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S. MARCUS

EYE SET

Filed May 7, 1927

Fig. 1.

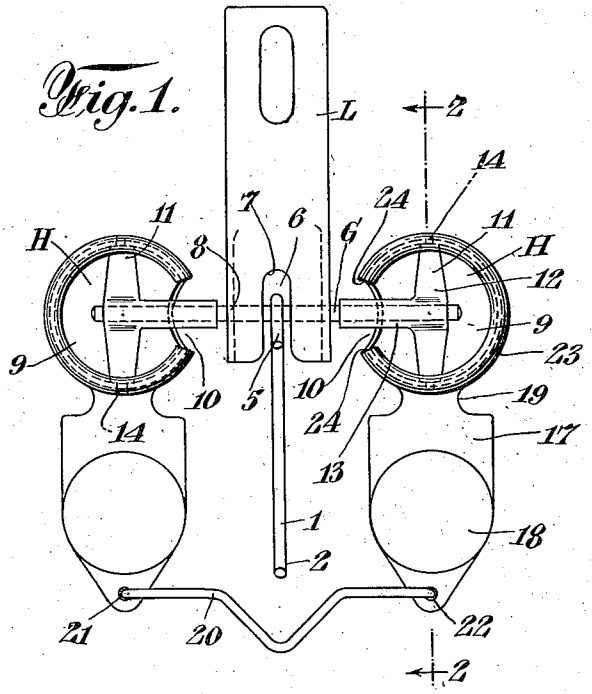
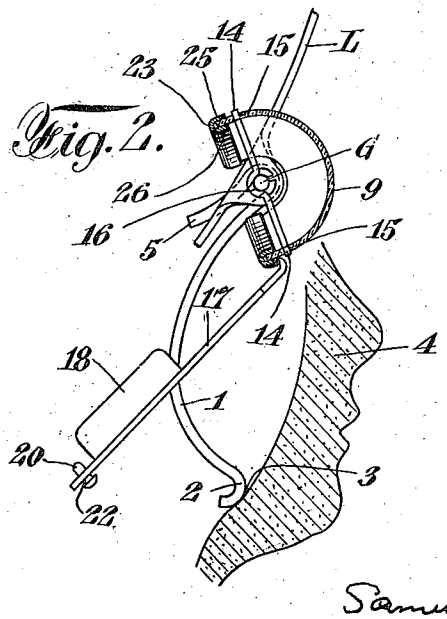


Fig. 2.



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EYE SET.

Application filed May 7, 1927. Serial No. 189,517.

This invention relates to eye sets for dolls, toys, and similar articles, the present device being in the nature of an improvement over the structure shown and described in the pending application of Alexander Konoff Serial Number 85,153, filed February 1st, 1926.

A particular object of the present invention is to provide improved means by which a gravity control may be attached to the eye shells.

A further object is to provide means for attaching a gravity control to eye shells which are made of celluloid or other similar material.

A further object is to provide simple and practical means to maintain celluloid eye shells permanently against distortion, and to at the same time, if desired, attach a gravity control thereto.

A further detailed object is to so arrange the parts that eyes of the completed eye set are adapted to have a rolling motion as well as the more common place opening and closing movement.

Other objects and aims of the invention, more or less specific than those referred to above, will be in part obvious and in part pointed out in the course of the following description of the elements, combinations, arrangements of parts and applications of principles constituting the invention; and the scope of protection contemplated will be indicated in the appended claims.

In the accompanying drawings which are to be taken as a part of this specification, and in which I have shown merely a preferred form of embodiment of the invention:—

Fig. 1 is a rear elevational view of an eye set constructed in accordance with this invention, and

Fig. 2 is a vertical sectional view taken substantially upon the plane of line II—II of Fig. 1.

Referring to the drawings for describing in detail the structure shown therein, and bearing in mind that the form of the invention as illustrated and here described in detail is merely an exemplary form of the invention, the reference character L indicates the usual bracket member by means of which the eye set is intended to be connected with an inner surface portion of a doll in any well known manner.

The reference character G indicates the cross, or supporting, rod, which is rotatably mounted upon the bracket L and which carries at its opposite ends the two eyes as H—H.

The rod G is shown as having fixed thereto a pendant arm 1 at its central portion, said arm being suitably bent and formed so that its end portion as 2 is adapted to abut against an inner surface as 3 of the doll head 4 at a proper point to limit rotary movement of the rod G in one direction. This arm is constructed so that it may be bent by a workman when and as required to alter the exact limit of rotation of said rod.

The rod G may have fixed thereto a second and shorter arm 5, as an extension of the same piece of material as constitutes the arm 1 or not as preferred. The arm 5 is shown as moving within a slot 6 provided in the bracket plate L and as being adapted to engage against the upper end wall 7 of said slot to limit rotary movement of the rod in a direction opposite to the direction limited by arm 1. The presence of the arm 5 within the slot 6 also serves to hold the rod G against excessive longitudinal movement in the bearings 8 provided upon the bracket plate.

The eyes H—H are identical in construction and operation except that they are made rights and lefts and a description of one will apply to both, as follows:

The hemispherical eye shell 9 has a notch 10 in one side thereof through which projects the supporting rod G, said notch being intended to permit ample swinging movement of the shell upon a vertical pivot as will be presently described.

An attaching member 11 is arranged at the rear of the shell 9 and consists of what will be termed a main flat plate portion 12 and a stem portion 13. The plate portion 12 extends vertically across the rear open side of the shell and has pivotal extension parts 14—14 formed at its upper and lower ends extending through bearing apertures 15—15 provided to receive them in the shell 9.

The stem portion 13 projects laterally from the plate portion 12 and is shown as

comprising a tubular sleeve adapted to telescope over the supporting rod G, the plate portion being preferably formed with a groove 16 therein so as to provide unobstructed longitudinal movement of the sleeve along the supporting rod while yet disposing the pivot parts 14—14 in a common substantially vertical plane with the axial centre of the rod G.

The stem or sleeve 13 is formed from sheet metal bent into tubular shape but the edges are preferably not fixedly connected together. The sleeve is normally of a slightly less internal diameter than the external diameter of the supporting rod and must therefore be expanded when being forced onto the rod. Sufficient friction is thus generated to retain the sleeve in any position to which it is adjusted either longitudinally or rotatably upon the rod.

The bearings 15—15 in the eye shell are so disposed that said bearing apertures stand in a common substantially vertical plane with the axial centre of the supporting rod and the spherical centre of the shell in order that no appreciable bodily displacement of the shell will accompany rotary movement of the shell when the shell swings about the vertical axis provided by the parts 14 and 15 or the horizontal axis provided by rod G.

Longitudinal movement of the attaching member along the supporting rod will of course correspondingly move the eye shells to and away from each other along said rod to properly mate with the eye openings of a doll head, and since both shells are connected with the same supporting rod both shells will of course rotate in unison during all opening and closing movements of the eyes.

Fixed to the rear of the shell is an extension 17 which depends from the shell and carries a weight 18 at or near its lower end, from which it will be seen that by moving the doll from an upright to a reclining position the weight will swing from its normal position as in Fig. 2 backwardly by gravity and thus cause the eyes to move from its open to its closed position in the customary manner.

In its normal position the weight is held by the arm 1 against swinging downwardly to a position directly vertically beneath the supporting rod G since in this way the weight will serve more efficiently to hold the eye steadily in an open position during the handling of the doll while the doll remains substantially upright.

Also the position of the weight rearwardly of the vertical plane of the axial centre of the rod G and hence rearwardly of the axial line of the pivots 14—14 will cause the weight to perform the added function of rotating or rolling the eye about the pivots 14—14 whenever the doll is inclined to the right or left whether the doll be in a fully upright position or a partly or wholly reclining position.

The extension 17 is formed with a reduced neck portion 19 or other suitable means by which it may be readily bent by a workman in order to dispose the weight at the most suitable and advantageous position with respect to the eye shell and the arm 1.

In order to insure against possible differences in extent or time of rolling movement of one eye with respect to the other it is preferable that they be connected together and for this purpose the drawing herewith illustrates a connecting link as 20 which has its opposite ends pivotally connected as at 21 and 22 with the lower end portions of the extensions 17, said pivotal connections being sufficiently loose to permit of all necessary adjustments of the extensions or the eyes rotatably or longitudinally along the supporting rod as well as to permit of unobstructed swinging of the extensions at all times.

The structure as thus far described is in most part identical with that shown and described in the mentioned pending application. It is contemplated however by the present invention to construct the eye shell 9 substantially wholly of celluloid and to provide a novel form of means by which the gravity control extension 17—18 may be connected with the eye shells of celluloid or the like. Important requisites to this end are that the extensions shall be firmly and rigidly connected with the shells, that no difficult or impractical bending or shaping of the celluloid material shall be required, that no tendency shall be present to distort the relative flimsy celluloid material and that the attaching means shall be simple and efficient and yet capable of easy and cheap production and application.

To this end the drawing suggests that a ring shaped member as 23 of metal be provided, said member being of U-shape in cross section and adapted therebv to straddle about the rear annular edge portion of the celluloid shell, the ring being preferably discontinued as at 24—24 adjacent opposite sides of the notch 10 so as not to interfere with the function of said notch, it being here noted that the bottom wall of the notch is intended to abut against the cross rod, or against the sleeve 13, to limit rolling movement of the shell in one direction, rolling movement in the opposite direction being limited by corresponding engagement of the second eye shell against its adjacent sleeve 13, the connecting link 20 serving always to communicate the stoppage to the first eye.

The metallic ring 23 is preferably formed of sheet metal bent into U-cross section, and it is also preferably, although not necessarily, formed as an integral part of the mate-

rial comprising extension 17, the extension 17 being in any event however firmly connected with the ring.

It is intended that the opposite leg portions as 25 and 26 of the ring shall be pressed toward each other sufficiently to firmly clamp themselves upon the intervening edge portion of the celluloid shell so that said shell and ring are thus permanently connected together.

By this means the ring not only serves as a connecting means by which to attach the extension 17 to the celluloid shell but also constitutes an efficient re-inforcing element of the shell serving to greatly strengthen the shell and hold it against possible distortion out of its intended true hemispherical shape. It thus insures retention of the bearings 15 always in proper position to receive and to correctly support upon the pivot parts 14, and it constitutes a very pleasing and attractive finish for the rear of the eye structure.

In practice it is found that the celluloid shell, prior to the attachment of the re-inforcing ring 23 thereonto is capable of easy manual distortion sufficient to enable the convenient insertion of the pivot parts 14 within the bearing openings 15 thereof, and that the re-inforcing ring may be attached to the shell after said pivot parts have been inserted within the bearing openings, thus efficiently preventing any subsequent accidental detachment of the pivot parts from the bearing openings.

It should be mentioned however that the re-inforcing ring 23 may if desired be made sufficiently elastic to permit flexing thereof along with the shell to enable assembly of the pivot parts within the bearings 15, the resiliency of the material of said ring serving to insure return of the ring and shell to their normal circular contour and the consequent proper retention of the pivot parts within the bearings.

While the use of celluloid eye shells and re-inforcing rings of metal connected thereto are here shown as being employed in connection with eyes which have a rolling motion as well as an opening and closing motion, it is not to be understood however that the invention is in any wise limited to use in connection with such eyes, as obviously the re-inforcing value of the ring is present irrespective of what movement the eyes may have, or even whether they are intended to move or not, and also irrespective of whether or not the rings are used as an attaching medium for a gravity control.

While the re-inforcing rings are particularly designed and intended for use in connection with eye shells made of celluloid, it is nevertheless not intended that this invention shall be limited to the use of celluloid, as obviously the re-inforcing rings may present some or all of their advantages as mentioned even if other material than celluloid is used in forming the eye shells, as for instance eye shells of thin sheet metal may be materially improved by the presence of such rings.

As many changes could be made in this construction without departing from the scope of the invention as defined in the following claims, it is intended that all matter contained in the above description or shown in the accompanying drawings, shall be interpreted as illustrative only and not in a limiting sense.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. An eye shell formed of celluloid and having a re-inforcing element thereon substantially encircling its rear annular edge portion, said shell being of hemispherical form open at its rear side to accommodate supporting means projecting into the shell, and said re-inforcing element being of a general ring shape open at its centre to thereby afford unobstructed access into the rear open end of said shell.

2. An artificial eye comprising a hemispherical eye shell of celluloid open at its rear side to accommodate supporting means projecting into the shell and having an annular rear edge portion, and a metallic re-inforcing element fixed to said annular edge portion of a form permitting free access into the rear open end of said shell, said re-inforcing element having portions standing in engagement with both the inner and outer spherical surfaces of the shell.

3. An artificial eye comprising a hemispherical eye shell of celluloid open at its rear side to accommodate supporting means projecting into the shell and having an annular rear edge portion, and a re-inforcing element fixed to said rear edge portion comprising a metallic ring having opposite leg parts straddling said edge portion and being bent into tight clamping engagement with opposite surfaces of said edge portion to thereby hold the ring connected with the eye shell, said metallic ring being open at its centre to permit free acces into the rear open end of said shell.

4. An artificial eye comprising a hemispherical eye shell of celluloid having an annular rear edge portion, a ring shaped re-inforcing member fixed to said annular edge portion, said re-inforcing member and said shell being flexible, and the eye having means to engage a support by flexing of the shell.

5. An artificial eye comprising a hemispherical eye shell of celluloid having an annular rear edge portion, a gravity control member for said shell, and said gravity control member having an integral part bent and disposed to constitute a re-inforcing

ring of U-cross section straddling the rear edge portion of said shell and fixed thereto.

6. An artificial eye comprising a hemispherical eye shell of celluloid having an annular rear edge portion and having bearing openings, the shell being flexible to facilitate its temporary distortion to enable insertion of supporting means into said bearing openings, a ring shaped re-inforcing member for said annular edge portion, and means whereby the re-inforcing ring may be connected with the shell in a manner to retain the shell against flexing out of engagement with said supporting means.

7. An artificial eye comprising a hemispherical eye shell having an annular rear edge portion, said shell being formed of flexible material likely to become distorted, and a separately formed ring shaped re-inforcing member fixed to said annular edge portion and extending about both the inner and outer spherical surfaces of said edge portion serving to prevent accidental distortion of said shell.

8. An artificial eye comprising a hemispherical eye shell having an annular rear edge portion, said shell having diametrically disposed openings therethrough adjacent the rear edge portion and the material of the shell being readily distortable out of its true hemispherical contour to thereby permit introduction of eye supporting means into said openings, a separately formed re-inforcing member for said annular edge portion, and means whereby the re-inforcing member may be connected with the shell to retain it against detachment from said supporting means.

In testimony whereof I affix my signature.

SAMUEL MARCUS.