

Jan. 17, 1939.

M. WITTMANN

2,144,436

DOLL

Filed Jan. 31, 1936

2 Sheets-Sheet 1

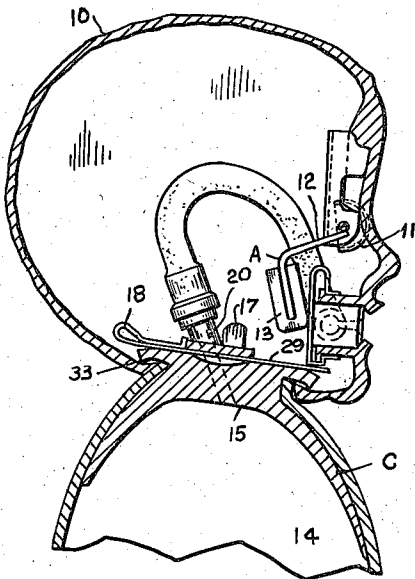


Fig. 1

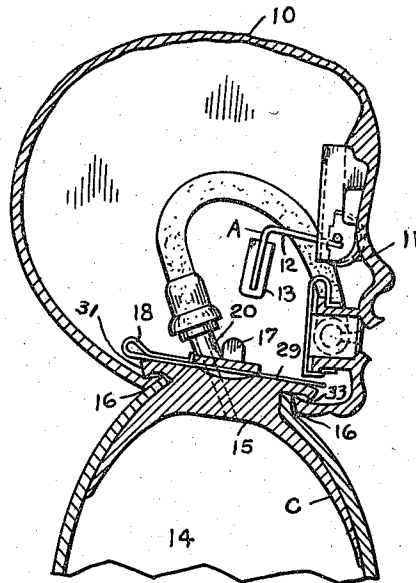


Fig. 2

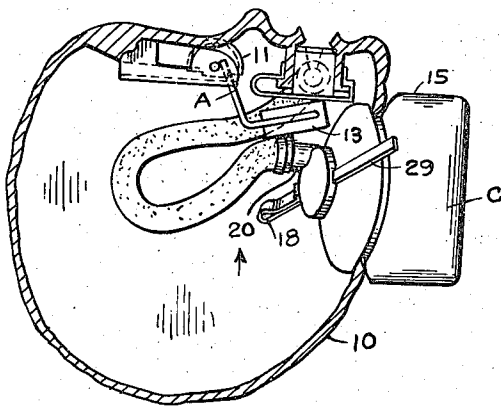


Fig. 3

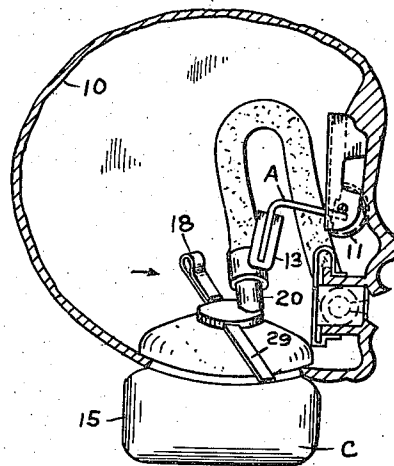


Fig. 4

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2 Sheets-Sheet 2

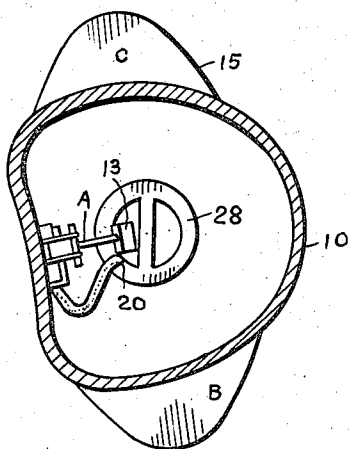


Fig- 5

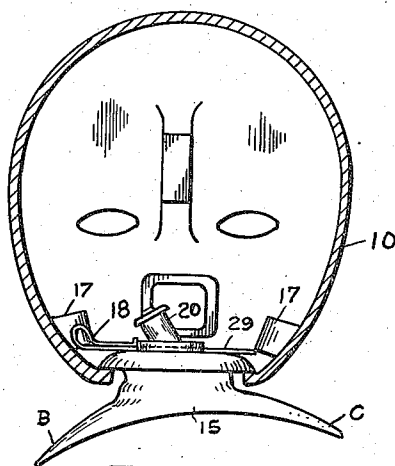


Fig- 7

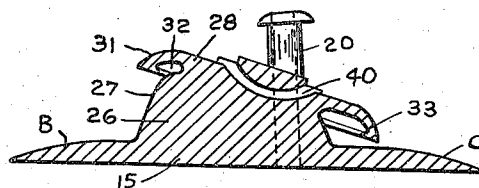


Fig-10

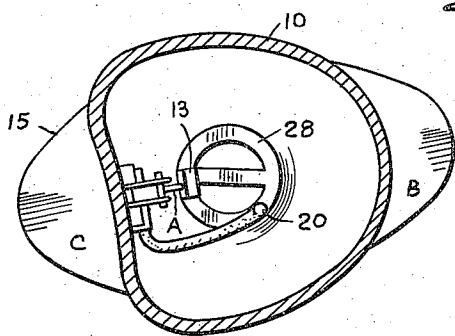


Fig-6

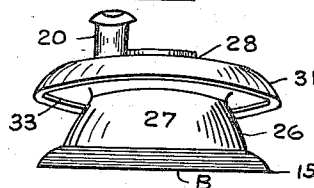


Fig-11

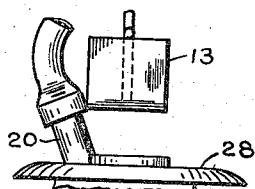


Fig-9

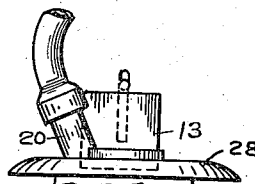


Fig-8

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UNITED STATES PATENT OFFICE

2,144,436

DOLL

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Application January 31, 1936, Serial No. 61,739

23 Claims. (Cl. 46—169)

The present improvements relate in general to dolls and similar toy figures and more particularly to mechanism for preventing movement of certain parts of dolls. In this connection it is noteworthy that the present application is a continuation in part of the parent co-pending application Serial No. 754,956, filed November 27, 1934.

A primary object of the improvements is to provide improved mechanism for arresting movement of the eyes at will, and without resort to manipulation of a push button or lever. Another object is to provide a novel detent arrangement operable by turning the body and head relative to each other for releasably locking the eyes.

Another object is to utilize a turning movement of the head of a doll relative to its body, after the latter has been placed in a reclining position to close the eyes of the doll, to maintain said eyes closed should said doll thereafter be raised to a substantially vertical or upright position.

A further object is to provide means for preserving the open or closed condition of the eyes, irrespective of subsequent changes in the posture of the doll body, and for subsequently releasing or restoring them.

A further object is to provide mechanism, operable by turning the head of the doll, for preserving the open or closed condition of the eyes, irrespective of subsequent changes in the posture of the doll body, and for subsequently releasing or restoring them by turning the head of the doll.

Another object is to provide mechanism for permitting the eyes of a doll to be open when the doll body is horizontal or vertical; to be closed when horizontal or vertical, and also to be open when vertical and closed when horizontal.

Another object is to provide an improved means for preventing rotation of the doll's head beyond a prescribed position relative to the doll body.

A further object is to provide an improved neck joint structure for retaining the head on the body, and for maintaining same liquid and airtight, while at the same time permitting turning of the head.

Other objects and advantages will be apparent to those skilled in the art upon reference to the accompanying specification and drawings in which—

Fig. 1 is a longitudinal section of a doll's head illustrating a conventional form of eye actuating mechanism in association with the present improvements; the eyes being open;

Fig. 2 is a view similar to Fig. 1 illustrating the

relation of parts when the eyes are closed by the eye actuating mechanism;

Fig. 3 is a view similar to Fig. 1, showing the eyes releasably locked in open position;

Fig. 4 is a view similar to Fig. 2 showing the eyes releasably locked in closed position;

Fig. 5 is a horizontal section through the head of the doll in Fig. 4, illustrating the manner in which the eyes are maintained in closed position when the head is turned relative to the body, parts being omitted for convenience in illustration;

Fig. 6 is a view similar to Fig. 5, with parts omitted, showing the relation of parts when the head is straightforward;

Fig. 7 is a transverse section of the head and neck piece, parts being omitted, with the head turned to the side to emphasize the means for limiting turning movement;

Fig. 8 is a fragmentary view looking in the direction of the arrow in Fig. 3;

Fig. 9 is a fragmentary view looking in the direction of the arrow in Fig. 4;

Fig. 10 is a section of the neck piece per se;

Fig. 11 is an end view of the neck piece.

Referring to the drawings, the head 10 of the doll may be made of rubber or any other suitable material. The eye unit 11 is of a conventional type which may be swung to open and closed positions by a suitable eye actuating mechanism 30 A. In the illustrated embodiment, this mechanism includes the rocker arm 12 which is actuated by a weight 13 under the influence of gravity. Obviously, other eye units and operating devices may be employed without departing from the improvements as for example, that described and claimed in the aforementioned parent application of which this is a continuation in part.

It will accordingly be apparent to those skilled in the art, that when the doll is in a substantially vertical upright position, the weight 13 will be at the lower limit of its travel, so that the eyes 11 are held open, as seen in Fig. 1. When the doll is moved toward a horizontal or reclining position, the weight 13 will swing the eyes, as the case may be, to closed position. The position of the parts when the eyes are closed is shown in Fig. 2. This may be more clearly observed by turning the view sideways and comparing the position of the weight 13 in both Figs. 1 and 2. From the foregoing it will be obvious that when the doll is raised from a reclining position to an upright position, the consequent swinging of the weight 13 will be in a reverse direction, whereupon the eyes will be opened.

While the foregoing is the natural and conventional manner in which dolls' eyes are usually manipulated, nevertheless a human being may recline with his eyes open and subsequently close them or he may sit or stand upright with his eyes closed and thereupon open them. All of these human functions may be accomplished by the doll of the present improvements.

As illustrated, the head 10 is rotatably mounted on the body or neck piece 15 at 16, as hereinafter described, so that it may be turned relative thereto when desired. In Figs. 1 and 2, the face of the doll is straightforward, i. e., aligned with the chest C of the body or neck piece. In this condition the eye actuating mechanism is free to function between the positions shown in Figs. 1 and 2. Abutments or projections 17 provided on the interior of the head 10, are about 180° apart, and about 90° from a part or abutment 18 of the connecting mechanism for connecting the head and neck hereinafter described. These parts are substantially in the same horizontal plane, as seen in Fig. 7, so that they abut one another, thereby limiting the turning movement of the head relative to the body to the plane where they engage.

The structure which provides means for maintaining the eyelids of the doll closed after the latter has been placed in a reclining position and thereafter raised to a substantially upright position, is accomplished by a turning movement of the head relative to the body of the doll after the latter has been placed in a reclining position. When in said reclining position the weight 13 has been swung toward the rear of the head 10, as in Fig. 2, and when the latter is turned, as shown in Figs. 4 and 5, said weight will move into engagement with and preferably behind a detent or projection 20 carried by the body or neck piece of the doll. In the present instance, this detent or projection is shown as a rubber tubing, which joins the mouth of the doll with a neck-piece 15 fitted into the neck portion of the doll body, as specifically disclosed in my Patent #2,007,784 of July 9, 1935.

As seen in Fig. 4, the eye actuating mechanism is shown locked against further movement by gravity or otherwise. The detent or projection 20 is seen to be positioned underneath the weight 13 in Fig. 9, due to the relation of the parts after the head is turned. As the body and head were moved relative to each other, the projection was advanced from the position of Fig. 2, to that of Figs. 4 and 9. With the weight thus engaged with said projection, the same will be prevented from swinging forwardly when the doll is moved toward an upright position, as long as the head 10 remains in its turned position. However, when said head is moved face forwardly again, said weight 13 will be moved away from the projection 20 and, when released from engagement therewith, will swing forwardly and thus effect the raising of the eyes and eyelids to their open positions as seen in Fig. 1.

The foregoing described mechanism, as well as the manner of manipulation, serves likewise to lock the eyes open. When the doll is disposed in an upright position with its head straightforward as shown in Fig. 1, the eyes are open due to the weight 13 resting at the lower limit of its travel. In this condition (as also in the condition in Fig. 2) the projection 20 is positioned beyond the range or arc of the swinging weight 13. However, upon now turning the head and body relative to each other, the projection

20 is advanced to the position shown in Fig. 3, which is substantially the same as that of Fig. 4 except that in this circumstance, the weight 13 is at a different location, and the projection 20 has therefore been moved against another portion of the weight. The latter is therefore locked against further movement by gravity or otherwise, since the projection 20 is positioned above the weight 13 as seen in Fig. 8. The projection is therefore moved from the position of Fig. 1 to that of Figs. 3 and 8. The head of Fig. 3 has been shown reclining, in order to emphasize the fact that the weight 13 cannot swing by gravity or otherwise due to projection 20.

Referring more particularly to Figs. 3 and 4, the releasing feature will be described. The head in Fig. 3 is reclining with the eyes locked open (contrary to normal expectancy), while the head in Fig. 4 is upright with the eyes locked closed (also contrary to normal expectancy). The doll, i. e., head and body, may be moved as a unit to any desired position or posture, without the eyes moving from either position shown in these views. If, however, the reclining head in Fig. 3 is turned relative to the chest C of the body, the weight 13 will be released and will drop by gravity to the position shown in Fig. 2, and the eyes will be closed. So also, if the upright head in Fig. 4 is turned relative to the chest C of the body, the weight 13 will be released and will drop by gravity to the position shown in Fig. 1, and the eyes will be opened.

Manifestly, the release of the locked mechanism may be accomplished in the manner described, irrespective of the posture of the doll, whether reclining or upright, since in either position the projection 20 is removed from the range or arc of travel of weight 13. The normal opening and closing of the eyes may thereupon continue as before.

While the projection 20, in the illustrated embodiment, serves the additional function of providing a tubing or conduit, it is obvious that a stud or other element may be employed on the neck piece or body, as the case may be, and the tubing dispensed with, to releasably lock the eye actuating mechanism. Moreover, the projection may comprise an abutment or elevated contour of the neck piece without departing from the scope of the improvements.

Referring now to the neck joint construction, the neck piece 15, preferably formed of rubber, is shown in Fig. 2 with head and body assembled. While in Fig. 10, it is shown alone and therefore not under tension. It comprises a chest portion C and a back portion B which support and fill out the body about the neck and shoulders. Likewise the stem portion 26, is formed with an enlargement 27 at the rear for filling and supporting the back of the doll body between the shoulders.

An integral overhanging head portion 28 and a removable rigid bar 29 preferably metallic, are provided for connecting the head to the neck piece or body. As illustrated, the head portion 28 has an outwardly and downwardly extending annular flange 31 which encircles the stem 26 and is spaced therefrom so as to provide a recess 32. An annular bead 33 is provided on the inner edge of the flange. The projection 20 affords an entrance for liquids into the body which have been fed to the doll.

In assembling, the parts B and C of the neck piece 15 are first inserted into the body 14 of the doll through the opening of the neck. These

parts thereupon support and fill out the upper portion of the body, and the friction between the body and these parts, resists relative movement thereof. This function is also derived from the fact that the diameter of the stem 26 of the neck piece is slightly larger than the diameter of the hole in the neck of the doll. The friction not only tends to prevent relative movement, but also the body joint has a tight fit which renders it air and water tight.

The dolls head 10 may now be assembled, by bending back the flexible flange 31 of the neck piece and inserting it through the hole in the doll's head. This places the flexible stem under slight tension, and the flange 31 is flattened out with the bead 33 engaging the wall of the head. This arrangement places enough pressure on the parts so as to effect a liquid and air tight joint between the head, neck and body.

The recess 32 between the flange and stem affords an annular space for the periphery of the opening in doll's head 10, whereby freedom of movement is afforded without impairing the liquid and air tight joint. It is noteworthy that the stem 26 is shorter at the front than at the back and that the head portion 28 is therefore inclined toward the front. This feature serves to keep the head in a natural position, with the chin close to the chest.

It is noteworthy, that the structure thus far described is sufficient for the purposes intended, but as an added insurance against a child pulling the head off, the cross bar 29 is provided. This may be inserted through a hole 40 in the head portion 28 of the neck piece. The flexibility of the neck piece permits the bar to be thrust in and thereupon retracts it to the position it has in Fig. 2. This bar 29 is longer than the diameter of the hole in the doll's head, so as to prevent some one from pulling it off. The hole 40, as seen in Fig. 10, is a curved passageway, so that when the bar 29 is inserted the walls will be distorted and will grip the bar, holding it in place. During assembly and removal, this feature is advantageous because when forcing the bar into the neck piece and thereupon into the doll's head, the neck piece yields with the bar, thereby permitting the latter to enter the head, whereupon it is retracted into position as the neck piece retracts on release of pressure on the bar. The overlaying end of bar 29 engages the head portion 28 and supplements the gripping action of hole 40, for centering bar 29 on the portion 28.

I claim:

1. The combination with a doll body, a head turnable thereon and having a mouth opening, and a flexible tubing connecting said mouth opening with the interior of said body; of an eye closing and opening mechanism carried by said head and having a portion releasably engageable with said tubing, after said eye has been closed and said head turned in one direction, to maintain said eye closed whether said body be in a reclining or upright position.

2. The combination with a doll body, a head turnable thereon and having a mouth opening, and a flexible tubing connecting said mouth opening with the interior of said body; of an eye closing and opening mechanism carried by said head and having a portion releasably engageable with said tubing, after said eye has been closed and said head turned in one direction to maintain said eye closed whether said body be in a reclining or upright position, said head being turnable in an opposite direction to release said portion

from engagement with said tubing to allow said mechanism to open said eye.

3. The combination with a doll body, a head turnable thereon and having a mouth opening, and a flexible tubing connecting said mouth opening with the interior of said body; of an eye closing and opening mechanism carried by said head and having a portion releasably engageable with said tubing, after said eye has been moved by said mechanism and said head turned in one direction, to maintain said eye in such position whether said body be in a reclining or upright position.

4. The combination with a doll body, a head turnable thereon and having a mouth opening, and a flexible tubing connecting said mouth opening with the interior of said body; of an eye closing and opening mechanism carried by said head and having a portion releasably engageable with said tubing, after said eye has been moved by said mechanism and said head turned in one direction to maintain said eye in such position whether said body be in a reclining or upright position, said head being turnable in an opposite direction to release said portion from engagement with said tubing to allow said mechanism to again move said eye.

5. The combination with a doll body, a head turnable thereon and having a mouth opening, and a flexible tubing connecting said mouth opening with the interior of said body; of an eye closing and opening mechanism carried by said head and having a portion releasably engageable with said tubing, after said eye has been opened and said head turned in one direction, to maintain said eye open whether said body be in an upright or reclining position.

6. The combination with a doll body, a head turnable thereon and having a mouth opening, and a flexible tubing connecting said mouth opening with the interior of said body; of an eye closing and opening mechanism carried by said head and having a portion releasably engageable with said tubing, after said eye has been opened and said head turned in one direction to maintain said eye open, whether said body be in an upright or reclining position, said head being turnable in an opposite direction to release said portion from engagement with said tubing to allow said mechanism to close said eye.

7. In combination, a doll body, a head turnable thereon, a gravity operated eye actuating mechanism, a non-gravity locking device operable by turning said head relative to and on said body for positively locking the gravity operated mechanism against subsequent response to the force of gravity.

8. In combination, a doll body, a head turnable thereon, a gravity operated eye actuating mechanism, releasable means manually operable by turning said head relative to said body for locking the gravity operated mechanism against subsequent response to the force of gravity, said releasable means being manually movable to unlock said mechanism by turning said head.

9. In combination, a doll body, a head turnable thereon, a gravity operated eye actuating mechanism, means operable by manually turning said head relative to said body for positively locking the mechanism with the eyes open or closed, said means being operable upon subsequent manually turning of said head for releasing said mechanism.

10. In combination, a doll body, a head turnable thereon, a gravity operated eye actuating

mechanism for moving said eyes to closed position when the doll reclines and for restoring said eyes to open position when said doll is upright, means operable manually by turning said head relative to said body irrespective of the position of the doll with respect to the vertical for locking said mechanism.

11. A device as set forth in claim 10, wherein said means are subsequently operable manually by turning said head irrespective to the then position of the doll for unlocking said mechanism.

12. In combination, a doll body, a head turnable thereon, a projection on said doll body extending into said head, and eye closing and opening mechanism carried by said head and having a portion engageable with said projection, after said eye has been closed and said head turned in one direction on the body and with respect thereto, to maintain said eye closed whether said body be in a reclining or upright position.

13. In combination, a doll body, a head turnable thereon, a projection on said doll body extending into said head, and eye closing and opening mechanism carried by said head and having a portion engageable with said projection, after said eye has been closed and said head turned in one direction on the body and with respect thereto, to maintain said eye closed whether said body be in a reclining or upright position, a turning of said head in an opposite direction releasing said portion from engagement with said projection to allow said mechanism to open said eye.

14. In combination, a doll body, a head turnable thereon, a projection on said doll body extending into said head, and eye closing and opening mechanism carried by said head and having a portion engageable with said projection, after said eye has been moved by said projection, and said head turned in one direction on the body and with respect thereto, to maintain said eye in such position whether said body be in a reclining or upright position.

15. In combination, a doll body, a head turnable thereon, a projection on said doll body extending into said head, and eye closing and opening mechanism carried by said head and having a portion engageable with said projection, after said eye has been moved by said mechanism and said head turned in one direction on the body and with respect thereto, to maintain said eye in such position whether said body be in a reclining or upright position, a turning of said head in an opposite direction releasing said portion from engagement with said projection to allow said mechanism to again move said eye.

16. In combination, a doll body, a head turnable thereon, an eye opening and closing mechanism within said head, normally operable with said head straightforward on said body, a detent within said head adapted to releasably arrest operation of said mechanism, said detent being manually movable by moving said head relative to said body, into and out of positions where operation of said opening and closing mechanism is arrested.

17. In a doll, a neck piece, a head mounted thereon for turning movement, an abutment attached to the interior of said head, retaining means attached to said neck piece for connecting said neck piece and head, an abutment on said retaining means spaced from said first

named abutment, said abutments being in the same path of travel and engageable with each other, when the head is turned to prevent the turning movement of the head beyond the plane of said abutments when so engaged.

18. In combination, a doll's head, a retaining means for connecting said head with a body of a doll comprising a resilient stem adapted to project through an opening in the base of the doll's head, said stem having a head having an annular resilient flange extending outwardly and downwardly from said head whereby a portion encircles said stem in spaced relation thereto defining a recess between the stem and head, said doll's head having an opening of greater diameter than said stem and of less diameter than said flange, said flange when disposed within said head being yieldable outwardly to a plane at least substantially flush with the head of the stem, for yieldingly engaging said head in fluid tight relation.

19. A structure as set forth in foregoing claim 18, wherein the head of the stem is provided with a transverse passage, and a rigid bar disposed in said passage, said bar when assembled extending beyond opposite sides of said opening in the doll's head.

20. A structure as set forth in foregoing claim 18 wherein one side of the stem is shorter than the other whereby the head of the stem is inclined for lowering the chin portion of the doll's head.

21. The combination with a doll body, a head turnable thereon and having a pliant, non-metallic member mounted in the interior thereof, of an eye closing and opening mechanism carried by said head and having a portion releasably engageable with said member, after said eye has been positioned by said mechanism, and said head turned in one direction, to maintain said eye in such position in all positions of the body and whether said body be in a reclining or upright position.

22. The combination of a doll body, a head movably mounted thereon, a non-gravity operating member mounted in the interior thereof said head and member being adjustable to different positions relative to each other on movement of said head relative to the body, an eye closing and opening mechanism carried by said head and having a portion releasably engageable with said member, after said eye has been opened or closed by said mechanism, and said head turned in one direction, to maintain said eye in closed or open position whether said body be in a reclining or upright position or on one side or the other.

23. The combination of a doll body, a head movably mounted thereon, a member mounted in the interior thereof, said head and member being adjustable to different positions relative to each other by manual movement of said head relative to the body, an eye closing and opening mechanism carried by said head and having a portion releasably engageable with said member, after said eye has been positioned by said mechanism, and said head turned in one direction with respect to the body, to positively maintain said eye in closed or open position whether said body be in a reclining or upright position.