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DISPENSING CONTAINER
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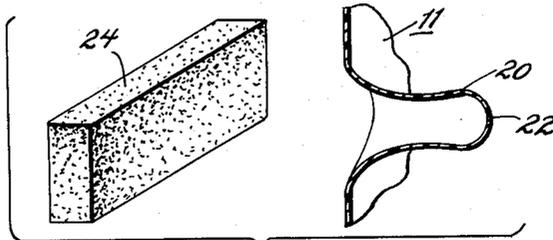
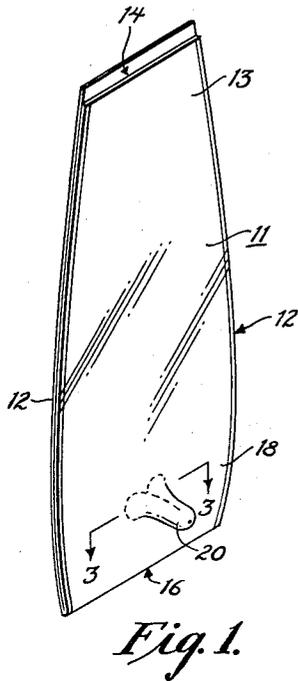


Fig. 2.

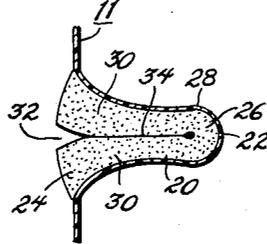


Fig. 3.

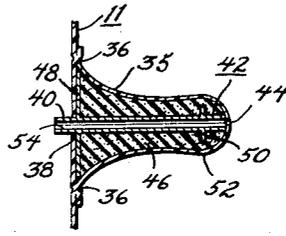


Fig. 4.

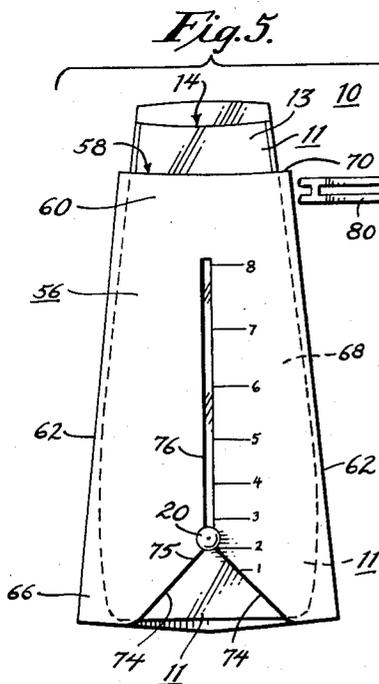


Fig. 5.

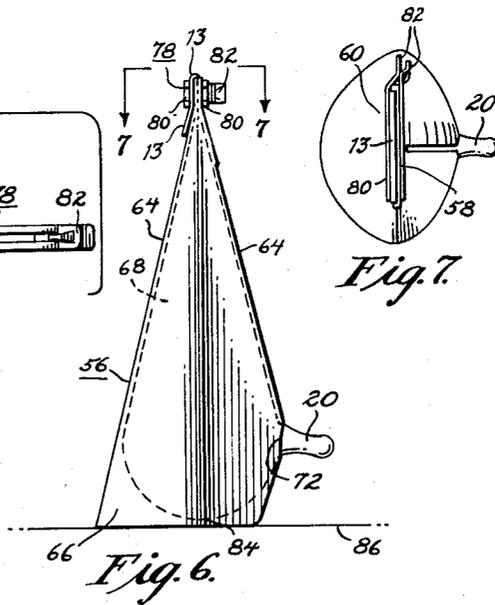


Fig. 6.

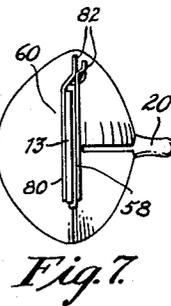


Fig. 7.

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DISPENSING CONTAINER

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2 Claims. (Cl. 215—11)

This invention relates to a dispensing container, and more particularly to a dispensing container for feeding infants.

Heretofore, non-collapsible dispensing devices have been provided for feeding infants and unless the container was fully filled with the formula or material to be dispensed, the unfilled portion contained air. Furthermore, as material was withdrawn by the infant from the container, it was replaced by air which passed through the formula or material being dispensed. This caused air to be dissolved in the dispensed material, either by the action of feeding or by the agitation of the dispensible material by movement of the container. The swallowing of air results in the disturbance known as "colic" in infants, which is highly undesirable and should be avoided.

The present day dispensing containers, because of their cost, are repeatedly reused. This requires the thorough cleaning and sterilization of the container before it may be used again. This is inconvenient and time-consuming. This difficulty is most serious when the necessary facilities are not available as when during trips and visits.

It is therefore a primary object of the invention to provide a new and improved dispensing container for infants which minimizes colic due to feeding.

Another object of the invention is to provide a new and improved dispensing container which is very inexpensive and may be disposed of or discarded after one use.

Another object is to provide a new and improved dispensing container which is highly sterile and sanitary and is maintained in this condition ready for use.

Another object is to provide a new and improved dispensing container for feeding infants from which all of the air may be excluded prior to feeding the child and in which air is not drawn into the container during feeding.

Another object of the invention is to provide a new and improved dispensing container which may be stored, carried and packaged in collapsed form and readily assembled for use at the time desired.

Another object of the invention is to provide a new and improved dispensing container particularly adapted for feeding infants, readily providing for the control of fluid flow, and providing a nipple protuberance simulating the natural breasts.

All of the foregoing and other objects of the invention are achieved by providing a dispensing device comprising a collapsible plastic container having a nipple protuberance with an orifice for dispensing fluid, an open end for receiving fluid, and a resilient material received within said protuberance to maintain its form.

The dispensing device is also provided with an outer wall structure having a cross section tapering to an edge portion at its top end from an enlarged base portion at its bottom end, and supporting the plastic container within it with its protuberance extending externally from

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the wall structure. The sealable end of the plastic container extends through the top end of the wall structure and is foldable over its edge portion for being sealed and secured with the wall structure. The wall structure has a cutaway portion at its bottom end and has a slit extending in the direction between the top and bottom ends for exposing the container.

A clamp is removably received about the top end of the structure and the folded end of the container for sealing and securing the plastic container with the structure.

Bearing the foregoing in mind, the invention will become more apparent as the following detailed description is read in conjunction with the drawings, in which:

Figure 1 is a perspective view of the plastic container in its collapsed condition;

Figure 2 is an enlarged sectional view of the nipple protuberance of the plastic container and the resilient rectangular material which is received therein to maintain its form;

Figure 3 is an enlarged sectional view taken along line 3—3 of Figure 1;

Figure 4 is a view similar to Figure 3 showing a modified form of the nipple protuberance;

Figure 5 is a front elevational view of the dispensing device in condition for being filled;

Figure 6 is a side elevational view of the container dispensing device shown in Figure 5 after it has been filled and the clamp applied; and

Figure 7 is a plan view taken along line 7—7 of Figure 6.

Like numerals designate like parts throughout the several views.

Referring to the figures, the dispensing device 10 comprises a collapsible container 11 which may be made of a plastic material. The container 11 may be formed from a single sheet of plastic material and sealed or heat fused along its edges 12 to form a closed container with a top portion 13 having an open end 14 for receiving fluid to be dispensed. The bottom edge 16 may be formed by folding the plastic material.

The lower portion 18 of the plastic container 11 is provided with a nipple protuberance 20, which is shown in detail in Figure 2. The nipple protuberance 20 may be formed out of the same plastic sheet of the container 11 by the appropriate application of heat and pressure. The end of the protuberance 20 is provided with an opening 22 for dispensing fluid.

The form of the nipple protuberance 20 is maintained by receiving within it a resilient material such as the rectangular sponge 24 of Figure 2.

When the rectangular sponge 24 is folded in two and placed with its central portion 26 proximate the opening 22, a bulge or head 28 is formed at the end of the nipple protuberance 20. The leg portions 30 extend inwardly and form an opening 32 and channel 34. The opening 32 and channel 34 formed by the resilient material 24 directs the fluid within the container 11 towards the opening 22 of the nipple protuberance 20. The resilient sponge 24 also contains the fluid to be dispensed and acts as a reservoir which readily dispenses fluid from the protuberance 20 when it is compressed by chewing and sucking action of an infant. The head or bulge 28 also acts to allow gripping by the infant so that the protuberance is more readily retained.

The Figure 4 discloses a modified form of the nipple protuberance in which a plastic element 35 in the form of a nipple is secured with the plastic container 11 at its root or base by fusion or other such means as indicated at 36. The container 11 is provided with an opening 38 into which is inserted the end 40 of a plastic tube element 42 which extends to the opening 44 in the end of

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the nipple protuberance 35. The form of the nipple protuberance is maintained by a resilient material 46, such as sponge rubber, which is positioned about the tube element 42. The tube element 42 may also be provided with an end or base disk 48 adjacent the container 11 about its opening 38 and a head disk 50 for maintaining the tube element properly positioned in the nipple protuberance 35. The head disk 50 also provides a head bulge 52 at the end of the nipple protuberance 35 allowing it to be easily gripped and retained by an infant.

The opening 54 through the tube element 42 provides for unrestricted flow of fluid from the plastic container 11 to the opening 44 in the end of the nipple protuberance 35. Such fluid flow is also maintained with a minimum sucking or drawing action by infant, and the rate of flow can readily be controlled by the size of the opening 44 at the end of the nipple protuberance 35.

The Figure 5 shows the collapsible container 11 positioned within an outer walled structure 56 which may be made of a resilient material which tends to maintain its form. The structure 56 may be made of a sheet of plastic material of suitable thickness to provide the resiliency desired. The structure 56, illustrated by Figures 5 and 6, has a cross section which tapers to an edge portion 58 at its top 60. The tapering of the walled structure 56 is illustrated in Figure 5 by the edges 62 and in Figure 6 by the edges 64. The tapering from the top portion 60 towards the bottom portion 66, results in an enlarged base upon which the dispensing device may be rested in its upright position.

The walled structure 56 provides an internal hollow portion or cavity 68 which opens through its top portion 60 and its bottom portion 66. The opening 70 through the top portion 60 of the walled structure 56 may be constricted by compressing the top portion 60 so that the top edge 58 forms a substantially linear configuration as shown in Figure 7.

When the dispensing device 10 is in condition for being filled as shown in Figure 5, it is received within the cavity 68 of the walled structure 56 with its top portion 13 extending through the opening 70 of the structure 56. The nipple protrusion 20 of the plastic container 11 also extends externally from the wall structure 56 by passing through a notch opening 72 (Figure 6) formed therein. The notch opening 72 engages the nipple protrusion 20 at its base for maintaining it in its proper projecting position.

The bottom portion 66 of the wall structure 56 is also provided with a substantially triangular cutout section 74 which extends at its apex 75 to the notch opening 72 and exposes the bottom portion of the plastic container 11. A slit 76 is also provided in the wall structure 56 which extends from the notch opening 72 in the direction from the bottom portion 66 towards the top portion 60 of the wall structure 56. Gradation marks may be provided along the slot 76 for indicating the contents by volume of the collapsible container 11.

A spring loaded clamp means 78 comprising a pair of hinged spring loaded lever elements 80 with finger actuating portions 82 is provided for being received about the top portion 60 of the wall structure 56 for clamping and securing the top 13 of the plastic container 11 with the wall structure 56, as shown in Figures 6 and 7.

In operation, the plastic container 11 may be suitably rolled or folded in its collapsed condition to a compact size and sealed after being sterilized in a plastic wrapper or other storing means until it is ready for use. When the dispensing device 10 is to be used, the plastic container may be removed from its sanitary wrapping. The unfolded plastic container 11 as shown in Figure 1 may now be received into the walled supporting structure 56 through the opening in its bottom portion 66. The top portion 13 of the plastic container 11 may be received through the bottom portion 66 of the wall structure 56 so

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that it extends from the structure 56 through the opening 70 in its top portion 60. When thus positioned, the nipple protrusion 20 can be extended externally through the notch opening 72 of the wall structure 56. The device 10 is now in condition for filling or charging with the formula or fluid to be dispensed (see Figure 5).

In order to charge or fill the plastic container 11, the opening 14 may be enlarged by spreading the walls at the top 13 while the fluid is passed through the opening 14 into the container 11. The container 11 expands into substantially the form of a teardrop as shown by the dotted lines in the Figure 6. The container 11 may be filled to the top edge 58 of the wall structure 56. Under such circumstances, the container 11 when sealed will have no air within it. The opening 14 of the plastic container may now be sealed by folding the top portion 13 over the top edge 58 of the wall structure 56. The clamping means 78 is now positioned about the top portion 60 of the wall structure 56 over the folded top portion 13 of the plastic container 11. This seals and secures the plastic container 11 with the outer wall structure 56. The clamping means 78 may be as quickly and efficiently removed from the dispensing device 10 when the container 11 is to be removed or replaced.

When the dispensing container 11 is thus sealed and secured with the wall structure 56, a highly desirable dispensing device with a resilient outer covering or wall structure 56 and a disposable collapsible container 11 is provided. It is also noted that the bottom of the container 11 provides a clearance 84 with a surface 86 upon which the device 10 is supported in its upright position. The device 10 may be placed in this upright position when the fluid contents within it are to be warmed by placing in hot or boiling water. Under such circumstances, the level of the boiling water may have a level up to the nipple protuberance 20.

A very important feature of the device 10 is that its collapsible container 11 can be filled with fluid and any trapped air may be excluded. If after being filled gas or air is within the container 11, it may be removed by placing the device 10 on its back, that is resting on its edge edge 64, so that the gas seeks its highest level which is at the nipple protuberance 20. When the air rises to the nipple protuberance 20, it may easily be forced out through the nipple, especially by manipulating the container 11 at the triangular opening 74 formed in the bottom 66 of the wall structure 56.

Since the container 11 collapses as fluid is withdrawn from it, air does not force its way into the container 11 to replace the discharged fluid. Thus, the air does not become dissolved in the fluid by being drawn into the container 11 or by being otherwise present in the container. This is important in order to prevent colic in the infants.

The fact that the container 11 collapses as fluid is withdrawn, does not require that air replace the discharged fluid, so that the flow of fluid is more responsive to the infant's feeding or sucking action and provides a more even and desired flow.

It is noted that the nipple protuberance 20 of Figure 3 provides a fluid discharge depending upon the sucking action of the infant, while the fluid flow of the nipple protuberance 35 illustrated in Figure 4 requires less action by the infant and provides a substantially constant drip flow. In order to prevent such drip discharge of the fluid from the dispensing device 10 when the infant is not feeding, the device 10 may be placed upon its back resting along its edge 64 (see Figure 6).

Since the plastic container 11 is of low cost, it may be removed and discarded after one use, if so desired. Thus, the necessity for cleansing and sterilizing the container as in non-disposable devices which are re-used, is eliminated. The sequential use of numerous collapsible containers 11 in connection with an outer wall structure

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56, thus provides a highly sanitary and desirable dispensing device which eliminates many disadvantages of the prior art devices. The compactness and lightness, for example, of ten of the plastic containers and one of the wall structures 56 for use on a trip, can readily be compared with the equivalent of 10 non-collapsible type containers which require a large space and are of considerable weight for convenience of transportation and handling.

It will be obvious to those skilled in the art that the invention may find wide application with appropriate modification to meet the individual design circumstances, but without substantial departure from the essence of the invention.

What is claimed is:

1. A dispensing device comprising a collapsible plastic container having a nipple protuberance with an orifice for dispensing fluid, an open end for receiving fluid, and a resilient material received within said protuberance; an outer wall structure having a cross-section tapering to an edge portion at its top end from an enlarged base portion at its bottom end and supporting said container within it with the protuberance of said container extending externally from said structure and its open end extending through the top end of said structure and being foldable over its edge portion for being sealed and secured with said structure; said structure being provided with a cut-away portion at its bottom end and has a slit extending in the direction between the top and bottom ends of said structure for exposing said container; and a clamp removably received about the top end of said structure and the folded end of said container for sealing and securing said container with said structure.

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2. In a dispensing device, a resilient outer wall structure for a collapsible plastic container with a nipple protuberance for dispensing fluid and a sealable charging end which structure has a cross-section tapering to a substantially linear edge portion at its top end from an enlarged base portion at its bottom end and being adapted for supporting a collapsible plastic container within it and having a nipple opening through which the protuberance of said container extends externally from said structure while its sealable end extends through the opening at the top end of said structure and is foldable over its edge portion for being sealed and secured with said structure; said structure being provided with a cut-away portion at its bottom end and has a slit extending in the direction between the top and bottom ends of said structure for exposing said container; and clamping means removably received about the top end of said structure and the folded charging end of said container for restricting the opening at the top end of said structure to seal the charging end of said container and secure said container with said structure.

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