

[54] **DOLL TEARING MECHANISM**

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[58] Field of Search **46/135 R, 135 A, 141**

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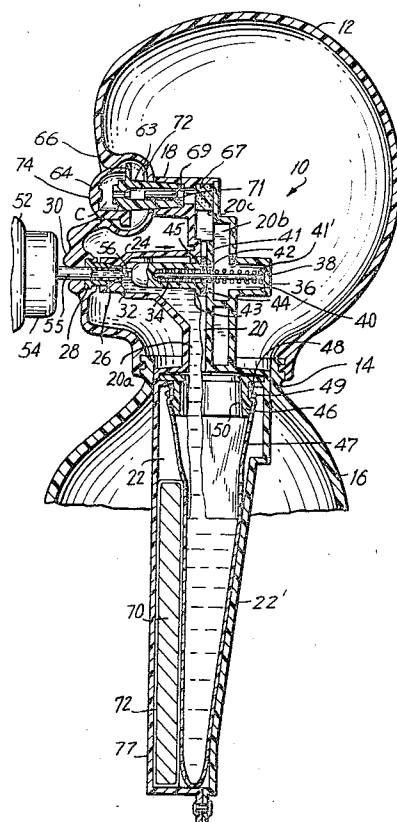
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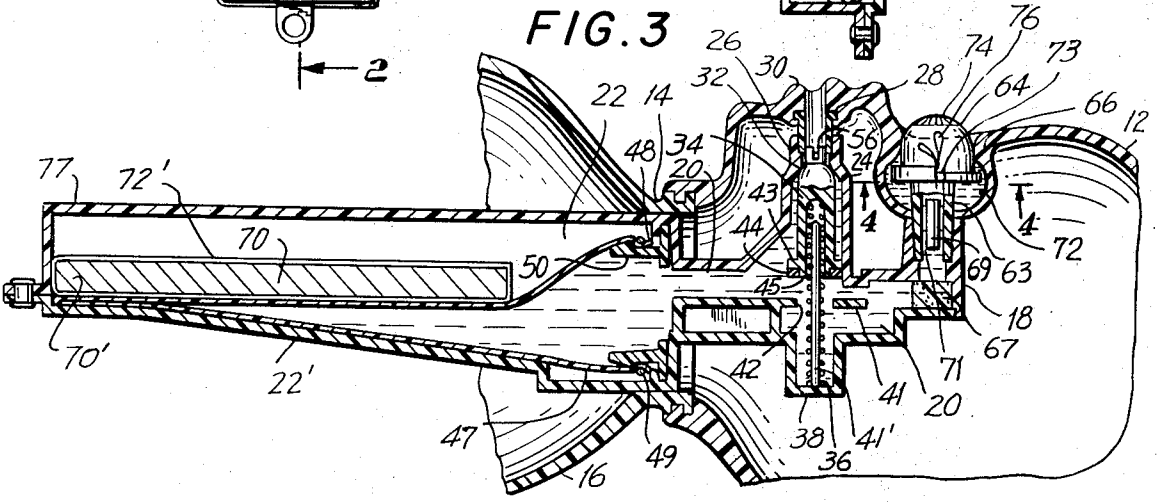
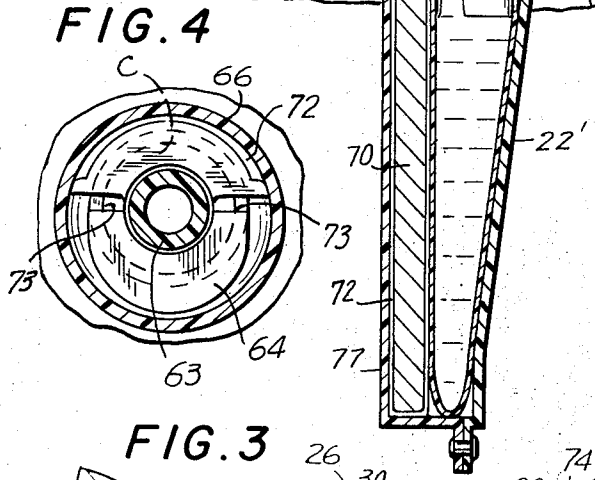
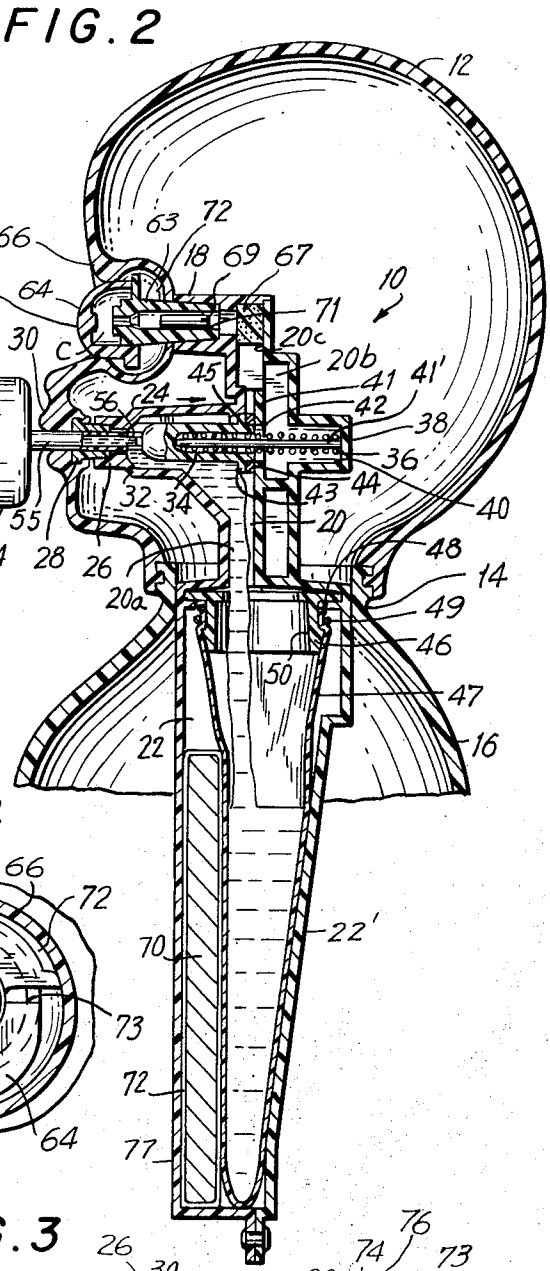
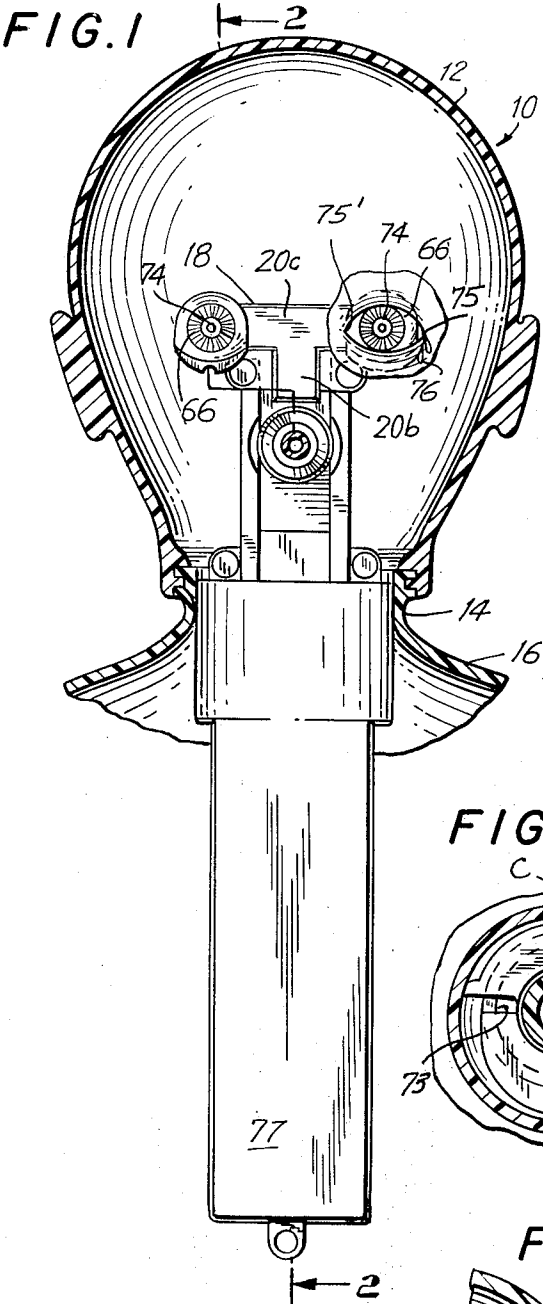
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[57] **ABSTRACT**

A weeping doll, having a head with eye sockets and an open mouth formed therein, is provided with a gravity influenced weeping device for causing the doll to weep when placed in a generally horizontal position. The weeping device includes a liquid inlet tube located adjacent the open mouth and a flexible reservoir tank in liquid communication with the inlet tube. A selectively operable valve is located in the inlet tube for opening the inlet to permit liquid to flow through the mouth to the reservoir. The inlet tube is provided by a rigid housing which defines a liquid flow conduit between the flexible reservoir and the eye sockets of the doll and means is provided for compressing the flexible reservoir when the doll is in a generally horizontal position to force liquid from the reservoir through the conduit to the eye sockets, in order to simulate weeping or tearing.

18 Claims, 4 Drawing Figures





DOLL TEARING MECHANISM

The present invention relates to weeping dolls and in particular to weeping dolls which are adapted to automatically simulate tearing when the doll is placed in a horizontal position and to stop tearing when the doll is moved to a vertical position.

A number of "weeping" dolls have been previously proposed which will automatically simulate "weeping" or "tearing." Such dolls typically include a gravity influenced reservoir, located in the doll's head, which is filled through a miniature nursing bottle with the doll in a prone position. As the reservoir is filled, water flows to the reservoir through suitable tubing and, in some cases, from the reservoir to the lower back portion of the doll to simulate "wetting." This "wetting" continues until the doll is placed in an upright position whereupon additional tubing carries the water to the doll's eyes to simulate tearing. Dolls of this type are unable to simulate weeping or tearing when in a prone position and, when the wetting function is provided, have the disadvantage that wetting continues as long as the doll is in the prone position and water is in the reservoir. Further, with such tearing devices, there is no capability for repeated or consecutive release of small amounts of water without the necessity of repeated refilling of the reservoir.

Other types of weeping dolls utilize manually operated air pumps constructed with a compressible doll body. The pump includes a flexible reservoir to which liquid is supplied from a miniature nursing bottle through tubing extending from the mouth of the doll and additional tubing is provided leading from the reservoir to the eye sockets. Liquid is selectively supplied to the eye sockets to simulate weeping upon compressing the body or head of the doll, adjacent the area of the reservoir, in order to increase the pressure in the reservoir and raise the water to the eye sockets. This type of doll is not particularly satisfactory in use, because the child must often apply excessive pressure to the doll so that the amount of water expelled through the eyes is not controlled. Further, with this type of doll a removable stopper, typically supplied as a simulated "pacifier," is required to be placed in the mouth before the doll can be compressed to simulate tearing in order to permit the air pump to operate and to prevent expulsion of water from the mouth. While such dolls have the capability of simulating tearing in both horizontal and vertical positions, they do not tear or weep automatically, but rather will tear only upon the application of pressure to the doll by the child.

It is preferable to provide a weeping mechanism which will operate automatically depending upon the position in which the doll is placed. In fact, if there is to be a truly accurate simulation, the weeping mechanism for the doll must be constructed to simulate the actual weeping or crying patterns of children. In this regard, typically, after an infant is fed it is put to sleep and placed in a prone position. Often the infant develops pains in his stomach due to gas or colic and will cry while in the prone position, but when lifted and held against the mother's shoulder, to be "burped," the infant ceases crying. Thus, to simulate this occurrence in dolls, it is necessary to provide a weeping mechanism in the doll which will automatically effect weeping when the doll is in a prone position and unattended, but which will stop weeping when the doll is lifted and held

in a vertical position during play or while the child using the doll simulates "burping" or pacifying of the doll.

Accordingly, it is an object of the present invention to provide a weeping device for dolls which will release liquid only when the doll is in a substantially horizontal position while automatically preventing release of liquid from the reservoir when the doll is in an upright position.

Yet another object of the present invention is to automatically simulate tearing in a doll without the use of a manual air pump.

Yet another object of the present invention is to automatically simulate weeping in a doll only when it is placed in a generally horizontal position, by a device which is relatively simple in construction and operation and inexpensive to produce.

In accordance with an embodiment of the present invention, a weeping doll is provided in which a head having eye sockets and an open mouth formed therein is rotatably mounted on a torso. A relatively rigid housing is mounted in the doll and has first and second liquid chambers formed therein. The first liquid chamber is in liquid communication with the eye sockets of the doll and has a liquid inlet tube adjacent the open mouth. A flexible liquid reservoir is located in the second chamber and is mounted therein for liquid communication with the first chamber. Selectively operable valve means is mounted in the liquid inlet tube to permit liquid to flow from the mouth to the first chamber and into the reservoir when the doll is in a generally upright position. A relatively heavy plate is located in the second chamber of the housing, adjacent the reservoir, to compress the reservoir, under the influence of gravity, when the doll is in a generally horizontal position, in order to force liquid in the reservoir through the first chamber to the eye sockets.

The above, and other objects, features and advantages of this invention, will be apparent in the following detailed description of an illustrative embodiment thereof which is to be read in connection with the accompanying drawings wherein:

FIG. 1 is a front sectional view, with parts broken away, of a weeping device mounted within the head and torso of a doll and constructed according to an embodiment of the present invention;

FIG. 2 is a sectional view taken along line 2—2 of FIG. 1 illustrating the configuration of the components of the doll during "feeding," when the doll is in a generally vertical position;

FIG. 3 is a sectional view, similar to FIG. 2, but illustrating the configuration of the components of the weeping device when the doll is in a generally horizontal position; and

FIG. 4 is a sectional view taken along line 4—4 of FIG. 3.

Referring now to the drawings, and initially to FIG. 1 thereof, it will be seen that a weeping device 10, embodying the present invention, is mounted in the head 12 of a toy doll. Head 12 is rotatably mounted in a conventional manner on neck 14 of the doll's torso 16, with a portion of the weeping device 10 extending through neck 14 into torso 16. The weeping device is rigidly mounted in a fixed position in head 12 so that the entire device rotates with the head when the latter is rotated on neck 14.

Weeping device 10 is formed of a relatively rigid material and includes a relatively rigid housing 18 having first and second chambers 20, 22 formed therein, with chamber 20 being located within head 12 and chamber 22 being located within torso 16. Chamber 20 includes a liquid inlet tube 24 having an open end 26 that receives a mouth plug 28 rigidly secured within the mouth 30 formed in head 12. Inlet tube 24 has a valve seat 32 formed therein which is adapted to cooperate with a spring biased, generally cylindrical valve member 34 located within chamber 20. Valve member 34 is biased towards its closed position by a spring 36 which is engaged against the rear wall 38 of housing 18 and is received within a bore 40 formed in valve member 34. A thin plastic rod 41' is received within spring 36 to keep the latter straight during movement of the valve. In the normal configuration of the doll, spring 36 biases valve member 34 against valve seat 32 in order to close the inlet port 26 of the housing.

Housing chamber 20 is divided into two sections 20a and 20b by a splash plate or wall member 41 having a port 42 therein which provided liquid communication between the two chamber sections. Spring 36 extends through port 42 for engagement with valve member 34 and the latter includes an annular flange 43 which cooperates with a washer 44, mounted on an extension 45 of the valve member, for closing port 42 during filling. That is, when weeping device 10 is being filled, as seen in FIG. 1 and as is more fully described hereinafter, liquid is supplied only to chamber section 20a and cannot pass through port 42 because of the engagement of flange 43 with resilient washer 44 against splash plate 41.

Housing chamber 22 includes a generally cylindrical bushing 46 mounted therein and a flexible reservoir tank 47 secured at its opened end 48 to bushing 46 in a watertight relation, as for example by means of an elastic band 49 or the like placed about the end 48 of the reservoir and bushing 46. The latter is formed with an enlarged central port 50 through which the first chamber section 20a is in liquid communication with the interior of reservoir 47. In order to fill reservoir 47, the child utilizing the doll simulates feeding of an infant by the use of a miniature nursing bottle 52 having a nipple 54 on the open end thereof. Nipple 54 has a tip 55 that is adapted to be inserted through mouth 30 and engaged with valve member 34. Application of pressure on nipple 54, by pushing bottle 52, causes valve member 34 to move inwardly, in the direction of the arrows shown in FIG. 2, in order to move it away from valve seat 32.

The tip 56 of valve member 34 is serrated or castellated so that upon insertion of the nipple tip 55 through mouth 30, liquid may pass from bottle 52, through tip 56 into chamber section 20a. The nipple tip is formed to closely fit within the aperture in mouth plug 28, so that no liquid can return outwardly through mouth 30 during "feeding." Moreover, the nipple is dimensioned so that when it is inserted in mouth 30 it moves the valve member a sufficient distance to cause the washer 44 to engage splash plate 41. As a result, port 42 is sealed and liquid squeezed from bottle 52 will pass through inlet tube 24 and downwardly through chamber section 20a into reservoir 47. Upon completion of the simulated "feeding," the child removes bottle 52 from the doll, thereby withdrawing nipple 55 from mouth 30 so that valve member 34 is returned into en-

gagement with valve seat 32 by spring 36 and port 42 is opened. Liquid thus cannot escape from the mouth of the doll during subsequent play therewith.

Having completed "feeding" the doll, the child in simulating the actions of an adult with an infant, will put the doll down for a nap or rest by lying the doll in its crib or bed. With infants, the infant typically cries if not "burped" because of gas pains which develop within his stomach as a result of bottle feeding and in order to obtain attention or relief from the pains. The doll of the present invention is adapted to simulate this reaction of a child to "feeding" since weeping device 10 is adapted to cause the doll to weep when it is laying in a horizontal position. In order to accomplish this, first chamber section 20b is mounted in liquid communication, through cross channel 20c formed in housing 18 and bushings 63, with the hollow eye members 64 mounted within the eye sockets 66 of head 12.

Housing chamber 22 is provided with a relatively heavy plate 70 which is wrapped by an elastic member 72', such as a rubber band or the like. Plate 70 is adapted to move downwardly, as illustrated in FIG. 3, under the influence of gravity, into engagement with flexible reservoir 47, when the doll is in a prone position, so as to apply pressure to the liquid contained within reservoir 47 and force it back to chamber section 20a whereby the liquid flows through port 42 to chamber section 20b and thence through bushings 63, to hollow eye members 64. The rear wall 22' of chamber 22 is inclined so that plate 70 will tilt about its end 70' and thus tend to squeeze liquid from reservoir 47. As a result, all of the liquid in the reservoir can be discharged therefrom, with little or no possibility of any liquid becoming trapped under the plate. Cross channel 20c is partially filled with a sponge material 67 which forms a restriction to liquid flow in the channel and thus prevents liquid from being rapidly discharged through the openings (described hereinafter) adjacent the eyes. In addition, small plastic plugs 69, having a slightly smaller diameter than the inside diameter of bushings 63, are secured in bushings 63 to form small restriction passages 71 therein to further limit discharge of liquid from the weeping device.

Eye members 64 define chambers C therein which receive liquid from bushings 63. Chambers C are in liquid communication with chambers 72 formed by sockets 66 about each of the eye members through openings 73 formed between the rear wall of the eye members and bushings 63, as seen in FIG. 4. As a result, liquid supplied to chambers C in eye members 64 passes through apertures 73 to chambers 72 in sockets 66.

The front of face surface 74 (FIG. 1) of sockets 66 are generally oval-shaped to simulate human eyelids and at least one corner of each of these ovals is slightly spaced from its associated eye member 64. Preferably only the outer corners 75 are spaced from members 64, although it is contemplated that the inner corners 75' may also be spaced from the eye members. In either case, the remaining portions of the socket, between corners 75, are in liquid tight engagement with the eye members. As a result, liquid in chambers 72 will pass from the chambers to the exterior of the corners 75 or 75', where it will well up until sufficient liquid is accumulated to form a drop of liquid 76 that will fall from the eye. The spaced between the sockets and eye members, at corners 75, are very small so that liquid is slowly seeped therethrough to permit welling and tear-

ing to occur, thereby enhancing the illusion of weeping. Alternatively, it is contemplated that eye members 64 may have small central apertures formed in the pupil of the eye for direct discharge of liquid from chambers C.

It is also noted that "weeping" will occur when the doll is placed in a prone position on its stomach since, in that case, the water will flow directly out of chamber 47, under the influence of gravity, to eye members 64, which are at a lower elevation.

Normally, in order to alleviate the pains and weeping, the infant is lifted and placed in an upright position with his head against the parent's shoulder and "burped." By the device 10 of the present invention, raising the doll to an upright position also prevents further weeping since when the doll is returned to an upright position plate 70 tips back towards front wall 77 of the housing member so as to remove pressure from reservoir 47. As a result, liquid is no longer urged to the eye members. In addition, by returning plate 70 to front wall 77, more room is provided in chamber 22 to permit reservoir 47 to expand as it is filled from bottle 52. Further, elastic member 72 reduces the noise caused by movement of the plate during play, so that unwanted noise is not created.

It is thus seen that a simply constructed and easily manufactured device is provided which is adapted to simulate the actual reactions of an infant during and after feeding. The device is relatively durable in use because of its simplicity, so that it will have longevity even when subjected to extensive and rough play.

Although an illustrative embodiment of the present invention has been described herein with reference to the accompanying drawings, it is to be understood that the invention is not limited to that precise embodiment and that various changes and modifications may be effected therein by one skilled in the art without departing from the scope or spirit of this invention.

What is claimed is:

1. A weeping doll having a body and a head with eye sockets and an open mouth formed therein, said doll having therein a gravity influenced weeping device for causing said doll to weep when in a generally horizontal position, said device comprising, a liquid inlet tube located adjacent said open mouth, a housing, a flexible reservoir in said housing, means defining a liquid conduit between said reservoir and said eye sockets and being in liquid communication with said liquid inlet tube, selectively operable valve means in said liquid inlet tube for opening the inlet tube to permit liquid to flow through said mouth and conduit to said reservoir, and means in said housing for compressing said flexible reservoir in automatic response to placing said doll on its back in a generally horizontal position to force liquid through said liquid conduit to said eye sockets.

2. The device as defined in claim 1 including a hollow eye member mounted in each of said sockets in liquid communication with said conduit, said eye sockets being generally oval in shape to simulate the corners of a human eye, and providing a hollow chamber surrounding their associated eye member, said chambers being in liquid communication with the interior of their associated hollow eye member, with at least one corner of each of said eye sockets being slightly spaced from its associated eye member whereby liquid in said chambers passes between said eye members and said one corner of said sockets to simulate weeping.

3. The device as defined in claim 1 including a hollow eye member mounted in each of said eye sockets in liquid communication with said liquid conduit means, said eye members having apertures therein whereby liquid in said reservoir is forced through said apertures when said doll is in a horizontal position to simulate weeping.

4. The device as defined in claim 1 wherein said compressing means comprises a relatively heavy plate positioned in said housing adjacent said reservoir, said plate resting on said reservoir when said doll is on its back in a horizontal position to compress the reservoir and force liquid therein to said eye sockets.

5. The device as defined in claim 4 including cushioning means surrounding said plate to substantially eliminate the production of noise upon movement of said plate.

6. The device as defined in claim 5 wherein said cushioning means comprises a rubber band.

7. The device as defined in claim 4 wherein said valve means comprises a valve seat formed in said inlet and a spring biased valve closure member normally engaged with said valve seat to prevent liquid discharge from said reservoir through said mouth, said valve closure member being adapted to move away from said valve seat when engaged with a nipple on a liquid supply bottle to allow filling of said reservoir.

8. The device as defined in claim 7 including a wall member in said liquid conduit dividing said conduit into first and second sections, said wall having a port therein for providing liquid communication between said conduit sections, and said valve closure member including means for closing said port when the closure member is moved away from said valve seat to permit filling of said reservoir, whereby liquid is prevented from passing to said eye sockets during filling.

9. The device as defined in claim 1 including means in said conduit, adjacent said eye sockets, for restricting liquid flow to said eye sockets.

10. A weeping doll comprising, in combination, a head having eye sockets and an open mouth formed therein, a relatively rigid housing mounted in said doll and having first and second chambers therein, said first chamber being in liquid communication with said eye sockets and having a liquid inlet tube adjacent said open mouth, a flexible liquid reservoir located in said second chamber and being mounted therein for liquid communication with said first chamber, selectively operable valve means in said liquid inlet tube for opening the inlet to permit liquid to flow through said mouth into said reservoir in said first chamber, and a relatively heavy plate located in said second chamber adjacent said reservoir for compressing said reservoir, under the influence of gravity, when said doll is placed on its back in a generally horizontal position, thereby to force liquid in said reservoir through said first chamber to said eye sockets.

11. The doll as defined in claim 10 including a hollow eye member mounted in each of said sockets in liquid communication with said conduit, said eye sockets being generally oval in shape to simulate the corners of a human eye, and providing a hollow chamber surrounding their associated eye member, said chambers being in liquid communication with the interior of their associated hollow eye member, with at least one corner of each of said eye sockets being slightly spaced from its associated eye member whereby liquid in said cham-

ber passes between said eye members and said one corner of said sockets to simulate weeping.

12. The doll as defined in claim 10 including a hollow eye member mounted in each of said eye sockets in liquid communication with said liquid conduit means, said eye members having apertures therein whereby liquid in said reservoir is forced through said apertures when said doll is on its back in a horizontal position to simulate weeping.

13. The device as defined in claim 10 including cushioning means surrounding said plate to substantially eliminate the production of noise upon movement of said plate.

14. The doll as defined in claim 13 wherein said cushioning means comprises a rubber band.

15. The doll as defined in claim 10 wherein said valve means comprises a valve seat formed in said inlet and a spring biased valve closure member normally engaged with said valve seat to prevent liquid discharge from said reservoir through said mouth, said valve closure member being adapted to move away from said valve seat when engaged with a nipple on a liquid sup-

ply bottle to allow filling of said reservoir.

16. The doll as defined in claim 15 including a torso connected to said head and wherein said second chamber is located in said torso.

17. The doll as defined in claim 15 including a wall member located in said first chamber dividing said chamber into first and second sections, said wall having a port therein providing liquid communication between said conduit sections, said first section being in communication with said inlet tube and said reservoirs and said second section being in communication with said eye sockets, and said valve closure member including means for closing said port when the closure member is moved away from said valve seat to permit filling of said reservoir, whereby liquid is prevented from passing to said second chamber section and said eye sockets during filling.

18. The doll as defined in claim 17 including means in said second chamber section for restricting liquid flow to said eye sockets.

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