surfaces of the base wall, the intermediate section, and the depending flange.

3. In a nipple, a base, an intermediate section, and a tip, said base having a cylindrical inner wall and an inwardly extending flange for engaging the neck of a bottle, said intermediate section flaring outwardly to said base and having an inner cylindrical wall and a lower annular horizontal wall, and having a flange depending from the inner portion of the annular horizontal wall, whereby an annular recess to receive the top of a bottle is formed by the base wall, the horizontal wall, and the depending flange.

4. In a nipple, a base, an intermediate section, and a tip, said base having a cylindrical inner wall and an inwardly extending flange for engaging the neck of a bottle, said intermediate section having a lower annular horizontal wall, and having a flange depending from the inner portion of the annular horizontal wall, whereby an annular recess to receive the top of a bottle is formed by the base wall, the horizontal wall, and the depending flange.

JESSE LITTLE.