Feb. 1, 1949. A. M. ALLEN ET AL 2,460,329

NURSING UNIT

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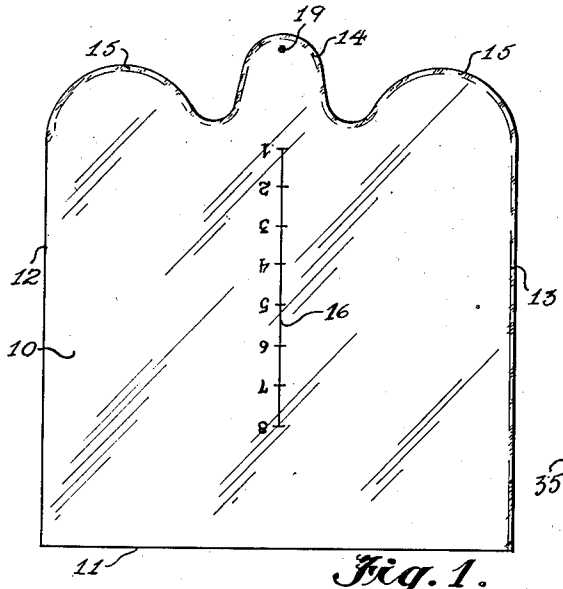


Fig. 1.

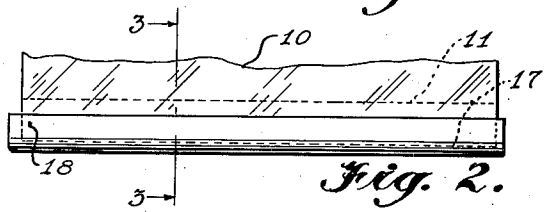


Fig. 2.

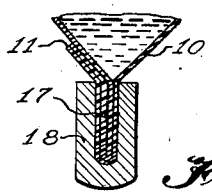


Fig. 3.

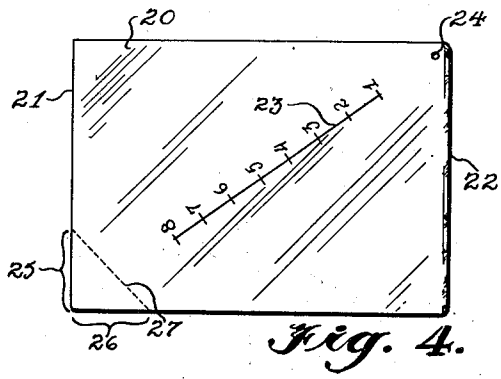


Fig. 4.

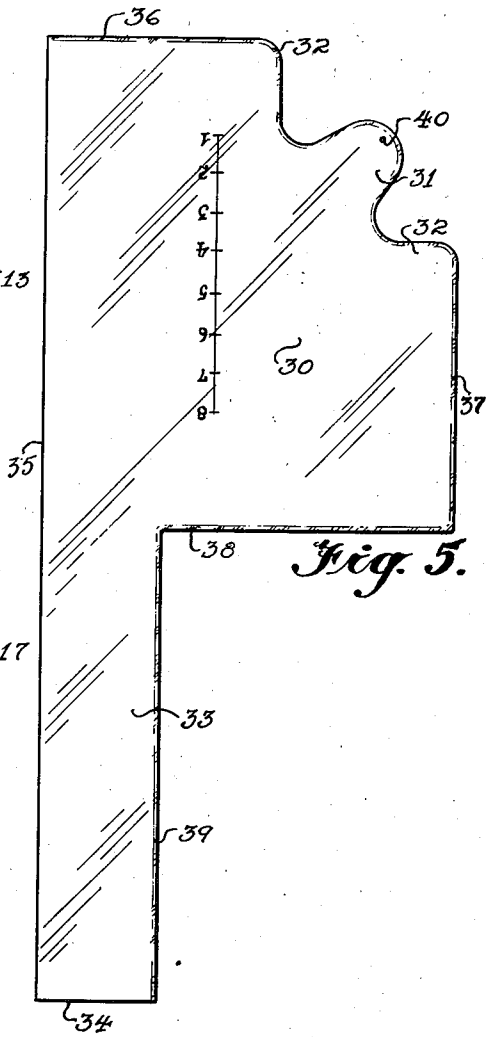


Fig. 5.

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NURSING UNIT

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11 Claims. (Cl. 215—11)

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This invention relates to improvements in nursing units and more particularly to a disposable flexible nursing unit for feeding liquids to infants.

It has been the practice for many years to feed babies from glass bottles provided with rubber nipples designed to fit the type of bottle used. Flexible bottles provided with rigid holders and nipple connecting rings or devices have also been suggested. Such bottles and nipples are generally used repeatedly and are required to be sterilized between feedings, usually by boiling all the various parts thereof in water. It is sometimes difficult to obtain complete sterilization of such devices, and the use of brushes for cleaning used bottles and nipples is often ineffective as well as time consuming. Likewise, glass and other bottles, nipple holders, and the nipples themselves may be difficult to handle in boiling water. They generally must be assembled for use by hand and hence they often become contaminated. Numerous attempts have been made to avoid the disadvantages noted above, but such attempts have not been completely successful since they have usually involved the use of more complicated and more expensive nursing units.

It is an important object of this invention to provide a simple sterile nursing unit to be used for one feeding only and intended to be then discarded.

It is a further object of this invention to provide an improved nursing unit which does not require rigid or semi-rigid holders or frames, and which provides an improved nipple construction integral with the milk or formula container.

It is another object of this invention to provide a disposable nursing unit which may be packed flat and sold in sterile packages.

It is another object of this invention to provide a disposable sterile nursing unit which requires no boiling, brushing, scrubbing or other sterilizing procedure before it is used.

It is still another object of this invention to provide a disposable nursing unit which may be easily filled with the desired amount of milk or formula and which may then be readily sealed and stored, if necessary, until feeding time.

It is a still further object of this invention to provide a completely flexible nursing unit which collapses as feeding progresses and hence avoids entry of air into the container thereby providing a feeding device which reduces or eliminates aircolic.

It is likewise an object of this invention to provide a flexible disposable nursing unit which

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avoids the formation of partial vacuum in the container.

Other objects and advantages of our invention will be readily apparent from the following description of the embodiments of this invention illustrated in the accompanying drawings in which:

Figure 1 is a plan view of a disposable nursing unit empty and flat as taken, for example, from a sterile supply package.

Figure 2 is an elevation view of the filling end of a nursing unit, such as shown in Figure 1, with the filling opening closed by folding and clamped by one form of simple clamping device.

Figure 3 is an enlarged section view taken on line 3—3 of Figure 2.

Figure 4 is a plan view of a modified form of disposable nursing unit.

Figure 5 is a plan view of a further modified form of disposable nursing unit having an elongated filling tube adapted to be closed either by folding or tying.

Referring to the construction illustrated in Figure 1, the nursing unit comprises a container 10 having unsealed open edges 11, closed edges 12 and 13, and having a closed wavy edge including a curved nipple portion 14 between curved shoulder portions 15. The container 10 is preferably made from a sealable film-like sheet material, transparent or semi-transparent, and impervious to milk, formula, and other liquid feeding compositions. The container 10 may be made from any suitable non-toxic film-like sheet material, for example, a rubber hydrochloride such as "Pliofilm," a polyvinyl chloride elastomer such as "Koroseal," or other similar or suitable non-toxic materials. It is to be understood that this invention is not limited to the use of any of the above-mentioned specific materials, which are suggested merely as examples of the types of films that are suitable. The container 10 may be formed from one piece of sheet material folded along the edge 12 and then heat sealed or cemented with a non-toxic cement along edges 13, 14, and 15, as indicated in Figure 1. The edges may be aligned one on the other and the sealing extend inward a short distance from the edges as shown, or one edge may be folded over the other edge and be lap sealed together. The nipple portion may be formed by lap sealing if desired. Container 10 may like-wise be formed from tubular material, folded flat to form edges 12 and 13, and then suitably sealed along the curved edges 14—15. A measuring scale 16 may be printed on the exterior surface of the container 10. One or more open-

ings or perforations 19 may be punched in the nipple 14 during the manufacture of the container 10.

When it is desired to use the nursing unit illustrated in Figure 1, the container 10 may be filled with the desired amount of feeding formula or milk through the open end 11. The end 11 is then folded over lengthwise one or more times, as shown by the numeral 17 in Figure 2, and a suitable clamp 18 is applied over the fold 17. The clamp 18 may be of U-shape channel cross-section, as shown in Figure 3, and may be formed from metal, plastic or other semi-resilient materials. Many other suitable forms of well known clamping devices may be substituted for the particular clamp illustrated. If desired, the open end of the container may be closed by heat sealing. The contents of the container 10 may be heated to the desired feeding temperature by immersing the unit in warm or boiling water for a short time, or by the use of a dry heating device, or by other methods.

The wavy edge 14—15 of the container 10 is adapted to form a rounded nipple 14 between curved shoulders 15 when milk or formula is placed in the container. When it is desired to begin nursing, one or more openings or perforations 19, if not prepunched, are then punched adjacent the tip portion of the nipple 14 by a sterile needle or the like. Before the nursing begins, the container may be held nipple upwards and slightly squeezed to force any air within the container out through the perforation 19 just before the nipple portion 14 is placed in the infant's mouth. Further slight pressure on the sides of container 10 will then start the flow of milk or formula freely and will encourage the infant to continue the flow by sucking. The nipple 14 is intended to simulate a mother's nipple in shape and size, and the flexible nature and texture of the material from which the nursing unit is made permits the infant to suck into his mouth the exact length of nipple it desires. The curved shoulder portions 15 fit closely about the infant's lips and cheeks and create a touch sensation similar to that present when breast feeding is used. When the infant releases his lip hold, the nipple 14 resumes its normal shape and size. The fact that there is no air within the flexible container 10 prevents the creation of partial vacuum within the container. The shape of the shoulder portions 15 lessens or avoids air sucking since the shoulders fit closely around the infant's mouth and cheeks. The flexible nature of the container 10 permits slight pressures to be applied thereto for forcing milk or formula out through the perforation 19 to encourage a slow-feeding infant to suck until a full feeding is completed. In the case of reluctant or weak feeding infants, our nursing unit may with obvious advantages replace the conventional "Breck" feeder. When the feeding operation is finished, the nursing unit is intended to be discarded, after the removal of whatever clamping device may have been used to seal the filling opening.

In the modified nursing unit illustrated in Figure 4, the container 20 is similar to the container 10 of the Figure 1 construction, except that it does not have the specially shaped shoulder and nipple portions of the former device. The container 20 is shown formed from tubular material collapsed flat for packing and shipment, and having an open filling end 21 and an opposite end 22 closed by heat sealing or cementing.

A scale 23 may be printed on the exterior surface of the container 20 for convenience. One or more openings or perforations 24 may be punched in the corner of the container 20 during manufacture or when the unit is ready for use. Instead of providing a filling opening extending completely across the end 21, the filling opening may be formed by leaving only the edges of the corner portion unsealed and open at 25 and 26, so that after the container is filled with milk or formula, the opening 25—26 may be closed by folding over the corner on the dotted line 27. The container may be sealed by applying a clamp or clip to secure the fold, or by heat sealing the open edges together. The Figure 4 nursing unit is intended to be used in a manner similar to that described in connection with the unit of Figures 1–3. The container 20 is filled with the desired amount of milk or formula through the open end 21, which latter is then closed and sealed. One or more perforations 24 may be prepunched, or punched after filling, in one of the corners adjacent the sealed end 22 of the container, and the container is held perforated corner upwards while any air within the container is expelled by slight pressure exerted on the sides of container 20. The perforated corner then is placed in the infant's mouth as a nipple and the feeding operation is carried out as explained hereinbefore. The flexibility and texture of the container material serves to permit the perforated corner to serve as an effective nipple.

The modified nursing unit illustrated in Figure 5 includes a container 30 having a short nipple portion 31 between shoulder portions 32, similar to that shown in Figure 1, except that the nipple 31 is adjacent to one corner of the container 30 instead of being formed on an end edge thereof. The container 30 may be provided with a tubular tail portion 33 being open at the end 34 to permit placing milk or formula within the container. The purpose of the tail portion 33 is to provide for closing the filling opening by tying a simple knot in the tail member, or by folding over the tail upon itself one or more times and then securing the fold by a suitable clamp, or by heat sealing. Various other suitable means for closing and sealing the tail portion will be readily apparent. As illustrated, the container 30 may be formed from one piece of film-like sheet material folded along edge 35 and heat sealed or cemented along the meeting edges 36, 31, 32, 37, 38, and 39. The container 30 is used as a nursing unit in a manner similar to that described above, one or more perforations 40 being punched in the nipple portion 31, and milk or formula being placed in the container through the filling opening 34 of the tail portion 33.

It will be apparent from the above description, that our invention provides an easily manufactured economical nursing unit construction having many advantages in addition to those stated. While the units illustrated are somewhat rectangular in shape, it will be obvious that other shapes, such as triangular, tapered, or curved, may be used. The complete elimination of bottle holders, separate nipples and nipple holders serves to provide a low cost unit which may be easily disposed of after one feeding. The flexibility and shape of the units promotes simulation of breast feeding and reduces air sucking and air-colic. It is to be understood that the foregoing description is merely illustrative, as this invention includes all modifications and embodi-

ments coming within the scope of the appended claims.

We claim:

1. A disposable nursing unit for feeding liquids to infants, said unit comprising a completely flexible container of sheet material, said container being flat before said liquids are placed therein, one edge of said container being open, the opposite edge of said container being of wavy contour forming a projecting nipple portion disposed between outwardly protruding curved shoulder portions, the shape of said nipple and shoulder portions being such as to simulate a mother's nipple and breast during feeding.

2. A disposable nursing unit for feeding liquids to infants, said unit comprising a completely flexible container of sheet material, said container being flat and of substantially rectangular form before said liquids are placed therein, one end of said container being open, one corner at the opposite end of said container being of rounded contour forming a nipple portion disposed between curved shoulder portions.

3. A disposable nursing unit for feeding liquids to infants, said unit comprising a completely flexible container of sheet material, said container being flat before said liquids are placed therein, one end of said container having a projecting tail portion narrower in width than the width of said container and forming a tubular filling opening, said opening being closable by the formation of a knot in said tail portion, said material at the opposite end of said container being formed to provide a hollow protruding portion in the form and of the size of a nursing nipple.

4. A disposable nursing unit comprising a container formed of flexible film-like sheet material, said container being of tubular form, the material thereof being of uniform thickness throughout whereby it may be folded into flat condition along opposite longitudinal side edges prior to use, said container being closed along one of its end edges, the material of said container being formed adjacent said one of its end edges with a hollow protruding portion in the form and of the size of a nursing nipple, said container being constructed at its end opposite said nipple portion to be opened for filling the container and to be closed to confine the feeding liquid therein.

5. A disposable nursing unit comprising a container formed of flexible film-like sheet material, said container being of tubular form, the material thereof being of uniform thickness throughout whereby it may be folded into flat condition along opposite longitudinal side edges prior to use, said container being closed along one of its end edges, the material of said container at said one end thereof being formed to provide a hollow protruding portion in the form and of the size of a nipple, with protruding hollow shoulders spaced from and on opposite sides of said nipple portion to engage the cheeks of an infant while nursing, said container being constructed at its end opposite said nipple portion to be opened for filling the container and to be closed to confine the feeding liquid therein.

6. A disposable nursing unit comprising a container formed of flexible film-like sheet material, said container being of tubular form, the material thereof being of uniform thickness throughout whereby it may be folded into flat condition along opposite longitudinal side edges prior to use, said container being closed along one of its end edges, the material of said container at said one end thereof being formed to provide a hollow protruding portion in the form and of the size of a nipple, with depressions in the edge of the material at said end on opposite sides of said nipple portion to receive the infant's lips while nursing, said container being constructed at its end opposite said nipple portion to be opened for filling the container and to be closed to confine the feeding liquid therein.

7. A disposable nursing unit comprising a container formed of flexible film-like sheet material of tubular shape, said container being formed to be folded into flat condition along opposite side and end edges prior to use, said container being closed along one of its end edges and the material at said end being formed to provide a hollow protruding portion in the form and of the size of a nipple and with depressions in the edge of the material on opposite sides of said nipple portion to receive the infant's lips while nursing, the material at said end being formed to provide protruding hollow shoulders outwardly of said depressions to engage the cheeks of the infant while nursing, said container being constructed to be opened adjacent its opposite end for filling the container and to be closed to confine the feeding liquid therein.

8. A disposable nursing unit comprising a tubular container formed of flexible film-like sheet material of substantially rectangular contour, said container being formed for folding into flat condition along its opposite side and end edges prior to use, said container being closed along one of its end edges and having a corner adjacent said edge relieved to provide a hollow protruding portion in the form and of the size of a nursing nipple disposed between adjacent side and end edges of the container, said container being constructed to be opened adjacent its opposite corner for filling the container and to be closed to confine the feeding liquid therein.

9. A disposable nursing unit comprising a container formed of flexible film-like sheet material in tubular form, the material being of uniform thickness throughout whereby it may be folded into flat condition along opposite side and end edges prior to use, said container being closed along one of its end edges and the material at said one end being formed with inward depressions on opposite sides of a hollow outwardly tapering portion of shape and of size to form a nipple, said depressions permitting the infant to grasp and distend said nipple portion while nursing, said container being constructed to be opened adjacent its opposite end for filling the container and to be closed to confine the feeding liquid therein.

10. A disposable nursing unit comprising a container formed of flexible film-like sheet material in tubular shape, said container being formed to be folded into flat condition along opposite side and end edges prior to use, said container being closed along one of its end edges and the material at said one end being formed with a hollow protruding portion of shape and of size to form a nipple and with a hollow outwardly protruding abutment portion spaced from said nipple portion, said nipple and abutment portions being adapted to be expanded by the liquid in the container when pressure is manually applied thereto, said abutment portions being positioned to engage the cheek of the infant when said nipple portion is in nursing position in the infant's mouth, said container being constructed to be opened adjacent its opposite end for filling the

container and to be closed to confine the feeding liquid therein.

11. A disposable nursing unit for feeding liquids to infants comprising a completely flexible container of film-like sheet material which is of uniform thickness throughout, said container being substantially flat throughout before the liquid is placed therein, said container having a nipple portion formed in the material adjacent one edge thereof and being open at its edge substantially opposite said nipple portion for filling the container.

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