June 2, 1925. 1,540,522

L. J. GRUBMAN

EYE MOUNTING FOR DOLLS

Filed Nov. 7, 1924

Fig. 1.

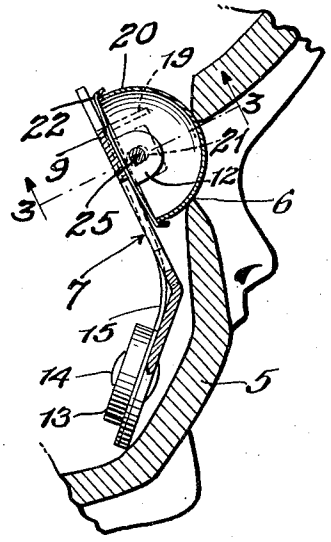


Fig. 2.

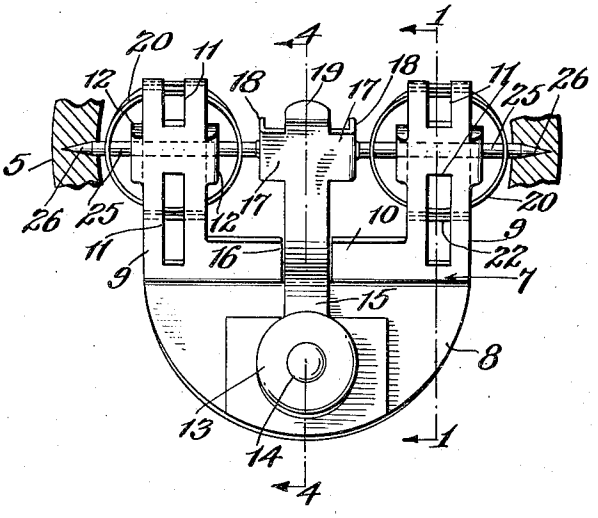


Fig. 3.

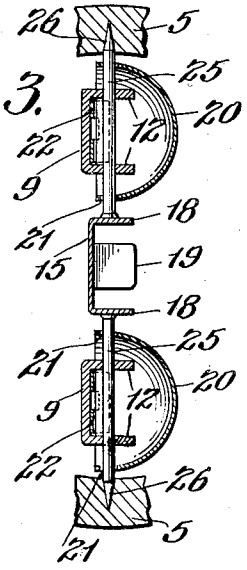


Fig. 4.

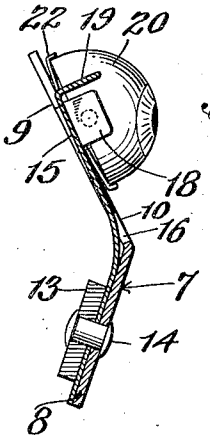
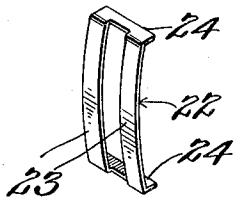


Fig. 5.



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UNITED STATES PATENT OFFICE.

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EYE MOUNTING FOR DOLLS.

Application filed November 7, 1924. Serial No. 748,311.

To all whom it may concern:

Be it known that I, LEO J. GRUBMAN, a citizen of the United States, and a resident of Belle Harbor, county of Queens, State of New York, have invented certain new and useful Improvements in Eye Mountings for Dolls, of which the following is a specification.

This invention relates to eye mountings for dolls and has for its primary object to improve and simplify the construction of the eye mounting or setting shown and described in my pending application for patent, Serial No. 704,410, filed April 5th, 1924.

More particularly, my present improvements comprehend an improved means for mounting the individual eye members upon the oscillatory frame or support, whereby said members may find their own centers of oscillation independently of each other with respect to the walls of the eye sockets and with relation to the axis of the oscillatory frame or support.

In one embodiment of the invention I provide the supporting frame with spaced pairs of lugs, each pair of lugs extending within one of the eye shells, and a pivot pin loosely engaged through each pair of lugs and through slots in the wall of the eye shell, the outer ends of said pins being pointed and adapted to be forced into the material of the doll head wall, and means carried by the frame disposed between the inner ends of said pivot pins to space the same apart and retain the pins in their operative positions.

It is another object of my invention to provide an eye mounting of the above character, wherein the several parts are of very simple form and construction, capable of being easily and quickly assembled in proper cooperative relation, and which also enables the mounting as a whole to be quickly and accurately applied in operative position within the doll head, so that the individual eye members will have their peripheral surfaces properly located with respect to the walls of the respective eye sockets and thus produce a realistic simulation of the movement of the human eye.

With the above and other objects in view, the invention consists in the improved eye mounting and in the form, construction and relative arrangement of its several parts, as will be hereinafter more fully described, illustrated in the accompanying drawing and subsequently incorporated in the subjoined claims.

In the drawing wherein I have disclosed one simple and satisfactory embodiment of my present improvements and in which similar reference characters designate corresponding parts throughout the several views:

Figure 1 is a sectional view through a doll head, having my improved eye mounting arranged therein and taken approximately on the line 1—1 of Figure 2.

Figure 2 is a rear elevation of the mounting, parts of the doll head being shown in section.

Figure 3 is a horizontal sectional view taken on the line 3—3 of Figure 1.

Figure 4 is a sectional view of the eye mounting taken on the line 4—4 of Figure 2.

Figure 5 is a detail perspective view of one of the spring members for yieldingly holding the eye shell against independent movement on the oscillating frame.

For the purpose of illustrating the manner of application of my improved eye mounting in the accompanying drawing, I have shown a part of a doll head 5, which may be molded or otherwise fashioned from wood pulp, papier-mâché or other suitable composition material. The front wall of this doll head is provided with the usual eye sockets, one of which is indicated at 6, arranged in appropriate spaced relation to the other molded facial features of the head.

The new eye mounting forming the subject matter of the present application includes a frame generally indicated at 7 and preferably consisting of a stamped plate of steel or other metal. This plate may be of any suitable form and dimensions, but as herein shown, is provided with a substantially semicircular end portion 8 and a pair of arms 9 extending in oblique angular relation to the end portion 8 of said plate at the opposite side edges thereof. These arms at their juncture with the end portion 8 are integrally connected by the flange 10. Each of the arms 9 is preferably slotted as at 11, and on the opposite side edges of said arms and extending at right angles to the plane thereof, the lugs or ears 12 are formed. These lugs are pro-

vided with coinciding openings for a purpose which will hereinafter appear.

A suitable weight 13 is fixed to the end portion 8 of the frame plate, the attaching or securing rivet 14 for said weight also securing to the frame plate one end of a spring arm 15 of resilient sheet metal, which extends upwardly through a central recess 16 in the flange 10, and at its upper end is provided on its side edges with the lateral extensions 17 terminating in the forwardly projecting lugs 18. Above the extensions 17 the spring arm 15 terminates in an angularly disposed forwardly projecting lug 19.

It will be noted from reference to Figure 4 of the drawings that adjacent to its fixed end the spring arm 15 is curved and extends upwardly substantially in the plane of the frame arms 9.

The individual eye members 20 are in the form of hemispherical shells, preferably of celluloid or other suitable material which may be readily die shaped or formed. The shell wall adjacent to the open side thereof and at diametrically opposite points is provided with openings 21 therein, which are elongated along a directional line, bisecting the wall of the eye shell.

In assembling the eye members 20 upon the frame 7, leaf springs 22, preferably substantially of the form shown in Figure 5 of the drawings, are interposed between the rear open sides of the eye shells and the arms 9, such springs being disposed between the lugs 12 on said arms and having their medial portions in bearing contact upon the frame arms. As shown in Figure 5, each of these spring elements is formed from a stamped resilient metal plate longitudinally slotted to provide spaced spring portions 23, integrally connected at their ends by the angularly disposed flanges 24.

The spring portions 23 are slightly bowed longitudinally, as shown in Figure 1 of the drawings, and the end flanges 24 project forwardly and exteriorly upon the rear edge of the eye shell 20.

After the eye shells are positioned with the spring members 22 on the frame arms 9, the pivot pins 25 are then inserted through the elongated openings 21 in the wall of each eye shell, and the coinciding openings in the respective pairs of lugs 12 on the frame arms.

In a copending application for patent, filed of even date herewith, I have described and claimed a new method of positioning the eye mounting within the doll head so as to insure an accurate oscillating movement of the eye members in the respective sockets, and also a new tool for this purpose. However, in so far as the subject matter herein claimed is concerned, it will suffice to state that in arranging the eye mounting above described within the doll head, the eye members 20 are positioned in the respective eye sockets 6 with their peripheral surfaces in contact with the walls of said sockets. Owing to the fact that the rear edges of the eye members are maintained out of contact with the surfaces of the frame arms 9 by the leaf springs 22, any desired degree of frictional pressure of the eye member against the wall of the socket may be obtained. The pins 25 are then projected outwardly in relatively opposite directions, and the pointed outer ends 26 of these pins are imbedded in the material of the doll head wall. Previous to this operation and when the pivot pins 25 are inserted through the coinciding openings in the walls of the eye members and the lugs 12, the upper end portion of the spring arm 15 is depressed so as to position the lugs 18 thereof out of alignment with said openings. As soon as the pins 25 are operatively engaged at their outer ends in the head wall and when the space or distance between the inner opposed ends of said pins is sufficiently increased, the spring arm 15 returns to its normal position and the lugs 18 thereon enter said space between the opposed ends of the pivot pins and contact respectively therewith. Thus the pivot pins are permanently spaced apart and their inward axial movement, whereby their outer ends might become disengaged from the wall of the doll head, is effectually precluded.

In the manner above described it will be apparent that my new mounting may be very easily, quickly and accurately mounted in its operative position in the wall of the doll head. The pivot pins 25 may either remain stationary while the frame 9 and the eye members 20 oscillate with respect thereto, or said pins may also turn or oscillate with said frame or eye members in relation to the wall of the doll head, when the doll is moved from an upright to a horizontal or reclining position, or vice versa. During such manipulations of the doll it will be understood that the weighted frame 7 swings in the nature of a pendulum in the usual manner. The leaf springs 22 and the elongated slots 21 in the walls of the eye shells assure a proper contacting relation between the peripheral surfaces of the eye shells and the walls of the eye sockets and a true concentric movement of said peripheral surfaces of the eye shells with relation to the sockets, although it is possible that the centers of the eye sockets in the doll head wall may be out of alignment with each other.

It will be seen that the essential and distinguishing feature of my present disclosure resides in the fact that the individual pivot pins for the eye shells which are mounted

on the frame, are retained in operative connection or relation to the wall of the doll head by means carried by the oscillating frame, and it is unnecessary to provide other and additional means formed upon or secured to the interior of the doll head wall for the purpose of supporting these pivot pins in the manner heretofore customary in this art. Therefore I am enabled to supply such eye mountings to doll head manufacturers who may readily arrange the mounting in operative position within the doll head without necessitating any special structural provision or alteration of the doll head to accommodate the mounting.

From the foregoing description, considered in connection with the accompanying drawing, the construction, manner of operation and several advantages of my present improvements will be clearly understood. It will be seen that I have materially simplified the construction and reduced the manufacturing cost of the eye mounting shown in my former application, while maintaining the fundamental principle thereof, namely, the provision of an eye mounting for dolls, which embodies all necessary mechanical elements enabling such mounting to be easily, quickly and properly arranged in operative position within an ordinary doll head and without requiring the exercise of a high degree of skill upon the part of the workman.

I have herein shown and described a structural embodiment of the invention, which I have found to be entirely practical. However, it is apparent that the essential and important features of my present disclosure may be exemplified by means of various other alternative mechanical structures, and I therefore reserve the privilege of resorting to all such legitimate changes in the form, construction and relative arrangement of the several parts as may be fairly embodied within the spirit and scope of the invention as claimed.

What I claim is:

1. In an eye mounting for dolls, eye members, pivot means movably engaged with said members and adapted to be moved relative thereto into engagement with a doll head wall to support said eye members for oscillatory movement, and a spring actuated part adapted to coact with said pivot means and rigidly hold the same in applied positin with respect to the doll head wall.

2. In an eye mounting for dolls, eye members, independent pivot pins engaged with the respective eye members and adapted to be axially projected into engagement with opposite sides of a doll head wall to support said eye members for oscillatory movement, and a spring projected abutment adapted to occupy a normal position between the opposed ends of said pivot pins and unyieldingly resist movement of said pins from their applied positions with respect to the doll head wall.

3. In an eye mounting for dolls, eye members, independent pivot pins engaged with the respective eye members and adapted to be axially projected into engagement with opposite sides of a doll head wall to support said eye members for oscillatory movement, and a leaf spring fixed at one of its ends and provided with an abutment at its other end normally interposed between the opposed ends of said pivot pins and unyieldingly resisting movement of said pins from their applied positions with respect to the doll head wall.

4. In an eye mounting for dolls, an eye supporting frame, spaced pivot members movably engaged with parts of said frame and adapted to be moved with relation thereto into engagement with opposite sides of a doll head wall to support said frame for oscillatory movement, and a spring projected abutment adapted to occupy a normal position between the opposed ends of said pivot members and unyieldingly resist movement of said members from their applied positions with respect to the doll head wall.

5. In an eye mounting for dolls, an eye supporting frame, spaced pivot members movably engaged with parts of said frame and adapted to be moved with relation thereto into engagement with opposite sides of a doll head wall to support said frame for oscillatory movement, and a spring projected abutment carried by said frame and adapted to occupy a normal position between said spaced pivot members to unyieldingly resist movement of said members from their applied positions with respect to the doll head wall.

6. In an eye mounting for dolls, a frame, spaced eye members, pivot pins engaged with spaced parts of the frame and coacting with the respective eye members to hold the latter in assembled relation on the frame, said pivot pins being axially movable relative to the frame and adapted to be projected into bearing engagement with opposite sides of a doll head wall, and a spring projected abutment mounted on said frame and adapted to occupy a normal position between said pivot pins to unyieldingly resist movement of said pins from their applied positions with respect to the doll head wall.

7. In an eye mounting for dolls, a frame, spaced eye members, pins engaged with the respective eye members and with parts of the frame, said pins adapted to be moved with respect to the frame parts into engagement at one of their ends with the wall of the doll head to oscillatably support said frame, means on said frame engageable be-

tween the other ends of said pins to prevent their relative axial movement out of supporting relation with the doll head wall, and means interposed between the eye members and said frame and yieldingly resisting a movement of said eye members with relation to the respective pivot pins.

8. In an eye mounting for dolls, a frame, spaced eye shells arranged on one side of the frame and each having elongated slots in its wall, pivot pins respectively engaged through said slots and with spaced parts of the frame, said pins adapted to be moved with respect to the frame parts into supporting engagement at one of their ends with the wall of the doll head, means interposed between the rear open side of each eye shell and the frame, spacing the rear edge of the shell wall from the frame and yieldingly resisting movement of the eye shells relative to the respective pivot pins, and means on said frame adapted to co-act with said pivot pins and retain the same in their applied positions relative to the doll head wall.

9. In combination with a doll's head, having eye openings in its wall, eye ball members within said openings, spaced pivot members located coincident with the axes of the respective eye ball members and movable relative thereto into engagement with opposite sides of the doll head wall to support the eye members for oscillatory movement, and a movably mounted part adapted to automatically engage the said pivot members and unyieldingly resist their reverse axial movement from their applied positions with respect to the doll head wall.

10. In combination with a doll's head, having eye openings in its wall, eye ball members within said openings, spaced pivot members located coincident with the axes of the respective eye ball members and movable relative thereto into engagement with opposite sides of the doll head wall to support the eye members for oscillatory movement, gravity controlled means for oscillating said eye members and a part movable with and relative to said gravity controlled means and adapted to automatically co-act with the pivot members when the latter are engaged with the doll head wall to unyieldingly resist reverse axial movement of said members from their applied positions with respect to said wall.

In testimony that I claim the foregoing as my invention, I have signed my name hereto.

LEO J. GRUBMAN.