ABSTRACT

A bubble film holding wand for use with a bottle containing bubble film solution is manufactured as an integral molded unit and includes a seal portion and a bubble film portion. The seal portion seals a bottle cap preventing leakage of the bubble film solution. Projections extending from the seal portion bear against the inside of the bottle cap retaining the seal in the bottle cap which is grasped by the user as a handle for the wand.

7 Claims, 5 Drawing Figures
The invention relates to bubble blowing devices and more particularly to a novel bubble blowing device having an integral bottle seal.

Conventional bubble film holding wands for use with bottles containing bubble film solution normally comprise a film holding portion in the form of a ring, and a stem terminating in a handle portion. Conventional wands are usually loosely placed in a bottle of bubble film solution by the manufacturer or are attached outside the bottle. In use, a child removes a bottle cap from the bottle of bubble film solution, reaches into the bottle, removes the wand which retains an amount of bubble film solution and blows air at the wand causing bubbles to form. The bottle cap, having been removed from the bottle in order to use the conventional wand can easily be misplaced, as can the wand itself. The bubble film solution bottle usually provided with the conventional wand has a generally small neck opening. The conventional wand is proportioned shorter than the height of the bottle so as to fit within the bubble film solution bottle and it is difficult for the child to dip the conventional wand into the bubble film solution when the level of the bubble film solution in the bottle is low. In addition, because the entire conventional wand fits within the bubble film solution bottle, the handle portion often becomes coated with bubble film solution making it slippery and difficult to hold, and the child's fingers and hands become coated with bubble film solution.

It is an object of the present invention to provide a bubble film holding wand, for use with a bottle containing bubble film solution, which is attached to a bottle cap, the cap serving as a handle for the wand.

Another object of the invention is to provide a bubble film holding wand having a handle portion which remains dry when the wand is in use.

Still another object of the invention is to provide a bubble film holding wand having integral projections for prevention of rotation of the wand with respect to a bottle cap.

In accordance with the invention there is provided a bubble film holding wand having a bubble film holding portion and an integral seal portion. The seal portion is sized to fit within a bottle cap of a bottle containing bubble film solution sealing the bottle and cap against leakage of the bubble film solution and configured so that the wand according to the invention projects into the bottle. In a preferred embodiment the seal portion incorporates radial projections which bear against the inside of the bottle cap and prevent rotation of the seal portion and consequently the wand with respect to the bottle cap. The film holding portion has a plurality of closely spaced projections which define grooves which retain bubble film solution when the device is in operation. In use the wand according to the invention is held by grasping the outside of the bottle cap. This surface does not come in contact with the bubble film solution and remains dry.

Additional objects and advantages of the invention will become apparent during the course of the follow-

A plurality of locking teeth 44, 46 and 48 project radially from the thin outer peripheral portion of disc 34, as shown in FIG. 2. Teeth 46 are narrow and have parallel side edges. Teeth 44 are wider spaced, having a radially extending edge 50 and an edge 52 forming an acute angle therewith and defining a pointed end 54. Teeth 48 are also wedge-shaped, but in the reverse direction, having a radially extending edge 56 and an inclined edge 58 extending at an acute angle thereto and defining a pointed end 60. The wedge-shaped teeth 44 and 48 are arranged alternately around the circumference of the disc 34 with a tooth 46 disposed between each pair of teeth 44 and 48. When the wand 10 is mounted on the bottle cap 16, in the manner to be pres-
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ently described, the locking teeth 44, 46 and 48 are flexed sufficiently so that they pass the inwardly projecting threading 22 of the cap and lodge in the row of serrations 26 beyond the threading. The pointed ends of the teeth wedge in between the serrations 26, as shown in FIG. 2, and lock the sealing disc 34 in mounted position. The wedge-shaped teeth 44 and 48 are particularly effective in restraining the disc 34 from rotating in either direction relative to the bottle cap 16.

The ring portion 30 of the wand 10 comprises an annular bubble film holding member 62 in the form of a plastic ring formed integrally with the elongated stem 32. The ring 62 has a central circular aperture 64 and a row of closely-spaced projections 66, separated by respective grooves 68, on both surfaces of said ring 62. The grooves 68 serve as reservoirs to retain a supply of the bubble film solution 14 therein when the wand is in use. If desired, two rows of projections and grooves may be formed on each face of the ring 62 in order to enable the wand to retain an increased supply of bubble-formed solution.

In mounting the bubble film holding wand on the bottle cap 16, the disc 34 of the wand may simply be brought to the mouth of the cap 16 in the position shown in FIG. 5, and pressed manually inwardly of the cap until the flat outer surface 36 of the disc 34 engages the inner surface of the cap top wall 18, as shown in FIG. 3. When the disc is pressed inwardly, the teeth 44, 46 and 48 flex and snap past the internal threading 22 of the cap, lodging between the serrations 26 in the manner previously indicated. The cap threading 22 thus overlies the ends of the teeth 44, 46 and 48, locking the disc 34 from movement out of the cap, and the serrations 26 prevent the disc from rotating within the cap.

In commercial manufacture, the wand is mounted on the bottle cap during assembly of the unit. In assembling the complete item for distribution, the bottle 12 is filled with a charge of bubble film solution 14 and the wand 10 is inserted in the bottle in such a manner that the disc 34 is seated upon the bottle mouth as shown in FIG. 4. The wand may be formed with a plurality of self-centering splines 70 to aid in accurately centering the disc 34 on the bottle mouth. As shown in FIGS. 4 and 5, these splines 70 are molded integrally with the stem 32 and the disc 34, and extend downwardly and angularly from the tapered annular shoulder 42 to the stem 32. The splines 70 are sized and arranged to engage the edge of the bottle mouth as the wand is inserted therein, and guide the disc 34 accurately to the position shown in FIG. 4 in which the disc is centered over the bottle mouth and all of the teeth 44, 46 and 48 project a short distance beyond the circumference of the bottle mouth.

The bottle cap 16 is now placed over the bottle mouth and screwed tightly down on the neck of the bottle. As the bottle cap is turned and lowered on the bottle neck, it moves downwardly relative to the disc 34 seated over the bottle mouth, and the cap threading 22 moves past the projecting teeth 44, 46 and 48. In the final position of the screwed-on cap 16, the teeth are located between the serrations 26 of the cap, and the disc 34 has been automatically locked in mounted position within the cap 16.

Since the ring portion 30 and stem portion 32 of the wand 10 are made integral with the bottle cap liner or seal 28, when the assembly is not in use and the cap 16 is secured to the neck of the bottle 12, as shown in FIG. 1, the ring 62 is located centrally within the lower interior of the bottle 12 and is immersed in the bubble forming solution 14. In use of the assembly to blow bubbles, the cap is unscrewed from the bottle and the wand 10 withdrawn, using the cap as a handle. When the wand is withdrawn, a supply of the bubble film solution 14 is retained in the grooves 68 of ring 62 and forms a continuous film across the ring aperture 64 in the well-known manner of bubble wands. When the user blows through the aperture 64, the film forms one or more bubbles.

When the wand 10 is replaced with the bottle 12 and the cap 16 screwed tightly thereon, the wand is conveniently stored in a position wherein the ring 62 is immersed in the bubble solution and available for immediate use at any time. This provides an advantage over conventional bubble wands which are made separate from the bottle cap and are usually stored outside the bottle and are thus easily lost. In addition, in use of conventional assemblies, the separate bottle cap is removed from the bottle when the wand is dipped, so that the cap is also inclined to be lost. Such loss is prevented with the present assembly, since the bottle cap serves as the wand handle during use.

The disc 34 also serves the additional function of a sealing liner for the bottle cap 16, engaging the mouth of the bottle when the cap is screwed tightly on the bottle neck, and preventing leakage of the bubble film solution from the bottle.

While a preferred embodiment of the invention has been shown and described herein, it is obvious that numerous omissions, changes and additions may be made in such embodiment without departing from the spirit and scope of the invention.

What is claimed is:

1. A bubble film holding wand for use with a bottle containing bubble film solution and having a bottle cap removable attached to the neck thereof, said wand comprising a bottle cap seal portion, a stem portion joined at one end to said seal portion and projecting perpendicularly from the center thereof, a film holding portion joined to the other end of said stem portion and spaced from said seal portion, said seal portion being sized to be inserted and retained in mounted position within said bottle cap, said seal portion in said mounted position being disposed between the mouth of the bottle and said bottle cap to seal the bottle against leakage of the bubble film solution therein when said cap is attached to the bottle, with said stem and said film holding portion extending into the interior of said bottle, said seal portions having a plurality of projecting teeth disposed to bear against the interior of said bottle cap and retain said wand within said cap and prevent rotation of said wand relative to said cap, said bottle cap having internal screw threading and a row of serrations between said screw threading and the top wall of said cap, said teeth projecting radially from said seal portion and positioned to extend between said serrations in the mounted position of said seal portion, with said screw threading overlying said teeth.

2. A bubble film holding wand according to claim 1 in which said seal portion comprises a circular disc having a flat surface abutting the inner surface of the top
wall of said cap in the mounted position of said seal portion.

3. A bubble film holding wand according to claim 2 in which at least some of said teeth have parallel sides and extend radially outward from said disc.

4. A bubble film holding wand according to claim 2 in which at least some of said teeth are tapered to form pointed end portions.

5. A bubble film holding wand according to claim 1 in which said seal portion, said rod portion and said film holding portion form an integral molded unit.

6. A bubble film holding wand according to claim 1 in which said wand is made of a moldable plastic material.

7. A bubble film holding wand according to claim 2 in which at least some of said teeth are tapered to form pointed end portions, each of said tapered teeth having a pair of sides forming an acute angle, one of said sides extending radially along a line through the center of said disc.

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