The present invention relates to infant feeding equipment and has particular reference to a novel nipple combination and a novel feeding nipple therefor.

The principal object of the invention is to provide a nipple combination with feeding nipple which provides a normal fluid flow when mounted on a nursing bottle, and which is readily adjustable after mounting to either increase or decrease the flow.

Another object of the invention is to provide a feeding nipple for a nursing bottle which is selectively adjustable to one of several positions on the nursing bottle for controlling liquid flow from the nipple.

A further object of the invention is to provide a feeding nipple with continuously open air vent passages of different areas, the nipple being rotatable on the bottle rim for selecting a desired air vent flow passage.

With the above and other objects and advantageous features in view, the invention consists of a novel arrangement of parts, more fully disclosed in the detailed description following, in conjunction with the accompanying drawings, and more specifically defined in the claims appended thereto.

In the drawings:

Fig. 1 is an elevation showing a nurser combination with nipple embodying the invention;
Fig. 2 is a side elevation of the nipple of Fig. 1;
Fig. 3 is a top plan view of Fig. 2;
Fig. 4 is an enlarged section on the line 4—4 of Fig. 2;
Fig. 5 is an enlarged sectional detail on the line 5—5 of Fig. 4;
Fig. 6 is a sectional detail showing the nipple and its air vent parts, when mounted on a nursing bottle neck and rim; and
Figs. 7, 8 and 9 are sectional details showing the relations of the parts for normal, reduced and increased liquid flows.

It has been found desirable to provide a nurser combination of a nursing bottle with a feeding nipple having an air vent arrangement of special design, whereby a suitable turning movement of the nipple after it is mounted on the nursing bottle increases or decreases the fluid flow. To this end, I have devised a nipple which can be readily adjusted on the nurser bottle, as by a turning operation, to selectively utilize one of a number of alternative air vent passages of different size, whereby the resulting flow of fluid in response to suction of the infant is readily adjusted to the infant's requirements. I accomplish this novel regulation by selectively directing venting air along grooves of different area.

Referring to the drawings, the nipple 11 is of hollow type, of flexible rubber or the like, and includes a body 12 of generally cylindrical form, a cylindrical neck 13 of smaller diameter, and a feeding tip 14 of generally spherical form and slightly larger than the neck 13, the tip 14 having one or more feeding openings 15.

The body 12 is connected to the neck by an annular portion 16 of generally triangular cross-section, the inner edge 17 of the portion 16 depending downwardly as illustrated, the body having at its lower end an inwardly extending annular bead 18, whereby an annular groove 19 is provided for receiving the bottle neck rim 20 of a feeding bottle 21 as shown in Fig. 6.

The groove 19 includes the lower surface 22 of the portion 16, the inner surface 23 of the body 12, and the upper surface 24 of the bead 18, and the lower surface 25 of the bead 19 is tapered upwardly, see Fig. 4, and a finger tab 26 extends laterally from the nipple body and is provided with a finger depression 27 on its upper surface, to facilitate mounting of the nipple on the nursing bottle.

Referring now to Fig. 4, the groove 19 has a tortuous upstanding rib or projection 28 which traverses the entire groove 19, extending over the lower surface 20, see Fig. 6, the inner surface 21, and the upper surface 22, and continues over the inner surface 23 and the tapered lower surface 25 of the bead 18. The rib on the body inner surface 23 has a downwardly extending section 29, then a lateral portion as indicated at 30, then upwardly as a section 31, then laterally as a portion 32, and then downwardly as a terminal section 33, whereby two spaced passages 34, 35 are formed, the passage 34 being of less width than the passage 35. The sections 29 and 33 are of equal height and width, and the section 31 is of greater height and preferably triangular. The later rib portion 30 and 32 may be of the same width as the rib sections 29 and 33, and may be of the same height, but preferably are of less height.

When the nipple is mounted on the rim of a nursing bottle, see Fig. 6, the body is stretched laterally, see Fig. 1, and the rib sections 29, 30, 31 and 33 are compressed as shown in Fig. 7. In this position, the rib portions 30 and 32 are stretched laterally, so that air may enter into the interior of the nursing bottle along the edges of the terminal section 33 and through both passages 34, 35, which are reduced in width and height due to the stretching of the nipple body over the bottle rim, if this position inward flow of venting air is normal. If it be desired to decrease the inward flow of venting air, the nipple is turned slightly counterclockwise, see Fig. 8, whereupon there is a twisting action which presses the central rib section 31 into the passage 35, thus restricting flow of air into the passage 34, which is relatively of smaller area. The inflow of venting air is thus reduced, and fluid flow from the bottle and nurser is reduced.

If the nipple be turned clockwise, see Fig. 9, the central rib section 31 is pressed into the passage 34, whereby a greater inflow of venting air takes place through the larger passage 35, and a greater fluid flow results.

Three control positions of the nipple are thus provided by the illustrated construction, a normal flow position, see Fig. 7, in which the air vent is through approximately one half of passages 34 and 35, a decreased flow position, see Fig. 8, in which the air vent is through passage 34, and an increased flow position, see Fig. 9, in which the air vent is through the larger passage 35.

Although I have described a specific embodiment of my invention, it is obvious that changes in the size, shape, arrangement and positioning of the parts may be made to meet different regulations and control requirements in feeding nipples, without departing from the spirit and the scope of the invention as defined in the appended claims.

1 claim:
1. In a feeding nipple having a body, a neck, and a feeding tip, an internal annular groove in said body for detachable mounting on the rim of a nursing bottle, and an air vent rib extending across said annular groove, said rib including a tortuous section in the groove having two rib sections and an intermediate rib section forming

2,738,088
Patented Mar. 13, 1956
two adjacent air-vent inflow passages, the spacing between the intermediate rib section and one outer rib section being greater than the spacing between the intermediate rib section and the other outer rib section, whereby the two air inflow passages have different flow areas.

2. In a feeding nipple having a body, a neck, and a feeding tip, an internal annular groove in said body for detachable mounting on the rim of a nursing bottle, and an air vent rib extending across said annular groove, said rib including a tortuous section in the groove having two rib sections and an intermediate rib section forming two adjacent air-vent inflow passages, the spacing between the intermediate rib section and one outer rib section being greater than the spacing between the intermediate rib section and the other outer rib section, whereby the two air inflow passages have different flow areas.

3. In a feeding nipple having a body, a neck, and a feeding tip, an internal annular groove in said body for detachable mounting on the rim of a nursing bottle, and an air vent rib extending across said annular groove, said rib including a tortuous section in the groove having two rib sections and an intermediate rib section forming two adjacent air-vent inflow passages, the spacing between the intermediate rib section and the other outer rib section being greater than the spacing between the intermediate rib section and the other outer rib section, whereby the two air inflow passages have different flow areas.

4. In a feeding nipple having a body, a neck, and a feeding tip, an internal annular groove in said body for detachable mounting on the rim of a nursing bottle, and an air vent rib extending across said annular groove, said rib including a tortuous section in the groove having two rib sections and an intermediate rib section forming two adjacent air-vent inflow passages, the spacing between the intermediate rib section and the other outer rib section being greater than the spacing between the intermediate rib section and the other outer rib section, whereby the two air inflow passages have different flow areas.

5. In a feeding nipple having a body, a neck, and a feeding tip, an internal annular groove in said body for detachable mounting on the rim of a nursing bottle, and an air vent rib extending across said annular groove, said rib including a tortuous section in the groove having three spaced generally parallel rib sections forming two adjacent air vent passages, one of said passages being of less width than the other passage, the intermediate rib section being of greater height than the other rib sections.

6. In a feeding nipple having a body, a neck, and a feeding tip, an internal annular groove in said body for detachable mounting on the rim of a nursing bottle, and an air vent rib extending across said annular groove, said rib including a tortuous section in the groove having three spaced generally parallel rib sections forming two adjacent air vent passages, one of said passages being of less width than the other passage, the intermediate rib section being of greater height than the other rib sections.

7. In a feeding nipple having a body, a neck, and a feeding tip, an internal annular groove in said body for detachable mounting on the rim of a nursing bottle, and an air vent rib extending across said annular groove, said rib including a tortuous section in the groove having three spaced generally parallel rib sections forming two adjacent air vent passages, one of said passages being of less width than the other passage, the intermediate rib section being of greater height than the other rib sections.

8. In a feeding nipple having a body, a neck, and a feeding tip, an internal annular groove in said body for detachable mounting on the rim of a nursing bottle, and an air vent rib extending across said annular groove, said rib including a tortuous section in the groove having three spaced generally parallel rib sections forming two adjacent air vent passages, one of said passages being of less width than the other passage, the intermediate rib section being of greater height than the other rib sections.

9. A feeding nipple having a generally cylindrical body, a neck, and a feeding tip having a feed opening, said body having an annular internal groove for detachable mounting on the rim of a nursing bottle, and an air vent rib extending across said groove, comprising a downwardly extending section, a lateral portion, an upwardly extending section, a lateral portion, and a downwardly extending section, whereby two spaced air vent passages are provided across the internal body groove.

10. A nurser combination including a nursing bottle having a rim, and a nipple of flexible material having a body, a neck, and a perforated feeding tip, said body being generally cylindrical and having an annular interior groove for detachable mounting over the bottle rim, and air-vent passage means in said groove including two parallel spaced ribs of similar height and an intermediate rib of greater height spaced to provide a flow passage of greater area on one side of said rib than on the other side of said rib, whereby rotation of the nipple selectively clockwise or counterclockwise when mounted on the bottle rim forces the intermediate rib into one passage or the other passage to change the inflow of venting air.

References Cited in the file of this patent

UNITED STATES PATENTS

1,919,537 Stock, Jr.-------------------July 25, 1933
2,434,611 Hamiel-------------------Jan. 13, 1948
2,434,612 Hamiel-------------------Jan. 13, 1948