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CAP FOR NIPPLES

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CAP FOR NIPPLES

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This invention relates to sanitary caps for nursing bottle nipples.

Heretofore various devices have been used in hospitals, nurseries and homes to protect the contents and nipples of nursing bottles against contamination after sterilizing. Some are applied directly to the bottles themselves however, and while adequate to preserve the bottle contents against contamination up to the moment of use, they require that the nipples be applied to the bottles after sterilization and thus permit contamination by soil on the hands that handle the nipple. Others cover the nipple and may be applied before the bottle with its nipple in place is sterilized, but these are made of glass or aluminum, etc., and may be blown off the bottle during sterilizing unless carefully placed on the bottle, and in any event need washing between feedings.

The sanitary caps of the present invention avoid such difficulties. They cover the entire nipple, and can be applied before sterilization and thereby sterilized along with a bottle and its nipple. They can be made so inexpensively, e. g., of paper, that one can be discarded after a single use, and thus washing of the caps avoided, although if desired one may be used a number of times and may be made of a more permanent material than paper.

Also the construction can be such that the cap becomes attached to the nipples by the mere act of thrusting the cap on to the nipple, and is such that a number of caps can be folded flat upon themselves so that a considerable number can be packed in a small package, and opened readily and readily thrust onto the nipples.

More specifically, each cap has something of the form of an envelope, open at one end, and adjacent that end is provided with at least one, and preferably two diametrically opposite internal flaps or tabs, adjacent its open end, and thence extending toward the closed end of the envelope, and which tend to unfold or project sufficiently toward the center line of the opened cap to engage the nipple of the bottle to latch the cap in place thereon.

The accompanying drawing illustrates the best forms of our invention of which we are now aware. Fig. 1 is an elevation, partly in section, of a nursing bottle with its nipple and the preferred form of this invention mounted thereon and locked to the nipple in the preferred manner. Fig. 2 is a blank from which such a cap as that of Fig. 1 can be made. Fig. 3 is an elevation of another form of the cap of our invention, a part

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of one wall being torn away to show the tab on the opposite wall. Fig. 4 illustrates two blanks from which the cap of Fig. 3 can be made. Figs. 5 and 6, also elevations partly in section, illustrate other relations that the tabs may assume with respect to nipples.

In the drawing, the bottle 10 is a conventional nursing bottle and nipple 11 is a conventional nipple. The bottle has an annular bead 12 formed thereon at its mouth and the nipple has an annular groove formed therein to receive said annular bead to lock the nipple in place on the neck of the bottle. The nipple tip 11a is relatively small in diameter and tapers downwardly and outwardly to form an annular sloping shoulder 11b. The lower end of the nipple terminates abruptly to form an annular shoulder 11c. Usually the shoulder 11c falls at the lower end of the neck 13 of the bottle and in the general area where the neck tapers outwardly to form the bottle shoulder 14.

The sanitary cap or hood 20 of the form of the invention shown in Fig. 1, may be made from a blank such as 30 of Fig. 2. Blank 30 has a pair of body portions 31 and 32, respectively, a pair of wings 33 and 34 respectively, and a pair of tabs 35 and 36 respectively. Each of the body portions 31 and 32 is tapered and preferably truncated triangularly, with the result that the upper end of the cap is smaller than its lower end (cf. Fig. 3). Preferably the tab 35 is tapered also, and truncated, and its small end is connected to the wide end of body portion 31 along the substantially straight line 37. Preferably 31 and 35 are integral, and then 37 is a folding and hinging line. At least preferably the length of the attachment of 35 to 31 (i. e. the length of the line 37) is only a fraction, say of the order of one-fifth, of the length of that edge of 31 to which 35 is attached. Body portion 32 is of substantially the same size and shape as the body portion 31, and its tab 36 corresponds to tab 35. The substantially straight line 38 is the connecting, and usually folding and hinging, line between 32 and 36. The two body portions 31 and 32 are connected together at the folding line 39 which is parallel to the lines 37 and 38, and all three of these lines intersect the longitudinal axis of the blank at right angles thereto. Both of the wings 33 and 34 may be connected to one of the two side body portions, e. g., 32, along folding lines 40 and 41 respectively.

When the blank of Fig. 2 is folded to form a cap 20, tabs 35 and 36 are folded inwardly along the folding lines 37 and 38 respectively until, say,

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they lie flat against the body portions 31 and 32 respectively. The body portions are then folded flat upon each other along their common folding line 39 in such a direction as to enclose the tabs between them. The tabs are not pressed to the body portions along their fold lines 37 and 38 so hard that they tend to remain in contact with their respective body portions; it is sufficient that the tabs 35 and 36 be folded toward their body portions enough to permit them to be enclosed between the two body portions 31 and 32 when the blank is folded along the line 39 and the tabs tend to come into contact with or abut each other. The wings 33 and 34 are then folded toward each other along folding lines 40 and 41 respectively, until they lie flat upon folded body portion 31. An adhesive may be used to fasten said wings to said body portion 31 or other fastening means may be used for the same purpose, thus fastening the lateral edges of the body portions together. Whatever fastening means is used however should be resistant to harmful or injurious effects resulting from exposure to heat and moisture, as of course, should the material out of which the blank itself is made. The overlap of the wings on the body portion or the fastening means should also be adequate to prevent dust and other foreign matter in the air from seeping through the cap and settling upon the nipple. A heat and moisture-proof material and fastening member or means permit the cap to be placed on the nipples bottle prior to the time the bottle is placed in a steam bath for heating and sterilizing purposes. Under such circumstances, the cap is sterilized at the same time and by the same means that the bottle and its nipple are sterilized.

The modified form of cap 50 (Fig. 4) is made from a pair of blanks 50a and 50b which, when joined, resemble blank 30 of Fig. 2. One of the blanks from which cap 50 is formed, e. g., blank 50a, has a body portion 52 corresponding to body portion 32 of blank 30 and a pair of wings 53 and 54 corresponding generally to wings 33 and 34 of the blank 30. Its tab 56 corresponds generally to tab 36 of blank 30 and the folding line 58 of this blank 50a corresponds to folding line 39 which lies between body portions 31 and 32 of blank 30. Line 59 is the folding line between tab 56 and its body portion 52 and corresponds to line 38 in Fig. 2, and folding lines 60 and 61, corresponding to folding lines 40 and 41 respectively, are the folding lines between wings 53 and 54 and the body portion 52. On the other side of folding line 58 is a flap 65 which blank 30 does not have. Blank 50b has a body portion 51 corresponding generally to body portion 31 of blank 30 and it has a tab 55 corresponding generally to tab 35 of said blank 30. Line 57 is the folding line between body portion 51 and tab 55 of blank 50b.

Blanks 50a and 50b are folded and assembled in the manner shown in Fig. 3. Tab 56 is folded toward the body portion 52, tab 55 is folded toward the body portion 51, and said body portions are then superimposed, one upon the other, with their respective tabs between them. The wings 53 and 54 and flap 65 are then folded over upon body portion 51, and an adhesive or other fastening means is used to fasten said wings and the flap 65 to the body portion 51.

Figs. 3 and 4 illustrate another possible modification also. I. e. while the tabs 35 and 36 of cap 20 are of tapered form or have diverging side edges, the tabs 55 and 56 illustrate that they may be of other shapes, e. g., rectangles. As before indicated, preferably the length of each hinge

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or connection of a tab to a body portion, is less than the length of the free end of the tabs. With tabs of non-tapered forms, e. g., tabs 55 and 56, this can be accomplished by slitting the material at the connections, e. g., by providing slits 57a at the ends of folding line 57, between tab 55 and body portion 51, and slits 59a at the ends of folding line 59 between tab 56 and body portion 52.

It has been found that if after a number of caps as before described have been packed flat, one is taken and squeezed between the fingers, bearing on the edges of the cap, e. g. on the fold lines 40 and 41, the open end expands and accordingly the cap can be thrust over a nipple easily. At the same time the tabs (35 and 36, and 55 and 56) tend to unfold and swing or bend toward each other and away from the body portions to which they are respectively connected. The free ends of the tabs are thereby brought into engageable positions with respect to the nipple. Preferably the proportions are such that as the cap is thrust down to say the shoulder of the nursing bottle, the end of the tab or each tab passes beneath the lower end of the nipple as shown in Fig. 1. Each tab then comprises substantially in effect a pawl, swinging to and engaging the lower end of the nipple quite as a hinged pawl engages a tooth of a ratchet wheel. It is not necessary, however, that the cap be so proportioned that a tab thus acts pawlwise, or if so proportioned that the cap be thrust down into contact with the bottle shoulder. Thus as shown in Fig. 5, for example, the end of a tab may engage a projecting portion of the nipple above the lower end of the nipple, or may even indent itself into the base portion of a nipple. Or instead of the end of a tab engaging the nipple, a cap may be so proportioned, or may be so placed on a nipples bottle that only the side of a tab engages, say below a bulbous part of the nipple, for example two opposing tabs then forming a pair of walls spaced from each other a distance less than the diameter of a lower portion of the nipple, and accordingly forming walls between which the nipple cannot be drawn without forcibly deforming the walls. Such a latter arrangement is shown in Fig. 6, it being remembered that caps need to be held over their nipples substantially only sufficiently firmly to prevent accidental displacement. It will be understood that various dispositions of the tabs with respect to the nipple are sufficient to retain the caps in place.

It will be understood that the invention is not limited to the details of construction and operation described above and shown in the drawing except as appears hereinafter in the claims, and that the claims are intended to include not only the elements specifically mentioned in them, but the equivalents of those elements also.

We claim:

1. A sanitary cap for nursery bottle nipples comprising two body portions and at least one nipple-engaging tab, the said portions and tab being made of flexible material, the said two body portions being flat and except at the bottom of the cap being connected together, and the said tab being flat and an integral extension from the bottom edge of one of said two body portions and being folded inwardly to a position between the two body portions, thereby the cap being foldable flat and expandable to open position to pass over a nipple.

2. The subject matter of claim 1, characterized by the fact that each of said two body portions is a truncated triangle in shape and the two body portions are connected together at their

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smaller ends, comprising the top of the cap, and at their lateral edges.

3. The subject matter of claim 1, characterized by the fact that the fold line of the tab is a straight line at a right angle to the longitudinal axis of said cap when said cap is flat. 5

4. The subject matter of claim 1, characterized by the fact that such a tab is provided on each of said body portions.

5. The subject matter of claim 2, characterized by the fact that such a tab is provided on each of said body portions, the folding line of each tab is a straight line at a right angle to the longitudinal axis of said cap when said cap is flat, and the bottom edge of each of said body portions is substantially a straight edge at a right angle to the longitudinal axis of the respective body portion when said body portion is flat. 10 15

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