

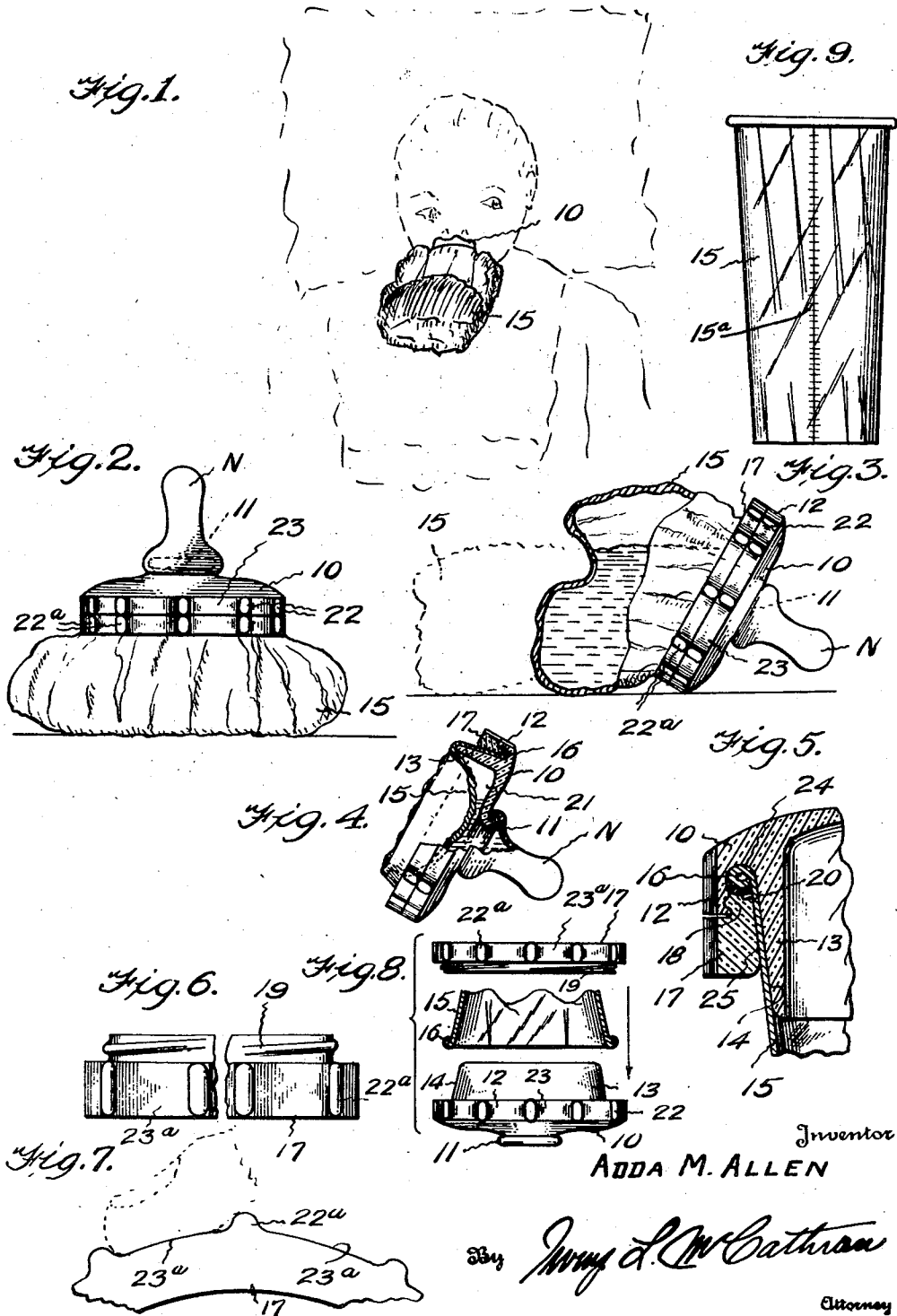
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NURSING UNIT WITH RETRACTABLE CONTAINER THEREFOR

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NURSING UNIT WITH RETRACTABLE
CONTAINER THEREFOR

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3 Claims. (Cl. 215—11)

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This invention relates to nursing units, and more particularly to that type of unit having a retractable throw-away container, and has for one of its objects the production of a nursing unit which comprises a rigid neck to which is detachably secured a container, which container becomes limp when liquid is placed therein and which container automatically collapses and retracts into the rigid neck as the last of the liquid is sucked from the container by an infant using the nursing unit, in this way providing a non-colic nursing unit in view of the fact that no accumulation of air is permitted within the container.

A further object of this invention is the production of a simple and efficient nursing unit which may be easily and quickly assembled for firmly securing the collapsible retractable throw-away container to the rigid engaging neck.

Other objects and advantages of this invention will appear throughout the following specification and claims.

In the drawing:

Figure 1 is a perspective view of the nursing unit in use;

Figure 2 is a side elevational view of the nursing unit illustrating the appearance of the container after liquid has been placed therein, the container resting upon a support;

Figure 3 is a side elevational view of the unit as it appears in a nursing position;

Figure 4 is a sectional view, partly in section illustrating the manner in which the limp receptacle retracts into the rigid neck as liquid is sucked therefrom;

Figure 5 is an enlarged sectional view of the neck illustrating the manner of securing the neck to the container;

Figure 6 is a side elevational view of the securing ring;

Figure 7 is an enlarged fragmentary plan view of the securing ring, illustrating the formation of the periphery thereof;

Figure 8 is a group view of the neck, a portion of the container and the securing ring; and

Figure 9 is a side elevational view of the pre-sterilized container before the liquid is placed therein.

By referring to the drawing, it will be seen that 10 designates a rigid neck which is provided with a nipple-engaging rim 11 which rim may be of a suitable size to be engaged by a nipple of a desired type. The neck 10 may be formed of glass, plastic metal, or any suitable rigid material. The neck 10 is provided with a depending annular flange 12

which is preferably provided with an internal $\frac{1}{2}$ or $\frac{1}{4}$ thread. A depending container-engaging skirt 13 is carried by the neck 10 and is inwardly spaced relative to the flange 12. This skirt 13 preferably extends below or beyond the lower edge of the flange 12 as shown in the enlarged view Figure 5. The outer face 14 of the skirt 13 preferably tapers inwardly to conform to the pitch or angle of the sides of the cup or container 15.

The container 15 may be of the paper cup type, may be formed of light pliant material or Cellophane or other material which is pliant and possesses the characteristic of becoming limp and losing its stiffness when liquid is placed therein to assume the appearance and position of the container 15 shown in Figures 1, 3, and 4, when in use. The container 15 is preferably provided with a rolled bead 16 of the conventional type which extends laterally of the cup and constitutes a securing flange.

A securing or clamping ring or member 17 which may be made of glass, plastic, metal, or other material, engages the neck 10 and is provided with an inset externally threaded flange 18 having a $\frac{1}{2}$ or $\frac{1}{4}$ thread 19 to engage the companion thread formed internally of the flange 12 to lock the ring 17 in position when these threads are engaged. Any suitable securing means, however, may be used for securing the ring 17 to the neck 10. A washer 20 may be used to engage the flange or bead 16, if desired, to insure a desired and effective seal between the neck, container, and ring.

As shown in Figure 5, the corners of the ring 17 and flange 13 may be rounded where they engage the container 15 to prevent shearing or injuring of the container 15. The flange 13, as shown in Figure 4, defines a cavity 21 into which the collapsible receding container automatically recedes or contracts as the liquid within the container is sucked out of the container by the infant using the unit. The exterior atmospheric pressure upon the limp flexible, retractable, or receding container will cause the container to recede into the nipple feeding cavity as the pressure within the container falls below the exterior atmospheric pressure. Because of this action, I have found that the danger of colic when using this nursing unit is reduced to a minimum since no large pocket of air is present within the container, as is the case with other well known nursing units. In other words, the limp flexible and pliant container will follow the liquid into the cavity 21 as the liquid flows out of the cavity 21 and through the nipple N—see Figures 1, 3 and 4. Furthermore, the neck 10 will tend to tip or incline the nipple

and neck toward the infants' mouth as indicated in Figure 3, and the limp or flexible container 15 will lie snugly upon the infants' chest, blanket, or other support, and will conform to the contour of the support upon which it may rest.

As shown, the neck 10 is provided with a plurality of spaced ribs 22 between which are arranged dished-out portions to receive the fingers of an operator to facilitate the gripping of the neck by an operator. The ring 17 is also provided with spaced ribs 22^a upon its periphery between which ribs 22^a are formed dished-out portions 23^a to receive the fingers of an operator as indicated in Figure 7.

The container 15 may be graduated as at 15^a to facilitate gauging the amount of liquid placed therein.

As shown in Figure 8, the tapering wall or face 14 of the skirt 13 will facilitate the dropping of the open mouth of the container in place over the skirt 13. The bead 16 fits into the pocket 24 formed between the flange 12 and the skirt 13, as shown in Figure 5. The ring 17, as shown in Figure 5, is provided with an inclined face 25 formed at the same angle as the wall or face 14, and the wall of the container 15 so as to tightly clamp against the bead 16 at its upper end and to firmly clamp the wall of the container 15 between the skirt 13 and ring 17 thereby providing a maximum gripping face longitudinally of the container at its mouth and transversely of the bead 16.

It should be understood that when the Cellophane or other pliant container collapses or becomes limp as the liquid or feeding formula is placed therein, the container will recede from the bottom toward and into the neck 10, thereby preventing the ingress of air into the container and consequently prevent the infant from sucking air which would be likely to cause colic. Due to the fact that the pliant limp container may and does take a different shape from its pre-use shape when liquid is placed therein, it yields readily to force of pressure without breaking. In this way, an attendant may force liquid out from the container and through the nipple 10 merely by compressing the container with the fingers. Furthermore, by noting the manner in which the container collapses an attendant may know whether or not the infant is nursing and how the contents of the container is being consumed.

It should also be noted that the nature of the nursing unit and its lightness of material lessens the tendency of the bottle to pull away from the mouth of the infant. Also it should be noted that the disposable, pliant pre-sterilized container is always ready for use and is preferably kept in a sealed casing until used. After use the container is thrown away.

Because of the fact that the container when filled with liquid is limp and flexible, it will lie flat upon a support with little or no tendency to roll, and since it is collapsible and retractible and follows the volume of liquid as the liquid is nursed from the bottle, the formula or liquid constantly fills the nipple and is fed into and through the nipple. This will reduce the air pocket within the container to a minimum. The merest pressure will induce feeding, and enable an infant to conserve its strength, and the present device provides a closer approach to the natural breast feeding than other nursing units.

It should be noted that Cellophane has been found preferable as a material from which the pliant container is constructed, which material

becomes limp as liquid is placed therein, but it should be understood that the disposable pliant container which is detachably secured to the neck may be formed of any suitable material which is pliant or which possesses the characteristics of becoming pliant or limp and flexible when liquid is placed therein in a manner similar to the Cellophane container.

Since the nursing unit tilts or tips toward the infant's mouth, and the unit is prevented from rolling by conforming to the contour of its support while the infant is nursing, the nipple rests upon the upper surface of the infant's tongue, causing the sides of the tongue to curl close to, and conform to, the contour of the nipple. In this way, the nipple is retained in contact with the tongue and against the roof of the mouth, and the cheeks of the infant are therefore left free to create the desired suction. This nursing unit permits a very young or weak infant to instinctively nurse in a natural, practically effortless manner characteristic of human breast-feeding. Because the unit tilts toward the infant's mouth and the container recedes into the neck of the unit, the flow of liquid through the nipple will be facilitated, thereby relieving the infant of otherwise tiring effort, and conserving the strength of the infant and encouraging the infant to consume the entire contents of the container. Also because the unit does not roll, and because the nipple rests upon the tongue as described, the nipple will be prevented from falling to one side or out of the mouth while nursing.

The subject matter disclosed herein, but not claimed, is claimed in my copending application Serial 526,354, filed March 14, 1944.

Having described the invention, what is claimed is:

1. A nursing unit comprising a pliable, disposable container bag closed at its rearward end and open at its forward end and a reusable end closure for said container bag comprising a relatively narrow collar of rigid material and a nursing nipple attached thereto, said collar having a dimension axially of the unit which is a small fraction of the length of said bag, said collar having a relatively short, rearwardly extending skirt formed to enter the open end of the container bag and further comprising a clamping ring adapted to encircle the open end of the container bag to clamp the same in sealing relation against said skirt, said collar having means for connecting the nipple with its nursing portion extending centrally and forwardly therefrom, the nursing portion of said nipple being of diameter substantially less than and being spaced a substantial distance inwardly from the outer edge of said collar, the outer forward face of said end closure being formed to taper steeply inwardly to the nursing portion of said nipple, whereby the exterior of said collar comprises a narrow circular rim adapted to rest on a surface while permitting the nursing portion of the nipple to tilt inwardly at a steep angle toward the infant's mouth, said container bag being thin enough to have its shape altered by the presence of liquid therein, and to be retractible toward and into said collar as the infant withdraws liquid therefrom, the diameter of said collar being great enough to permit substantially all of the material of said container to enter the collar without obstructing flow of liquid from the nursing portion of said nipple.

2. A nursing unit comprising a pliable, disposable container bag closed at its rearward end and open at its forward end and a reusable end clo-

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sure for said container bag comprising a relatively narrow collar of rigid material and a nursing nipple attached thereto, said collar having a dimension axially of the unit which is a small fraction of the length of said bag, said collar comprising two concentric parts, one of said parts being a neck portion and the other part being a retaining ring portion, said parts having cooperating means to clamp the same against one another to retain the open end of the container in sealing engagement therebetween, said collar including a circular gasket of resilient material disposed between said parts and positioned to seal against the outer surface of the open end of the container bag when said parts are clamped together, said collar having means for connecting the nipple with its nursing portion extending centrally and forwardly therefrom, the nursing portion of said nipple being of diameter substantially less than said collar and being spaced a substantial distance inwardly from the outer edge of said collar, the outer forward face of said end closure being formed to taper steeply inwardly to the nursing portion of said nipple, whereby the exterior of said collar comprises a narrow circular rim adapted to rest on a surface while permitting the nursing portion of the nipple to tilt inwardly at a steep angle toward the infant's mouth, said container comprising sufficient material and being so formed as to provide, when filled, a limp mass which rests on and conforms to the shape of the supporting surface, the material of said container being sufficiently thin and pliable as to be retractible toward and into the rim formed by said collar as the infant withdraws liquid from the container.

3. A nursing unit comprising a pliable, disposable container bag of thin transparent material which is closed at its rearward end and open at its forward end and a reusable end closure for said bag comprising a collar of rigid material and a nursing nipple attached thereto, said collar having a dimension axially of the unit which is a small fraction of the length of said bag, said collar comprising concentric neck and retaining ring portions, said neck ring portion having a

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relatively short rearwardly and inwardly tapering skirt which enters the open end of said bag, said retaining ring portion encircling the open end of said bag to clamp and seal the same against said skirt, said neck portion having means for connecting said nipple thereto with its nursing portion extending centrally and forwardly therefrom, the nursing portion of said nipple being positioned a substantial distance inwardly from the outer edge of said collar providing for the downward tilting of said nipple at a steep angle toward the infant's mouth when the rim of said collar is resting on a surface, said bag when filled forming a limp mass which rests on and conforms to the shape of the supporting surface.

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REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
25 554,071	Matzen	Feb. 4, 1896
1,344,760	Goddard	June 29, 1920
1,434,460	Tibbotts	Nov. 7, 1922
1,610,712	Schweinert	Dec. 14, 1926
1,695,076	Zohé	Dec. 11, 1928
30 2,091,723	Sterino	Aug. 31, 1937
2,110,612	Skinner et al.	Mar. 8, 1938
2,110,928	De Buys	Mar. 15, 1938
2,133,411	Zohé	Oct. 18, 1938
2,192,722	Vogt	Mar. 5, 1940
35 2,289,887	Shapiro	July 14, 1942
2,297,375	Vogt	Sept. 29, 1942
2,328,354	Montano	Aug. 31, 1943
2,330,019	Vaughn et al.	Sept. 21, 1943
2,398,505	Pepin	Apr. 16, 1946

FOREIGN PATENTS

Number	Country	Date
610,669	France	June 4, 1926
117,765	Australia	Nov. 12, 1943
45 525,389	Great Britain	Aug. 27, 1940
555,468	Great Britain	Aug. 24, 1943