July 3, 1945. J. H. BOXLEY 2,379,562

NURSING BOTTLE

Filed Dec. 5, 1944

Fig. 1

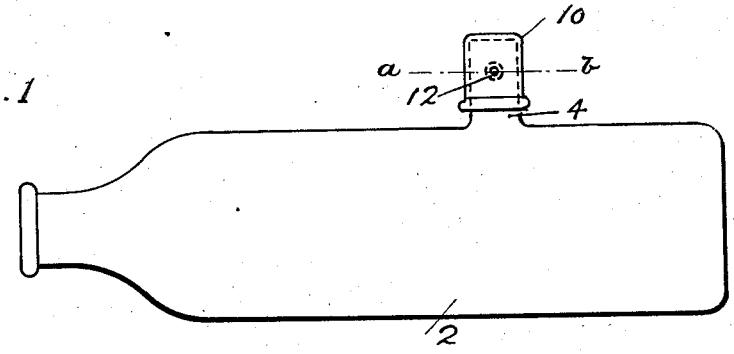


Fig. 2.

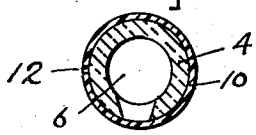


Fig. 5.

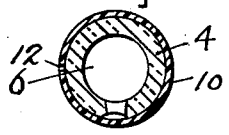
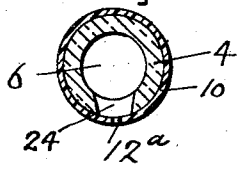


Fig. 7.



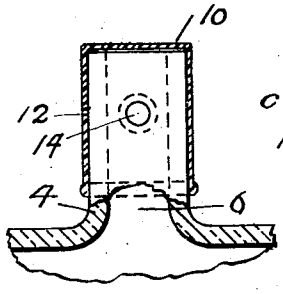


Fig. 3.

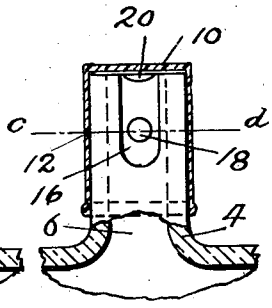


Fig. 4

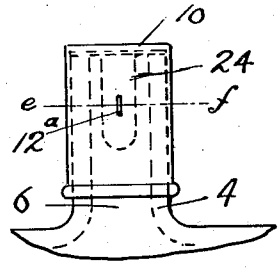


Fig. 6.

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UNITED STATES PATENT OFFICE

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NURSING BOTTLE

Joseph Harry Boxley, Richmond, Va.

Application December 5, 1944, Serial No. 566,767

4 Claims. (Cl. 215—11)

My invention relates to bottles; and particularly to bottles from the necks of which liquid is drawn by the mouth and lips, such as nursing bottles; and it also relates to bottles from which liquid is to be poured in a steady stream, unbroken by air currents entering at the bottle mouth.

This invention is a modification of the invention for which I filed an application for patent on October 22, 1942, Serial No. 463,009; now Patent No. 2,342,722, February 29, 1944; in which application I described a bottle having on its body and near its base a projecting hollow boss forming an air inlet to the bottle, the said boss having on its side a slot affording a passage for air into the bottle.

In the present application I describe a bottle having an annular boss through which air is admitted to the bottle by way of a perforation, and a closure fitting snugly around the boss and having a small perforation in its side wall which, when the closure is twisted or turned on the boss may be made to register with an opening in the side wall of the boss to admit air through the perforation in the closure and through the wall of the boss and into the bottle. The opening in the side of the boss may be in the form of a round hole, of somewhat larger size than the perforation through the side wall of the closure; or it may be in the form of a slot through the side wall of the boss; or it may be in the form of a flute within the limits of which a hole is formed into the inside of the boss. It will be seen that when the hole through the side wall of the boss is elongated, as in the form of slot or flute, it is easier to register with it the small perforation in the side wall of the closure.

In the drawing:

Figure 1 is a side view of the bottle showing the hollow boss on its upper side, and with an elastic air retaining closure in place.

Figure 2 is a partial horizontal section made on line *a—b* in Fig. 1.

Figure 3 is a partial longitudinal section of the bottle, showing the glass boss on the side of the bottle, and with air retaining closure in vertical section.

Figure 4 is a partial longitudinal section as in Figure 3, but showing a flute cast in the side of the boss and a perforation through the boss and within the flute.

Figure 5 is a cross section through the boss on line *c—d* in Fig. 4.

Figure 6 is a partial side view of the bottle showing the boss capped by an air retaining closure.

Figure 7 is a cross section through the boss and closure on line *e—f* in Figure 6.

A special feature of my present invention is that the elastic closure fits snugly around the boss on the side of the bottle, yet not so tightly that it may not be twisted or turned on the boss; and further: that the closure is punctured by a small hole or a slit in its side; which puncture may, when the closure is turned on the boss, be made to register with an opening through the side of the boss; and so communicate with the inside of the boss and of the bottle.

In Figure 1: The numeral **2** indicates the glass of the nursing bottle, which is shown laid upon its side. On the opposite side of the bottle there is formed an annular boss **4**, through which passes a large vent-hole **6** into the inside of the bottle **2**; see Figures 2 to 7 inclusive. The bottle is shown in the position commonly used when feeding an infant; and it is obvious that if no air were allowed to enter the end of the bottle a partial vacuum would be formed in the bottle as liquid is drawn from the mouth of the bottle; and when the bottle is being used for nursing, with nipple, not shown, the vacuum within the bottle will cause the nipple to collapse and to impede the flow of liquid from the mouth of the bottle.

The object of this invention is to provide a nursing bottle in which this partial vacuum may be reduced without introducing any unsanitary means; which bottle may be with certainty cleaned and sterilized; which shall be inexpensive and durable; and which may be operated and held by one hand of the nurse in attendance.

To prevent leakage: The bore **6** through the boss **4** is closed by an elastic cap or closure **10**. This closure may be made of rubber or of any other material which is waterproof, and which shall be sufficiently elastic to fit the boss snugly, to cover the boss so that no liquid may leak from the inside of the bottle when the bottle is stood on end.

In the side of the closure **10** there is made a puncture **12**. This puncture may be in the form of a small hole, as in Figures 2, 3, 4, and 5; or in the form of a small slit, as in Figures 6 and 7. In Figure 6 this slit is shown as if having an appreciable width; but in reality the two sides of the slit would close against each other.

In Figure 3 the side wall of the boss is perforated by the hole **14**, which I make larger on the inside of the boss than on the outside so that

liquid lodging against the cap 10 may drain back into the bottle. Air is admitted to the inside of the boss and bottle by turning the cap 10 on the boss 4 until the small puncture 12 registers with the hole 14. Air will then pass into the interior of boss and bottle through the puncture 12 and the hole 14.

In Figure 4 the outside of the boss is shown fluted at 16. It is also shown as perforated at 18 within the boundaries of the flute 16. When this perforation 18 is not used with the flute, the air channel to the interior of the boss may be made by means of a depression 20 in the boss wall at the upper end of the flute. The object of the flute 16 is to give a greater range to the registering of the puncture in the cap with the hole 18; for obviously, though the puncture in the cap 12 may not register directly over the hole 18, it will register with the flute, by which the air will travel to the hole 18. A cross section through the flute 16 and hole 18 is shown in Figure 5.

As stated above: The puncture 12 in the cap-closure 10 may be in the form of a small hole, or of a small slit. In Figure 6 I have shown, in elevation, a cap-closure snugly covering a boss; in which cap-closure there has been made a small slit 12^a. Beneath the slit is shown, in the wall of the boss a flute or even a slot 24. In the cross section in Figure 7 this opening in the wall of the boss is shown as a slot, which is cut or cast through the side wall of the boss. When the slit in the cap-closure is made with contacting side walls there will be little or no leakage through the slit when the bottle is placed on end; and when in the position shown in Figures 6 and 7 it may be necessary to press upon the cap-closure at a point adjacent the slit to open the said slit to admit air to the inside of boss and bottle.

I claim:

1. A nursing bottle having a boss formed on and extending from the outside of its lower portion, and with a large vent-hole through the wall of the bottle and through the length of the boss for the passage of air into the bottle and for cleansing and sterilizing operations; the said boss having an aperture formed in its wall to permit the passage of air therethrough; in combination with closing means adapted to cover the said vent-hole and the said aperture and to yieldingly embrace the said boss to normally prevent the passage of air between the boss and the closing means yet permitting the moving of the closing means on the boss: the said closing means having through its wall a puncture which on moving the closing means on the boss may be registered with the aperture in the wall of the boss.

2. A nursing bottle having a boss formed on and extending from the outside of its lower portion, and with a large vent-hole through the wall of the bottle and through the length of the boss for the passage of air into the bottle and for cleansing and sterilizing operations; the said boss having an aperture formed in its wall to permit the passage of air therethrough; in combination with closing means adapted to cover the said vent-hole and the said aperture, and to yieldingly embrace the said boss to normally prevent the passage of air between the boss and the closing means, yet permitting the moving of the closing means on the boss; the said closing means having through its wall a puncture which on moving the closing means on the boss may be registered with the aperture in the wall of the boss; the said boss being so located and so spaced from the base of the bottle that when the bottle is held in the palm of the hand the closing means may be manipulated by digits of the same hand.

3. A nursing bottle having a boss formed on and extending from the outside of its lower portion, and with a large vent-hole through the wall of the bottle and through the length of the boss for the passage of air into the bottle and for cleansing and sterilizing operations; the said boss having an aperture formed in its wall to permit the passage of air therethrough; in combination with closing means adapted to cover the said vent-hole and the said aperture, and to yieldingly embrace the said boss to normally prevent the passage of air between the boss and the closing means yet permitting the moving of the closing means upon the boss; the said closing means having through its wall a puncture which normally remains closed but which may be opened by pressure on the surrounding surface of the closing means when the closing means has been moved upon the boss to register the puncture in the closing means with the aperture in the wall of the boss.

4. A nursing bottle having a boss formed on and extending from the outside of its lower portion, and with a large vent-hole through the wall of the bottle and through the length of the boss for the passage of air into the bottle and for cleansing and sterilizing operations; the said boss having an aperture in its wall to permit the passage of air therethrough; in combination with closing means adapted to cover the said vent-hole and the said aperture and to yieldingly embrace the said boss to normally prevent the passage of air between the boss and the closing means yet permitting the moving of the closing means upon the boss; the said closing means having through its wall a puncture which normally remains closed but which may be opened by pressure upon the adjacent surface of the closing means when the said closing means has been moved upon the boss to register the puncture in the closing means with the aperture in the boss; and the said boss being so located and so spaced from the base of the bottle that when the bottle is held in the palm of the hand the closing means may be manipulated by digits of the same hand.

JOSEPH HARRY BOXLEY.