United States Patent

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[54] **SHAMPOO DOLL**
6 Claims, 4 Drawing Figs.

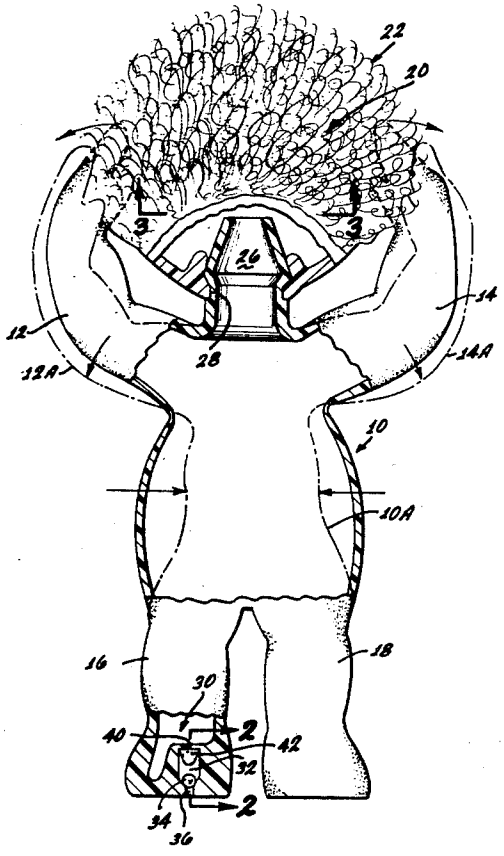
[52] **U.S. Cl.** **46/6**
[51] **Int. Cl.** **A63h 33/28**
[50] **Field of Search** 46/6, 7, 44, 115, 117

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ABSTRACT: A doll whose arms move in a manner to simulate hair washing actions, while shampoolike foam is produced in its hair, comprising a hollow doll body with a pair of upwardly extending arms, the body having elastic walls so that when a child repeatedly squeezes the sides of the body together, the arms move up and down. The head is hollow and has numerous threads that extend through hole therein to form hair. As the elastic body is squeezed, air is pumped through the thread-holding holes, and if a soap solution has been spread on the hair, the air flowing through the holes creates foam in the hair.



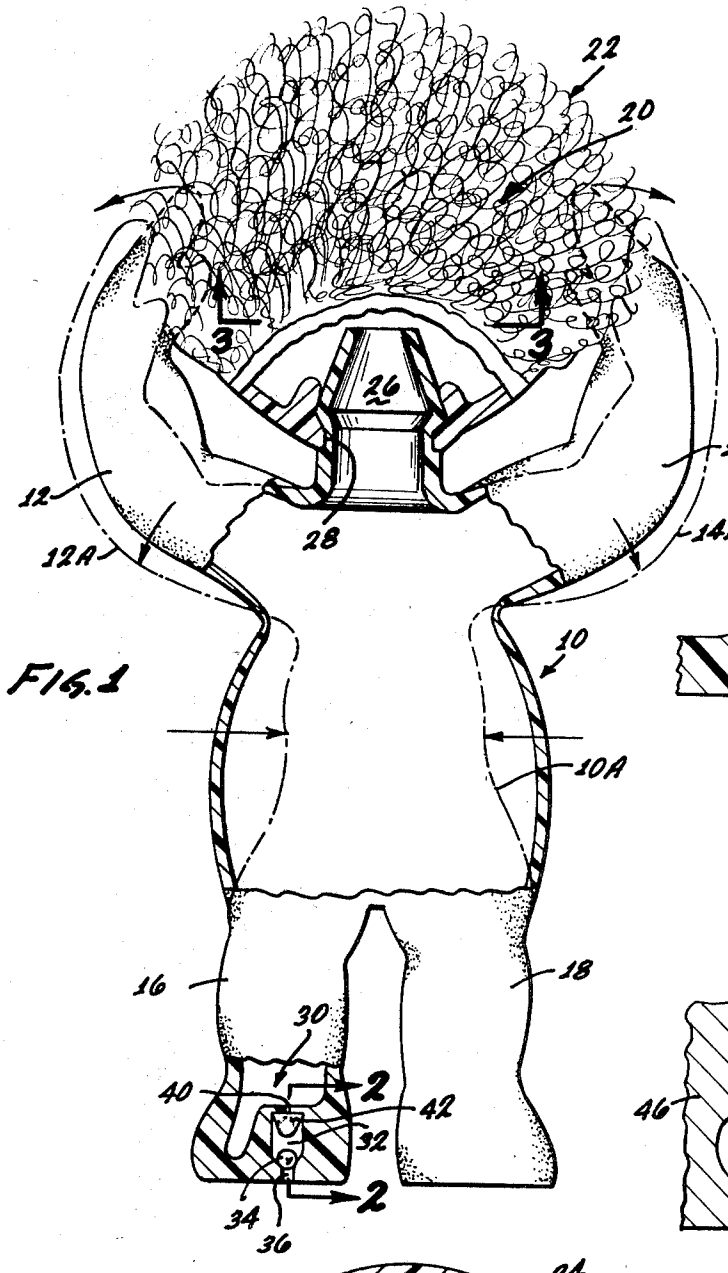


FIG. 1

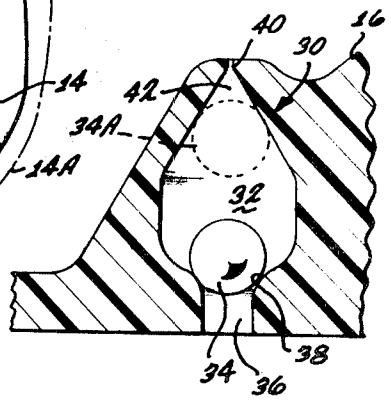


FIG. 2

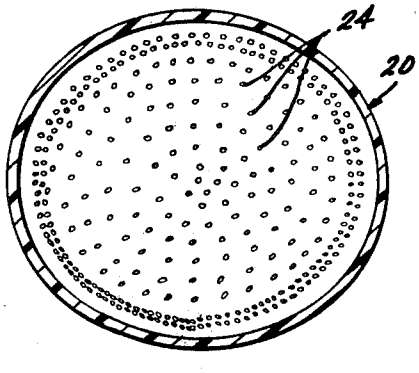


FIG. 3

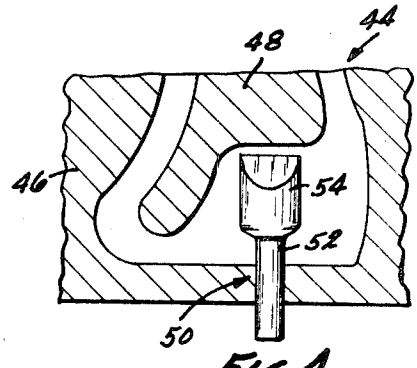


FIG. 4

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SHAMPOO DOLL

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to dolls.

2. Description of the Prior Art

The entertainment value of dolls can be enhanced by constructing them to perform functions that simulate functions performed by the animals or persons they represent. However, the dolls must be constructed in as simple a manner as possible, since they generally must be sold at a low price and are subject to abuses which can cause complicated mechanisms to malfunction.

OBJECTS AND SUMMARY OF THE INVENTION

An object of the present invention is to provide a simple doll which simulates shampooing actions.

Another object is to provide a method for producing a check valve of a type suitable for a doll.

In accordance with the present invention, a simple doll is provided which is animated to simulate shampooing of the hair. In one embodiment of the invention, the doll has a hollow elastic body with arms that are raised toward the head, so that as the sides of the body are squeezed together and released the arms move up and down in a manner to simulate shampooing of the hair. The head is also hollow and has numerous threads extending through holes thereon to simulate hair. When the doll body is pressed, air moves through the holes in the head through which the threads extend, and blows onto the threads. If a soap solution is spread on the threads, tiny soap bubbles are formed in the hair to enhance the shampooing animation.

The doll has a simple check valve which allows air to enter therethrough as the doll body expands, and which directs air through the thread-holding holes when the body is squeezed. The check valve may be formed by mounting a valve core in the doll-forming mold prior to inserting plastic into the mold. The valve core has a narrow inner end and a larger outer end which ends in a wedge. After the plastic of the molded doll solidifies, the core pin is removed from the doll, the elastic walls expanding to allow it to pass out. Finally, a ball is inserted through the small hole left by the inner end of the core, into the larger cavity left by the outer end of the core.

The novel features of the invention are set forth with particularity in the appended claims. The invention will be best understood from the following description when read in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a rear view, partially in section, of a shampoo doll constructed in accordance with the invention;

FIG. 2 is an enlarged sectional view taken on line 2–2 of FIG. 1;

FIG. 3 is a sectional view taken on the line 3–3 of FIG. 1; and

FIG. 4 is a sectional view of a mold for forming the doll of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 illustrates a shampoo doll with a body 10 that has a pair of upwardly extending arms 12, 14 and a pair of legs 16, 18. A head 20 is mounted on the body, the head having numerous thread 22 (each of which may include many fibers) representing hair. The body 10 has thin elastic walls which form a hollow interior, so that the body can be squeezed. If the sides of the body are squeezed to the position shown at 10A, the arms move down to the position shown at 12A and 14A. Since the arms extend substantially to the head, their slight up and down movement simulates the hair-washing movements of a person who is shampooing his hair. The head 20 is also hollow, and contains numerous holes through which air can be pumped out against the threads of the hair. If a soapy solution is spread on the hair and the doll body is repeatedly squeezed and released, air is pumped into the head and through the holes therein against the soapy solution on the hair threads. This creates many fine shampoo bubbles in the hair to enhance the shampooing animation. Thus, by merely spreading a soapy solution on the hair and repeatedly squeezing the body, the doll is made to perform shampooing motions while shampoo bubbles form in the hair.

The threads 22 are anchored in the head by inserting them with a needle through the head and anchoring them in place within the head. Each insertion of the needle leaves a hole 24 which is of larger diameter than the thread, if the thread were constricted to a minimum diameter. Accordingly, some air can flow through and around the thread to blow against a soapy solution thereon and create bubbles. The holes 24 are formed at a substantially uniform density so that no area of the head has a high concentration of holes. It has been found that if a high concentration of holes is provided, such as would occur along a hair parting line, most of the bubbles are formed along the area of high hole concentration and very little over the rest of the hair area. Accordingly, a majority of the hair area should have threads at a substantially uniform density, and the rest of the area should have threads at a density substantially no greater than the density at the majority area. In the embodiment shown in the figures, the density is substantially uniform over the entire hair area.

The body 10 has a hollow neck portion 26 which projects through a hole 28 in the head. The neck portion has a recess which receives the walls of hole 28 to anchor the head in place. When the head and neck are assembled, their hollow inner portions communicate with each other, to permit air to flow from the body into the head.

In order for air-pumping action to occur, a check valve is required to allow air to enter the body as the body expands and to block the flow of air, except into the head, when the body is squeezed. A check valve 30 is provided in one leg 16 of the doll to control the flow of air. The check valve comprises walls forming a recess 32 and a ball-valve-closing member 34 within the recess. As also shown in FIG. 2, air can enter the recess 32 through a passageway 36 that connects the recess to the outside. The passageway 36 is of smaller diameter than the ball 34, to prevent the ball from falling out. The inner end of the passageway at 38 forms a valve seat that can be covered by the ball 34 to close off the passageway and prevent the outflow of air when the doll body is being squeezed. The inner end of the recess 32 has a hole 40 that connects the recess to the interior, or hollow inside, of the doll to allow air to flow into the doll body.

In order to prevent the ball 34 from blocking the inflow of air into the doll body, the inner end portion of the recess 32 is formed into a wedge shape. When the ball is drawn inwardly to position 34A as the doll body expands, air can flow around the ball through the region 42 between the ball and hole 40, and along the opposite edges of the wedge-shaped portion. Thus, the ball allows the inflow of air through the leg while preventing the outflow of air through the leg.

The valve structure can be produced in a very simple manner during the molding of the doll body. As shown in FIG. 4, the doll body can be formed in a mold 44 which includes an outer member 46 and an inner member 48. The cavity between the inner and outer members defines the walls of the doll body. A valve core 50 is provided for forming the valve passageway and recess in the walls of the doll body. The valve core has an inner end 52, of smaller cross section than the ball 34 and an outer portion 54 of larger cross section than the ball. The valve core 50 is held in place within the mold cavity while a plastic material which is elastic after the molding process is completed is injected into the mold and around the valve core. After the plastic has set, the valve core 50 is removed by simply pulling it out. The elasticity of the material allows the walls of the passageway 36 to expand sufficiently to allow for the removal of the core.

After the core is removed, a drill is fed through the passageway and recess to drill the hole **40** that connects the recess to the interior of the doll body. Finally, the ball-valve-closing member **34** is inserted through the passageway **36** into the recess **32**. Again, the walls of passageway **36** can expand sufficiently to allow for the passage of the larger ball **34** therethrough. This construction method allows the valve body to be formed integrally with the doll body, thereby enabling lower cost production.

In the course of rooting the threads **22** into the head, it has been found that, of the various sizes of needles which can be used, those of the smaller range of diameters are preferable. Such needles leave a relatively small hole, but even this size hole is sufficient to allow for the outflow of air to form bubbles. When larger sizes of needles have been used, it was found that substantial amounts of air flowed back through the holes as the doll body expanded, so that foam tended to flow back into the head through the holes. If a larger check valve is used, so there is less resistance to the inflow of air into the doll body, through the valve, bubbles will not flow through even large thread-rooting holes in the head. However, small hair-rooting needles should be used for small valves.

Although particular embodiments of the invention have been described and illustrated herein, it is recognized that modifications and variations may readily occur to those skilled in the art and, consequently, it is intended that the claims be interpreted to cover such modifications and equivalents.

What we claim is:

1. A doll comprising:

a head having hair for receiving a liquid which can form bubbles; and

a body coupled to said head, said body having means for blowing air through said head at a region which has hair thereon, to form bubbles thereon.

2. The doll described in claim **2** wherein:

said hair comprises a plurality of threads; and

said head is hollow and has numerous holes for holding said threads, said holes being larger than said threads to allow air to flow through the holes around the threads; and

said means for blowing air comprises means for supplying pressurized air to the inside of the head.

3. The doll described in claim **2** wherein:

a majority area of said region which contains hair has hair threads at a substantially uniform density thereon and the rest of said region has threads at a density substantially no greater than the density at said majority area, whereby to prevent a concentration of bubbles at one area to the exclusion of other areas.

4. The doll described in claim **1** wherein:

said body includes a pair of arms in at least a partially raised position; and

said means for blowing air through said head comprises a hollow elastic body region located below said arms for receiving squeezing forces, whereby to raise and lower the doll arms in simulation of hair washing while forming said bubbles.

5. A doll comprising:

a hollow body with elastic walls; and

a hollow head attached to said body and communicating with it to receive air from it, said head having hair for receiving a material which can form bubbles when air is blown into it and a plurality of holes for carrying air from the inside of the head to the hair.

6. The doll described in claim **8** including:

a pair of arms attached to said body and extending in a generally upward direction toward the head, whereby the arms move in a manner to simulate hair scrubbing as the doll body is squeezed and released.