May 24, 1949. D. STOLLER 2,471,172

NIPPLE AND CAP FOR BABY NURSING BOTTLES

Filed June 23, 1947

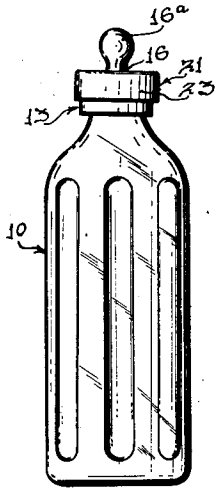


FIG. 1.

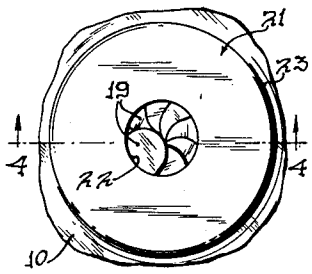


FIG. 3.

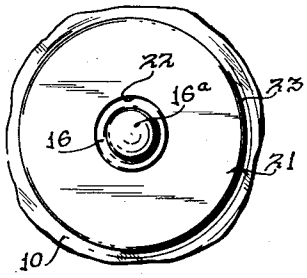


FIG. 2.

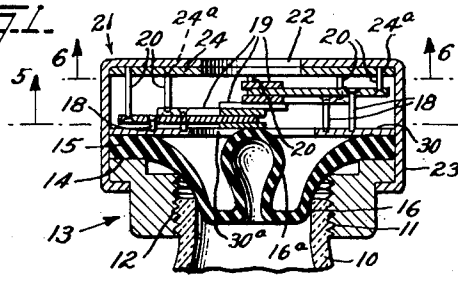


FIG. 4.

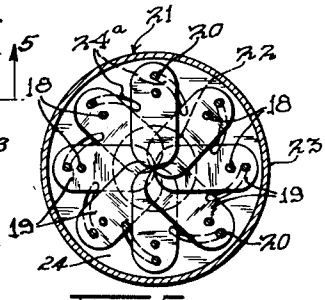


FIG. 5.

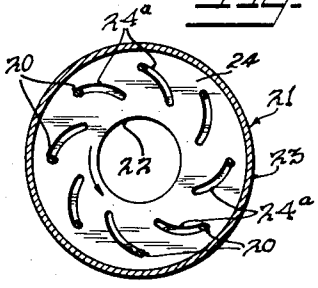


FIG. 6.

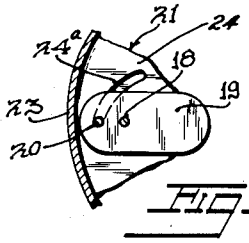


FIG. 7.

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NIPPLE AND CAP FOR BABY NURSING BOTTLES

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6 Claims. (Cl. 215—11)

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This invention relates to a sanitary cover for nursing nipples.

One of the objects of the invention is to provide a bottle cap with means for holding a nipple for nursing service and additional means for confining the nipple in a collapsed condition within a housing chamber provided in the bottle cap, so that the nipple will be concealed from contact with insects and other sources of infection when it is not to be used for nursing service, but will be ready for instant nursing service by turning the bottle cap element which operates the release.

Another object of the invention is the provision of a bottle cap with an internal coupling thread or element to secure the bottle cap to the neck of a milk bottle and a series of restraining members which are pivotally supported and enclosed by the bottle cap to swing over the central opening of the bottle cap through which the resilient nursing nipple projects, so that after forcing the nipple into its receiving chamber, the restraining members may be closed over the central opening and the nipple held in a collapsed condition within the bottle cap.

A further object of the invention is to combine this construction in the simplest and most useful manner with a view to reducing the costs of construction, and concealing all internal parts from external projection, so that a self contained unit is provided which can be made and sold at low cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure:

Fig. 1 is a side elevation of the improved nursing nipple protector, shown with the nipple in normal nursing position.

Fig. 2 is a top plan view thereof.

Fig. 3 is a top plan view showing the nipple concealed by the restraining means.

Fig. 4 is an enlarged vertical sectional view taken on line 4—4 of Fig. 3, looking in the direction of the arrows.

Fig. 5 is a horizontal sectional view taken on line 5—5 of Fig. 4, looking in the direction of the arrows.

Fig. 6 is a horizontal sectional view taken on the line 6—6 of Fig. 4, looking in the direction of the arrows.

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Fig. 7 is a detail plan view of one of the restraining plates.

The improved nursing nipple, in accordance with the present invention, is used in combination with a milk bottle 10 having an external screw thread 11 or similar external coupling means which is engaged by an internal matching screw thread 12 of a ring 13 of the improved nursing nipple. The ring 13 is constructed to have its top face 14 clamped against a circular flange 15 of a resilient rubber nursing nipple 16, the bulb-shaped central part 16a of which is adapted to be collapsed down toward and partially into the neck of the bottle 10, as shown in Fig. 4.

On the ring 13 there is rotatively mounted a metal cap 21. The top wall of the cap 21 is spaced from the nipple flange 15 and is formed with a central opening 22 through which the bulb-shaped central part 16a of the nursing nipple may project. The periphery of the top wall of the cap 21 continues into a depending skirt wall 23 which has its bottom edge turned beneath the ring 13 forming a rotative connection between the cap 21 and the ring 13. A portion of the ring 13 extends beyond the skirt wall 23 of the cap 21 to be grasped for turning the ring 13 into sealed engagement with the neck of the bottle 10.

Rotatively mounted across the inside of the cap 21 spaced from its top wall and in facial contact with the flange 15 of the nursing nipple 16, there is a partition 30. The partition 30 is formed with a circular opening 30a concentric with the central opening 22 of the cap 21 through which the bulb-shaped central part 16a of the nursing nipple 16 projects when extended in the operative nursing position shown in Figs. 1 and 2.

Extended vertically from the partition 30 there is a series of eight pivot pins 18 equally spaced from each other and arranged in a circle concentric with the opening 30a of the partition. Pivotally supported on the upper end of each of the pins 18 there is a shutter plate 19. The shutter plates 19 are arranged at various elevations so that when the plates 19 are extended radially of the cap 21, as shown in Figs. 4 and 5, their inner ends become superimposed preventing passage of the bulb-shaped central part 16a of the nipple 16 through the opening 30a of the partition 30 as clearly shown in Fig. 4.

Extended vertically from the outer end of each shutter plate 19, outwards of its respective pivot pin 18, there is a cam pin 20. Securely positioned within the cap 21 and in facial contact with the inner face thereof, there is a cam plate 24 formed with a series of eight equally spaced arcuate cam

slots 24a. The upper end of each cam pin 20 engages one of these slots 24a, there being a cam slot for each cam pin. The cam plate 24 is formed with a central opening 24b concentric with the central opening 22 of the top wall of the cap 21 for the passage of the bulb-shaped central part 16a of the nipple 16. By turning the cap 21 on the ring 13 in the direction of the arrow shown in Fig. 6, all of the cam pins will be forced toward the innermost ends of the cam slots 24a, and the effect of this will be to simultaneously swing each of the plates 19 to an inoperative position, to free the nipple 16 so that its resiliency will extend the central part 16a through the aligned openings 30a, 24b and 22. Frictional contact between the adjacent faces of the partition 30 and the flange 15 of the nursing nipple 16 holds the partition 30 against rotation and holds the pivot pins 18 stationary so that the shutter plates 19 will pivot when the cap 21 is turned relative to the ring 13.

By a reverse operation, all of the shutter plates 19 will be moved to their operative position, shown in Figs. 4 and 5, to retain the nipple 16 in its collapsed position within the cap 21.

The operation of the shutter plates 19 will not interfere with the mounting of the article upon the bottle 10, and when the nipple 16 is in nursing service position, the shutter plates 19 will be entirely concealed between the adjacent faces of the partition 30 and the cam plate 24.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. The combination with a nursing milk bottle of a nipple and a cap mounted thereon, the nipple being of resilient material and collapsible into the cap, a series of shutter plates movable across the cap to hold the nipple collapsed, and means carried by the cap for simultaneously operating all plates.

2. The combination with a nursing milk bottle, a nipple disposed against the same, a cap threaded on the bottle to clamp the nipple to the bottle and provided with a chamber in which the central part of the nipple may be collapsed, a cap mounted to turn on the first cap and provided with a central opening through which the nipple may project, a series of shutter plates movable between the two caps to close said central opening and hold the nipple collapsed in said chamber, and means carried by the caps for operating all shutter plates by the turning of the second cap on the first cap.

3. A closure for a nursing milk bottle comprising a base bottle cap having a central opening through which a nursing nipple may project, a series of shutter plates pivoted on the base cap to swing over said central opening, and a cap mounted to turn on the base cap and provided with cam means for swinging said shutter plates on their pivots.

4. A closure for nursing milk bottles comprising a base cap having means for coupling the same to the neck of a milk bottle, a series of shutter plates disposed equal distances apart in a circular row on said base cap and pivoted thereto for independent swinging movement, a cap mounted to turn on the base cap and provided with a cam slot for each of the shutter plates, and a pin carried by each shutter plate and engaging one of the slots whereby the shutter plates will be simultaneously operated to close or open said central opening when the second plate is turned on said base plate.

5. A closure for nursing milk bottles having a base cap provided with means for securing a collapsing nursing nipple on a milk bottle and a chamber in which the nipple may be collapsed, said cap having a central opening through which the nipple may extend for nursing service, means for closing said opening to restrain a collapsed nipple in said chamber, and means mounted to turn on said cap for operating said closing means.

6. A closure for nursing milk bottles having a base cap provided with means for securing a collapsing nursing nipple on a milk bottle and a chamber in which the nipple may be collapsed, said cap having a central opening through which the nipple may extend for nursing service, means for closing said opening to restrain a collapsed nipple in said chamber, means mounted to turn on said cap for operating said closing means, the closing means consisting of a plurality of diaphragm forming elements, and the said means being provided with a cap slot for moving each element inwardly and outwardly.

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No references cited.