This invention relates to a feeding device for infants and method, and, more particularly, to a disposable or throw-away type of device and method of manufacture and use of the same.

It is a general object of this invention to provide an infant feeding device and method of manufacture and using the same—the device being characterized by a novel connection between the enclosing, dispensing nipple and the formula-containing bottle. In further explanation of the foregoing, the unique connection includes a two-position nipple (retracted and extended positions) which is readily converted from the retracted to the extended position while developing an advantageous liquid seal with the coating bottle.

Another object of the invention is to provide a method of manufacture and use of a feeding device for an infant wherein the parts are so sized and related as to provide substantial economies and advantages in manufacture and use.

Other objects and advantages may be seen in the details of construction and operation set down in this specification.

The invention is described in conjunction with an illustrative embodiment in the accompanying drawing, in which:

FIG. 1 is a perspective view of the two-position nipple used in the practice of the invention;
FIG. 2 is a sectional view of the nipple of FIG. 1 as would be seen along the sight line 2—2 applied to FIG. 1;
FIG. 3 is a fragmentary sectional view of a bottle such as is used for feeding infants and with the nipple of FIG. 1 shown mounted thereon but defined by phantom or dashed line;
FIG. 4 is a fragmentary sectional view of the nipple-equipped bottle of FIG. 3 and additionally showing a closure applied thereto but with the closure in an intermediate stage of application to the nipple-equipped bottle;
FIG. 5 is a fragmentary perspective view of the upper portion of an infant's formula bottle shown equipped with the nipple enclosure of the invention;
FIG. 6 is a fragmentary perspective view showing the device of FIG. 5 in the process of having the closure detached therefrom;
FIG. 7 is a fragmentary perspective view of the device of FIG. 5 but in a subsequent stage of manipulation wherein the nipple is about to be converted to its ultimate position; and
FIG. 8 is a fragmentary perspective view of the final configuration of the nipple-equipped bottle when it is ready for use in feeding an infant.

In the illustration given and with particular reference to FIGS. 1 and 2, the numeral 10 designates generally the two-position nipple utilized in the practice of the instant invention. The nipple 10 is seen to have a generally cup-shaped body 11 defined by a circular, annular side wall 12 and an inwardly-extending annular wall 13. The usual tip 14 is equipped with a perforation 15 for dispensing of the milk, formula, or other fluid desired to be used. Interconnecting the tip portion 14 and the cup-shaped portion 12 is a web portion 16 which, like the portions 12—14, is constructed of resilient material such as latex rubber.

Referring now to FIGS. 3 and 4, it will be seen that the nipple 10 is installed on a bottle generally designated 17 and which is equipped with the usual open mouth 18 at the top thereof. Additionally, the bottle 17 is equipped with a rounded lip at 19, i.e., a lip that has an essentially arcuate curvature when viewed in transverse section as in FIG. 3. Additionally, the lip 19 provides a radially-extending, enlarged portion as at 20 to define a shoulder 21 adapted to receive a ring closure 22 as at 23 in FIG. 4. For this purpose, the closure 22 is crimped or rolled to develop the configuration shown in dotted line in FIG. 4 and designated 23. In the particular form of ring closure illustrated, the closure 22 is equipped with a central aperture as at 24 (see FIG. 5) and integral with the ring closure 22 is a tear-tab 25. The tear-tab 25 is seen to extend into the aperture 24 from one portion of the ring closure as at 26, and aligned with the tear-tab are lines of weakness 27 provided in the ring closure 22 for a detachment operation as seen in FIG. 6.

Further, the ring closure 22 is advantageously integrated as by adhesive 28 (see FIG. 4) with a disc 29 bearing against the lip 19 and being clamped thereagainst by the ring closure 22.

In the manufacture of the device, the nipple 10 is advantageously installed in place on the neck or lip portion 20 of the bottle 17 from an automatic dispensing device, riding freely on the mouth 18 of the bottle 17. Because I arrange the dimensions of the bottle and nipple so as to develop a loose or sliding fit between the two, the automatic installation is readily implemented. Subsequent in the manufacture of the feeding device, and here it will be appreciated that prior to the installation of the nipple 10 on the bottle 17 the bottle has been filled with a suitable formula or other nutritional liquid, the assembled disc and ring (29 and 22, respectively) are dropped from an automatic dispensing machine to cover the nipple. Thereafter, the cap-like closure 22 is secured on the bottle by crimping the portion 23 as indicated in FIG. 6. At such time, the aperture 15 in the nipple 10 is closed by direct contact with the disc 29.

In use, the tear-tab 25 is removed as illustrated in FIG. 6, after which the entire closure can be thrown away. This exposes the nipple in a fashion analogous to that indicated in FIG. 3, and thereafter the cup-shaped portion 12, more particularly the outer wall 30 thereof, is moved downwardly by manipulation (see finger 31 and thumb 32) to produce a sliding action of the nipple 10 relative to the bottle 17. When this occurs, the web portion 16 tends to ride over the lip 19, and since the nipple 10 is constructed of resilient material, the web portion 16 stretches somewhat to simultaneously eject the tip 14 (see FIG. 8) while effecting a liquid seal with the extreme upper portion of the bottle 17.

Stated alternatively, the narrower diameter web portion 16 becomes gradually expanded to a larger diameter determined by the diameter of the upper portion of the lip or neck portion 20 so as to produce a constrictive type stress and thereby fix the nipple relatively securely to the bottle neck.

From the foregoing, it will be seen that certain advantages accrue from the practice of the invention. Among these are the following:

1. The nipple 10 rides freely on the bottle mouth, permitting a mechanical system to close the units—notwithstanding the fact that the rigid bottle is to be equipped with a resilient nipple;
2. Emergence of the tip is accomplished by finger manipulation from the outside through a sliding movement (compare particularly FIGS. 7 and 8);
3. The curved mouth of the bottle works coopera-
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tively to facilitate sliding of the nipple web portion 16
during the erection or extension of the tip portion 14;
(4) Constricted of the nipple 10 around a bottle
mouth is not permanent, but produced in a reliable
fashion when the unit is ready for use.
It will further be apparent that a variety of closures
may be used in conjunction with the nipple 10 and bottle
17, such as a pressure or screw cap. However, excellent
results attend the use of the illustrated closure.
While in the foregoing specification a detailed descrip-
tion of an embodiment of the invention has been set
down for the purpose of explanation, many variations in
the details herein given may be made by those skilled
in the art without departing from the spirit and scope
of the invention.
I claim:
1. A feeding device for infants, comprising a rigid
bottle having an open circular mouth, a lip integral with
said bottle around said mouth and having a generally
arcuate contour in transverse section, a two-position
nipple constructed of resilient material mounted on said
lip in retracted position, said nipple including a cup-
shaped portion and a perforated tip portion disposed gen-
erally axially of said cup-shaped portion, said nipple
further including a web portion integrating said tip and
cup-shaped portions, said web portion being reversely
folded to position said tip portion within said cup-shaped
portion whereby said nipple is in said retracted position,
said bottle lip having an outer, uninterrupted, cylindrical
portion providing means mounting said cup-shaped por-
tion for slidable movement in a direction away from
the arcuately contoured lip portion, and a closure detach-
ably fixed to said bottle and enclosing said nipple, said
nipple when said closure is detached from said bottle
being adapted to be manually manipulated to shift said
cup-shaped portion relative to said lip and unfold said
web portion to extend said tip portion with a part of said
web portion surrounding said bottle to effect a liquid
seal therewith.
2. A method of manufacture and use of a feeding
device for infants, comprising loosely mounting a re-
tracted resilient nipple on the neck of an open-mouthed
bottle to close the same, said nipple including a cup-
shaped portion and a perforated tip portion disposed
generally axially of said cup-shaped portion, said nipple
further including a web portion integrating said tip and
cup-shaped portions, enclosing said nipple with a remov-
able closure, subsequently removing said closure and
shifting the cup-shaped portion downwardly along the
bottle neck in a direction away from the bottle mouth to
simultaneously eject said tip portion from said bottle
mouth.

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