This invention relates to a cap for a wide mouth, non-rigid, pliant, and disposable nursing bottle, and has for one of its objects the production of a simple and efficient means for attaching a pliant or non-rigid disposable container to a cap which supports a nipple of the flanged type.

A further object of this invention is the production of a simple and efficient expandable clamping ring which fits within the open end of a pliant or non-rigid disposable container for securely bracing and holding the pliant or non-rigid disposable container in a secured position upon a rigid neck portion while the container is being filled.

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

In the drawing:

Figure 1 is a side elevational view of the assembled nursing unit;

Figure 2 is a bottom plan view of the cap;

Figure 3 is a vertical sectional view taken on line 3-3 of Figure 1, the nipple and nipple-retaining cap being shown in dotted lines;

Figure 4 is a perspective view of the expandable spring-clamping or retaining ring;

Figure 5 is a vertical sectional view illustrating a modified clamping means for securing the container to the neck;

Figure 6 is a similar vertical sectional view illustrating a further modified form;

Figure 7 is a vertical sectional view illustrating the manner in which the container may be pulled out of engagement with the supporting neck;

Figure 8 is a side elevational view partly in section illustrating a modified form of the nursing unit cap;

Figure 9 is a perspective view of the solid wedge-like clamping or retaining rings.

By referring to the drawing, it will be seen that 10 designates the pliant or non-rigid container which may be formed in the nature of a conventional paper cup if desired, or of any suitable material. A rigid neck 11 is carried by the upper open end of the container 10, and this rigid neck may be formed of metal, plastic, or other desired material. The neck 11 is provided with an externally threaded inset portion 12 which receives the conventional nipple-retaining cap 13. I preferably weight the cap 13, as at 14, to cause the nursing unit, while in use, to tip toward the infant's mouth while nursing and to cause the nipple 15 to lie upon the infant's tongue.

The present device is designed for supporting a nipple 15 of the wide-flange type, and also to support a non-rigid container 10 which may be pliant, flexible and collapsible, as desired. The neck 11 is provided with an outwardly flaring skirt 16 at its lower end defining an enlarged pocket 17 into which the expanded container 10 may recede while an infant is nursing. The container 10 is adapted to take the position shown in dotted lines in Figure 3 when liquid is placed therein, and because the container is formed of pliant, flexible, or non-rigid material and is pleated, as at 5, to shape the container, the container will expand when liquid is placed therein.

The neck 11 is provided with an annular ledge 18 along its upper inner face upon which the lateral flange 19 at the open end of the container rests. A split expansion retaining ring 20 formed of spring material fits snugly in the upper end of the pliant or non-rigid container 10 and firmly clamps the container against the inner wall 21 of the neck 11. This retaining ring 20 is provided with a laterally extending flange 22 which overhangs the flange 19 of the container 10 and assists in clamping the container in position. The flange 15 of the nipple 15 fits over the flange 22 of the ring 20 and the upper end of the neck 11, and the parts are then firmly bound in position by the threaded cap 13.

It should be understood that the ring 20 is detachable and because of its expandable nature, the ring will grip and suspend the container and hold the container 10 in position upon the neck 11. However, a pulling force exerted upon the container in a downward direction will cause the container to be extracted from between the neck 11 and the ring 20 when it is desired to dispose of the container. This may be accomplished by gripping the neck 11 in one hand and pulling downwardly upon the container 10 with the other hand causing the upper edge of the container to slide downwardly in the direction of the arrow shown in Figure 7.

If desired, the device may be used with a straight edge container without a flange. The open end of the container 10 will, in this form as shown in Figure 6, fit snugly between the inner wall 23 of the neck 11 and the retaining ring 20 and be suspended by the clamping action between the ring 20 and the neck 11.

In Figure 5, there is shown a further modified form wherein the neck 11 and retaining ring 20 are provided with interfitting annular tongue- and-groove portions 24. These portions 24 clamp a portion of the pliant or non-rigid container 10 in a bead-like formation therebetween to pro-
vide an additional clamping means in addition to the
overhanging lateral flange 22 of the ring 20 and the flange 19 of the container 10 to
support the container.

In the form shown in Figures 8 and 9, the
neck 23 is provided with a beveled face 24 which is preferably inclined inwardly and downwardly.
The upper open end of the pliant container 25 fits snugly against this beveled face 24 and a
wedge-shaped ring 26 fits within the upper end
of the container 25 and clamps the container 25 in a wedging action against the beveled face
24 to support the container in the neck 25 while
the container is being filled.

In all of the forms illustrated, the clamping
or retaining ring such as the rings 20 and 26
are adapted to suspend the container from the
neck while the container is being filled and will also assist in holding the container and neck
together while the infant is nursing therefrom.
The outer face of the skirt 16 may be scored as indicated in Figure 1, to provide an efficient
finger-gripping surface. The cup may be formed of
any suitable material including cellophane and the like.

It should be understood that the flared skirt
which defines an enlarged pocket 17, allows a
greater capacity in the expanding container 10
than might otherwise be possible. Furthermore, the flared skirt constitutes a fulcrum beyond the
center of gravity of the neck to cause the neck to tilt forwardly and downwardly toward the
infant during nursing. It should be
understood that the container 10 may be formed
of pliant non-rigid or flexible material, or other
material which possesses similar characteristics.

Having described the invention, what I claim
is:

1. A nursing unit comprising a disposable con-
tainer bag of pliant material having a closed
rearward end and an open forward end, and a
reusable collar assembly made of rigid mate-
rial and a reusable nursing nipple secured in
sealing relation to the open end of said bag, said
collar assembly comprising a separate inside
ring surrounded by and providing inside support
for the open end edge of said bag, the minimum
interior diameter of said inside ring being sub-
stantially equal to the diameter of said bag at
its open end whereby said inside ring does not
substantially restrict the flow of liquid from the
open end of said bag, said nipple having a cen-
tral forwardly protruding nursing portion and a
surrounding integral relatively wide perimeter
area of diameter as great as that of the open end
of said bag and overlying the open end of said
bag and the forward end of said inside ring, said
collar assembly further comprising a separate
outside retaining ring surrounding said inside
ring and the open end edge of said bag and having
means to clamp said perimeter area of
said nipple in sealing engagement with and over-
lying the open end of said bag.

2. A nursing unit comprising a disposable con-
tainer bag of pliant material having a closed
rearward end and an open forward end, and a
reusable collar assembly made of rigid material
and a reusable nursing nipple secured in sealing
relation to the open end of said bag, said collar
assembly comprising a separate inside ring sur-
rounding by and providing inside support for the
open end edge of said bag, the minimum interior
diameter of said inside ring being substantially
equal to the diameter of said bag at its open end
whereby said ring does not substantially restrict
the flow of liquid from the open end of said bag,
said nipple having a central forwardly protrud-
ing nursing portion and a surrounding integral
laterally extending circular flange of outside
diameter greater than that of the open end of
said bag and overlying the open end of said bag
and the forward end of said inside ring, said col-
lar assembly further comprising a separate out-
side retaining ring surrounding said inside ring
and the open end edge of said bag and having
a forward end underlying said flange, said out-
side retaining ring further comprising an annular
nipple retaining cap secured to the exterior
thereof and engaging said flange to seal the lat-
ter rearwardly against the forward ends of said
inside and outside rings.

3. A nursing unit comprising a disposable con-
tainer bag of pliant material having a closed
rearward end and an open forward end, a re-
usable collar secured in sealing relation to the
open end of said bag, said collar comprising a
separate outside ring having a tubular inner
wall, the open end edge area of said container
fitting snugly against said inner wall, said collar
further comprising a separate inside ring hav-
ing an exterior tubular wall of diameter less than
that of the inner wall of said outside ring where-
by it may be inserted rearwardly into the open
end of said bag and into said outside ring to
retain the open end edge area of said bag be-
tween said walls, said inside ring having a cen-
tral opening therethrough whose minimum di-
ameter is only slightly smaller than the diam-
eter of said bag whereby said inside ring does not
substantially restrict the flow of liquid from the
open end of said bag, and a nipple having a
forwardly protruding nursing portion and a sur-
rounding integral perimeter area of sufficient
diameter to overlie the open end of said con-
tainer secured in sealing relation to said collar.

ADDA M. ALLEN.

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