Aug. 20, 1957 A. C. BARR 2,803,250

NURSING NIPPLE

Filed Oct. 19, 1953

Fig. 1

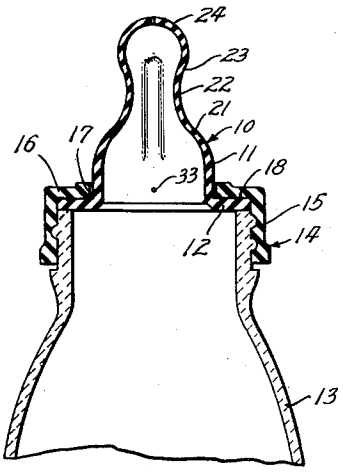


Fig. 2

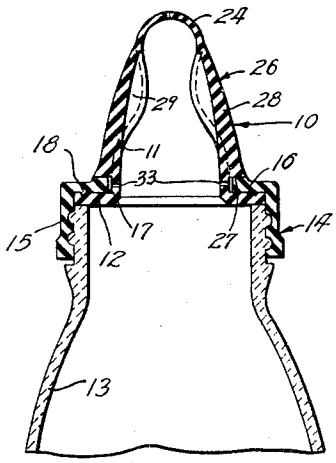


Fig. 3

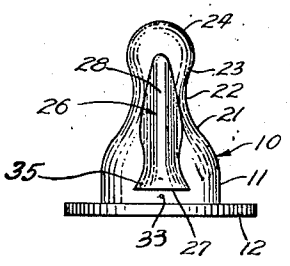


Fig. 4

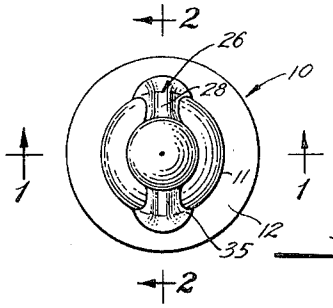


Fig. 5

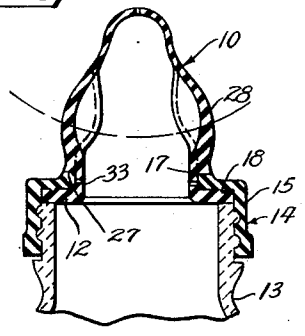


Fig. 6

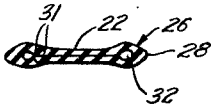
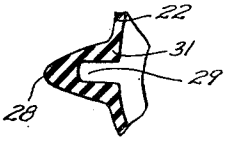


Fig. 7



Inventor

Arthur C. Barr

By McCanna and Morsbach

Attys.

United States Patent Office

2,803,250

Patented Aug. 20, 1957

2,803,250

NURSING NIPPLE

Arthur C. Barr, Rockton, Ill.

Application October 19, 1953, Serial No. 386,795

16 Claims. (Cl. 128—252)

This invention relates to nursing nipples of the type used in the feeding of infants and is a continuation-in-part application of my copending application Serial No. 305,135, filed August 19, 1952 and now abandoned.

It is an object of this invention to provide a nursing nipple of novel construction to which the infant's mouth may readily conform during feeding and which thereby prevents the undesired entry of air at the corners of the infant's mouth during feeding.

Another object of this invention is to provide a novel nursing nipple having diametrically opposed external ribs shaped to fill the corners of the infant's mouth to thereby prevent the undesired entry of air into the infant's mouth.

Another object of this invention is to provide a nursing nipple with diametrically opposed external ribs which extend from the tip portion to the lower edge of the base portion of the nipple to thereby adapt the nipple to fill the corners of the infant's mouth during the early stages of bottle feeding in which the infant holds only a small portion of the nipple in its mouth, as well as during the latter stages in which the infant is relatively older and larger and retains a major portion of the nipple in its mouth during feeding.

Another object of this invention is to provide a nipple which permits the flow of liquid to the feeding tip even when the nipple is compressed as caused by biting of the nipple by the infant during feeding.

A further object of this invention is to provide a nipple having diametrically opposed external ribs for filling the corners of the infant's mouth, which ribs are hollow and constructed so as to provide fluid passages therethrough when the nipple is compressed due to biting of the nipple by the infant to thereby provide an uninterrupted flow of liquid to the feeding tip.

Yet another object of this invention is to provide a nursing nipple having a novel construction for venting air into the nursing bottle during feeding, which air vents are closed as the nipple is compressed during the sucking action of the infant to thereby prevent entrance of air at those times, and which air vents are opened each time the nipple is released to admit air into the bottle.

These, together with various ancillary objects and advantages of the invention will be more readily appreciated as the same becomes better understood by reference to the following detailed description when taken in connection with the following drawings:

Figure 1 is a longitudinal sectional view through the nursing nipple shown in its normal undistorted form mounted on a bottle, taken on the plane 1—1 of Fig. 4;

Fig. 2 is a longitudinal sectional view through the nursing nipple in its normal undistorted form taken on the plane 2—2 of Fig. 4;

Fig. 3 is a side elevational view of the nursing nipple showing the external configuration of the ribs;

Fig. 4 is a top plan view of the nursing nipple;

Fig. 5 is a longitudinal sectional view of the nursing nipple taken on a plane through the diametrically opposed ribs as it appears when pressure is applied to opposite sides thereof during infant feeding;

Fig. 6 is a transverse sectional view through the neck portion of the nipple as it appears when pressure is applied to opposite sides thereof and the latter are compressed into abutting engagement, showing the fluid passages through the ribs; and

Fig. 7 is a fragmentary enlarged transverse sectional view through one of the ribs adjacent the neck portion of the nipple when the latter is in its normal undistorted form.

Reference is now made more specifically to the accompanying drawings wherein the nursing nipple is indicated generally by the numeral **10**, which nipple is of one-piece molded construction and formed of resilient material such as rubber.

The nipple has an enlarged bulbous base portion **11** of generally circular cross-section and an attachment portion for mounting the nipple on a bottle comprising a flat annular flange **12** formed integrally with the lower end of the base portion and extending outwardly therefrom. The flange **12** is adapted for engagement with the open end of a bottle **13**, the nipple being retained in position on the bottle by a rigid cap **14** having an internally threaded cylindrical portion **15** and an annular flange **16** projecting inwardly from the upper end thereof. The cap flange **16** has a preferably cylindrical inner peripheral wall **17**, and, for reasons set forth hereinafter, the base portion of the nipple is slightly smaller than the opening defined by the peripheral wall **17** so as to be loosely received therein with the base of the nipple normally slightly spaced from the inner peripheral wall of the flange **16** as shown in Figs. 1 and 2. When the cap is positioned over the nipple and tightened on the bottle, the nipple flange **12** engages the inner surface of the cylindrical wall **15** on the cap whereby the nipple is centered in the opening defined by the peripheral wall **17**, and a small V-shaped annular rib **18** formed on the under surface of the cap flange **16** is embedded into the nipple flange **12** to thereby firmly retain the nipple in position on the bottle.

The upper end of the base portion **11** is tapered inwardly at **21** to a reduced hollow neck portion **22**, which neck portion flares outwardly at the upper end **23** thereof and terminates in a rounded feeding tip **24**. The walls of the feeding tip, the neck portion and the base portion **11** are thin, and of substantially uniform cross-section to thereby provide a soft pliable nipple which will not cause discomfort to the infant during feeding.

A pair of diametrically opposed external ribs **26** are formed integrally with the nipple and extend, as shown in Fig. 2 downwardly and outwardly from the lower portion of the feeding tip **24** along the neck portion **22** and the base portion **11**, the ribs terminating in a transverse wall **27** which is spaced from the nipple flange **12** and is adapted to overlie the upper surface of the cap flange **16**. Externally, the ridge portions **28** of the ribs are mounted and merge smoothly at the upper ends thereof with the widest portion of the feeding tip, the sides of the ribs diverging relative to each other from the rounded ridge portions thereof and fair smoothly with the nipple **10** to thereby provide a nipple having a transversely oblong external configuration from the lower end of the feeding to the lower end of the base portion for filling the corners of the infant's mouth. Thus, as best shown in Figs. 2 and 3, the ribs **26** are substantially wedge shaped and are deepest and widest intermediate the ends thereof at the narrow reduced neck portion **22** of the nipple.

The ribs **26** are formed hollow, as at **29** from a point adjacent the lower end of the feeding tip **24** to a point adjacent the upper end of the base portion **11**, the ribs

being thickened at the ridge portions **28** thereof, and also at **31** adjacent the juncture of the ribs with the neck portion of the nipple, as is clearly shown in Fig. 7. The hollow rib construction renders the nipple readily deformable by the infant during feeding and does not provide a large unwieldly mass in the infant's mouth. Further, by reason of the thickened portions **31** at the juncture of the ribs with the neck portion which form welts on the inner wall of the nipple, and the thickened portion along the ridge of the ribs, there are provided a pair of fluid passages **32** through the ribs when the nipple is compressed in a direction transverse a plane through the ribs, as is caused by biting of the nipple by the infant during feeding. In this manner an uninterrupted flow of liquid from the base portion of the nipple to the feeding tip is assured. As shown in Fig. 6, the neck portion of the nipple collapses when compressed by the child's mouth, and the thickened portions or welts **31** on opposite sides of each rib are brought into abutting engagement to provide the aforementioned passages **32** in the hollow ribs.

In order to vent the bottle **13** to the atmosphere and prevent the formation of a partial vacuum therein during feeding, there are provided vent openings **33** in the base portion of the nipple between the ribs **26** and the flange **12**. When the nipple is not deformed, the bottle is vented to the atmosphere through the openings **33** and the space between the base portion of the nipple and of the peripheral wall **17** on the cap flange **16**. As the infant feeds, it compresses the nipple between its tongue and the roof of its mouth and simultaneously sucks to draw liquid from the nipple. This compressing of the nipple in a direction transverse a plane through the ribs causes the nipple to diametrically expand from its normal position shown in Fig. 2 to the position shown in Fig. 5 wherein the base portion of the nipple adjacent the ribs **26** abuts the peripheral wall **17** on the cap flange thereby closing the vent openings **33**. This prevents drawing of air into the infant's mouth through the vent openings while the infant is sucking. When the nipple is thereafter released, and allowed to assume its normal shape as shown in Figs. 1 and 2, the bottle is again vented to the atmosphere allowing air to flow thereinto.

The ribs **26** adjacent the lower ends thereof are flared downwardly and outwardly in a direction transverse a plane through the ribs, as shown at **35** in Figs. 3 and 4 to thereby aid in filling the corners of the infant's mouth during the latter stages of bottle feeding in which the infant is relatively older and larger and retains the major portion of the nipple in its mouth.

From the foregoing, it is apparent that the diametrically opposed external ribs provide a nipple construction having an external oblong cross-sectional configuration of progressively increasing size from the feeding tip **24** to the base portion **11** to thereby fill the corners of the infant's mouth during the initial stages of bottle feeding in which the infant is small and retains only a small portion of the nipple in its mouth and also in later stages of bottle feeding in which the infant is larger and retains a major portion of the nipple in its mouth. Thus, the infant's mouth may readily conform to the nipple during feeding at all stages of its early development and the livelihood of air entering the infant's mouth alongside the nipple is minimized. Since entrance of air through the vent openings **33** is also prevented while the infant is sucking, it is apparent that the nipple effectively alleviates one cause of infant colic.

The lower ends of the ribs which terminate in the transverse walls **27** abut the upper surface of the cap and serve additionally to maintain the nipple in position on the cap and prevent the accidental inversion of the nipple into the bottle. However, since the ribs are diametrically opposed, removal of the cap is readily effected since it is merely necessary to compress the ribs of the nipple towards each other and then press the nipple through the opening in the cap.

The hollow construction of that portion of the ribs which extends between the feeding tip and the upper edge of the base portion provides a pliable and readily deformable nipple construction which will not cause discomfort to the infant during feeding and, additionally, provides the aforementioned liquid passages to the feeding tip when the nipple is compressed as caused by biting of the nipple by the infant during feeding.

I claim:

1. A nursing nipple comprising a hollow rounded feeding tip, an enlarged bulbous base portion and an attachment portion on the lower end of the base portion adapted for engagement with a bottle, a pair of diametrically opposed ribs formed on the base portion extending downwardly therealong, said ribs fairing smoothly with said base portion and tapering therefrom to a rounded ridge portion to thereby define with said base portion a transversely oblong nipple construction to which the mouth of the infant can readily conform during feeding, said ribs being formed with enlarged lower end portions which are flared downwardly and outwardly in a direction transverse a plane through the ribs to aid in filling the corners of the infant's mouth.

2. In combination with a nipple having a rounded feeding tip and an enlarged bulbous base portion, a flat annular portion on the lower end of the base portion extending outwardly thereof for engagement with the mouth of a bottle, a rigid cap having an inwardly extending flange adapted to contact the upper surface of the flat annular portion with the inner periphery of said flange normally slightly spaced from said bulbous base portion, a pair of diametrically opposed ribs formed on said base portion extending downwardly therealong and terminating at the lower ends thereof above said flat annular portion, said ribs defining with said base portion a transversely oblong nipple construction to which the mouth of the infant can readily conform during feeding, said base portion having vent openings therein between the lower ends of said ribs and said flat annular portion, said vent openings being adapted to be closed by contact with the inner periphery of said flange each time the nipple is compressed in a direction transverse a plane through said flanges as occurs during feeding of the infant.

3. The combination of claim 2 wherein the lower end portions of said ribs are flared downwardly and outwardly in a direction transverse a plane through the ribs to aid in filling the corners of the infant's mouth.

4. A nursing nipple comprising a lower portion for engagement with the bottle, an upstanding hollow base portion extending upwardly from said lower portion, an inwardly depressed hollow reduced neck portion extending upwardly from the upper end of said base portion, a hollow rounded feeding tip extending from the upper end of said reduced neck portion, and a pair of diametrically opposed ribs protruding transversely outwardly at the periphery of the nipple and extending downwardly along the nipple from the lower end of said feeding tip to said base portion, the nipple at said ribs having a transversely oblong configuration for filling the corners of the mouth of an infant during feeding.

5. A nursing nipple comprising a flat annular flange adapted to engage the bottle mouth, an upstanding hollow base portion extending upwardly from said lower portion, a hollow reduced neck portion of smaller diameter than said base portion extending upwardly from the upper end of said base portion, a hollow rounded feeding tip of slightly larger diameter than said reduced neck portion extending upwardly from the upper end of said reduced neck portion, and a pair of outwardly protruding ribs formed on the periphery of the nipple at opposite sides thereof and extending downwardly along the nipple, said ribs terminating at their upper ends at the lower end of said feeding tip and merging smoothly with the feeding tip thereat and terminating at their lower ends at said base portion above said flange.

6. A nursing nipple comprising a lower flat annular flange for engagement with the bottle at the mouth thereof, an upstanding hollow base portion extending upwardly from said flange, a hollow reduced neck portion extending upwardly from the upper end of said base portion and being of substantially smaller diameter than said base portion, a hollow rounded feeding tip extending from the upper end of said reduced neck portion and being of slightly larger diameter than said reduced neck portion, and a pair of outwardly protruding ribs formed on the periphery of the nipple at opposite sides thereof and extending downwardly along the nipple from the lower end of said feeding tip to said base portion, said ribs at their upper ends merging smoothly with said feeding tip and at their lower ends terminating above said flange and defining with said reduced neck portion of the nipple a transversely oblong nipple construction below the feeding tip to which the mouth of an infant can readily conform during feeding with the ribs filling the corners of the infant's mouth to prevent the entry of air into the infant's mouth.

7. A nursing nipple comprising a lower portion for engagement with a bottle, an upstanding hollow base portion extending upwardly from the lower portion, a hollow reduced neck portion extending upwardly from the upper end of the base portion, a hollow rounded feeding tip extending from the upper end of the reduced neck portion, a pair of hollow diametrically opposed ribs formed on the nipple and protruding outwardly therefrom, said ribs extending downwardly along the nipple from the lower end of the feeding tip to the base portion, said hollow ribs communicating with the interior of the nipple adjacent the tip portion and also adjacent the base portion to provide a liquid flow passage therethrough from the base portion to the tip portion of the nipple, the nipple at said ribs having a transversely oblong configuration for filling the corners of the mouth of an infant during feeding.

8. The combination of claim 7 wherein said ribs have thickened portions along the juncture thereof with said neck portion, said thickened portions along opposed sides of each rib being adapted to abut when the nipple is compressed in a direction transverse a plane through the ribs and provide passages in the ribs which communicate the base portion with the nipple portion.

9. A nursing nipple comprising a bulbous base portion, a hollow reduced neck portion extending upwardly from the base portion, a hollow rounded feeding tip extending from the upper end of said neck portion, a flat annular portion extending outwardly from the lower end of the base portion for engagement with a bottle, and a pair of diametrically opposed ribs formed on said nipple and protruding outwardly therefrom, said ribs extending from the lower end of the feeding tip downwardly along the neck portion and base portion of the nipple and terminating above said flat annular portion, the nipple at said ribs having a transversely oblong configuration for filling the corners of the mouth of an infant during feeding.

10. The combination of claim 9 wherein said ribs are hollow along the portion thereof adjacent said neck portion of the nipple.

11. A nursing nipple comprising a bulbous base portion, a hollow reduced neck portion extending upwardly from the base portion, a hollow rounded feeding tip extending upwardly from the neck portion, a flat annular portion extending outwardly from the lower end of the base portion for engagement with a bottle, a pair of diametrically opposed ribs formed on said nipple and projecting outwardly therefrom, said ribs extending from the lower end of the feeding tip downwardly along the neck portion and base portion of the nipple and terminating with the lower ends thereof spaced above said annular portion, the nipple at said ribs having an external transversely oblong configuration for filling the corners of the mouth of an infant during feeding, said ribs being hollow along the portion thereof adjacent said neck portion, the hollow portion of said ribs being thickened at the juncture thereof with said neck portions and also thickened along the ridge of the ribs whereby passages are provided in the ribs between the base portion and the feeding tip portion when the nipple is compressed in a direction transverse a plane through the ribs.

12. In combination with a rigid cap having a threaded portion and an inwardly extending flange on the upper end of said threaded portion providing a central opening, a nipple having a bulbous base portion adapted to be loosely received in said opening, a flat annular portion on the lower end of said base portion extending outwardly therefrom to underlie said flange on said cap, a reduced hollow neck portion extending upwardly from said base portion, a feeding tip on the upper end of said neck portion, and a pair of diametrically opposed ribs on said nipple extending from the lower end of said feeding tip downwardly along the neck portion and the base portion of the nipple and terminating at the lower end thereof above said annular portion, the lower ends of said ribs being adapted to abut the top of said flange on the cap to retain said nipple in position thereon.

13. The combination of claim 12 including air vents in said base portion between the lower ends of said ribs and said annular portion, said vents being adapted to be closed by contact with the inner periphery of said flange each time the nipple is compressed in a direction transverse a plane through the ribs as occurs during feeding of the infant.

14. A nursing nipple comprising a body having a hollow feeding tip, an enlarged base portion and an attachment member at the lower end of said base portion adapted for engagement with a bottle, and a pair of diametrically opposed hollow ribs on said body extending downwardly therealong from the tip to the lower end of the base portion, said hollow ribs being open at the inner edge thereof from a point adjacent the feeding tip to a point adjacent the base portion to permit the passage of liquid therethrough from the base portion to the tip portion of the nipple, said ribs fairing smoothly with said body and tapering therefrom to a rounded ridge portion to thereby form a nipple having transversely oblong external configuration to which the mouth of the infant can readily conform during feeding with the ribs filling the corners of the infant's mouth to prevent entry of air thereby.

15. A nursing nipple comprising a body having a hollow feeding tip, an enlarged base portion and an attachment member at the lower end of said base portion adapted for engagement with a bottle, and a pair of diametrically opposed hollow ribs on said body extending downwardly therealong from the tip to the lower end of the base portion, said ribs fairing smoothly with said body and tapering therefrom to a rounded ridge portion to thereby form a nipple having transversely oblong external configuration to which the mouth of the infant can readily conform during feeding with the ribs filling the corners of the infant's mouth to prevent entry of air thereby, and thickened portions on said nipple forming welts on the inner wall thereof extending from the feeding tip to the base portion, said welts being adapted to engage the opposed portion of the inner wall of said body to prevent complete collapse of the nipple and provide flow passages from the base portion to the feeding tip when the nipple is transversely compressed.

16. A nipple comprising a body having an enlarged base portion, a reduced diameter neck portion extending upwardly from the base portion, a rounded feeding tip extending upwardly from the neck portion, and a pair of diametrically opposed ribs on said body extending downwardly and outwardly therealong in a smooth continuous curve from the tip portion to a point adjacent the lower end of said base portion, said ribs fairing

smoothly with said body and tapering therefrom in a direction transverse to said body to a rounded ridge portion to thereby form a nipple having a transversely oblong external configuration to which the mouth of the infant can readily conform with the ribs filling the corners of the infant's mouth.

References Cited in the file of this patent

UNITED STATES PATENTS

411,793	Eggers	Oct. 1, 1889
605,161	Clement et al.	June 7, 1898
1,673,190	Ganson	June 12, 1928