March 29, 1966 F. M. DUERME 3,243,069

INFANT NURSER

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FIG. 1

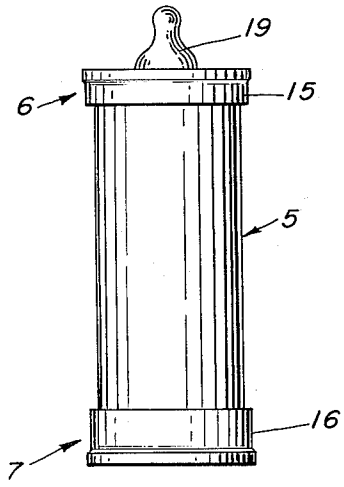


FIG. 2

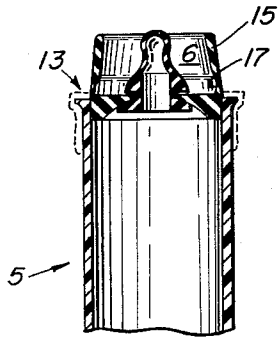


FIG. 3

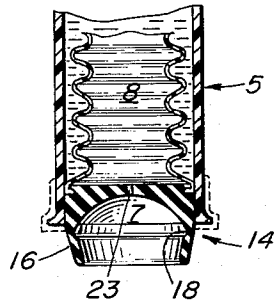


FIG. 4

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INFANT NURSER

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This invention relates to improvements in nursers such as are used for the artificial feeding of infants.

The usual popular nursers now on the market comprise the usual bottle with one end only open and with or without a restricted neck. A nipple is secured on the open end and has only one orifice through which the fluid contents flow into the infant's mouth by its sucking action. As the fluid in the bottle is thereby displaced a vacuum is formed in the interior of the bottle as long as the bottle is held in a diagonal plane and the fluid fills the nipple. This causes the infant to suck harder and collapses the nipple and in so doing it opens its mouth and gulps in air causing extremely objectional disturbances, such as choking, coughing, hiccoughs, colic and other grave gastrointestinal disturbances. It was to overcome these inherent defects that the present invention was conceived.

Over the years there have been many attempts to improve the form and functioning of nursers required or desired for the artificial feeding of infants. The primary purpose of such developments has been to make artificial feeding approximate as closely as possible the conditions that obtain with the natural feeding from a mother's breast. To that end the endeavor has been to provide a nurser wherein the pressure in the nurser would be equalized with that of the atmosphere so as to ensure an even and controlled flow of liquid from the nipple orifice and thereby avoid the possible abdominal discomforts resulting from the infant's intake of air during the nursing period. However, none of these attempts have proved commercially acceptable since none are available on the market today, possibly because of the high cost of manufacture and the difficulty of sterilization.

The main objects of this invention are: to provide an improved and simple form and arrangement of parts for an infant nurser the resulting use of which with the fluid formula therein will be essentially comparable to breast feeding; to provide a nurser of this kind having an improved structuring of a shell, a pair of end caps and an air pouch for facile assembly in and disassembly from nursing use; and to provide such an improved structuring of parts as to make their manufacture and marketing very economical and their use extremely facile and satisfying.

In the adaptation shown in the accompanying drawings;

FIGURE 1 is a vertical elevation of a nurser, constructed in accordance with this invention, ready for use;

FIG. 2 is a cross-sectional view of the nipple-cap in the process of being positioned on or removed from one end of the shell;

FIG. 3 is a cross-sectional view of the air-vent cap and air-pouch in the process of being positioned on or removed from the shell; and

FIG. 4 is a side view of the nurser in use position with parts of the shell and the end caps broken away to more clearly indicate the interior relationship of the nurser.

The essential concept of this invention involves the structuring of a maximum of four pieces which can be assembled or disassembled with great facility to provide a nurser which in use closely approximates conditions inherent in breast feeding.

The herein shown nurser, embodying the foregoing concept, comprises a shell **5**, caps **6** and **7** and an air-pouch **8**.

The shell **5** is of tubular form with open ends **9** and **10**. Such a shell may be formed of any suitable material, preferably transparent so that the amount of the contents is always visible. Such material may be molded glass or any of the modern plastics that are suitable for such purpose. Narrow, outwardly-extending annular ribs **11** and **12** are integrated with each end of the shell **5**.

The end caps **6** and **7** are molded from any suitable elastic-substance to form the respective base parts **13** and **14** and the integrated extensions **15** and **16**, respectively. The respective base parts **13** and **14** are of an exterior diameter approximately the same as the interior diameter of the respective open ends **9** and **10** of the shell **5**. Thus, the respective end caps **6** and **7** are adapted for hand-pressured, frictional seating in the respective open ends **9** and **10** of the shell **5**.

The extensions **15** and **16** are integrated with the respective base parts **13** and **14**, respectively, by neck portions **17** and **18**, respectively, which serve to facilitate the flexing of these extensions when the end caps are to be positioned on or removed from the ends of the shell **5**. The axial length of these extensions **15** and **16** is somewhat greater than the axial thickness of the respective base parts **13** and **14** so that when flexed back over the respective open ends **9** and **10** of the shell **5** these extensions have frictional contact with a considerable exterior area of the shell **5**. Such contact so supplements the frictional contact of the base parts **13** and **14** in the shell ends as to preclude any accidental separation of the end caps **6** and **7** from the shell **5**, and will prevent leakage of any fluid therein.

The end cap **6** incorporates a conventional nipple **19** with a fluid orifice **21**, of the type provided with an enlarged flange **20** and an enlarged portion **20'** together forming a peripheral groove **24** for seating on the edges of the axial opening in the cap **6**. The end cap **7** has a peripheral groove **22** formed in the base part **14** wherein is seated the open-end perimeter of the air pouch **8**, whereby to secure the pouch in proper functioning relationship within the shell **5**. An air orifice **23** is formed approximately at the center of the base part **14** of the end cap **7**.

The air pouch **8** may be formed from any flexible impervious material which will permit its rather compact collapsing into a very small space when the shell **5** is filled with a fluid formula and yet readily expand to fill a major portion of the shell **5** to replace the area therein vacated by the fluid formula as it is consumed by the infant. As shown herein the air pouch **8** is in the form of a bellows-type arrangement which more or less retains the configuration as shown in FIG. 4 except when the fluid formula in the bottle is evacuated the pouch will expand in the direction of the nipple due to the entrance of air therein.

Such a nurser, as herein shown and described, is made ready for use and is used in the following manner:

After a thorough sterilizing of the shell **5**, the end caps **6** and **7** and the pouch **8**, the perimetrical portion of the open end of the pouch **8** is stretched over the base part **14** of the end cap **7** and seated in the groove **22**. This perimetrical portion of the pouch may be first rolled to form a sort of bead to better seat in the groove **22**, but this is not required because of the stretching of the open end of the pouch over the member **14**. It should also be obvious that the pouch mouth may be fixed secure to the end cap **7** if desired by any suitable means. The pouch **8** then is inserted in shell **5** and the end cap **7** is pressed into the open end **10** of the shell. All of this is best shown in FIG. 3. The extension **16** of the end cap **7** then is flexed and folded up over the rib **12** of the shell **5** as shown in FIGS. 1 and 3.

Thereupon the shell is filled with the infant's formula and the end cap **6** is pressed into the open end **9** of the shell **5** and the extension **15** flexed and folded back over the rib **11** of the shell, as shown in FIGS. 1 and 2.

When put in use, in the usual way, the contents thereof will flow constantly and uniformly through the nipple orifice **21** approximately the same as does the fluid flow from a healthy mother's breast. From such a nurser there never will be any squirting nor any delayed emission of the fluid. Through the air orifice **23**, in the end cap **7**, air outside the assembly enters the pouch **8** and equalizes the pressure in the nurser with that of the outside air and substantially replaces the area that formerly was occupied by the fluid formula as it is used up by the infant to ensure the above-noted functioning as a near-perfect substitute for natural nursing.

Because of this construction of the nurser there will be no requirement for the infant to make much if any effort at sucking on the nipple because the fluid is dispensed at the rate of 40 to 50 drops per minute. Consequently, there will be no air being gulped by the infant with the fluid to cause abdominal discomforts, so generally associated with prior nursers. As a rule, with this nurser, an infant will finish its feeding in normal time (about 15 minutes). This permits a more accurate and regular schedule for infant feeding, thus aiding in maintaining the proper health, vigor, growth and development of the infant.

It is further to be especially noted that no outside air comes into contact with the fluid formula to contaminate the same. Also all parts of this concept must be made of material that will withstand many sterilizations.

Although but one specific embodiment of this invention is herein shown and described, it will be understood that details of the construction shown may be altered or omitted without departing from the spirit of the invention as defined by the following claims.

I claim:

1. A nurser comprising, a stable tubular shell open at both ends, a pair of elastic-substance end caps each having a base with an integrated peripheral extension sufficiently flexible to be oppositely disposed in substantial axial relationship with the respective base, the base of each cap being frictionally seated in one end of the shell with the respective extension exteriorly embracing the corresponding end of the shell, one of the caps having a nipple with a fluid-discharge orifice associated therewith for communication with the interior of said shell, the other cap having an air vent orifice therein, and a collapsible air-pouch inserted into the shell, said air pouch having an open end exteriorly embracing the base of the other cap, said air vent orifice communicating with the interior of said pouch whereby the interior of the pouch will have direct communication with the air outside the shell.

2. A nurser as set forth in claim **1** wherein the shell has an outwardly-extending rib adjacent each open end thereof.

3. A nurser as set forth in claim **1** wherein the other cap base has a peripheral recess seating the perimeter of the open end of the air pouch.

4. A nurser as set forth in claim **3** wherein the pouch is in bellows type form.

References Cited by the Examiner

UNITED STATES PATENTS

1,471,091	10/1923	Bessesen	222—386.5
1,972,895	9/1934	Maccoy	215—11
1,999,581	4/1935	Yager	215—11
2,643,448	6/1953	Piazze	215—11 X
2,825,479	3/1958	Litzie	215—11
2,885,104	5/1959	Greenspan	215—11 X
2,953,304	9/1960	Sellinger	228—386.5 X
3,134,494	5/1964	Quinn	215—11

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