Feb. 28, 1928. 1,661,094

I. A. ROMMER

DOLL'S EYES

Filed Feb. 25. 1926

Fig. 1.

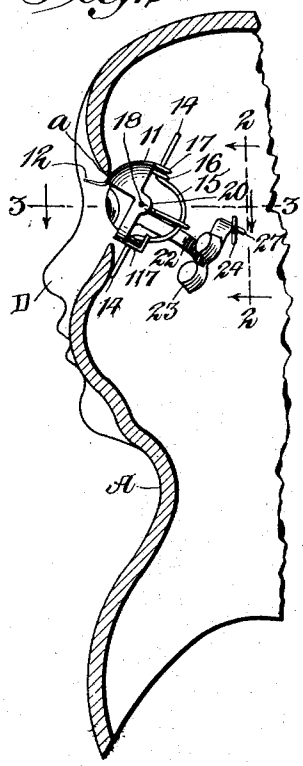


Fig. 2.

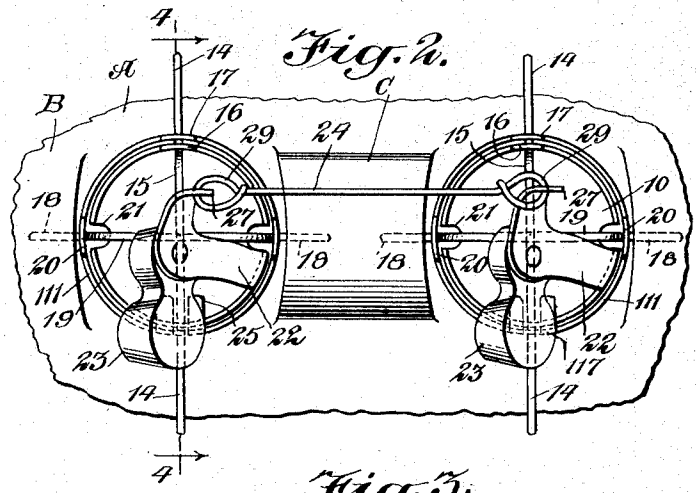


Fig. 3.

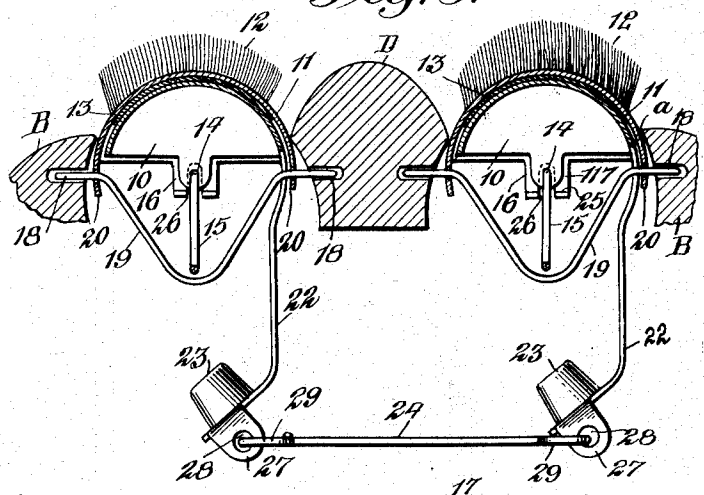


Fig. 4.

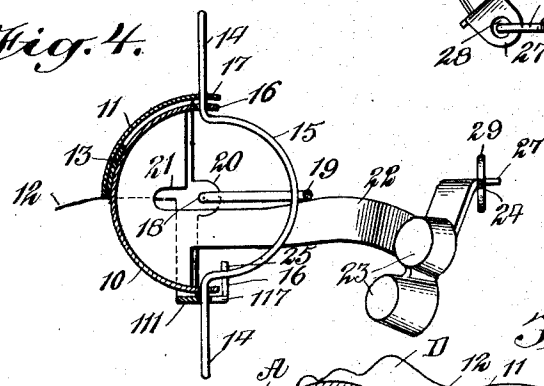


Fig. 5.

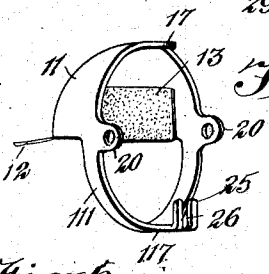
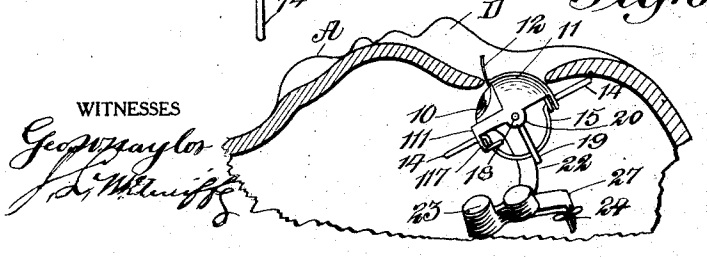


Fig. 6.



WITNESSES

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# UNITED STATES PATENT OFFICE.

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## DOLL'S EYES.

Application filed February 25, 1926. Serial No. 90,538.

This application is a continuation in part of application 713,003 filed May 13, 1924.

My invention relates to dolls' eyes and particularly to dolls' eyes movably mounted to vibrate from side to side and vertically for closing the eyes as if in sleeping.

The general object of my invention is to provide a doll's eye assemblage including eyeballs and eyelids having eyelashes thereon, and so arranged as to produce natural movements of the eyeball and eyelid to the end that the eyeball may turn from side to side independently of the eyelid after the manner of the human eye and to the further end that the eyeball and eyelid may rock vertically in unison to close as if in sleep.

The manner and means whereby the above and other objects as will appear are attained, will be readily understood from the specific description following.

Reference is to be had to the accompanying drawings forming a part of this specification, it being understood that the drawings are merely illustrative of one example of the invention.

Figure 1 is a vertical section of the front portion of a doll's head equipped with my improved eyeball assemblage shown in side view and with the parts in the positions assumed by them when the eyes are open;

Figure 2 is an enlarged rear elevation of the eyeball assemblage as emplaced in the head, a fragment of which is included in the view;

Figure 3 is a horizontal section as indicated by the line 3—3 of Figure 1;

Figure 4 is a vertical section as indicated by the line 4—4, Figure 2;

Figure 5 is a perspective view of one of the eyelid units;

Figure 6 is a vertical section of the front portion of the head in sleeping or reclining posture with the eye assemblage is side elevation and with the parts in the positions they assume when the eyes are closed as if in sleep.

In carrying out my invention in accordance with the illustrated example, I provide an eyeball element 10 in the form of a hemispherical shell and a separate eyelid element 11 made in the form of a concavo-convex sector disposed outside of the eyeball 10 and concentric therewith. Each eyelid element 11 is provided with an eyelash 12 preferably formed of a layer of fabric 13 glued to the inner surface of element 11. In forming the eyelash 12, either the warp or weft threads of the fabric 13 are removed, leaving only threads of one direction to simulate an eyelash.

Upper and lower vertical pivots 14 are provided for eyeball element 10 so that said element may turn sidewise. Said pivots 14 are in axial alinement and integral with a bowed wire 15. The pivots 14 pass vertically through rearwardly directed ears 16 at the top and bottom of element 10 and the upper pivot 14 passes through ear 17 on element 11 at the top and through a bottom ear 117 disposed on a depending yoke 111 on element 11.

In addition to the vertical pivots 14 I provide horizontal pivots 18 formed on a horizontal bowed yoke 19 in a plane transverse to the plane of the bowed wire 15. The horizontal pivots 18 pass through ears 20 on the element 11 and the outer pivots 18 have bearings at the outside of the elements 11 in walls or thickened portions B of the head A. Similarly, pivots 18 at the inner ends of the yoke 19 have bearings in a bridge or enlargement C integral with the back of the nose D of the doll's head. In eyeball element 10 at each side are slots 21 (Fig. 4) affording clearance for the turning sidewise of the said element 10 without contact with pivots 18 or yoke 19.

On each eyeball element 10 at a side thereof is an arm 22 directed rearwardly and downwardly and weighted in any suitable manner as indicated at 23. The two arms 22 are connected by a transverse link 24 so that one eyeball element 10 will necessarily partake of the transverse movements of the other eyeball element 10.

Bowed wire 15 adjacent to the bottom pivot 14 is disposed in a vertical slot 26 (Fig. 5) presented by an upturned fork 25 on the ear 117 to prevent lateral displacement of said wire 15 and the pivots 14.

It is to be noted that the alined vertical pivots 14 have no bearings in the head A of the doll, the said pivots with the integral bowed wire 15 being floating without bearings. The arrangement permits of the bodily movement of the wire 15 and pivots 14 in response to the pendulous movement of the weighted arms 22 and link 24.

With the described doll's eye assemblage it will be clear that the eyeball elements 10 may with their arms 22 turn sidewise with the pivots 14 as an axis and thus relatively

to an independently of the eyelid element 11. Thus, the head may be moved slightly from side to side or gently vibrated to vibrate the arms 22 sidewise, thereby giving turning movement to element 10 through an arc sufficient to simulate the sidewise turning of the eyeball in the human eye socket. On the other hand if the head A be placed in a horizontal or reclining position as in sleep, there will be a vertical pendulous movement of the weighted arms 22 under their own gravity and with said arms will vertically turn the eyeball element 10 which is integral therewith. The vertical turning of the eyeball element 10 will, by engagement with the lugs 16, bodily move the yoke 15 and pivots 14 in their vertical plane. As the pivots 14 move vertically, they necessarily carry the eyelid elements 11 in an arc in unison with the turning of the element 10. Thus, it will be clear that the eyeball elements 10 may turn sidewise with the pivots 14 as an axis and independently of the eyelid element 11 while the turning of the eyeball element 10 up or down, will through the pivots 14 carry also the eyelid elements 11 up or down. Thus, as the eyeball elements turn as in sleep, the eyelid element 11 and eyelashes 12 will close or open in unison.

I would here mention that the horizontal pivots 18, in passing through the ears 20 on elements 11, prevent lateral vibration of said elements 11 with the sidewise turning of the eyeball elements 10.

Reverting to the vertical pivots 14 and their bodily movement with the wire 15, forward or back, with the vertical vibration of the eyeball elements 10 and eyelid elements 11, it will be observed by comparing Figures 1 and 6 that in one position of the eyelid elements, that is to say, above the eyeball elements 10 in the open position of the eyes as in Figure 1, the lower pivot 14 contacts with the inner surface of the face or front of the doll's head while in the position of the parts with the eyelid elements 11 presented at the front of the openings *a* in the head A, the upper vertical pivots 14 contact with the doll's head above the eye openings *a* so that said upper and lower pivots 14 serve to limit the movements of the eyeball elements and eyelid elements in the movements of opening and closing of the eyes.

In order to provide for causing the individual eyes to accommodate themselves to any lack of precise accuracy, in the formation of the head at the eye openings, I provide for the independent vertical movement of the eyes and in fact for an independent universal movement sufficient for each eye to conform to its particular opening. As shown best in Figures 3 and 4, the transverse link 24 has its end portions passed through holes 28 in lateral ears 27. The connection between the ends of the link 24 and the ears 27, in effect, affords a practical universal connection and allows freedom of movement of one arm 22 and the adjacent eye of link 24 relatively to the opposite arm 22 and the corresponding end of said link 24. A vertical movement of the link 24 at one end is effective only to a slight degree or not at all at the opposite end so that the parts are not distorted in the relative vertical movements of the arms 22. The independent movement of the arms 22 results in affording the eyeball elements 10 to an independent movement one of the other, so that each eye can conform itself to any irregularities in the formation of the head at the eye openings.

I would state furthermore that while the illustrated example constitutes a practical embodiment, I do not limit myself strictly to the exact details herein illustrated since, manifestly, the same can be considerably varied without departure from the spirit of the invention.

Having thus described my invention, I claim:

A doll's eye assemblage including eyeball elements, said eyeball elements having horizontal slots weighted arms on said elements, a pivoted link connection between said arms, separate eyelid elements having side portions, yokes presenting horizontal pivots for the eyeball elements, said horizontal pivots being in the plane of and passing through said slots in the eyeball elements and through said side portions of the eyelid elements, and vertically disposed bowed wires presenting upper and lower alined vertical pivots on which the eyeball and eyelid elements are mounted and about the axes of which vertical pivots the eyeball elements may turn sidewise relatively to the eyelid elements.

ISAAC A. ROMMER.