May 20, 1969 S. TEPPER ET AL 3,444,645

TEARING AND POUTING DOLL

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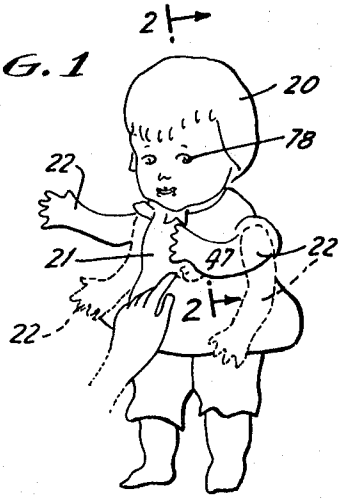
FIG. 1



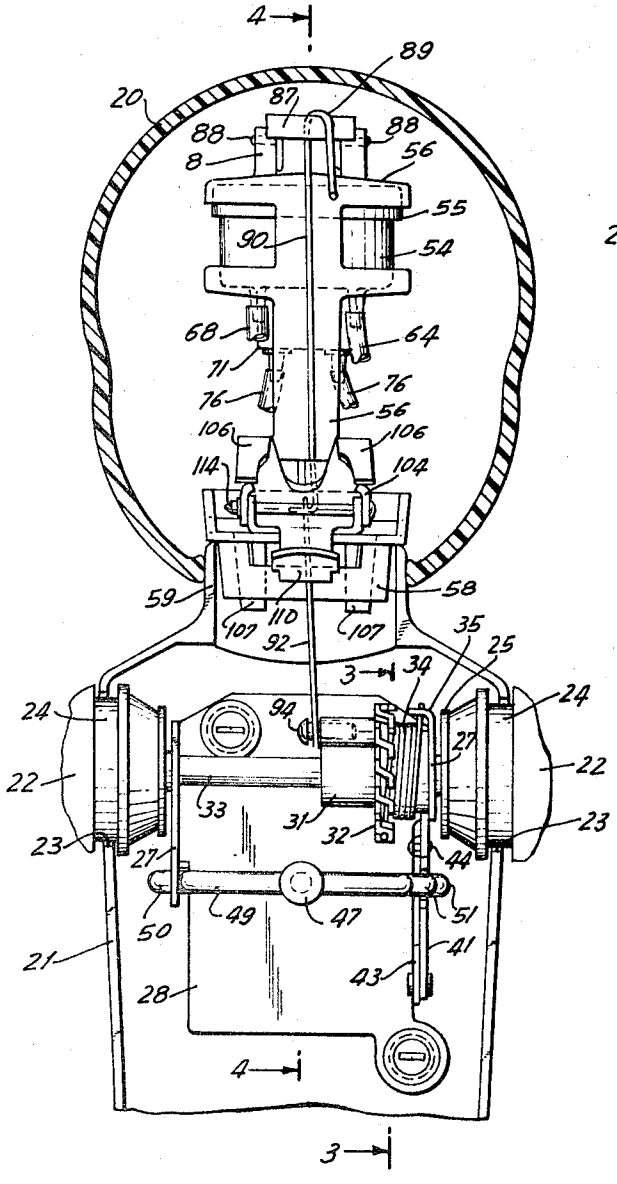
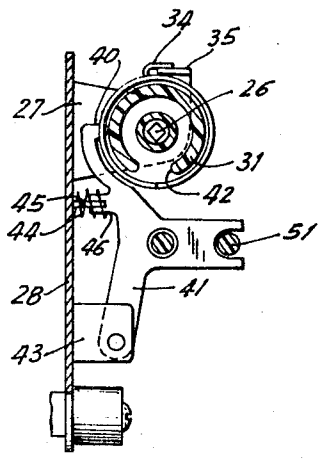


FIG. 2

FIG. 3



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TEARING AND POUTING DOLL

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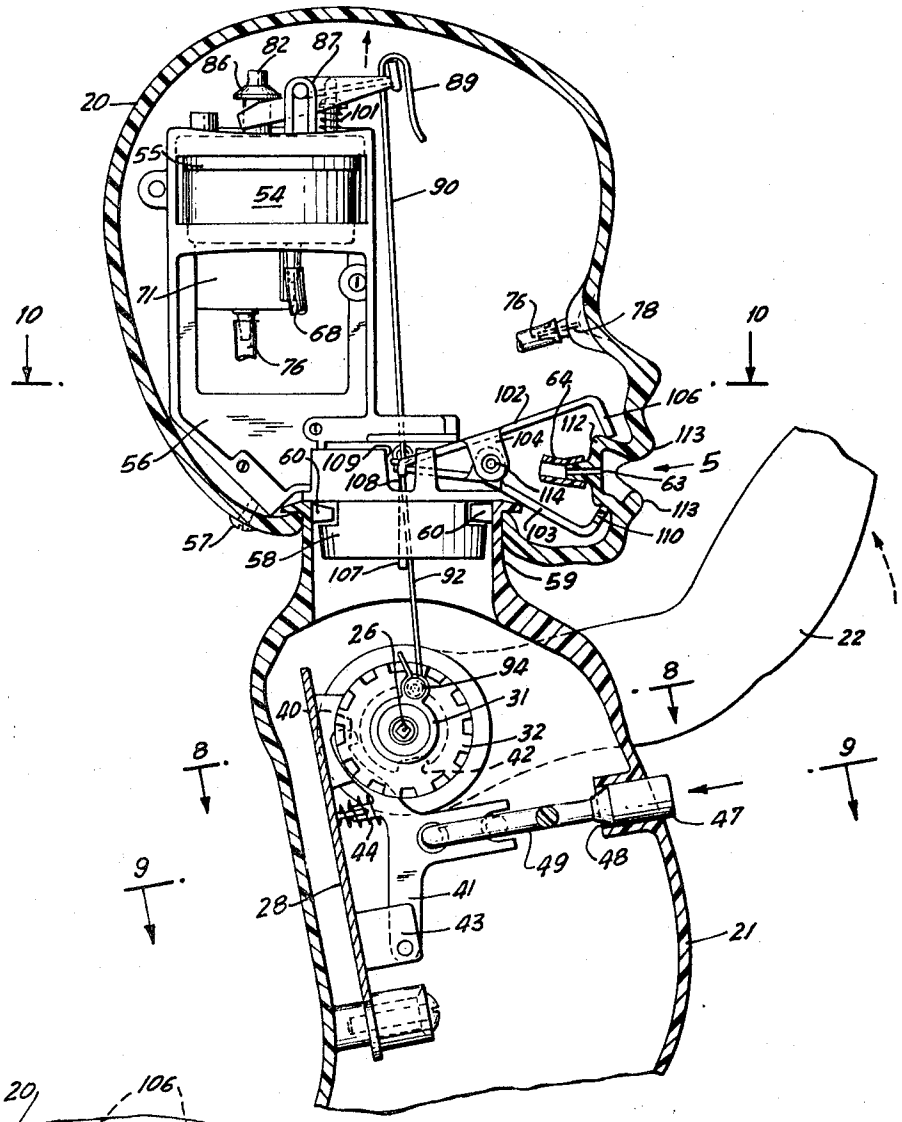
FIG. 4



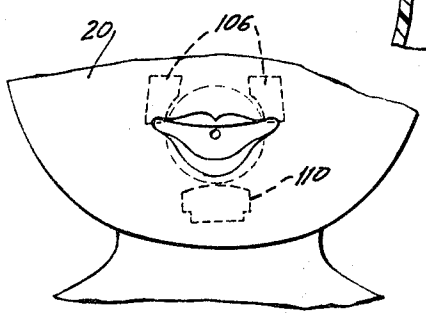


FIG. 5

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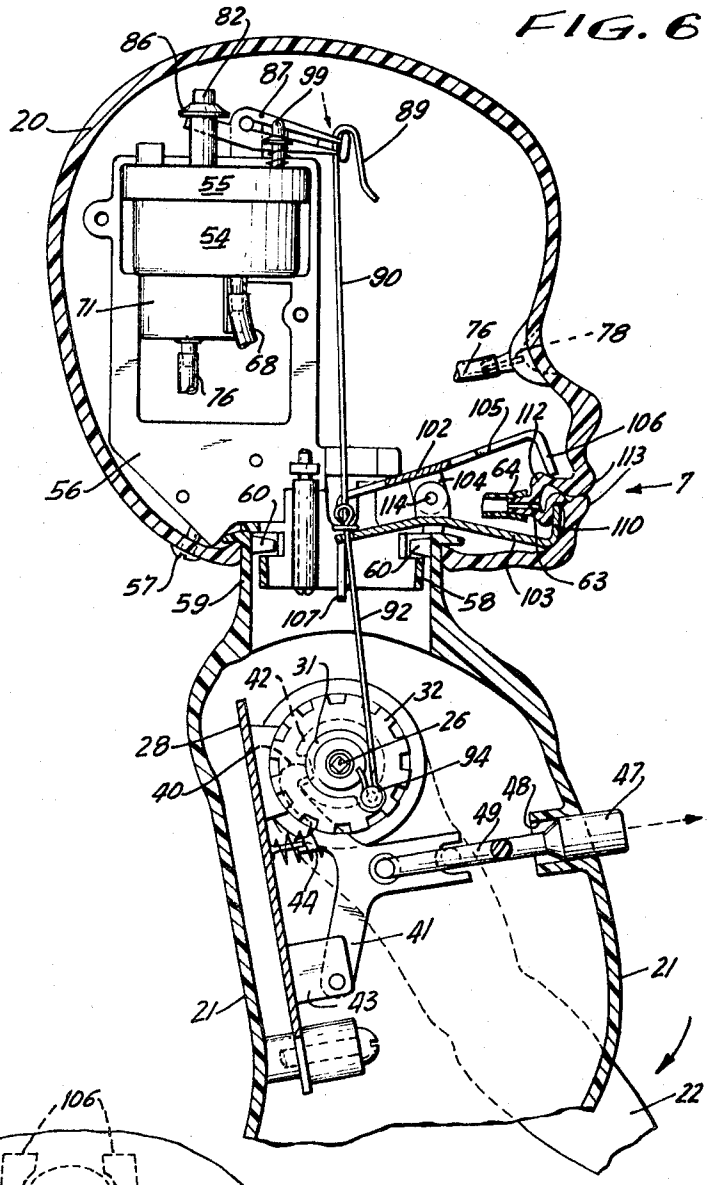
FIG. 6



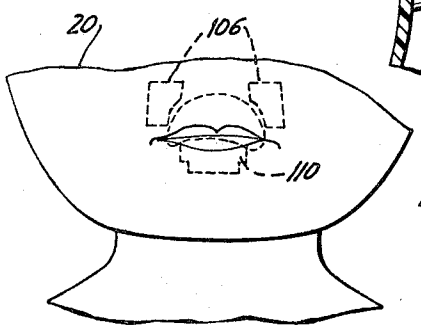


FIG. 7

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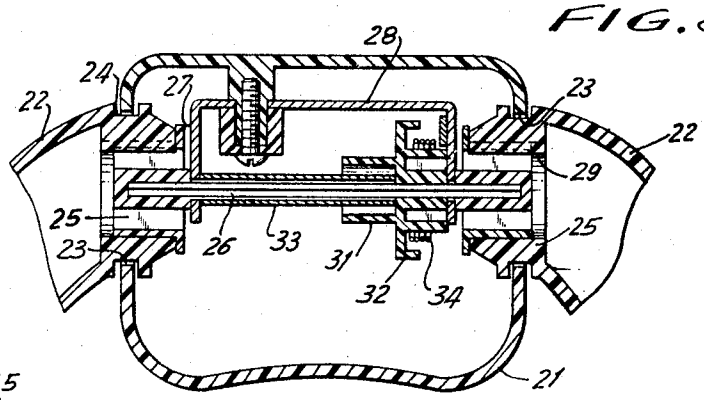
FIG. 8



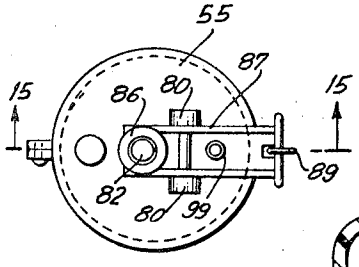


FIG. 14

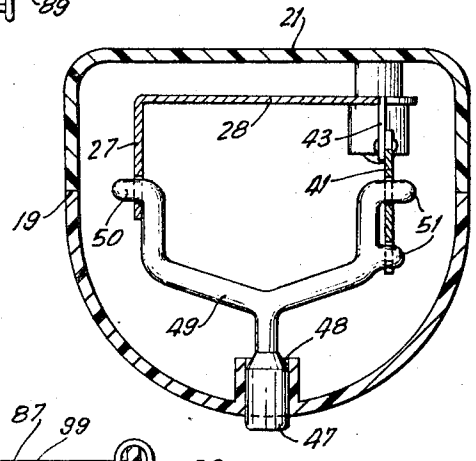


FIG. 9

FIG. 15

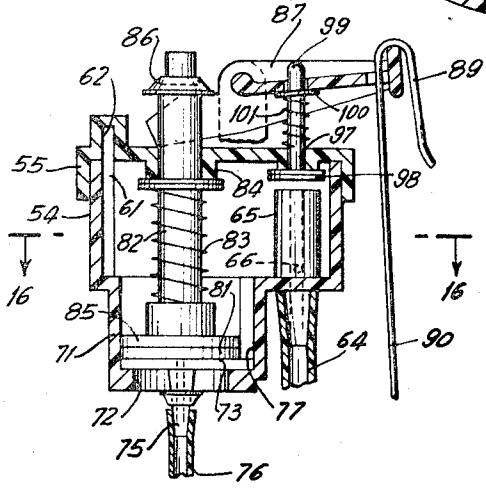


FIG. 16

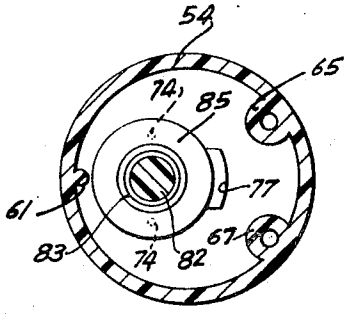


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FIG. 10

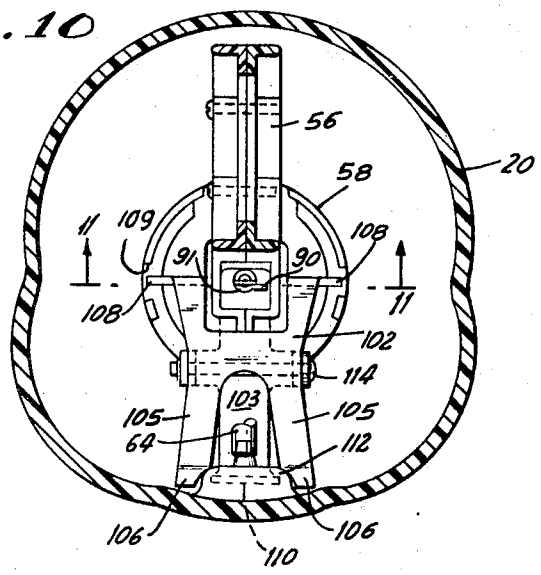


FIG. 12

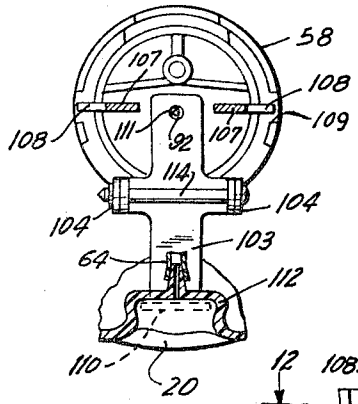
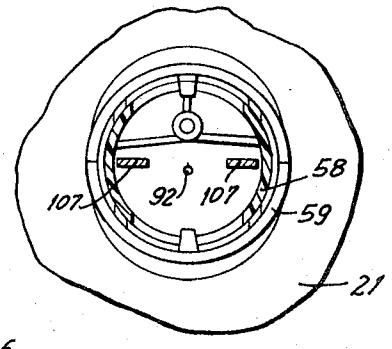


FIG. 13



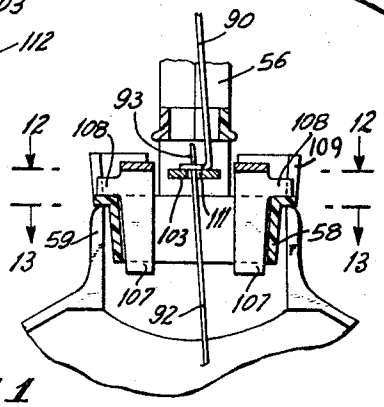


FIG. 11

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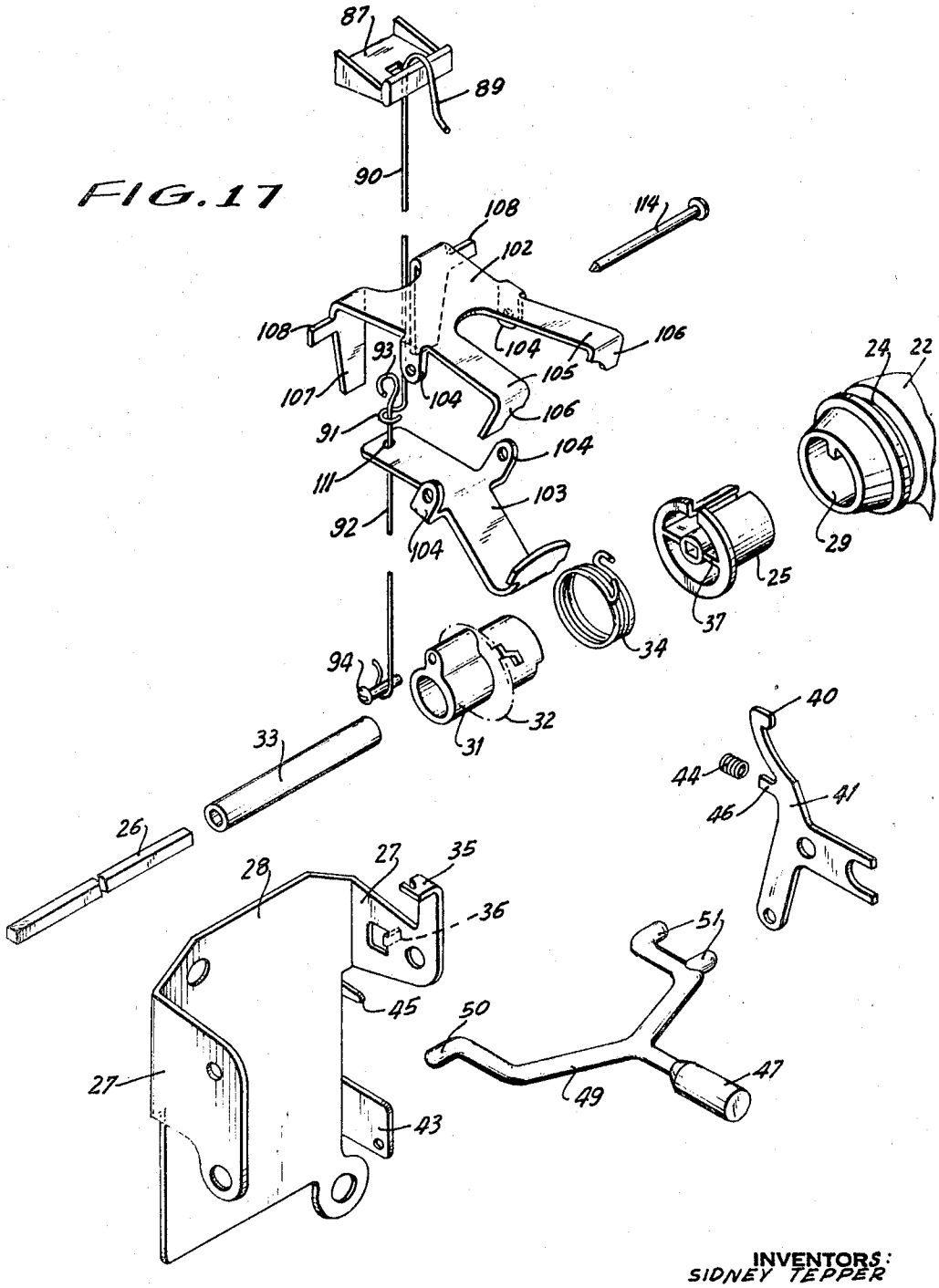
FIG. 17



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Patented May 20, 1969

3,444,645

TEARING AND POUTING DOLL

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Int. Cl. A63h 3/40, 3/24; F16k 45/04
U.S. Cl. 46—135 14 Claims

ABSTRACT OF THE DISCLOSURE

A reservoir in the doll's head communicates through a valve with openings near the doll's eyes. Relatively movable jaws are hidden within the doll's head adjacent to the mouth lips. A linkage interconnects the valve, jaws, and a movable arm or other appendage of the doll. When the arm is moved, the valve is opened allowing simulated tears to flow, and the jaws move together compressing the lips, giving the doll's face a sullen look. An air inlet hole in the reservoir is opened and closed simultaneously with opening and closing, respectively, of the valve.

This invention relates to dolls, and more particularly to a doll capable of shedding simulated tears and of changing its facial expression.

"Crying" dolls are, in general, well known. In the majority of such dolls, the doll body must be squeezed to build up air pressure within the doll sufficient to force a liquid, such as water, out of a reservoir in the doll and through tear openings located in the region of the doll's eyes. In other dolls of this type, the doll must be tilted to cause water stored in a reservoir to flow through the tear openings. As a result of these awkward manipulations required to initiate tearing, the intended life-like appearance of the doll is impaired.

Dolls capable of changing facial expression are also known. Examples of such dolls include one which can be made to squint its eyes, and another which can stick out its tongue. Again, however, these dolls require unrealistic manipulations to accomplish the result, such as squeezing the doll or pulling of strings within the doll.

It is an object of the present invention to provide a tearing mechanism for a doll capable of being turned on and off by manipulation of a limb, or appendage, of the doll.

It is another object of the invention to provide a mechanism for changing a doll's facial expression between a smile and a pout in response to manipulation of a limb of the doll.

It is another object of the invention to provide a doll wherein a tearing mechanism and a facial-expression-changing mechanism can be operated simultaneously by manipulation of a limb of the doll.

In the preferred embodiment of the invention, a doll is provided having arms movable between a lowered position and a raised position. Moving the arms to the lowered position, in which they become latched, causes the doll to tear and to take on a sullen expression. When a button projecting from the doll's body is depressed, which act may be thought of as "tickling" the doll, the latch is released and a spring moves the arms to their raised position. As a result, the doll stops crying, and a smile appears on its face.

A tear-simulating liquid, such as water, is stored in a reservoir in the doll's head, and a valve within the reservoir, responsive to movement of the arms, controls liquid flow from the reservoir to holes in the region of the doll's eyes. A pair of relatively movable jaws within the doll's head grasp a portion of the doll's mouth projecting inwardly from the lips, the lips and mouth, and preferably

the entire head of the doll, being formed of a resilient material. In response to movement of the arms, the jaws move toward and away from each other, thereby either allowing a normal smile, or pressing the lips together to produce a pout.

A feature of the invention is the provision of an air inlet hole in the reservoir, to permit entry of air as liquid flows out of the reservoir, and a plug which normally closes the hole, to prevent escape of liquid through the hole, but which moves away from the hole whenever the valve within the reservoir is opened.

Additional objects and advantages of the invention will be apparent from the following description in which reference is made to the accompanying drawings.

In the drawings:

FIG. 1 is a perspective view of a doll incorporating the present invention;

FIG. 2 is a fragmentary cross-sectional view taken on line 2—2 of FIG. 1;

FIG. 3 is a fragmentary cross-sectional view taken on line 3—3 of FIG. 2;

FIG. 4 is a cross-sectional view taken on line 4—4 of FIG. 2, the doll being in the "eyes dry" and smiling condition;

FIG. 5 is a fragmentary elevational view looking in the direction of the arrow 5 in FIG. 4;

FIG. 6 is a view similar to FIG. 4, the doll being in the "eyes tearing" and pouting condition;

FIG. 7 is a fragmentary elevational view looking in the direction of the arrow 7 in FIG. 6;

FIG. 8 is a cross-sectional view taken on line 8—8 of FIG. 4;

FIG. 9 is a cross-sectional view taken on line 9—9 of FIG. 4;

FIG. 10 is a cross-sectional view taken on line 10—10 of FIG. 4;

FIG. 11 is a cross-sectional view taken on line 11—11 of FIG. 10;

FIG. 12 is a cross-sectional view taken on line 12—12 of FIG. 11;

FIG. 13 is a cross-sectional view taken on line 13—13 of FIG. 11;

FIG. 14 is a top plan view of the liquid reservoir;

FIG. 15 is a cross-sectional view taken on line 15—15 of FIG. 14;

FIG. 16 is a cross-sectional view taken on line 16—16 of FIG. 15; and

FIG. 17 is an exploded perspective view of the mechanism for actuating the tearing and pouting means.

The doll chosen to illustrate the present invention includes a hollow head 20, formed of a resilient material, such as a suitable plastic, mounted on a body 21 which may be rigid. The body is formed of front and back portions joined along a line of separation 19 (FIG. 9). In the present example, the limb or appendage of the doll used to control tearing and facial expression is the arm 22. However, it is contemplated that some other limb could be employed for this purpose, and should the doll be in the form of an animal, the tail might be used. In FIG. 1, the arms 22 are shown in their raised position in solid lines, and the mechanism illustrated is so arranged that with the arms in raised condition the eyes are dry and the mouth is in the shape of a smile. The arms 22 are shown in their lowered position in broken lines, and in this condition the eyes will tear and the mouth will take on the appearance of a pout.

The doll body 21 is provided in its shoulder region with a pair of arm holes 23 (FIGS. 2 and 8) which loosely accommodate a reduced diameter region 24 near the upper end of each arm. Within an opening 29 (see also FIG. 17) formed in the upper end of each arm 22 is an insert 25 which joins the arm to a square shaft 26 in such

a way that the arm rotates with the shaft. The shaft 26 is rotatably mounted in the arms 27 of a U-shaped bracket 28, the bracket being secured to the inner face of the rear wall of the doll body 21.

A drum 31 is mounted on, and rotates with, the shaft 26, and a disk 32, having a series of hooks formed around its periphery, projects radially from the drum. A spacer sleeve 33 surrounding the shaft 26 maintains the drum against right arm 27 (as viewed in FIG. 8) of the bracket 28. A coil spring 34 surrounds the drum 31, on one side of the disk 32, one end of the spring engaging a finger 35 projecting from the bracket 28, and the other end of the spring engaging one of the hooks on the disk 32. The spring, via the disk 32 and drum 31, constantly tends to urge the shaft 26 and hence the arms 22 to rotate in a counterclockwise direction as viewed in FIGS. 4 and 6, i.e., in the direction of movement of the arms 22 from their lowered to their raised position.

The raised position of the arms is defined by the abutment of a projection 36 (FIG. 17), carried by the right arm 27 of bracket 28, against a wall 37 formed in the insert 25. The arms 22 may be lowered manually, against the force of spring 34, until a finger 40 (see FIGS. 3 and 17) of a latch member 41 snaps into a slot 42 in the drum 31. The latch member 41 is pivotally mounted on an extension 43 of the bracket 28, and the finger is constanty urged against the drum, as shown in FIGS. 3 and 4, by a compression spring 44 surrounding the overlapping studs 45 and 46 formed on the bracket 28 and latch member 41, respectively. As the arms 22 are lowered, the finger 40 rides on the drum until the slot 42 comes into alignment with the finger, whereupon it pops into the slot, as shown in FIG. 6. In this latched condition, the spring 34 is prevented from returning the arms to their raised position.

When it is desired to return the arms 22 to their raised condition, a button 47 (FIGS. 2, 4, 6, 9 and 17) passing through a hole 48 in the doll body is depressed, as indicated in FIG. 1. This action may be thought of as pretending to tickle the doll's belly. The button 47 forms part of a yoke-shaped member 49. The end of one yoke arm is formed with a single laterally projecting pin 50, which is loosely accommodated in a hole in the left arm 27 of bracket 28. The other yoke arm carries a pair of laterally projecting pins 51 which engage a hole and notch in the latching member 41. The inward force on the button 47 is transmitted by the yoke-shaped member 49 to the latch member 41. The latter is thereby pivoted counterclockwise in FIG. 3, thereby moving finger 40 out of slot 42 and permitting spring 34 to rotate the shaft 26 and arms 22.

The tearing and facial expression mechanisms are located within the hollow doll head 20, and are actuated by movement of one or both arms 22 of the doll via a connection to be described below. The tearing mechanism is illustrated best in FIGS. 2, 4, 6, and 14–16, and includes a reservoir body 54 closed on top by a cover 55, the body and cover defining an enclosed chamber adapted to hold a tear-simulating liquid, such as water. A positioning pin 61 (FIGS. 15 and 16) projecting above the upper edge of the body 54 is accommodated within a hole 62 in the inner face of the cover 55 to insure proper orientation of the cover with respect to the reservoir body. The reservoir is mounted in a bracket 56, the bracket being secured to the head 20 by a screw 57. The bracket 56 is formed of two symmetrical pieces joined along a vertical center line; the bracket is shown complete in FIGS. 2 and 4, but one of the pieces is removed in FIG. 6 to show the reservoir entirely in full lines. A cylindrical member 58 at the bottom of bracket 56 extends through a hole in the bottom of the head 20 and into the hollow neck 59 of the body 21. The member 58 is provided with front and rear slots extending partially around the periphery of the member, and pins 60 project from the inner surface of the neck 59 into the slots. The pins thereby

help to support the bracket 56, but nevertheless the pin and slot arrangement permits rotation of the head 20 with respect to the body 21 through a limited arc.

The reservoir 54 is filled with liquid by placing the nipple of a liquid-filled toy nursing bottle (not shown) into the opening 63 in the doll mouth. The liquid flows through a tube 64, and through a hollow post 65 within the reservoir, into the reservoir body 54. A ball 66 (FIG. 15) within the post serves as a check valve and prevents back flow from the reservoir to the doll's mouth. A second hollow post 67 (FIG. 16) within the reservoir serves as an overflow outlet when the reservoir becomes close to filled, and liquid leaving through the post 67 flows through a tube 68 to an opening (not shown) at the bottom of the body 21, whereby the doll "wets."

The reservoir body is formed with a depending, generally cylindrical, extension 71 open at the bottom. Surrounding the opening is an inwardly projecting flange 72, upon which a valve seat 73 is supported. The valve seat is a disk having a flat upper face, two holes 74, and two hollow attachment pins 75 extending downwardly from the disk and in alignment with the holes 74. The inner face of one wall of the extension 71 is formed with a vertical channel 77. A tube 76 extends from each pin 75 to a hole 78 in one of the doll's eyes.

For the purpose of preventing liquid flow from the reservoir, through the tubes 76 to the eye holes 78, a valve member is adapted to cooperate with the valve seat 73. The valve member comprises a disk 81, of soft rubber or plastic, carried by the lower end of a stem 82. The disk 81 is normally forced against the upper face of the valve seat 73, to close the holes 74, by a compression spring 83 surrounding the stem 82, and having one end seated against a boss 84, concentric with a hole in the cover 55, and the other end seated against a rigid back-up member 85 for the valve disk 81. When the valve disk is lifted off the seat 73, against the force of spring 83, liquid within the reservoir flows through the channel 77, the holes 74, the tubes 76, and out the eye holes 78, whereby the doll "cries" or "tears."

To permit the valve disk 81 to be lifted, the stem 82 extends upwardly through the boss 84 beyond the cover 55, and is provided with an enlargement 86 near its upper end. The yoke-shaped end of a lever 87 (FIGS. 14 and 15) straddles the stem 82 and engages the underface of the enlargement 86. The lever 87 is pivoted on an axis perpendicular to the axis of the stem 82 by means of pintles 88 (FIG. 2) projecting laterally from the lever. The pintles are pivotally supported in holes within two posts 80 standing upon the upper face of the cover 55.

The opposite end of the lever has a hole through which the upper hooked end 89 of a wire link 90 passes to articulate the link to the lever 87. The lower end of the link 90 is formed with a laterally projecting loop 91 (FIG. 17) accommodating a second wire link 92. The enlarged upper end 93 of link 92 will not pass through the loop 91, and the hook-shaped lower end of link 92 engages a stud 94 (see also FIG. 2) carried by a radially projecting formation on the drum 31. Since the stud 94 is eccentric with respect to the axis of rotation of the drum, i.e. the axis of the shaft 26, the stud experiences a downward component of movement when the arms 22 are rotated from their raised position (FIG. 4) to their lowered position (FIG. 6). This downward movement is transmitted by the links 92 and 90 to the lever 87. Consequently, the yoke-shaped end of the lever rises, thereby raising the stem 82, and lifting the valve disk 81 off the valve seat 73.

Thus, as a result swinging the arms 22 downwardly, the doll is made to "cry." Pushing the button 47 permits the spring 34 to return the arms 22 to their raised condition, and permits the spring 83 to once again press the valve disk 81 against the valve seat 73, whereupon the doll stops crying.

The cover 55 of the reservoir is provided with an air inlet hole 97 (FIG. 15) through which air enters the reservoir as liquid flows out through the holes 73. Normally, the air hole 97 is closed by a plug 98 to prevent liquid from flowing through the air hole should the doll be turned upside-down. A stem 99 projects upwardly from the plug 98, through the air inlet hole, and beyond the top of the cover 55. A collar 100 is fixed to the stem 99, and a compression spring 101, surrounding the stem and seated between the collar 100 and cover 55, holds the plug in hole-closing position. The upper end of the stem 99 fits into a hole in the lever 87, between the pintles 88 and hook 89, and the underface of the lever engages the collar 100. Thus, when the lever 87 is pivoted to cause the stem 82 and valve disk 81 to rise, the stem 99 and plug 98 will be pushed down by the lever, against the force of spring 101, to open the air inlet hole 97.

The facial expression mechanism, best shown in FIGS. 2, 4–7, 10–13, and 17, includes upper and lower jaw members 102 and 103, respectively, formed of a rigid material, such as steel. Tabs 104 project from both sides of each jaw member toward the other. The tabs overlap, and a pivot pin 114 passes through aligned holes in the tabs to pivotally connect the two jaw members. The upper jaw member 102 presents two arms 105 extending forwardly from the pivot pin 114, each arm terminating in a downwardly projecting tooth 106. To the rear of the pivot pin 114, the upper jaw member has two downwardly directed feet 107 and two outwardly projecting fingers 108. The feet 107 fit within the cylindrical member 58 of the bracket 56 (FIGS. 10–13) and the fingers 108 fit into slots 109 in the member 58. In this way, the jaw members are supported by the bracket 56.

The lower jaw member 103 presents a single forwardly-projecting arm terminating in a tooth 110 located between the teeth 106 of the upper jaw member. The rear portion of the lower jaw member is provided with a hole 111 which slidably accommodates the link 92, but will not pass the upper end 93 of the link.

The teeth 106 and tooth 110 grasp between them a pouch 112 (FIGS. 4, 6, and 12) integral with and extending inwardly from the lips 113 of the doll head 20. The pouch and lips are, of course, resilient so that they can be distorted by applying pressure to them, but will return to their normal condition upon removal of the pressure. The normal condition of the lips 113 is a smile, as indicated in FIG. 5, and in this condition the teeth 106 and 110 are spaced apart vertically (FIG. 4) so that no pressure is applied to the pouch 112. Furthermore, the opposite ends of the jaw members 102 and 103 are in close proximity.

Upon movement of the arms 22 from the raised position of FIG. 4 to the lowered position of FIG. 6, downward movement of the stud 94 pulls the link 92 downwardly, thus pulling the rear end of the lower jaw member 103 downwardly. The upper jaw member remains substantially stationary with respect to the doll head. Consequently the tooth 110 moves upwardly toward the teeth 106 thus compressing the pouch 112 between them (FIGS. 6 and 7). Since the pouch and lips 113 are integral, the lower lip is drawn upwardly and outwardly, and pushes against the upper lip. The ends of the upper lip are prevented from moving upwardly by the teeth 106. Hence, the corners of the mouth take on a downturned appearance as shown in FIG. 7. The combination of the upwardly pressed lower lip and the downturned mouth corners gives the face of the doll a realistic appearance of a pout. Upon pressing the button 47, the arms 22 spring back to their raised condition, and the lower jaw member 103 pivots back to the position shown in FIG. 4, whereupon the doll resumes smiling.

In view of the above description, it will be appreciated that when the arms 22 are swung downwardly and latched, the doll simultaneously tears and pouts. When the button 47 is pressed, the arms swing upwardly, the doll stops crying, and smiles.

The invention has been shown and described in preferred form only, and by way of example, and many variations may be made in the invention which will still be comprised within its spirit. It is understood, therefore, that the invention is not limited to any specific form or embodiment except insofar as such limitations are included in the appended claims.

What is claimed is:

1. In a doll, a head having simulated eyes, holes in the head in the region of said eyes, a reservoir adapted to be filled with a tear-simulating liquid, conduits extending from said reservoir to said holes, the interiors of said conduits communicating with both said reservoir and said holes, a movable appendage forming part of the doll, and means responsive to movement of said appendage for selectively permitting or preventing the flow of liquid from said reservoir to said holes.

2. In a doll, the arrangement defined in claim 1 wherein said appendage is movable between two extreme positions, liquid flow being prevented when said appendage is in one of said positions and permitted in the other, latch means for maintaining said appendage in one of said positions, spring means urging said appendage toward the other of said positions, and latch release means exposed on the exterior of the doll.

3. In a doll, the arrangement defined in claim 1 wherein said responsive means includes a valve means for controlling the liquid flow between said reservoir and said holes.

4. In a doll, the arrangement defined in claim 3 wherein said valve means is located within said reservoir.

5. In a doll, the arrangement defined in claim 4 wherein said reservoir is an enclosed chamber, and said valve means includes a valve seat at the lower end of said chamber, at least one port in said valve seat communicating with one of said conduits, and a valve member movable into and out of engagement with said valve seat to control the flow of liquid from the chamber through said port and into said conduit.

6. In a doll, the arrangement defined in claim 5 including an air inlet hole in said chamber, a plug normally closing said hole to prevent flow of the liquid through said hole while the doll is manipulated, and means for moving said plug away from said hole whenever said valve is lifted off said seat.

7. In a doll, the arrangement defined in claim 5 including a spring urging said valve member against said seat, and wherein said responsive means also includes a lever pivotally mounted on said chamber, one arm of said lever being arranged to lift said valve member away from said seat against the force of said spring upon swinging movement of said lever.

8. In a doll, the arrangement defined in claim 7 wherein said responsive means also includes linkage means connected between said appendage and the other arm of said lever.

9. In a doll, the arrangement defined in claim 8 wherein the doll includes a rotatable shaft, said appendage being mounted for rotation on said shaft, and said linkage means being connected to said appendage at a point eccentric to the axis of rotation of said shaft.

10. In a doll, the arrangement defined in claim 1 including additional means responsive to the movement of said appendage for changing the facial expression of the doll.

11. In a doll, the arrangement defined in claim 10 wherein the mouth portion of said doll head is formed of resilient material, and wherein said additional means includes relatively movable jaws within said doll head and adjacent to the mouth lips, and means for moving said jaws relative to each other to squeeze said lips together responsive to movement of said appendage.

12. In a doll, the arrangement defined in claim 11 in-

cluding a valve for controlling the flow of liquid from said reservoir to said holes, and wherein said additional means includes linkage means interconnecting said appendage, jaws, and valve in such a way that upon movement of said appendage in one direction said valve is opened to permit liquid flow and said jaws are moved toward each other to compress the mouth lips.

13. In a doll, a closed reservoir adapted to be filled with a liquid, means for conducting liquid from within the reservoir to an outlet hole provided in the doll, a valve seat at the lower end of said reservoir, a port in said valve seat communicating with said liquid-conducting means, a valve member within said reservoir movable into engagement with said valve seat to close said port and movable out of engagement with said valve seat to open said port, an air inlet hole in the upper end of said reservoir, a plug movable between a position in which it closes said inlet hole and a position in which it closes said inlet hole and a position in which it opens said inlet hole, means for normally maintaining said valve member and plug positioned to close said port and inlet hole, whereby no liquid may leave said reservoir regardless of the orientation of the doll, means for moving said valve member to open said port, and means for moving said

plug to open said inlet hole whenever said valve member moves to open said port, whereby said inlet hole is always open when said port is open to allow liquid to flow from said reservoir to said outlet hole.

14. In a doll, the arrangement defined in claim 13 wherein said reservoir is located within the head of the doll, and the outlet hole is in the region of the doll's eyes, whereby liquid flow through the outlet hole simulates tears.

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