

Oct. 1, 1963

R. GARDEL ETAL

3,105,325

TOY NURSING BOTTLE

Filed Jan. 16, 1963

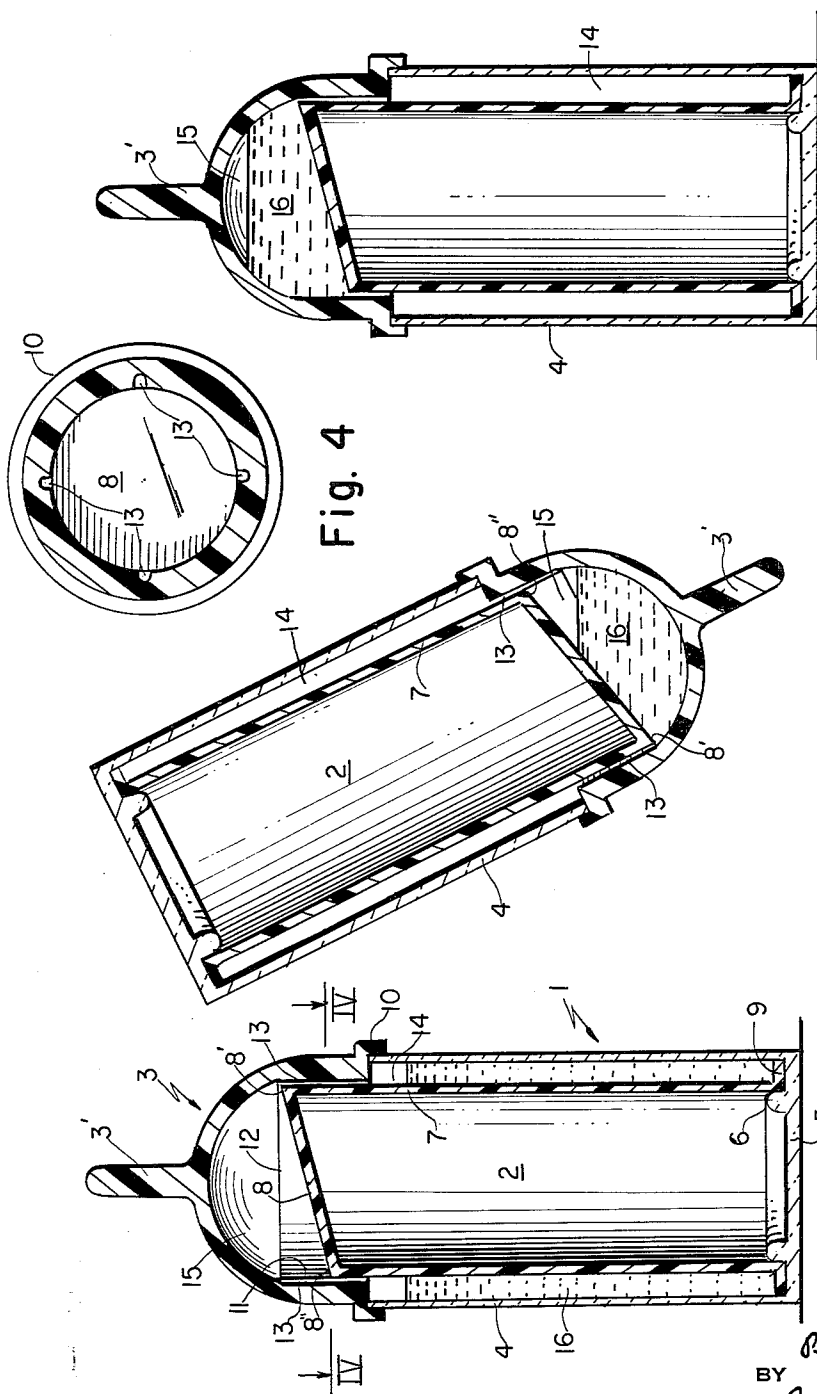


Fig. 3

Fig. 2

Fig. 1

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3,105,325

TOY NURSING BOTTLE

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Filed Jan. 16, 1963, Ser. No. 251,910

7 Claims. (Cl. 46—1)

This invention relates to a toy nursing bottle for dolls, and particularly such a bottle in which a quantity of liquid is permanently retained in connected chambers between which the liquid can flow, one chamber permitting the liquid to be seen, as if the bottle were full, and the other chamber permitting the liquid to be concealed as if the bottle were empty.

It is an object of the invention to provide such a bottle which is of very simple construction and which can be operated reliably and effectively for indefinite lengths of time.

It is a further object to provide such a bottle which is more realistic in appearance than others previously known.

It is another object to provide certain improvements in the form, construction and arrangement of the several parts whereby the above named and other objects may effectively be attained.

A practical embodiment of the invention is shown in the accompanying drawings, wherein:

FIG. 1 represents a vertical axial section through the bottle in its erect position;

FIG. 2 represents a similar section with the bottle substantially inverted;

FIG. 3 represents a view as in FIG. 1, with the liquid in the upper chamber at the instant when it starts to flow to the lower chamber, and

FIG. 4 represents a horizontal section on the line IV—IV of FIG. 1.

Referring to the drawings, the bottle is conveniently made in three parts, the outer body shell 1, the filler 2 and the cap 3, each conveniently of a suitable plastic material, the body shell 1 and filler 2 being somewhat transparent or at least translucent, while the cap is opaque and may be colored.

The body shell is shown as comprising a cylindrical side wall 4 and an externally flat bottom 5, the inner surface of the bottom being provided with an annular ridge 6 spaced a short distance from the wall.

The filler 2 likewise comprises a cylindrical side wall 7, having an outside diameter slightly less than the inside diameter of the wall 4, and being closed at the top by a slanting end wall 8. The bottom edge of the wall 7 engages snugly around the outside of the ridge 6 and rests against the bottom 5 of the body shell, being additionally centered, if desired, by spaced lateral projections or a laterally extending flange 9.

The cap 3 is shown as being generally hemispherical in form, with an outwardly and downwardly extending flange 10 designed to engage around and over the upper edge of the wall 4. Internally, the surface of the cap is cylindrical, as indicated at 11, through about half of its height, up to the line 12, this cylindrical portion being provided with a plurality of small vertical grooves 13 (four such grooves being shown). Externally, the cap is provided with an integral slightly tapered projection 3' having a rounded end and simulating, in general, a nipple, but also adapted to serve as the actuating element in combination with crying mechanism of the type shown in Gardel and Gorsky applications Serial No. 212,655, filed July 26, 1962 and Serial No. 238,355, filed November 19, 1962.

The relative vertical dimensions of the several parts

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are such that the highest point 8' of the filler 2 reaches the line 12 and the lowest point 8'' of the filler top is above the bottom of the cylindrical surface 11 when the bottom of the filler is firmly seated on the bottom of the body shell 1, and when the cap 3 is likewise firmly seated on the upper edge of the wall 4. The internal diameter of the cylindrical part 11 of the cap—below the line 12—is approximately equal to the external diameter of the filler 2 so that the upper portion of the latter fits tightly within said cylindrical part. The space 14 between the wall 4 and 7 constitutes a vertically elongated annular or cylindrical chamber, the volume of which should be not substantially greater than the volume of the chamber 15 formed by the interior surfaces of the cap and the upper end wall 8 of the filler.

At an appropriate stage during the assembly of the parts 1, 2 and 3 there is introduced into the chamber 14 (or 15) a quantity of liquid 16 which may be of a milky appearance—sufficient to substantially fill said chamber, after which the parts are permanently sealed together as by cementing the flange 10 to the upper edge of the wall 4.

In operation, when the bottle is in the erect vertical position (FIG. 1) the liquid occupies the space 14 and gives the bottle the appearance of being full. When the bottle is more or less inverted (FIG. 2), as when a doll is being "fed," the liquid trickles slowly through one or more of the grooves 13 from the space 14 into the chamber 15 within the cap, where it disappears from sight as if it had been consumed. After the liquid has more or less filled the chamber 15—completing the "feeding" of the doll—the bottle may be returned to its vertical position (FIG. 3) and the liquid will flow back through the grooves 13 into the space 14. The slanting end wall 8 of the filler ensures complete and rapid emptying of the chamber 15 because the liquid is shallower near the high point 8', inducing air to enter chamber 15 through grooves 13 nearest to that point while liquid flows out through grooves where the liquid body is deeper.

The slant of the wall 8 also permits a certain amount of control over the rate of feeding according to the rotational position of the bottle. Thus, flow of the liquid is slowest through the groove or grooves which may be at or near the highest point 8' of the filler while the flow is freer through grooves closer to the low point 8''. For example, FIG. 2 shows the bottle in its "slow-feed" position since the groove 13 at the left is substantially closed by the filler wall. In order to expedite or complete the "feeding" the bottle has to be turned around its axis (e.g., 90° to 180°) to bring one or more other grooves into play, as can readily be appreciated. By providing the simple grooves 13 for permitting restricted flow of the liquid in both directions it is possible to attain practical results as good as, or better than, those which have heretofore been thought to require check valves, perforated plates and other complex elements.

For safety, durability and ease of manufacture the parts may be made of high impact strength styrene, although other materials could be used if desired.

It will be understood that various changes may be made in the form, construction and arrangement of the several parts without departing from the spirit and scope of the invention, and hence we do not intend to be limited to the details herein shown or described except as the same are included in the claims or may be required by disclosures of the prior art.

What we claim is:

1. A bottle of the character described comprising, inner and outer concentric cylindrical side walls spaced apart to form an annular cylindrical chamber, a bottom element closing said chamber at the bottom, an upper wall bounded peripherally by the upper edge of said inner side wall,

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and a cap secured adjacent its periphery to the upper edge of said outer side wall, said cap having an inner surface adapted to engage tightly the upper portion of said inner side wall, being shaped to provide a closed chamber above said upper wall and grooves being provided across the zone of engagement between the cap and the inner side wall, said grooves constituting restricted passages permitting liquid to flow by gravity between said chambers.

2. A bottle according to claim 1 in which the cap is externally approximately hemispherical and in which its inner surface adapted to engage the inner side wall is cylindrical.

3. A bottle according to claim 1 in which the said upper wall is sloping.

4. A bottle according to claim 3 in which the said upper wall has a high point at one side and a low point diametrically opposite said high point.

5. A bottle according to claim 2 in which the said

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upper wall has a high point approximately at the level of the upper edge of the cylindrical inner surface of the cap and a low point diametrically opposite said high point.

6. A bottle according to claim 1 in which the cap is provided with a simulated nipple portion which is elongated, of relatively small cross-section and adapted to be inserted in a mouth opening of a doll.

7. A bottle according to claim 6 in which the simulated nipple portion has sufficient rigidity to serve as an actuating means for mechanism in the doll designed to be actuated by such means.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,105,325

October 1, 1963

Robert Gardel et al.

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

In the grant, lines 2 and 12, and in the heading to the printed specification, line 4, name of assignee, for "Doll Brothers, Inc." each occurrence, read -- Doll Bottles, Inc. --.

Signed and sealed this 7th day of April 1964.

(SEAL)

Attest:

ERNEST W. SWIDER

Attesting Officer

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Commissioner of Patents