March 27, 1951 H. J. SEARER 2,546,681

COMBINATION SEALING DISK AND NIPPLE HOLDER FOR NURSING UNITS

Filed July 13, 1948 2 Sheets-Sheet 1

FIG. 1

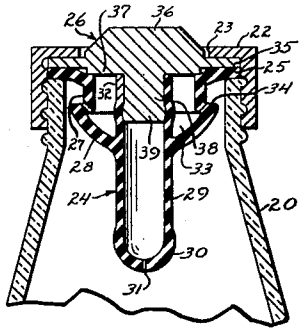


FIG. 2

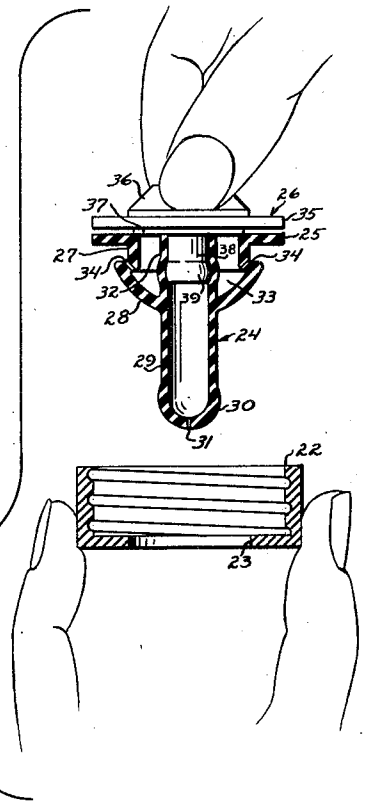


FIG. 3

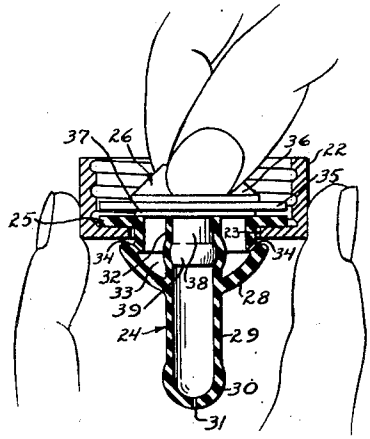
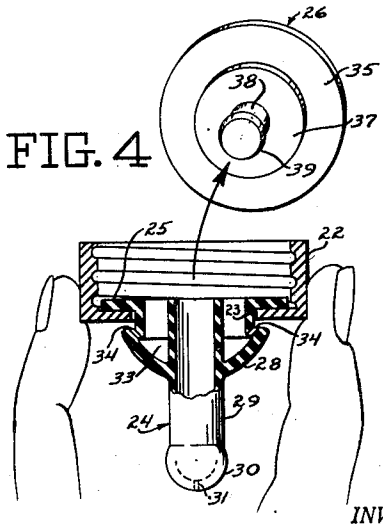


FIG. 4



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FIG. 5

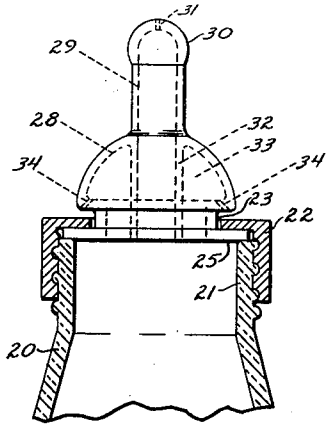


FIG. 6

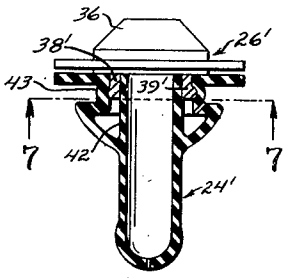


FIG. 7

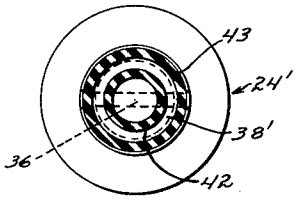


FIG. 11

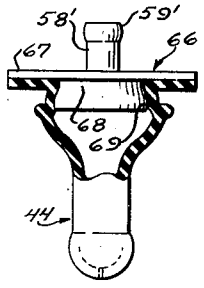


FIG. 9

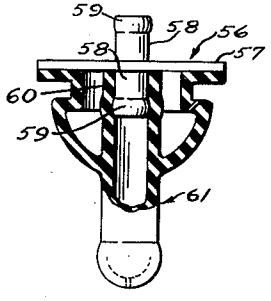


FIG. 10

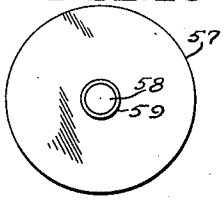


FIG. 8

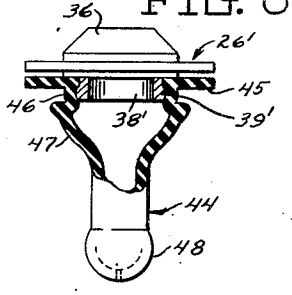


FIG. 12

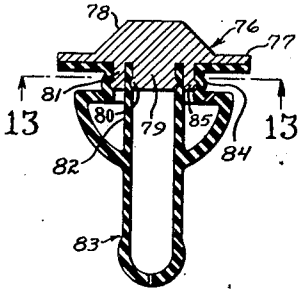
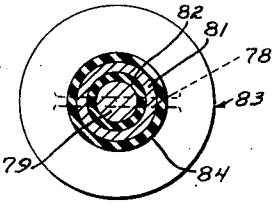


FIG. 13



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Patented Mar. 27, 1951

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UNITED STATES PATENT OFFICE

2,546,681

COMBINATION SEALING DISK AND NIPPLE HOLDER FOR NURSING UNITS

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Application July 13, 1948, Serial No. 38,515

8 Claims. (Cl. 215—11)

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This invention relates to improvements in sealing discs for nursing bottles, and more particularly it relates to increasing the functions of such discs whereby in addition to the usual function of sealing when a nipple is inverted in a bottle, the discs may also be utilized to engage and hold the nipple while the latter is being placed in inverted position in a bottle, and while the nipple is being moved from inverted position to operative position on a bottle.

The use of large-mouth nursing bottles employing flanged nipples which are held in place by a centrally apertured cap threaded onto the bottle has now become wide-spread. In its operative position the nipple extends through the aperture in the cap and the base flange of the nipple is clamped by the cap between the latter and the top of the bottle. When not in use, the nipple may be inverted so that it extends into the bottle with its base flange resting on the top of the bottle, and the cap will again hold it in such position. Due, however, to the central aperture in the cap, the interior of the nipple would be exposed to contamination in its inverted position, and it is customary to employ a sealing disc between the nipple and cap which closes the aperture in the latter. This sealing disc is only used when the nipple is in its inverted inoperative position and forms no part of the nursing unit when the nipple is in operative position on the bottle.

Heretofore, this sealing disc has been used only as a sealing medium and when it was desired to change the nipple from its inverted position in the bottle to its operative position on the bottle, the cap and disc were removed and the nipple was changed by grasping it in the fingers of the hand. Similar handling of the nipple by the human fingers was required in placing the nipple in inverted position in the bottle. This use of the human hands in handling the nipple has been objected to by some hospitals and nursing homes as unsanitary, and it is an object of this invention to abolish the need for using the human hands in placing the nipple in either its inverted or its operative position.

Another object is to provide a substantially central projection on either or both sides of the sealing disc, one of which projections is adapted to enter into and engage the inner wall of a nipple, whereby the nipple may be lifted and carried by holding onto the opposite side of the disc.

A further object is to provide a bead or ridge on the projection, preferably, but not necessarily, at the outer end of the latter, to insure a firm engagement between the projection and the wall of the nipple when it is desired to lift or carry the nipple.

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Other objects and advantages will become apparent from the following description taken in conjunction with the accompanying drawings.

In the drawings:

Fig. 1 is a vertical section through the upper end of a nursing bottle with my sealing disc shown in proper engagement with an inverted nipple held in place by a cap;

Fig. 2 is a similar section showing the nipple removed from the bottle and held in one hand by means of the disc, while the other hand is holding an inverted cap;

Fig. 3 is a similar section showing the nipple forced through the apertured cap by using the disc and without touching the nipple with the fingers of either hand;

Fig. 4 is a similar section showing the disc in perspective and being removed from engagement with the nipple;

Fig. 5 is a similar section showing the nipple in operative position on a bottle;

Fig. 6 is a similar section showing a modified form of projection on the disc;

Fig. 7 is a section taken substantially on line 7—7 of Fig. 6;

Fig. 8 is a view similar to Fig. 6 showing the disc being used with a modified form of nipple;

Fig. 9 is a view similar to Fig. 6 with a further modified form of disc being shown;

Fig. 10 is a plan view of either the top or bottom of the disc shown in Fig. 9;

Fig. 11 is a view similar to Fig. 8 with a further modified form of disc;

Fig. 12 is a view similar to Fig. 6 with a further modified form of disc; and

Fig. 13 is a section taken substantially on line 13—13 of Fig. 12.

Referring to the drawings, the numeral 20 designates the upper portion of a nursing bottle of the wide-mouth type having a threaded neck 21 adapted to receive a threaded cap 22, centrally apertured at 23. In Fig. 1, a nipple, indicated as a whole by the numeral 24, is shown in inverted position in the bottle with its base flange 25 clamped by cap 22 between the upper end of bottle 20 and the lower face of a sealing disc, indicated as a whole by the numeral 26.

The nipple 24 is the type of nipple shown in my copending application, Serial No. 722,026, filed January 14, 1947, now Patent No. 2,513,896, granted July 4, 1950, formed of resilient, elastic rubber or rubber-like composition, and comprises

a neck portion 27 adjacent its base flange 25, which neck terminates in a bulbous breast portion 28. Formed integral with the breast portion 28 at the small end thereof is a tubular axial extension or body portion 29 that has a closed outer end of somewhat bulbous shape that constitutes a mouthpiece 30. The latter is formed with an axially disposed delivery aperture 31 through which liquid is drawn when the nipple is in operative position on a bottle.

Interiorly of the breast portion 28 a tubular structure 32 extends concentrically thereof. Said structure 32 is an integral part of the nipple 24, being united therewith at one end, the remainder of the structure being free and unattached in spaced relation to the neck 27 of the nipple. The free end of the structure 32 may terminate substantially coincident with the plane of the outer face of the flange 25, or it may be somewhat inward or outward of this plane. The arrangement is such as to provide an annular internal cavity 33 in the nipple, which cavity surrounds the structure 32 and opens onto the outer face of the nipple. The cavity 33 is vented to the atmosphere by a plurality of venting apertures 34, 34, which are of small diamensions and extend through the breast portion 28 of the nipple. The size of the apertures 31 and 34 is exaggerated for clarity of illustration. The operation of the nipple will be readily understood by those skilled in this art, but for further information reference may be made to my said patent. For the sake of brevity, we will refer to the tubular structure 32 as the inner skirt portion of the nipple, while the outer skirt portion thereof will be that portion spaced from the inner skirt by the cavity 33.

Coming now to my sealing disc 26, it comprises, in the embodiment shown in Figs. 1 to 4, an annular body portion 35, formed of aluminum or hard plastic or other suitable material, the outside diameter of which is slightly less than the outside diameter of the nipple flange 25 so that it may readily fit between the latter flange and the cap 22 when assembled on the bottle. An integral handle or gripping portion 36 extends from one side of the body 35, through the aperture 23 in cap 22, while the other side of the body 35 is provided with an integral narrow shoulder portion 37 having an integral circular projection 38 substantially central thereof. Projection 38 has an outside diameter substantially equal to or slightly less than the inside diameter of the inner skirt portion 32 of the nipple, so that it may readily fit into the inner skirt portion 32, as indicated in Fig. 1. An enlarged bead or ridge 39 is formed on the projection 38, preferably, but not necessarily, at the free end thereof, this bead being of larger diameter than the inside diameter of the inner skirt 32. Projection 38 is made long enough to extend into the inner skirt portion 32 of the nipple until, with the help of bead 39, the rubber in the skirt will grip and hold the projection, whereby the nipple may readily be held and carried by grasping the handle portion of disc 26, as indicated in Figs. 2 and 3. As will be observed from Figs. 1, 2 and 3, the bead 39 causes a slight distortion or deformation of the rubber in skirt 32 while the latter is in engagement with the projection.

When the nipple 24 is assembled with the nursing unit in inverted position, as in Fig. 1, it is an easy matter to move the nipple to operative position on the bottle without touching the nipple with the human hand. To accomplish this the cap 22 is first unthreaded from the neck of the bottle and held in reverse position between the fingers and thumb of one hand, for example, the left hand as shown in Fig. 2. The disc 26 is then grasped by its handle portion 36 with the thumb and one or more fingers of the other hand, for example, the right hand as shown in Fig. 2. Due to the engagement of the disc 26 with the inner skirt portion 32 of the nipple 24, the latter will be lifted out of the bottle with the disc and carried to the position above the cap 22 which is shown in Fig. 2.

Next, the nipple 24 is pushed through the aperture 23 in cap 22 until flange 25 contacts the inner face of the cap adjacent aperture 23, as shown in Fig. 3. It will be noted that the greatest outside diameter of the breast portion 28 of the nipple is substantially larger than the diameter of aperture 23, but the resiliency of the material of which the nipple is composed enables said breast portion to be deformed to the extent necessary to pass it through the cap aperture 23 and assume the position shown in Fig. 3 wherein the nipple is confined in the cap between the flange 25 and the breast portion 28.

The disc 26 is now pulled out of engagement with the nipple as indicated in Fig. 4. This disc is readily removed from the nipple by pulling upwardly on the disc, since the breast portion 28 of the nipple will contact the outer surface of cap 22 adjacent the aperture 23 and prevent reverse movement of the nipple through the latter aperture while the disc is being removed. From the position shown in Fig. 4, the cap and nipple are reversed and readily threaded on the bottle 20 until they assume the position shown in Fig. 5, which is the normal operative position of these parts during nursing, although they will, of course, be tilted downwardly to permit liquid to be drawn from the bottle.

It is believed to be apparent that in addition to permitting the ready change of the nipple from inverted position in a bottle to operative position on a bottle without touching the nipple with human hands, my combination sealing disc and nipple holder is also adapted for placing the nipple in inverted position in the bottle, without touching the nipple with the human hands. For example, assuming that a nipple in the sterilizer or rack is ready to be placed in inverted position in a bottle, the nipple may be moved with the sealing disc until it assumes either an inverted position or is lying on its side in the sterilizer or rack. The beaded end 39 of the projection 38 is now inserted into the inner skirt 32 of the nipple merely by pushing the projection slightly into the skirt. It is not necessary for the projection 38 to extend its full length into the skirt in order to pick up the nipple from the sterilizer or rack by means of the disc, and place the nipple in inverted position in the bottle. Once the nipple is in inverted position in the bottle, the projection 38 may be pushed its full length into the skirt 32, so that the cap 22 may be threaded on the bottle to hold the nipple and disc in the position shown in Fig. 1. Thus, it will be noted that the nipple may also be placed in inverted position in the bottle without touching the nipple with the human hands.

A modified form of sealing disc and nipple holder is shown in Figs. 6 and 7, wherein the projection 38' on the disc 26' differs in size and shape from the projection 38 on disc 26, so that projection 38' with its bead 39' may be pushed between the inner skirt 42 and the outer skirt 43 of nipple 24'. Projection 38' is annular and the free

end of inner skirt 42 extends into this projection, as indicated in Fig. 6, with the bead 39' slightly distorting the outer skirt 43 as the projection 38' is pushed into the nipple. Except for the difference in size and shape of the projection 38', the nipple 24' may be picked up and carried by means of disc 26' in substantially the same manner described in connection with disc 26 and nipple 24, without touching the nipple with the human hands. Also, the disc 26' will readily function as a seal when the nipple 24' is properly clamped in mounted position in a bottle, as will be understood.

In Fig. 8 I have shown a modified form of nipple, indicated as a whole by the numeral 44, which does not have an inner skirt portion similar to nipples 24 and 24'. One form of this type of nipple is disclosed in Patent No. 2,093,130, granted September 14, 1937. This nipple is also formed of resilient rubber or rubber-like material and comprises the customary base flange 45 joined by a neck portion 46 to a bulbous breast portion 47, which terminates in the usual apertured mouthpiece 48. The sealing disc 26' with its beaded projection 38', previously referred to in Figs. 6 and 7, may readily be used with nipples of the type shown at 44 for sealing the nipple in inverted position and for holding and carrying the nipple without touching the latter with the human hands. As will be observed from Fig. 8, projection 38' with its bead 39' is of a size that readily fits into the single skirt portion of nipple 44, with the bead 39' being slightly larger in diameter than the inside diameter of the skirt portion, so that the nipple may readily be carried by the disc 26'.

Figs. 9 and 10 show a further modified form of sealing disc and nipple carrier for use with nipples having inner and outer skirt portions similar to nipples 24 and 24'. As shown, this sealing disc, indicated as a whole by the numeral 56, comprises a circular body portion 57 similar to body portion 35 of disc 26. Formed integral with the body portion 57, substantially centrally and on opposite faces thereof, are similar projections 58 having beaded portions 59, preferably at the outer ends thereof. The beaded projections 58 are similar to beaded projections 38 on disc 26 and are adapted to fit into the inner skirt portions 60 of nipple 61 in the same manner that projection 38 fits into nipple 24. However, with the projections 58 being similar, it will be obvious that either of these projections may be inserted into the inner skirt of the nipple, while the one not in the nipple may be used as a handle to hold and carry the disc in the manner previously mentioned. The disc 56 will also function as a sealing disc when placed in the nursing unit with the nipple in inverted position, as will be understood.

In Fig. 11, I have shown a further modified form of sealing disc and nipple holding and carrying member which may be used alternately with either nipples of the type shown at 44 in Fig. 8, or nipples of the type shown at 24, 24' and 61. In this form, the disc, indicated as a whole by the numeral 66, comprises a body portion 67 similar to portion 57 of disc 56. Formed integral with one face of portion 67 substantially centrally thereof is a projection 58' having a beaded outer end portion 59', which is similar to beaded projection 58 on disc 56. The other face of portion 67 has an integral projection 68 substantially centrally thereof having a beaded end portion 69, which projection is similar to beaded projection 38' on disc 26'. As will be apparent from Fig. 11, projection 68 may be inserted into nipples of the

type indicated at 44, and projection 58' will then be used as a handle for carrying the disc and nipple as previously explained. Projection 68 may also be inserted into the outer skirt of nipples of the type shown at 24' (Fig. 6), since such projection is similar to projection 38'. By reversing the disc 66 from the position shown in Fig. 11, the projection 58' may be used for insertion into the inner skirt of nipples of the type shown at 24, 24' and 61, in which case projection 68 is used as a handle for carrying the disc and nipple. Discs of the type shown at 66 in either position will also effectively seal the nipple when the latter is in inverted position in the nursing unit.

In Figs. 12 and 13 I have shown a further modified form of sealing disc and nipple holder and carrier which may also be used with nipples of the type shown at 24, 24' and 61. This disc, which is indicated as a whole by the numeral 76, has a body portion 77 with an integral handle portion 78 formed on one face thereof, while its opposite face has an integral circular projection 79 substantially centrally thereof provided with a beaded end portion 80. Spaced from projection 79 on the same face of the body 77 is an annular projection 81 having a beaded end portion 85. Projection 81 is similar to projections 38' and 68, previously described, while projection 79 is similar to projections 38, 58 and 58' except that it is not as long as the latter projections. In fact, it is preferred that the free ends of projections 79 and 81 terminate in substantially the same plane, as indicated in Fig. 12. With the form of disc shown in Fig. 12, the inner skirt portion 82 of nipple 83 is adapted to fit in the space between the projections 79 and 81, while projection 81 is adapted to fit between the inner skirt portion 82 and the outer skirt portion 84 of nipple 83. Thus, there is in effect a double grip on nipple 83 which permits the latter to be held and carried by disc 76, while the latter will also function as a seal when the nipple is inverted in the nursing unit.

While I have illustrated and described preferred forms of my invention, it will be understood that the invention is not limited to these forms, and modifications and changes may be made within the spirit of the invention and within the scope of the subjoined claims.

What is claimed is:

1. A nursing unit comprising a bottle, a nipple inverted into said bottle and having a lateral flange seating on the outer edge of said bottle, a combined sealing and nipple carrying member having a body portion seating on the flange of said nipple, a projection on one face of said body portion extending into and engaging the open end of said nipple, a beaded portion on said projection to slightly stretch said nipple and insure tight engagement of the latter with said projection, a substantially centrally apertured cap secured over the mouth of said bottle and seating on said body portion of said member, and an extension on the opposite face of said body portion of said member protruding through the aperture in said cap to serve as a handle for carrying said member and said nipple.

2. A nursing unit of the character defined in claim 1 wherein the beaded portion on said projection is formed on the free end of the latter.

3. A nursing unit of the character defined in claim 1 wherein said extension comprises a duplication of said projection so that either will fit into tight engagement with the open end of said nipple.

4. A nursing unit of the character defined in claim 1 wherein said extension has a beaded portion thereon so that said extension will fit into tight engagement with the open end of said nipple.

5. A nursing unit comprising a bottle, a nipple having inner and outer skirt portions open at one end and inverted into said bottle, said nipple having a lateral flange seating on the outer edge of said bottle, a combined sealing and nipple carrying member having a body portion seating on the flange of said nipple, a projection on one face of said body portion extending into and engaging the inner surface of said inner skirt portion of said nipple, a beaded portion on said projection to slightly stretch said inner skirt portion of said nipple and insure tight engagement of the latter with said projection, a substantially centrally apertured cap secured over the mouth of said bottle and seating on said body portion of said member, and an extension on the opposite face of said body portion of said member protruding through the aperture in said cap to serve as a handle for carrying said member and said nipple.

6. A nursing unit comprising a bottle, a nipple having inner and outer skirt portions open at one end and inverted into said bottle, said nipple having a lateral flange seating on the outer edge of said bottle, a combined sealing and nipple carrying member having a body portion seating on the flange of said nipple, a projection on one face of said body portion extending into and engaging the inner surface of said outer skirt portion of said nipple, a beaded portion on said projection to slightly stretch said outer skirt portion of said nipple and insure tight engagement of the latter with said projection, a substantially centrally apertured cap secured over the mouth of said bottle and seating on said body portion of said member, and an extension on the opposite face of said body portion of said member protruding through the aperture in said cap to serve as a handle for carrying said member and said nipple.

7. A nursing unit comprising a bottle, a nipple having inner and outer skirt portions open at one end and inverted into said bottle, said nipple having a lateral flange seating on the outer edge of said bottle, a combined sealing and nipple carrying member having a body portion seating on the flange of said nipple, a projection on one face of said body portion extending into and engaging the inner surface of said inner skirt portion of said nipple, a second projection spaced from said first projection extending into and engaging the inner surface of said outer skirt portion of said nipple, a beaded portion on each of said projections to slightly stretch said skirt portions of said nipple and insure tight engagement of the latter with said projections, a substantially centrally apertured cap secured over the mouth of said bottle and seating on said body portion of said member, and an extension on the opposite face of said body portion of said member protruding through the aperture in said cap to serve as a handle for carrying said member and said nipple.

8. A combination sealing disc and nipple carrying member for a nursing unit that includes a bottle, a nipple inverted into said bottle and having a lateral flange seating on the outer edge of said bottle, and a substantially centrally apertured cap secured over the mouth of said bottle and confining said nipple in said bottle, said member comprising a body portion adapted to be seated between the flange of said nipple and the area of said cap adjacent the aperture in the latter, a projection on one face of said body portion extending into and engaging the open end of said nipple, a beaded portion on said projection to slightly stretch said nipple and insure tight engagement of the latter with said projection, and an extension on the opposite face of said body portion of said member protruding through the aperture in said cap to serve as a handle for carrying said member and said nipple.

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