March 24, 1964 E. D. CLINEHENS 3,126,116

CHECK VALVED NIPPLE

Filed Oct. 26, 1961

FIG. 1.

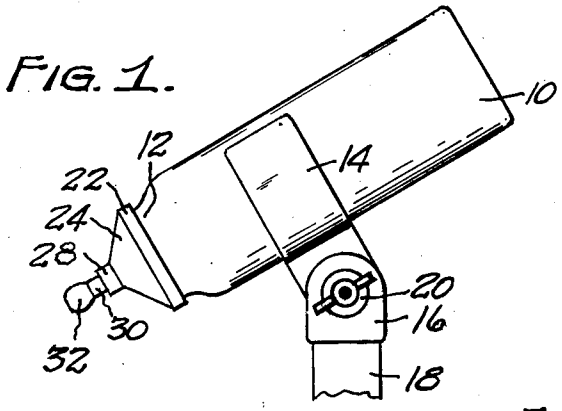


FIG. 2.

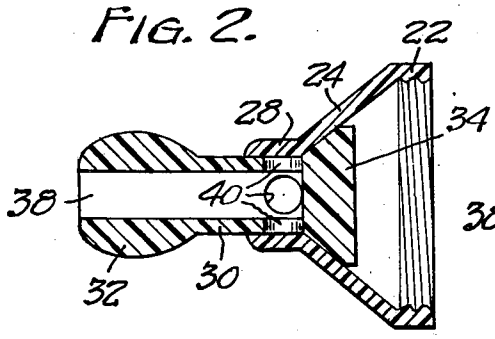


FIG. 3.

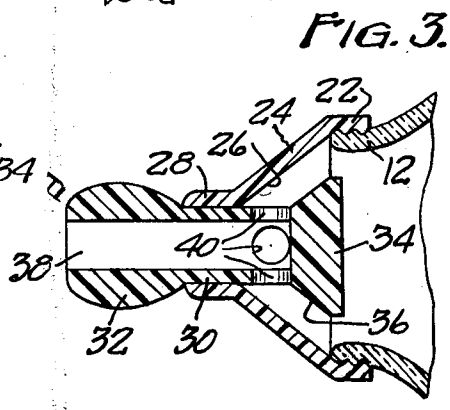


FIG. 4.

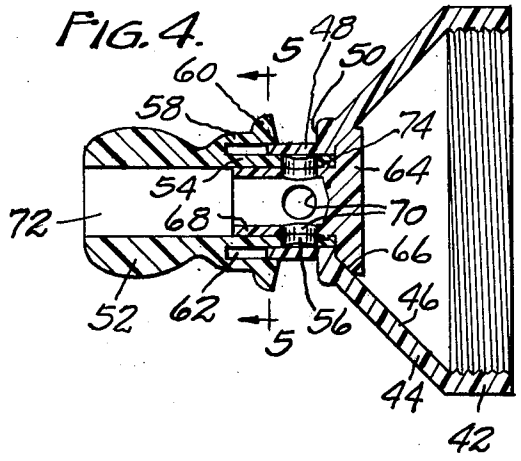
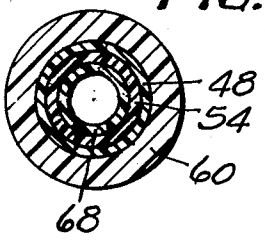


FIG. 5.



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CHECK VALVED NIPPLE

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This invention relates to improvements in nursing nipples, and particularly to a nipple having a check valve.

The primary object of this invention is to provide a nursing nipple which is so constructed as to permit use thereof in feeding viscous foods, such as purees and other thick fluids.

A further object is to provide a device of this character adapted to be used on a bottle mounted in a bottle carrier which permits the infant to feed himself and which includes a valve which closes the nipple while the infant is not feeding.

A further object is to provide a nipple having a shiftable part associated with a valve element normally closing by gravity and openend by slight movement of an infant, and adapted to reclose when released by the infant.

Other objects will be apparent from the following specification.

In the drawing:

FIG. 1 is a side view of a bottle mounted in a holder and provided with my improved device;

FIG. 2 is an enlarged axial sectional view of one embodiment of the nipple illustrated in closed position;

FIG. 3 is an axial sectional view of the nipple in open position;

FIG. 4 is an axial sectional view of a modified embodiment of the nipple in position with its valve closed;

FIG. 5 is a transverse sectional view taken on line 5—5 of FIG. 4.

Referring to the drawing, and particularly to FIGS. 1 to 3, which illustrate one embodiment of the invention, the numeral 10 designates a nursing bottle having a reduced externally screw-threaded neck portion 12. The bottle is preferably mounted upon a holder of any suitable character, such as that illustrated in my Patent No. 2,552,844, dated May 15, 1951. The holder includes a clamp portion 14 gripping the bottle and mounted pivotally upon a part 16 carried by a band 18 adapted to be supported upon the infant's body at the infant's chest. The pivot means for connecting the parts 14 and 16 may include a thumb nut 20 associated with a screw and operative to clamp the parts 14 and 16 in any selected angular position in which the neck 12 of the bottle is lowermost and positioned so that the nipple assembly mounted thereon is convenient to and adjacent the head of an infant so that the infant need move his head only slightly to feed himself.

The form of the nipple illustrated in FIGS. 2 and 3 includes a cap portion having an internally screw-threaded rim portion 22, a tapered portion 24 which preferably has a conical inner surface 26, and a tubular neck portion 28. The cap 22—28 is preferably formed of rigid or shape-retaining material, such as a synthetic resin, which can be sterilized by boiling without injury thereto or deforming thereof.

A shiftable nipple member is slidably carried by the cap and includes a tubular shank portion 30 having a snug sliding fit within the sleeve or tubular portion 28 of the cap and adapted to slide freely therein by gravity. The outer end of the nipple is preferably enlarged to define a mouthpiece 32. A tapered valve head 34 is carried by the inner end of tubular shank portion 30 and has a conical valve surface 36 complementary to the conical inner surface 26 of the cap. The valve head 34 is imperforate. The nipple has a bore 38 extending therethrough from its outer end to the valve head 34 and, at the inner end of

the bore, the tubular shank 30 of the nipple has one or more apertures 40 which are normally located within the confines of the neck 28 of the cap in the closed position of the nipple and which are exposed and open to the interior of the container in the open position of the nipple as illustrated in FIG. 3. The nipple shank 30 of the mouthpiece 32 and the valve 34 are preferably formed of rigid or shape-retaining material, such as a synthetic resin which can be sterilized by boiling without injury thereto or deforming thereof. The parts 30, 32 and 34 constitute a unit but may be formed of multiple parts secured together in any suitable manner as by cement.

When the bottle is held in tilted position with the cap and nipple lowermost as illustrated in FIG. 1, the nipple shank 30 will slide freely by gravity to the position illustrated in FIG. 2 at which the valve surface 36 is in face engagement with the cap surface 26 so that food cannot leak or drip from the nipple. The nipple will be placed close to the infant's mouth at such position that the infant can readily bite the same and can move the same from the FIG. 2 to the FIG. 3 position by a slight movement of his head. The openings 38 and 40 will be of sufficient diameter that thick food will flow therein upon slight suction by the infant. Thus by the use of the device, the infant is able to feed himself. The gravital closure of the valve is important in that release of the nipple by the infant will permit the valve to close and thereby prevent loss of food as soon as the child releases the nipple.

The embodiment of the invention illustrated in FIGS. 4 and 5 entails the use of a bottle cap detachably mounted upon a bottle at an internally screw-threaded rim 42 thereof. The cap has a tapered part 44 having a conical inner surface 46. At the small diameter end of the cap projects a tubular neck 48 and a shoulder 50 at the junction of the neck 48 and tapered part 44.

A nipple or mouthpiece 52 has a tubular part 54 freely slidable within the sleeve 48 and provided with a plurality of apertures 56 intermediate its length. The mouthpiece also preferably has a tubular skirt portion 58 concentric with the part 54 and preferably terminating in an enlarged bead 60. An annular slot 62 is formed between the tubular part 54 and skirt 58 which slidably receives the cap neck 48. A valve head 64 having a conical valve surface 66 has projecting therefrom coaxially a tubular projection 68 which preferably has a plurality of apertures 70 adapted normally to register with the apertures 56. The tubular projection 68 of the valve preferably has a snug sliding fit within the bore 72 of the mouthpiece. Any suitable means may be provided to releasably interconnect the interfitting tubular parts 54 and 68 of the mouthpiece and the valve, and, as here shown, one thereof, such as the tube 68, may be provided with a circumferential enlargement or bead 74 adapted to have a snug fit within a circumferential groove or recess in the other part, such as the tube 54. This arrangement of snap locking bead and groove 74 accommodates interconnection of the nipple part and the valve part simply and quickly and in any selected or rotative orientation, so that the size of the opening provided in the stem of the assembly through which food may pass into the nipple from the container may be varied at will for the purpose of controlling the rate of flow of food through the bore 72 of the nipple when the nipple valve is open.

The embodiment illustrated in FIGS. 4 and 5 has the same advantages and functions in the same manner as described above with respect to the embodiment shown in FIGS. 2 and 3. The FIG. 4 embodiment has the additional advantage of regulation of the rate of flow of food permitted therein depending upon the extent or register of the openings 56 and 70, as mentioned above. A further advantage of the FIG. 4 embodiment is the fact the bead 60 serves as a guard to protect the infant from pinch-

ing his lips upon the device when held in feeding position. The bead 60 is preferably of larger diameter than the shoulder 50 and, when the bead engages that shoulder, the lips of the infant will not be pinched when the bead contacts the shoulder.

While the preferred embodiment of the invention has been illustrated and described, it will be understood that changes in the construction may be made within the scope of the appended claims without departing from the spirit of the invention.

I claim:

1. A nursing nipple adapted to be mounted on the neck of a nursing bottle, comprising

a cap adapted for detachable connection with said bottle neck,

said cap including a tubular neck portion,

a rigid nipple having a tubular shank slidable in said cap neck and having an aperture adjacent its inner end, and

a valve member carried by the inner end of said nipple and having sealing abutting engagement with said cap in one position thereof,

said nipple and valve being slidable by gravity to said sealing position from an open position in which said nipple shank aperture is clear of said cap neck.

2. A nursing nipple adapted to be mounted on the neck of a nursing bottle, comprising

a cap adapted for detachable connection with said bottle neck,

said cap including a tapered portion and a projecting tubular neck portion,

a rigid nipple having a tubular shank slidable by gravity in said cap neck and having an aperture adjacent its inner end, and

a tapered enlarged valve member carried by the inner end of said nipple shank and having sealing face engagement with said tapered cap portion in one position thereof,

and means for limiting shifting of said nipple and valve inwardly of said cap to open position,

said nipple shank aperture being located within said cap neck when said valve is seated.

3. A nursing nipple adapted to be mounted on the neck of a nursing bottle, comprising

a cap adapted for detachable connection with said bottle neck,

said cap including a reduced diameter tubular neck portion,

a rigid nipple having a tubular shank slidable by gravity in said cap neck and having an aperture adjacent its inner end, and

a valve member carried by the inner end of said nipple shank and enlarged for sealing engagement with said cap in one position thereof,

said nipple and valve including interfitting relatively rotatable tubular portions having similar apertures adapted to be positioned in selected degree of registration.

4. In combination,

a nursing bottle having an open end portion,

a bottle carrier mounting said bottle in inclined position with said open end lowermost,

a bottle cap detachably mounted on said bottle end portion, and having a reduced tubular neck,

a rigid nipple having a tubular shank slidable by gravity in said cap neck when in said inclined position, and

a valve carried by and larger than said nipple shank and positioned within and normally sealingly engaging said cap when said bottle is held in said inclined position,

said nipple shank having an aperture normally located within said cap neck and positioned clear of said cap neck when said valve is open.

5. In combination,

a nursing bottle having an open end portion,

a bottle carrier mounting said bottle in inclined position with said open end lowermost,

a bottle cap detachably mounted on said bottle end portion and having a reduced tubular neck,

a rigid nipple having a tubular shank with a lateral aperture,

a valve carried by and projecting laterally from the inner end of said shank,

an enlarged mouthpiece at the outer end of said shank,

said nipple shank being slidable relative to said cap between limits defined by said valve and mouthpiece and normally positioned by gravity with said valve seated at said cap when said bottle is held in said inclined position.

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