

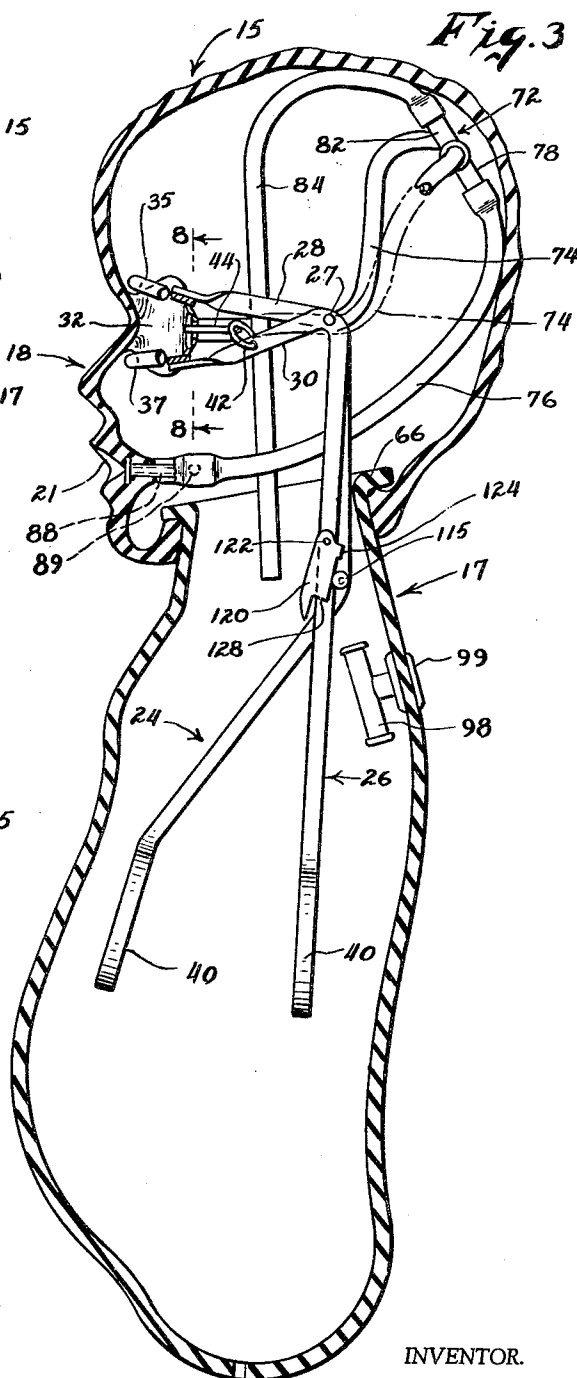
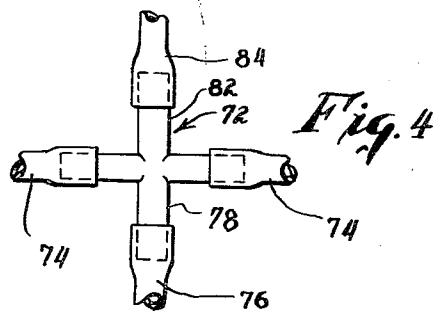
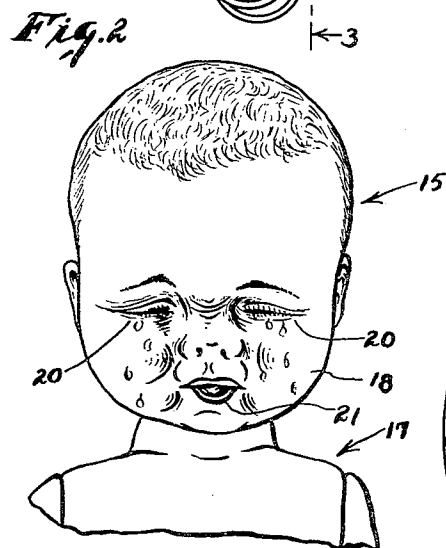
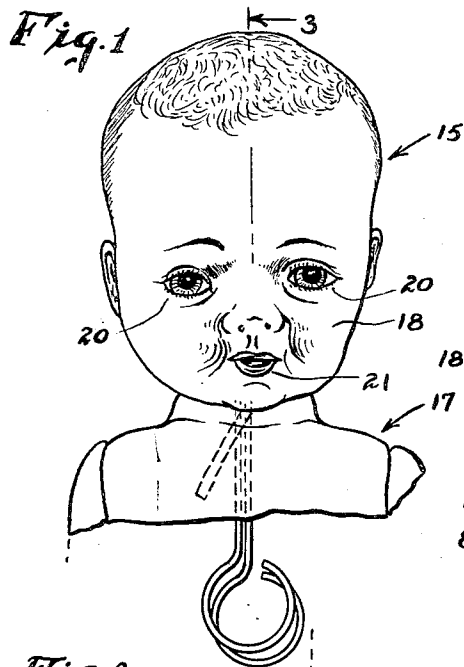
Sept. 11, 1962

R. K. OSTRANDER
SQUINTING AND WEeping DOLL

3,053,009

Filed Nov. 26, 1958

2 Sheets-Sheet 1



INVENTOR.
Robert K. Ostrander
BY *Emery Whittemore*
Sandoe & Dink
ATTORNEYS

Sept. 11, 1962

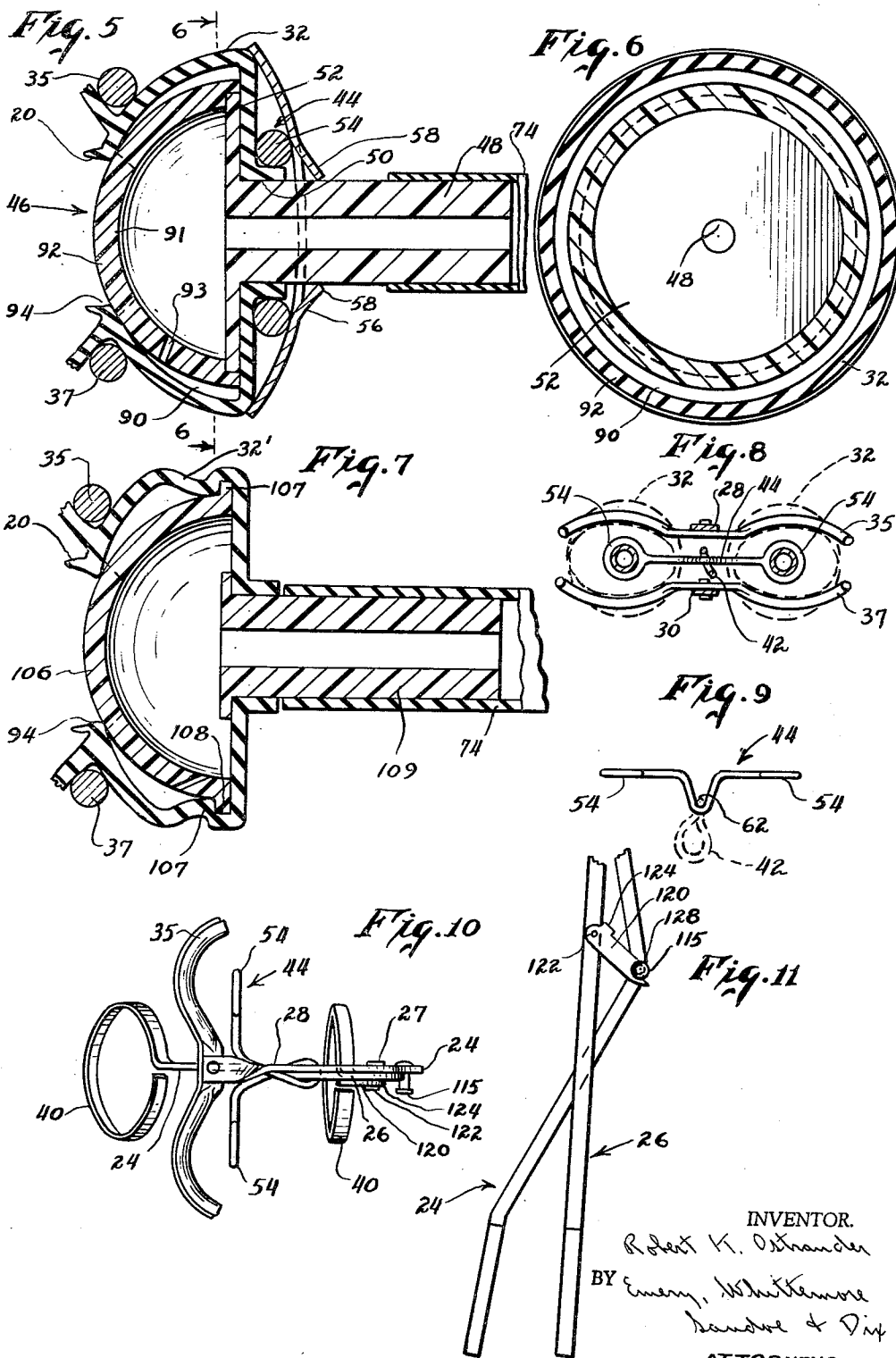
R. K. OSTRANDER

3,053,009

SQUINTING AND WEEPING DOLL

Filed Nov. 26, 1958

2 Sheets-Sheet 2



INVENTOR.
Robert K. Ostrander
BY Emory, Whittemore
Sandoe & Day
ATTORNEYS

1

3,053,009

SQUINTING AND WEeping DOLL

Robert K. Ostrander, 497 Prospect St., Maplewood, N.J.

Filed Nov. 26, 1958, Ser. No. 776,512

22 Claims. (Cl. 46-135)

This invention relates to dolls, and more particularly to a doll which has a face constructed for movement to produce a crying expression, preferably by moving the eyes into squinting positions, and with means for supplying tears to the eyes when the doll is squinting.

It is an object of the invention to provide an improved tear doll in which the actuation of the doll to produce tears also causes a change in the facial expression. In the preferred construction the supply of tears and the squinting of the eyes are operated primarily from a common manually-operated actuator.

Another object of the invention is to provide a doll with eyes movable between open and closed positions; and with actuating means for the eyes by which a child can control the eyes to remain open or closed regardless of the orientation of the doll.

In order to provide simplified mechanism for controlling the eyes, the preferred construction of the invention has locking means which operate when the doll is lying on its back, but which maintain the eyes closed regardless of changes in the doll's position.

Another object of the invention is to provide a doll having eye control means of the character indicated and with a lock which can be released, when the doll is in upright position, by operation of the same actuating mechanism which causes the eyes to close. The locking of the eye-actuating mechanism can be employed in dolls with or without the tear feature.

Another object of the invention is to provide improved and simplified actuating mechanism for moving the eyes of the doll from open to squinting positions under the control of a child playing with the doll.

Other objects, features and advantages of the invention will appear or be pointed out as the description proceeds. In the drawing, forming a part hereof, in which like reference characters indicate corresponding parts in all the views:

FIGURE 1 is a front elevation, partly broken away, showing a doll made in accordance with this invention and with the eyes open;

FIGURE 2 is a front elevation, similar to FIGURE 1, but showing the eyes in squinting position and with tears flowing from the eyes;

FIGURE 3 is an enlarged, vertical sectional view through the head and body of the doll shown in FIGURES 1 and 2, the section being taken on the line 3-3 of FIGURE 1;

FIGURE 4 is an enlarged, fragmentary detail view of a portion of the structure shown in FIGURE 3;

FIGURE 5 is a greatly enlarged sectional view through one of the eyes of the doll shown in FIGURES 1-3;

FIGURE 6 is a sectional view on the line 6-6 of FIGURE 5;

FIGURE 7 is a view similar to FIGURE 6, but showing a modified form of the invention;

FIGURE 8 is an enlarged sectional view taken on the line 8-8 of FIGURE 3;

FIGURE 9 is a top plan view of the connector shown in FIGURE 8;

FIGURE 10 is a top plan view of the actuating mechanism of FIGURE 3 with the mechanism removed from the doll for clearer illustration; and

FIGURE 11 is a fragmentary, detail view showing the operation of the locking means for holding the eyes in closed positions.

2

The doll includes a head 15 connected to a body 17. Both the head 15 and body 17 are made of plastic material which is stiff enough to retain its form and to return to its original form after distortion. The head and body are hollow and preferably made of polyvinyl chloride, or similar plastic material such as is commonly used for dolls.

The head 15 has a face 18 with eye openings 20 and a mouth opening 21. The eye openings 20 have upper and lower lids which can be squeezed together to bring the eyes into squinting positions, as shown in FIGURE 2, or to close the eyes fully. The lids are provided on their external surfaces with lash markings as shown in FIGS. 1 and 2.

The operation of the actuating mechanism will be described as it operates to close the eyes, but it will be understood that the eyes may be only partially closed, or squinted, when weeping, so as to provide for a freer flow of tears.

The actuating means for closing the eyes is shown in FIGURE 3. It includes two levers 24 and 26 pivoted together by a pin 27 located in the head of the doll. The levers 24 and 26 have upper portions 28 and 30, respectively, which extend forwardly from the pivot pin 27. Behind each of the eye openings there is an eye socket 32. These sockets are connected to the back of the doll face and they are preferably of one-piece construction with the face.

There is a pressure frame 35 which extends across the top of both eye sockets 32 and which is preferably shaped to contact with the outside surfaces of the sockets along a substantial part of the width of the eye opening and at the juncture of the socket with the face. There is a similar pressure frame 37 which extends under the eye sockets and in contact with the outside surfaces of the sockets at their juncture with the face. When these pressure frames 35 and 37 are forced toward one another, they distort the plastic material of the face over an area including the eye lids and brows above the eyes and the cheeks below the eyes. This change of expression can be enlarged by having the frames 35 and 37 connect with other parts of the face. This moves the upper and lower lids of the eye openings toward one another and causes the eye sockets to be squeezed down over the eyes, closing any clearance which exists between the eyes and the sockets, in a manner which will be explained in connection with the detail views.

The upper pressure frame 35 is attached to the upper portion 28 of the lever 24; and the lower pressure frame 37 is attached to the upper portion of the lever 26. Toward their lower ends, the levers 24 and 26 diverge from one another and they are preferably made with loops 40 for increasing their area of contact with the body of the doll when the body is squeezed and distorted to operate the levers 24 and 26.

With the construction illustrated in FIGURE 3, squeezing of the doll body 17, to move the lower ends of the levers 24 and 26 toward one another, causes the pressure frames 35 and 37 to be moved toward one another. The resilience of the plastic material from which the sockets 32 are made provides a bias for holding the pressure frames 35 and 37 in the positions illustrated in FIGURE 3; and with the pressure frames 35 and 37 in these positions, the doll eyes are open. If the invention is used with dolls having eye sockets which do not have the resilience necessary to provide the required bias, a spring can be used for holding the pressure frames 35 and 37 separated from one another, and the lower ends of the levers 24 and 26 in the desired spaced relation.

The levers 24 and 26 are held in assembled relation with the doll head 15 by a link 42 which connects the upper

3

portion 30 of the lever 26 to a connector 44; and this connector 44 is attached to the eye sockets.

FIGURE 5 shows the way in which the connector 44 is attached to one of the eye sockets 32. Within the eye socket 32 there is an eye 46 and this eye has a tube 48 which extends through an opening 50 in the back wall of the socket 32. The tube 48 has a flange 52 which bears against the back of the eye socket 32 to limit rearward movement of the eye, including the tube 48. The connector 44 is made with a loop 54 which fits around the tube 48; and this loop 54 is clamped against the back of the eye socket 32 by a Tinnerman or speed nut 56 having edges 58 engaging the outside surfaces of the tube 48 to lock the nut 56 in the position to which it is moved when the doll is being assembled.

FIGURE 8 shows clearly the entire structure of the connector 44 with the loops 54 at both ends for fitting over the tubes that extend rearwardly from both eyes of the doll. This connector 44 is made with an inexpensive construction by providing a depression 62 (FIGURE 9) into which the link 42 is hooked.

From the construction thus far described, it will be apparent that the actuating mechanism for the eyes is connected entirely to the head of the doll, and the connections can be made easily through the neck opening of the head before the head is assembled on the body of the doll. During the attaching of the head to the body, the lower ends of the levers 24 and 26 (FIGURE 3) are pressed together sufficiently to pass through the open upper end of the doll body, and the head is then brought down far enough to snap over a flange 66 at the top of the doll body 17.

The invention can be made without the connector 44 if the eye sockets are constructed so that the pressure frames 35 and 37 can be snapped over the eye sockets in such a way that the frames are held by the eye sockets alone against rearward movement. This construction merely requires that the eye sockets be of substantial vertical height as compared with the height of the face structure where the eye sockets merge with the face of the doll.

There is a tear conduit system in the head 15. This system includes a crossfitting 72 with a short branch for receiving tubes or conduits 74 connected to the respective eye sockets. Another conduit 76 connects with a branch 78 of the conduit system and this conduit 76 leads to a cavity behind the mouth 21. Another branch 82 has a conduit 84 leading down through the neck of the doll for discharging water into the doll body and for permitting access of air into the conduits 74 to replace water which flows out of these conduits to the eye sockets. By having the conduits 74 and 76 extend rearwardly and curving upwardly, and by having the conduit 84 extend upwardly and forwardly, as shown in FIGURE 3, the stiffness of these conduits can be used to hold the cross fitting in position in the doll head and no connection between the cross fitting and the doll head is required. This simplifies the construction and reduces assembly time in the manufacture of the doll. Rubber or plastic tubes are used for the conduits 74, 76 and 84.

The conduit 76 is connected with the mouth 21 by an eyelet 88 having a flange pulled back against the rearward wall of the mouth socket. This eyelet 88 extends beyond the mouth socket and into the conduit 76 in which it is held by friction or cement, depending upon the thickness of the wall of the tubing used for the conduit 76. Near the rearward end of the eyelet 88 there is a ball check valve 89 for preventing back flow of water from the mouth 21.

Each conduit 74 is connected with its eye as shown in FIGURE 5. After the speed nut 56 has been pushed into clamping position, the conduit 74 is placed over the end portion of the tube 48 and is held thereon by friction or cement.

The eye 46 is made with a generally hemispherical front

4

surface and there is some clearance 90 between the eye and the inside front wall of the socket 32. This clearance is most advantageously obtained by having the radius of curvature of the eye different from the radius of curvature of the inside surface of the socket which confronts the eye beyond the eye opening.

The eye shown in FIGURE 5 has a front shell 91 attached to flange 52 which extends from the forward end of the tube 48. The shell 91 is preferably glued or cemented to the periphery of the flange 52, and there is a groove around the peripheral region of the shell 91 for receiving the flange 52. The space within the shell 91 and forward of the flange 52 provides a chamber for receiving water which flows into the eye through the tube 48. This tube 48 holds the eye centered in the eye socket.

Water from within the eye flows into the clearance 90 through a passage 93 in the shell 91. When the pressure frames 35 and 37 are moved toward one another to cause the eye to squint, the inside surface of the eye socket is pulled closer to the eye and this clearance 90 is reduced, and any water in the clearance is caused to overflow across the bottom lid 94 of the eye opening. This produces a realistic tear effect.

The ultimate actuator, which is manually operated by the child, is the skin of the doll body. For example, the child presses the back and stomach portions of the doll skin toward one another to cause the eyes to squint. With the tear conduits located above the eye sockets, as shown in FIGURE 3, the water tends to flow by gravity, but it is desirable that the capillary attraction of the clearance 90 prevent any overflow of water from the eye sockets until the pressure frames 35 and 37 are operated to reduce the clearance 90 and thus displace the water over the bottom edge 94 of the eye opening.

The doll body shown in FIGURE 3 is equipped with a voice 98 attached to an eyelet 99 opening through the back of the doll body. This voice 98 is preferably of the two-reed type in which one reed sounds during the passage of air from the body 17, and the other reed is sounded by the return of air into the body. The use of this pneumatically-operated voice 98 in a tear doll using air pressure for the tear reservoir is made practical by the novel combination of this invention which requires no air pressure for causing flow of tears.

FIGURE 7 shows a modified construction for the eye. In this construction the eye includes a shell 106 having a peripheral flange 107 which snaps into a groove 108 located around the back of the eye socket. The eye socket is shaped to provide a clearance 90 between the eye and the confronting surface of the socket beyond the opening at the front wall of the socket. As in the construction shown in FIGURE 5, the edges of the eye opening through the front of the socket, contact with the front surface of the eye and move across this surface as the eye openings are squeezed into squinting positions.

In the construction shown in FIGURE 7 there is a hollow eyelet 109 extending through the opening in the back of the eye socket, and the conduit 74 is fitted over the stem of the eyelet 109 and secured thereto by friction or cement.

Water from the conduit 74 flows through the eyelet 109 into the chamber within the shell 106. As in the structure of FIGURE 5, there is an opening through the shell 106 for flow of water from within the shell to the clearance 90 in the eye socket. This construction shown in FIGURE 7 is used with pressure frames 35 and 37 which are held in place by the eye sockets alone. However, it can be used with a connector and with Tinnerman nuts which are placed on the outside of the eyelet 109, if desired.

In order for the doll to have a realistic expression when the actuating mechanism is squeezed, it is necessary to construct the face so that no part of it puckers outwardly

in response to the pinching force exerted by the pressure frames 35 and 37.

In the preferred construction, the face between the eyes, that is, at the bridge of the nose, and also just beyond the outer ends of the eye openings, is made flexible enough to bend easily and form the skin wrinkle or wrinkles as may be required by the squinting of the eyes.

It is also necessary, however that the force be applied in such directions and at such locations that any folding of the skin will be inward and not outward. The forces exerted by the pressure frames 35 and 37 are along lines that meet beyond the bridge of the nose as will be apparent from FIGURE 3. The lines of the opposing forces could be further in, however, so long as the skin under compression has an initial depression toward the rear and back of the lines of the clamping forces.

Locking means for holding the eyes closed are shown in FIGURES 3 and 11. A stud 115 extends from one side of the lever 24 and into the path of the lever 26 for limiting movement of the lower portions of the levers away from one another. A latch 120 is attached to the lever 26 by a pin 122 located somewhat above the level of the stud 115. There is a tab 124 attached to the latch 120 and extending across the back of the lever 26 for holding the latch 120 against swinging clockwise beyond the position of the latch shown in FIGURE 3. It will be apparent that with the latch 120 hanging downwardly, as in FIGURE 3, it will not interfere in any way with the operation of the levers 24 and 26 toward and from one another.

If the doll is lying on its back, however, when the lower ends of the levers 24 and 26 are moved toward one another, far enough to close the eyelids, a shoulder 128, on the latch 120, will engage the stud 115, as shown in FIGURE 11. This condition is represented by FIGURE 11 if this figure is rotated 90° in a clockwise direction. When the doll is returned to upright position, the levers 24 and 26 have the orientation actually shown in FIGURE 11, but the friction of the stud 115 against the shoulder 128 prevents the latch 120 from dropping back into its downwardly hanging position, shown in FIGURE 3.

In order to provide a more secure lock, which is not entirely dependent upon friction, the shoulder 128 is not exactly tangent to a radius from the pin 122, but is canted clockwise (in FIGURE 11) by a small angle so that it can not pass the stud 115 without having the pin 122 and stud 115 move away from one another. The bias tending to hold the levers 24 and 26 away from one another thus provides the force for keeping the latch 120 engaged with the stud 115.

The doll can be moved into any position without having the latch disengage from the stud 115, and the eyelids remain closed even though the doll is standing up. With the doll in upright position, or sloping forwardly, or lying on its stomach, the eyelids can be made to open at any time by merely squeezing the body sufficiently to move the loops 40 closer together. Such movement shifts the stud 115 and pin 122 further from one another, eliminating the friction between the latch 120 and the stud 115, and providing the clearance required to permit the latch to drop out of engagement with the stud 115. Release of the pressure on the doll body permits the lower ends of the levers 24 and 26 to move apart and permits them to return to the positions which open the eyelids.

The preferred embodiment of the invention has been illustrated and described, but changes and modifications can be made and some features can be used in different combinations without departing from the invention as defined in the claims.

What is claimed is:

1. A doll having a hollow head made of flexible plastic material having a face with normally open eye openings therein and having sockets behind the eye openings for

holding eyes in position to be exposed to view through the eye openings, said sockets being of flexible plastic material and connected to a back surface of the face portion of the head around the eye openings, an eye within each of the sockets and in contact with the socket over a portion of the surface of the eye, each socket and eye being mutually formed to provide clearance between the socket and outer portion of the surface of the eye, a conduit within the doll for supplying water, and means within the eye connecting said conduit to said clearance, a movable pressure element located adjacent to the connection of the sockets to the back surface of the face portion of the head, and an actuator connected with the pressure element and movable to displace the pressure element in a direction to squeeze the eye openings toward closed position and to displace the plastic material in directions to reduce the clearance between the eyes and the sockets with resulting overflow of water from the sockets through the eye openings.

2. The doll described in claim 1 and in which the eye sockets are of one-piece construction with the plastic face, and each of the eyes contacts with the socket around a peripheral region of the eye, and around the opening at the front of the eye socket, and there is space between the eye and socket rearward of the front of the socket and forward of the peripheral region of the eye to provide said clearance which is reduced as the eye openings are squeezed toward closed position.

3. The doll described in claim 1 and in which the doll has a hollow body and the actuator includes two levers pivoted to one another near their upper ends, one of the levers having a portion located adjacent to the front of the doll body and the other lever having a portion adjacent to the back.

4. A doll having a head with a flexible plastic face in which there are normally open eye openings having upper and lower edges movable with respect to one another to change the eye opening between open and squinting positions, flexible plastic eye sockets behind the eye openings and connected to an inner surface of the face around the eye openings, eyes in said eye sockets, said eyes and sockets being mutually formed to provide clearance between portions thereof, means for supplying water to the clearances between the eyes and sockets, and common actuating means extending into positions adjacent to the edges of the eye openings and operable to squeeze the eye openings toward squinting positions and at the same time reduce said clearance so as to squeeze water from the sockets over the lower edges of the eye openings.

5. The doll described in claim 4 and in which the means for supplying water to the clearances includes a conduit system having conduits connecting with the eyes and through which water is discharged to the eye sockets, the doll having a hollow body and the actuating means including a deformable portion of the doll body, and said actuating means including also a lever within the doll body and behind said deformable portion of the doll body.

6. The doll described in claim 4 and in which the actuating means for squeezing the eye openings toward closed positions include an upper pressure frame that extends across the upper sides of both eye sockets adjacent to the juncture of the sockets with the face, a lower pressure frame that extends across the lower sides of both eye sockets adjacent to the juncture of the sockets with the face, two levers pivotally connected together and with upper end portions extending forwardly to the pressure frames, each of the frames being connected to a different one of the levers, said levers having downwardly extending portions in position to be moved relative to one another by the squeezing of the doll body, and locking means for maintaining the levers in certain angular relation to one another.

7. The doll described in claim 6 and in which the means for supplying water to the clearances includes tubes com-

municating with the respective eye sockets, a connector secured to the tubes, and fastening means by which the connector holds the levers in place with the pressure frames pressed against the inside surface of the face.

8. The doll described in claim 7 and in which each tube has a flange within the socket, a clamping element on the tube and pressing against the back surface of the eye socket, and the fastening means for the connector is a link connected at one end to the connector and at the other end to one of the levers.

9. A doll having a head with a flexible plastic face in which there are normally open eye openings having upper and lower edges movable with respect to one another to change the eye openings between open and squinting positions, a flexible plastic eye socket behind each of the eye openings and of one-piece construction with the plastic face, a hollow eye in each socket, said eye having an opening therein leading from the interior of the eye to the socket, said eyes and sockets being mutually formed to provide clearances between portions thereof, actuating means for squeezing the eye openings toward closed positions including an upper pressure frame extending across the upper sides of both eye sockets adjacent to the juncture of the sockets with the face, a lower pressure frame that extends across the lower sides of both eye sockets adjacent to the juncture of the sockets with the face, two levers pivotally connected together and with upper end portions extending forwardly to the pressure frames, each of the frames being connected to a different one of the levers, said levers having downwardly extending portions in position to be moved relative to one another by the squeezing of the doll body, a tube extending from each eye through the back of the socket and into the head behind the eye sockets, a connector, means securing the connector to the tubes including speed nuts that slide along the tubes and that clamp the connector against the backs of the eye sockets, a cross fitting in the head, conduits leading from the cross fitting and connected with the tubes from the eyes, another conduit leading from the cross fitting to a mouth opening in the face of the doll for filling the eyes through said mouth opening, and valve means in the conduit to the mouth opening for preventing flow of water from the mouth.

10. A doll having a soft plastic head with eye openings in the face thereof, sockets behind the eye openings and integrally connected to the plastic face, eyes within the sockets, pressure frames within the head and in contact with front portions of the sockets at the junctures of the sockets and the face, means for moving the pressure frames to close the eye openings in front of the eyes and to give the doll a squinting expression, the portion of the face between the eyes and adjacent the bridge of the nose having a recessed curvature and extending back to a plane behind the lines along which the pressure frames exert their clamping pressure, and means for supplying water to the eye sockets for the flow of tears from the eyes while squinting.

11. For a doll, a head with a soft plastic face having normally open eye openings therein, soft plastic sockets behind the eye openings and integral with said face, eyes in the sockets, and manually manipulatable means in contact with the front upper and lower portions of the sockets for urging said upper and lower front portions of the sockets toward one another whereby the eye openings will be moved toward closed positions.

12. For a doll, a head with a soft plastic face having normally open eye openings therein, soft plastic sockets behind the eye openings and integral with said face, eyes in the sockets, and pressure frames within the head in contact with front portions of the sockets and operatably movable to squeeze the sockets by urging upper and lower parts of said front portions toward one another whereby upon operative movement of said frames the eye openings will be moved toward closed positions.

13. A doll's head as set forth in claim 12 wherein the face includes eyelids defining the eye openings so that upon operative movement of the pressure frames the eyelids will be moved toward one another.

14. A doll's head as set forth in claim 13 wherein the eyelids are provided with markings simulating eyelashes.

15. A doll's head as set forth in claim 12 wherein the face between the inner corners of the eyes is flexible and has a normally present forwardly facing depression.

16. A doll's head as set forth in claim 12 wherein the face between the inner corners of the eyes is flexible and has a normally present forwardly facing depression and wherein the depression is rearward of the contact between the pressure frames and the sockets.

17. A doll's head as set forth in claim 12 wherein the face adjacent the outer sides of the eye openings is flexible and has a normally present forwardly facing depression.

18. A doll's head as set forth in claim 12 wherein the face adjacent the outer sides of the eye openings is flexible and has a normally present forwardly facing depression, said depression being rearward of the contact between the pressure frames and the sockets.

19. A doll's head as set forth in claim 12 wherein clearance is provided between each eye and the lower portion of the socket and wherein means is included to lead water to said clearance whereby when the sockets are squeezed by the pressure frames clearance is reduced and water is expressed out of the eye openings.

20. A doll having a head with a soft plastic face having normally open eye openings therein, soft plastic sockets behind the eye openings and integral with said face, eyes in the sockets, pressure frames within the head in contact with front portions of the sockets and operatably movable to squeeze the sockets by urging upper and lower parts of said front portions toward one another, whereby upon operative movement of said frames the eye openings will be moved toward closed positions, and a gravity actuated lock operable when said pressure frames are actuated in supine position of the doll to hold said frames in actuated condition.

21. A doll having a head with a soft plastic face having normally open eye openings therein, soft plastic sockets behind the eye openings and integral with said face, eyes in the sockets, pressure frames within the head in contact with front portions of the sockets and operatably movable to squeeze the sockets by urging upper and lower parts of said front portions toward one another, whereby upon operative movement of said frames the eye openings will be moved toward closed positions, and a gravity actuated lock operable when said pressure frames are actuated in supine position of the doll to hold said frames in actuated condition, said gravity actuated lock being constructed to be disengaged when the pressure frames are actuated with the doll in erect position.

22. For a doll, a head with a soft plastic face having normally open eye openings, soft plastic sockets behind the eye openings and integral with said face, eyes in the sockets, a clearance within each socket between each eye and the lower portion of the socket, means for supplying water to the clearances in the eye sockets, and means for moving said eye openings toward closed position whereby to constrict the sockets on the eyes and thereby reduce said clearances so as to express water out of the eye openings.

References Cited in the file of this patent

UNITED STATES PATENTS

1,299,631	Spangler	Apr. 8, 1919
1,489,385	Ciavatti	Apr. 8, 1924
2,045,962	Rastetter	June 30, 1936
2,778,155	Ostrander	Jan. 22, 1957

FOREIGN PATENTS

31,850	Denmark	June 4, 1923
--------	---------	--------------