Feb. 14, 1933. A. KONOFF 1,897,848

EYE SET

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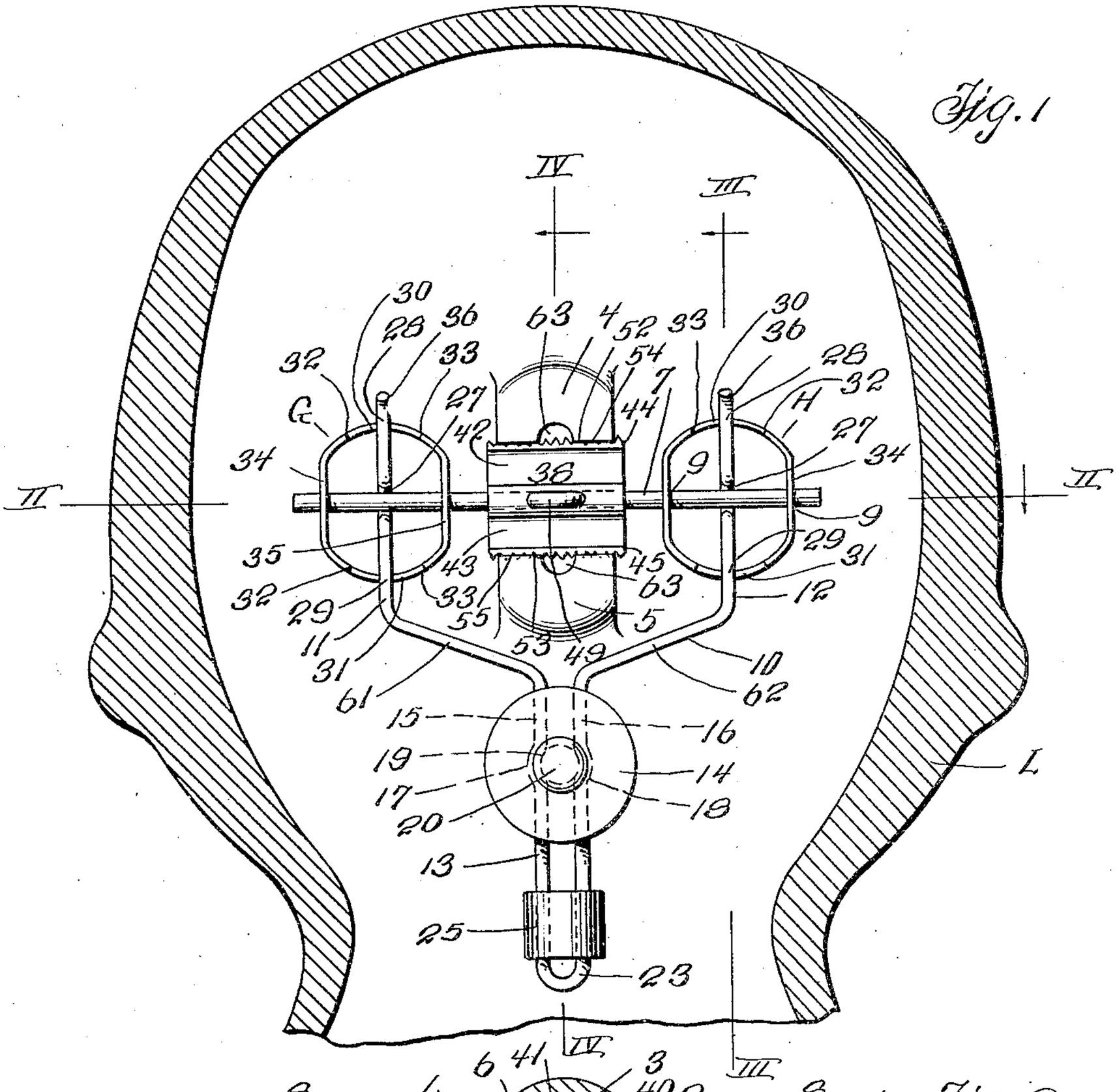
Fig. 1



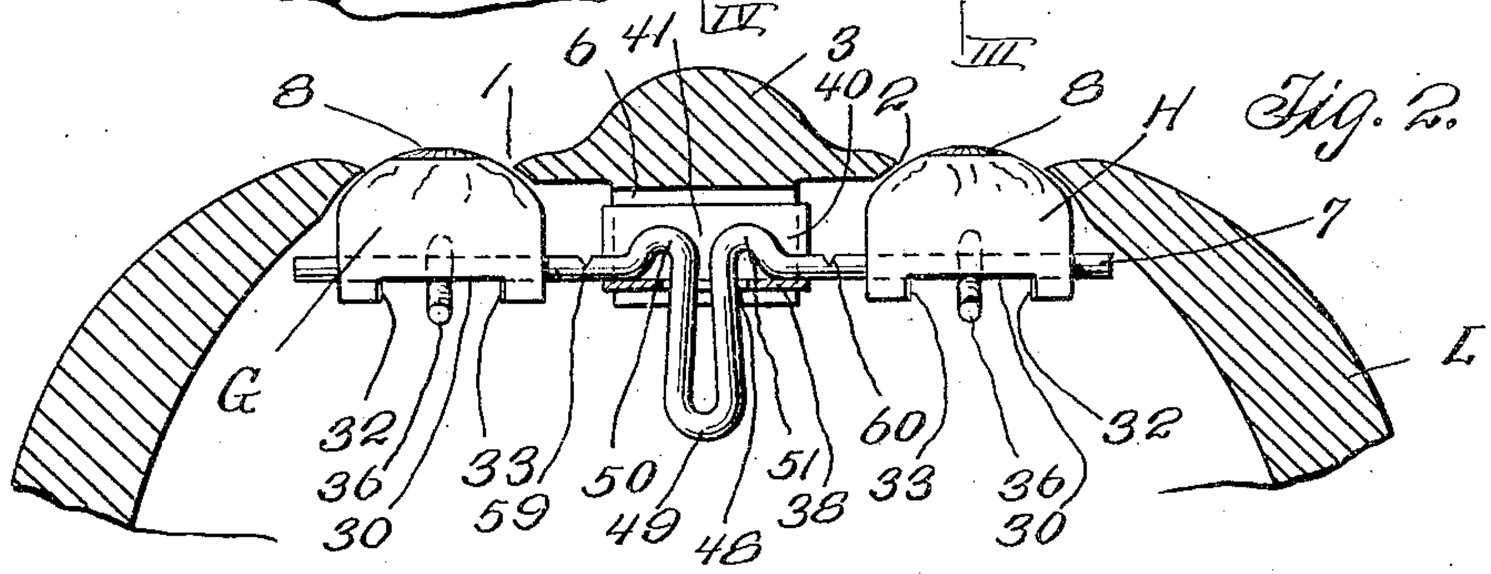


Fig. 2.

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Fig. 3.

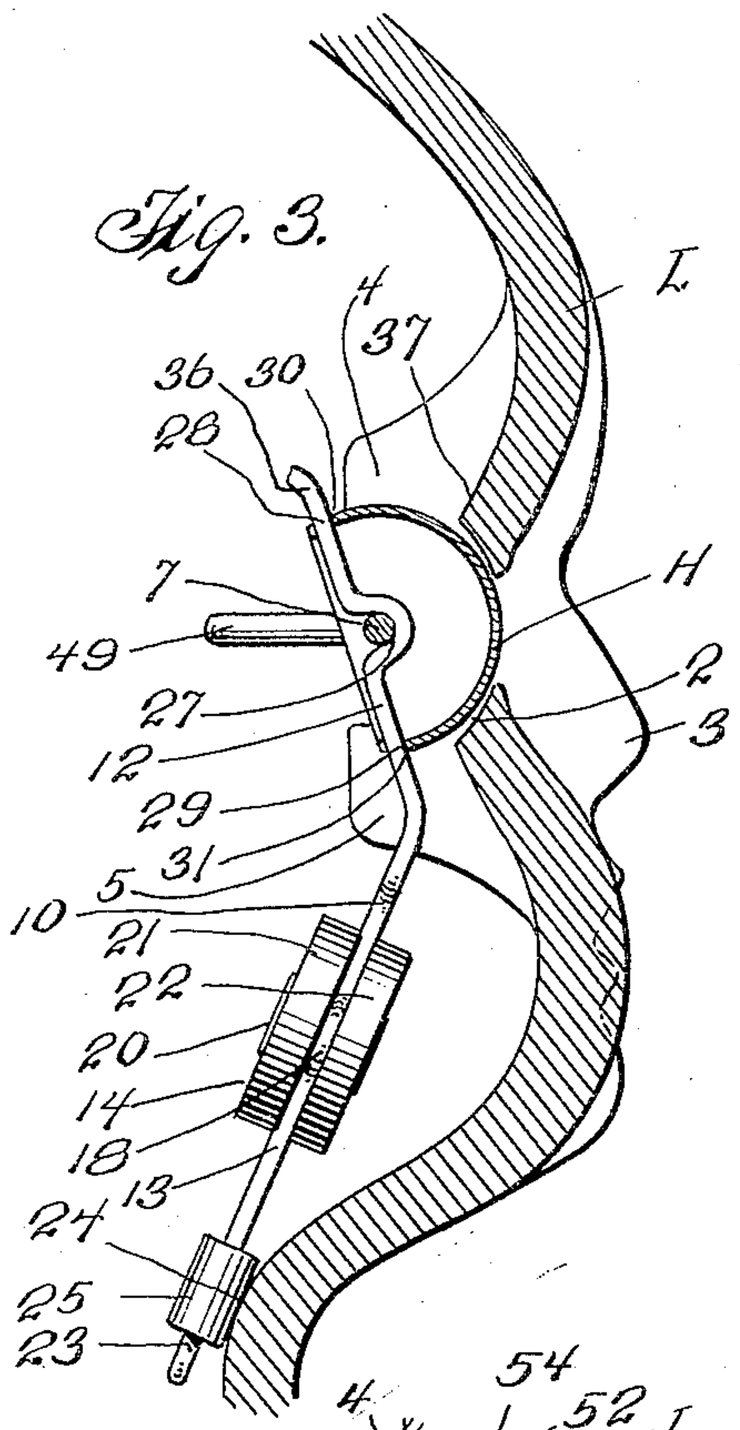

Fig. 4.

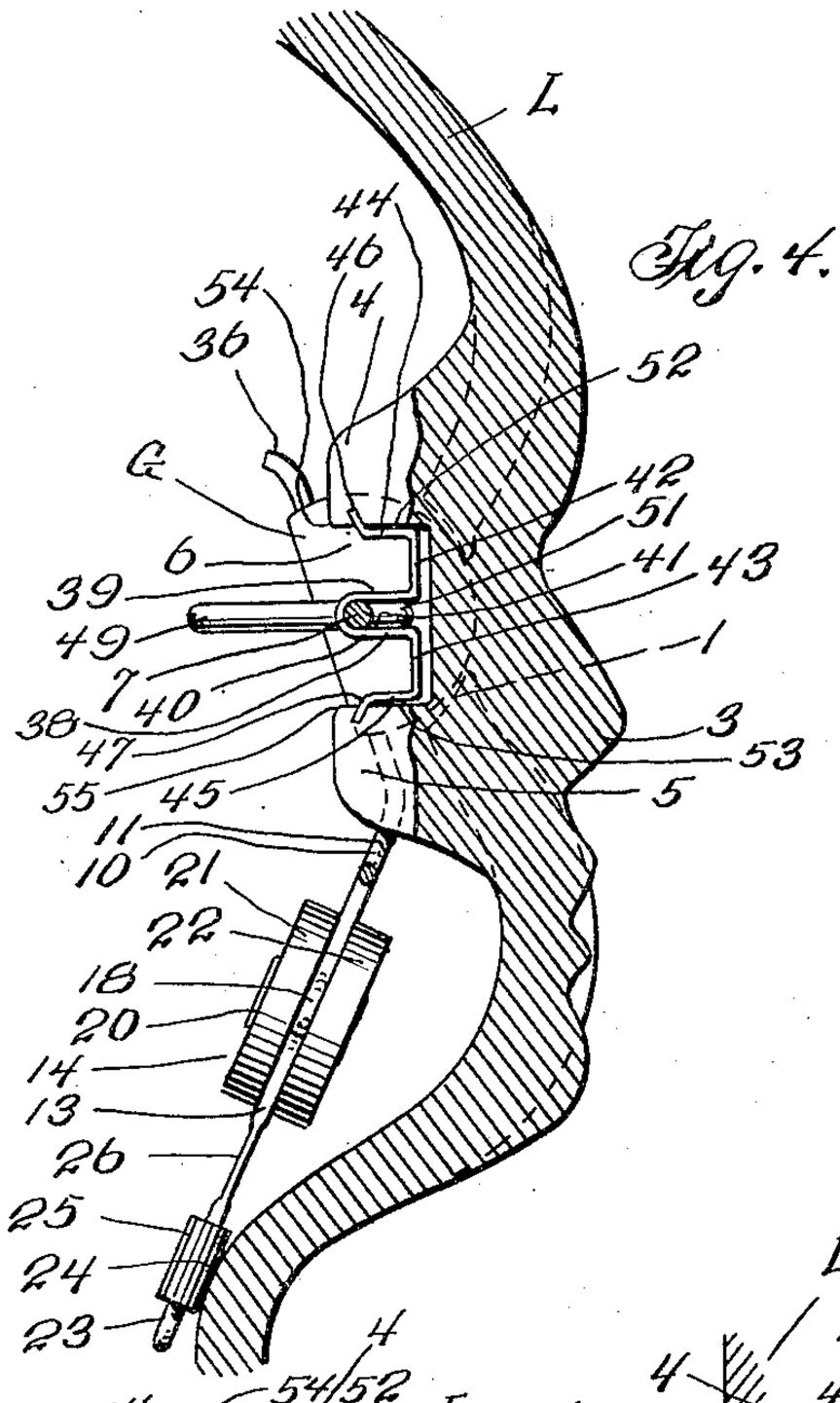

Fig. 5.

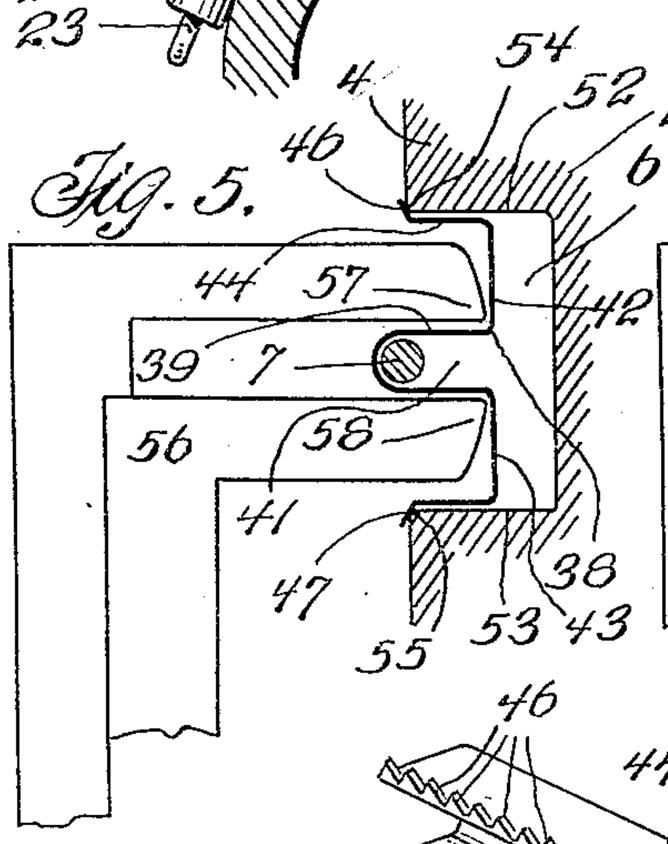

Fig. 6.

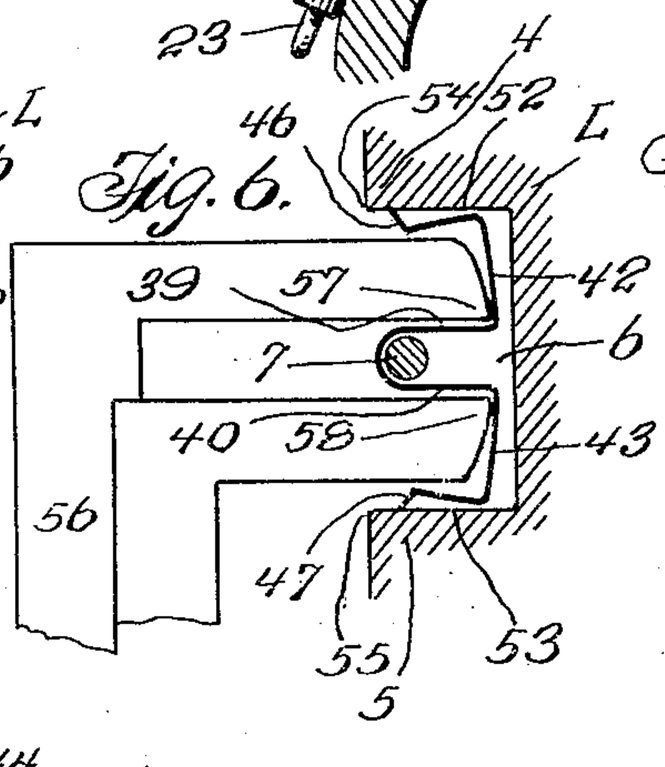

Fig. 7.

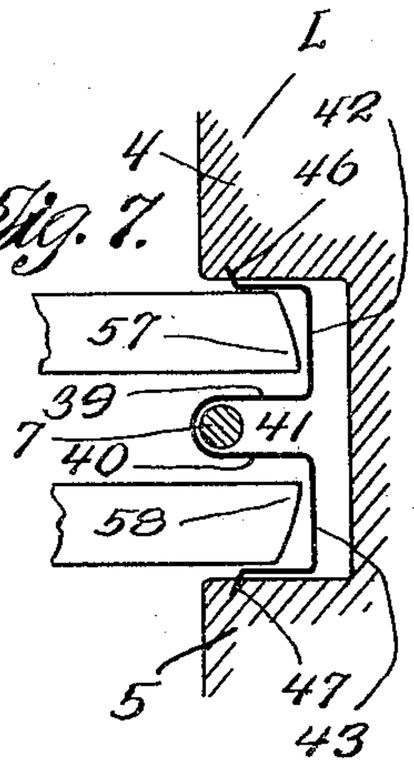

Fig. 8.

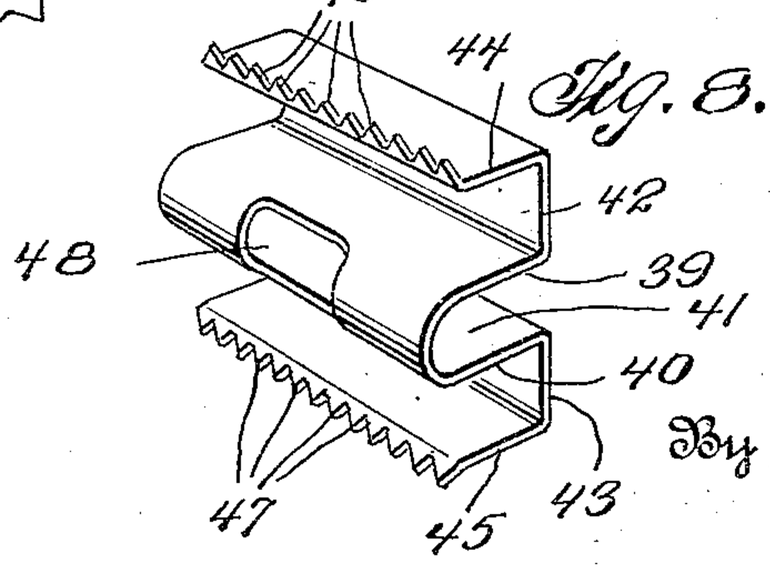

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Fig. 11.

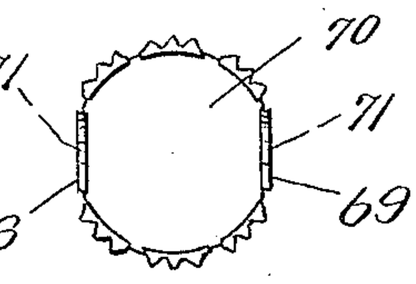


Fig. 12.

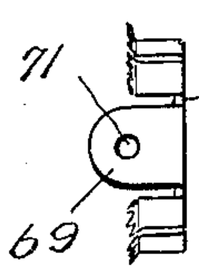


Fig. 9.

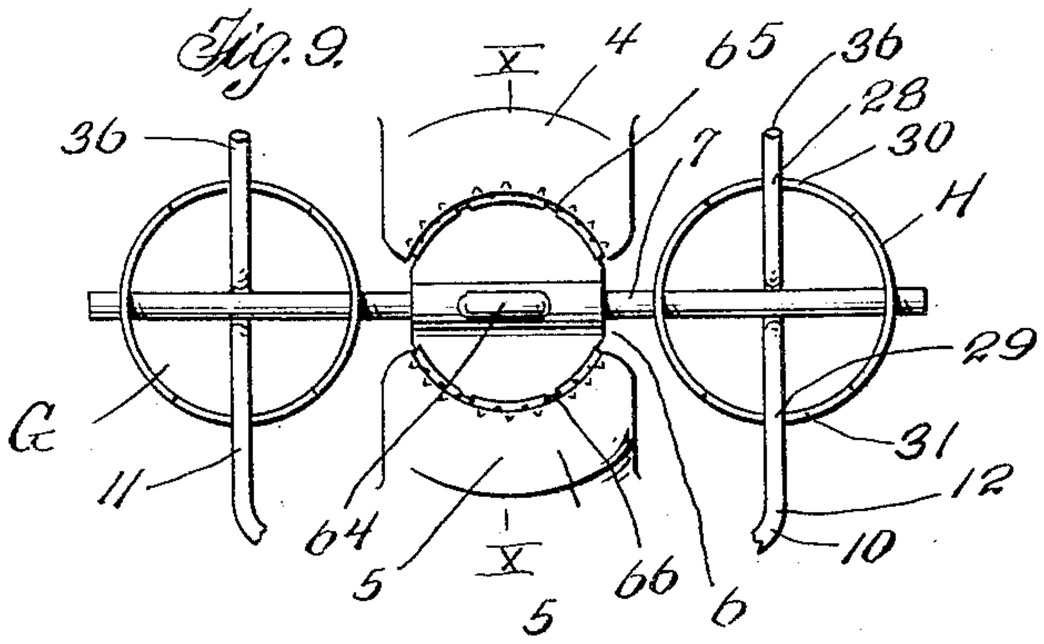


Fig. 10.

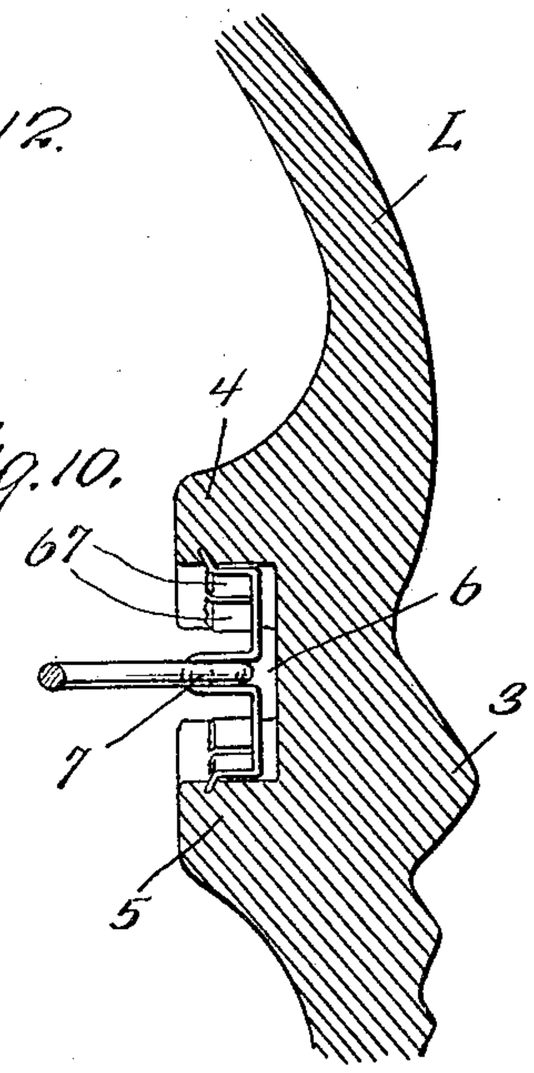


Fig. 13.

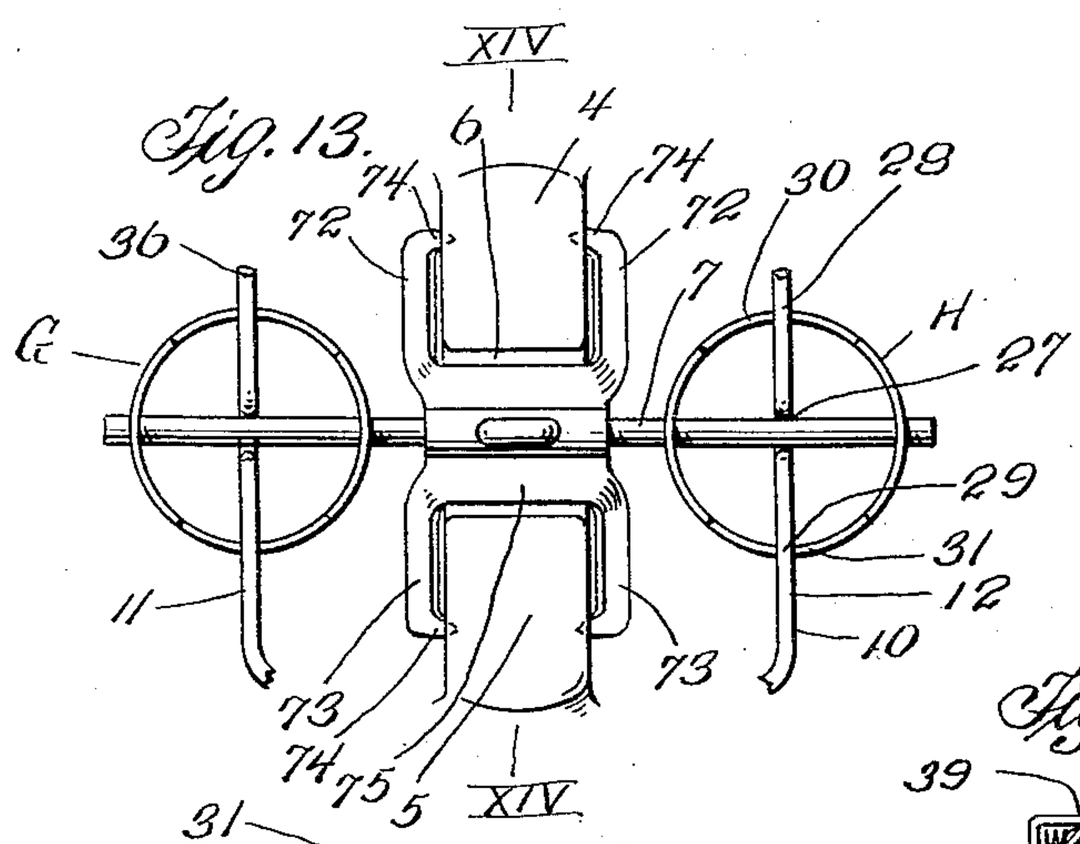


Fig. 15.

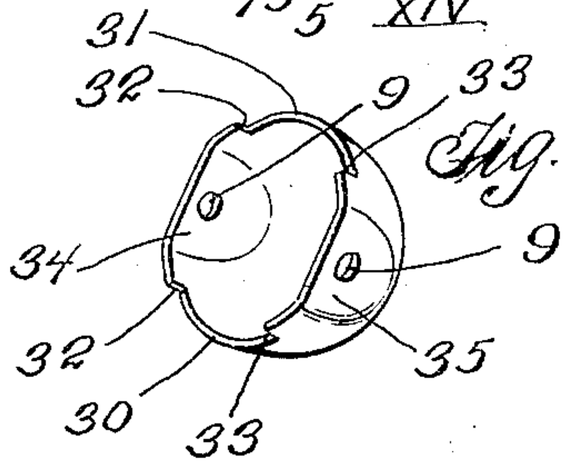


Fig. 14.

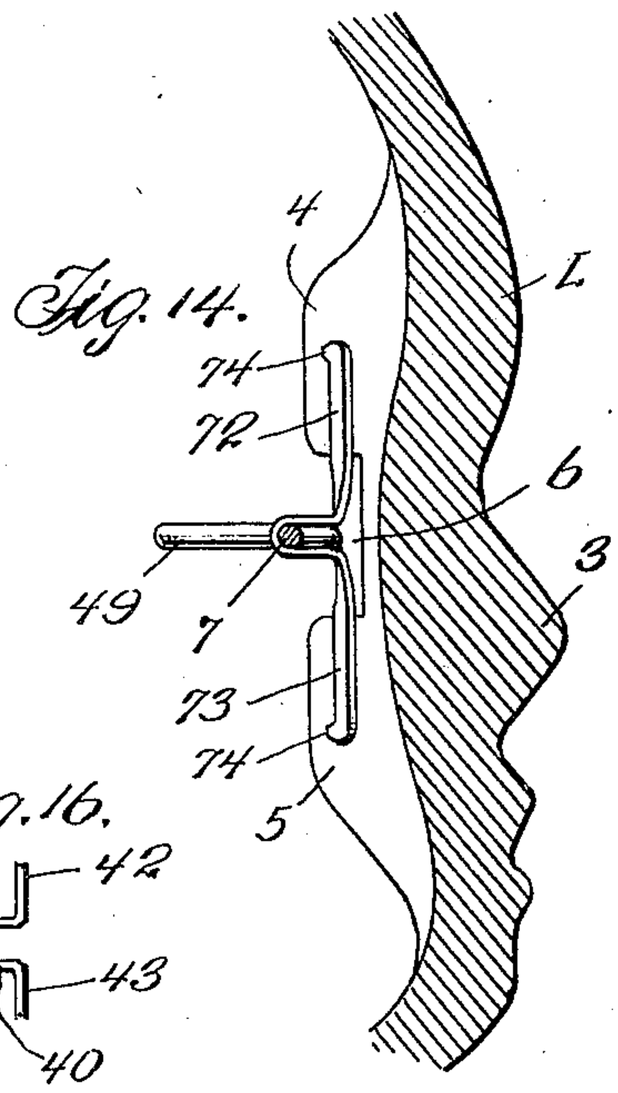
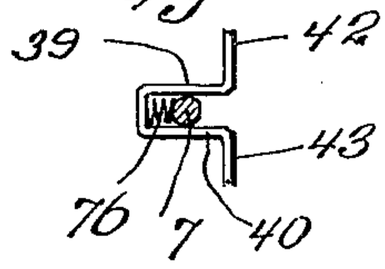


Fig. 16.



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Patented Feb. 14, 1933

1,897,848

UNITED STATES PATENT OFFICE

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EYE SET

Application filed January 18, 1927. Serial No. 161,915.

This invention relates to an improvement in eye set for doll heads and similar articles.

An object of the invention is to provide an eye set which is of simple and inexpensive construction, which may be quickly and easily attached in heads varying in size, and which when attached will always function accurately and efficiently.

A more detailed object is to provide a simple form of eye set which will automatically find the correct position of its two eye balls with respect to the eye sockets of the doll head incident to the operation of fastening the eye set within the doll head.

A further detailed object is to provide an eye set including means for fastening it to the doll head, and the fastening means being of a resilient character such that it will be incapable of holding the eye balls in too close frictional contact with the eye sockets of the head.

A further detailed object is to provide an eye set comprising an attaching member which is adapted to engage between lugs or protuberances provided to receive it in the space between the two eye sockets of the doll head and to so construct said attaching member that it may be readily inserted with the eye set between said lugs and will be capable of holding itself and the remainder of the eye set in correct position against accidental displacement.

A further detailed object is to provide an eye set having an attaching member or part as above referred to and by which the cross rod which carries the eyes may be held in any selected position deviating from the horizontal.

A further detailed object is to provide an improved gravity control means for the eyes by which the eyes are permitted free movement toward and away from each other while yet always being required to oscillate in unison.

A further detailed object is to provide an improved weight-carrying arm for the eye sets whereby the movements of the weight are silently halted.

A further detailed object is to provide for easy and manual independent adjustment of the eyes with respect to each other upon vertical and horizontal axes.

A further detailed object is to provide an improved form of eye ball whereby to reduce the width of space required to accommodate a given size of eye ball.

A further object is to provide an improved method by which to attach eye sets in doll heads.

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 view of an eye set constructed in accordance with this invention, and showing the same in position within a doll head, the doll head being illustrated in vertical section.

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

Fig. 3 is a vertical sectional view taken upon the plane of line III—III of Fig. 1.

Fig. 4 is a vertical sectional view taken upon the plane of line IV—IV of Fig. 1.

Figs. 5, 6 and 7 are diagrammatic detail views presented for graphically illustrating the method of attaching the eye set in position within the doll head.

Fig. 8 is an enlarged perspective view of one of the attaching members seen in the previous figures.

Fig. 9 is a view similar to the central portion of Fig. 1 but illustrating a modification of the eye balls and also of the attaching member and of the form of the lugs provided to receive it upon the doll head.

Fig. 10 is a vertical sectional view taken upon the plane of line X—X of Fig. 9.

Fig. 11 is a detail plan view of the attaching member seen in Figs. 9 and 10 but illus-

trating a modification in the form thereof.

Fig. 12 is a side elevational view of the structure seen in Fig. 11.

Fig. 13 is a view corresponding to that seen in Fig. 9 but illustrating a modified form of the attaching member and of the head lugs.

Fig. 14 is a vertical sectional view taken substantially upon the plane of line XIV—XIV of Fig. 13.

Fig. 15 is a perspective view of one of the eye balls as seen in Figs. 1 and 2, and

Fig. 16 is a fragmentary detail view illustrating means to resiliently urge the eyes toward their sockets.

Referring now to the drawings for a detailed description of the exemplary structure illustrated therein, and referring first particularly to the structure illustrated in Figs. 1 to 8 and 15, the reference character L indicates a doll head or the like, the same being hollow as usual and having the spaced eye sockets 1 and 2 at opposite sides of the central or nose portion 3.

Interiorly of the head, and at the rear of the central or nose portion 3 there is provided a pair of inwardly projecting lugs as 4 and 5 spaced at opposite sides of a line extending horizontally between the centres of the eye sockets 1 and 2 and thus providing an open recess as 6 between them through which may extend a horizontal cross rod as 7 which carries the two eye balls as G and H.

The lugs 4 and 5 may be provided in any appropriate manner but are preferably molded as integral parts of the material of the doll head.

The eyes G and H may be formed of any appropriate material, such as celluloid, sheet metal, or otherwise. They consist essentially of hollow semispherical shells open at their rear sides and having an iris as 8 pictured in appropriate position upon the outer spherical surface. They are fitted upon the opposite end portions of the cross rod 7, being formed each with diametrically opposite bearing openings 9—9 which loosely telescope over the cross rod so that the eyes are freely rotatable upon the cross rod and likewise freely movable longitudinally of the cross rod. The bearing openings 9 are so disposed that the cross rod is held always in a position extending substantially horizontally through the spherical centres of the eye balls or shells so that rotary movement of the eyes about the cross rod will not alter the fit of the outer spherical surface of the eyes with relation to the eye sockets 1 and 2.

In order to cause rotation of the eyes upon the cross rod, as well as to insure simultaneous rotation of the two eyes, a Y-shaped operating member 10 is provided the opposite legs as 11 and 12 of which engage the eyes respectively and the stem 13 of which carries a suitable weight as 14 by which the operating member is gravity controlled to produce rotation, or more correctly, oscillation, of the eyes in response to movement of the doll head between upright and reclining position, this movement being of course relative since it is in fact the doll head which moves while the eyes are maintained relatively stationary through the gravity pull of weight 14.

The operating member illustrated consists preferably of a single length of wire bent upon itself so that its mid portion, constituting the stem 13 of the Y, provides spaced sections as 15 and 16 while the end portions of the length of wire spread away from each other to provide the opposite legs 11 and 12 of the Y.

At the point of attachment of the weight 14 the sections 15 and 16 are bowed slightly away from each other as at 17 and 18 so as to provide an intervening recess as 19 through which extends a rivet as 20 by which the weight is rigidly connected in position.

The weight may if desired consist of two halves or members as 21 and 22 arranged one at the front side and one at the rear side of the stem 13, as illustrated in Figs. 3 and 4, and the rivet 20 may in this case extend through both halves 21 and 22 and through the intervening recess 19.

The stem 13 preferably projects an appreciable distance below the weight so as to constitute a stop or bumper portion as 23 for engaging the inner surface portion as 24 of the doll head to limit the swinging movement of the weight in one direction.

Any appropriate means may be employed for deadening the sound of contact of this bumper portion against the part 24 as for instance said bumper portion may be covered by a felt, rubber, or other resilient deadening device as 25, or, as is suggested by the illustration Fig. 4, the wire itself constituting the bumper portion 23 may be so mashed or otherwise formed as at 26 as to sufficiently reduce the stiffness of said wire to render the portion thereof which directly engages the surface 24 so yieldable and springy as to avoid the necessity for the deadening device 25. The deadening device 25 may of course be used however in addition to providing the reduced or spring forming part 26 if desired.

The manner of connecting the operating member with the eyes may take any desired form but as illustrated it consists in bending the material of said legs so that each is formed with a depression or pocket as 27 spaced from the ends of said legs adapted to straddle beneath the cross rod for preventing movement of the legs in a direction transversely to the cross rod while portions as 28 and 29 of said legs above and below the pockets extend across the upper and lower rear edge portions as 30 and 31 of

the eye shells, the legs being thus held against appreciable movement in one direction by engagement with said edge surfaces 30 and 31 and being held against appreciable movement in the opposite direction by engagement of the pockets 27 against the cross rod. It is intended that the fit of the legs between the cross rod and the eyes shall be such as while permitting no appreciable rotary movement of the eyes upon the cross rod without a corresponding movement of the operating member and weight the eyes will nevertheless be sufficiently loose to permit of their easy movement longitudinally of the cross rod, the edge surfaces 30 and 31 in such case simply sliding freely transversely of the portions 28 and 29.

In order to limit the extent of movement of the eyes longitudinally of the cross rod it is proposed that the eyes be formed with shoulders as 32 and 33 at their rear edges projecting rearwardly of the plane of the surfaces 30 and 31 and adapted to engage the portions 28 and 29 when the eyes have moved along the cross rod to a predetermined limit, and here it may be mentioned that if desired the material from which the operating member 10 is formed may be of such character as to permit of the legs as 11 and 12 thereof being bent so as to increase or decrease the distance between the eye carrying portions of said legs, thus to enable a given size of operating member to be used for different sizes of doll heads and eye sets.

By the present invention it is proposed further that opposite side portions of each of the eye shells shall be so flattened, as at 34 and 35, as to reduce the distance between the opposite walls of the shell carrying the bearing openings 9, the purpose being that for a given size of eye shell the distance between the bearing openings 9 thereof may be materially reduced as compared with the normal spherical diameter of the shell thus providing for an increased possible movement of the eyes toward and away from each other for a given length of cross rod without possibility of displacement of either of the eyes from the end of the cross rod.

The extreme end portions as 36—36 of the legs of the operating member preferably project above the upper margins of the eyes and constitute resilient stops disposed to engage against surface portions as 37 of the doll head to limit swinging movement of the eyes in a direction opposite to the direction limited by the bumper portion 23.

While it will of course be understood that eye shells having a supporting cross rod and an operating member as above described may be supported in operable position within the doll head by any appropriate means, such for instance as the supporting means shown in my Patent No. 1,566,966, or the supporting means shown and described in my pending application Serial No. 141,943, nevertheless in affixing such eyes within doll heads having the central or nose lugs as 4 and 5 above referred to it is proposed by the present invention that a specially formed attaching member as 38, see Fig. 8, may be employed, said attaching member being connected with the cross rod and being adapted to be inserted in position between the lugs 4 and 5 to retain the cross rod in its proper operative position.

The attaching member illustrated in Fig. 8 is formed from a single piece of sheet material, preferably thin spring metal. Its mid portion is folded upon itself into U-shape providing opposite leg portions as 39 and 40 spaced apart and providing a slot as 41 between them through which the cross rod 7 may extend. The opposite end portions of the piece of material are bent away from each other to provide what may be conveniently referred to as main surface parts as 42 and 43 disposed in a common vertical plane, and beyond the material is bent backwardly again providing legs as 44 and 45 disposed in parallelism with each other and with the central legs 39 and 40. The extreme edges of the legs 44 and 45 are flanged divergingly from each other and serrated to provide teeth as 46 and 47 thereon.

Centrally of the mid U-shaped portion the material thereof is cut away to provide an opening as 48 therethrough through which may project a laterally extending portion as 49 of the cross rod, said portion 49 being preferably present upon the cross rod and being extended through the opening 48 for the purpose of preventing rotary movement of the cross rod within the attaching member.

As seen particularly in Fig. 2 the lateral extension 49 of the cross rod may be conveniently formed by simply bending the mid portion of the cross rod upon itself, and to more completely retain the cross rod against rotation within the attaching member the material of said rod may be formed with one or more reverse bends as 50 and 51 so as to provide portions projecting laterally of the axial line of said cross rod and diametrically opposite to the lateral extension 49, said portions 50 and 51 being received within the slot 41 of the attaching member and engaging the inner surfaces of the legs 39 and 40.

And here it may be mentioned that the engagement of the legs 39 and 40 against the interposed portions or members 50 and 51 will serve to positively prevent movement of said legs toward each other and thus materially increase the efficiency of the attaching member in the manner as will be presently referred to.

In Figs. 5, 6 and 7 is graphically illustrated the manner or method by which the attaching member, with its cross rod and other parts of the eye set, may be attached in position between the nose lugs of the doll head.

The lugs provide opposite wall surfaces as 52 and 53 which are substantially parallel with each other and which are spaced a definite distance apart, in fact it is intended that these surfaces may have been previously used as guiding and supporting surfaces upon which a suitable tool has been supported for forming and dressing the eye sockets 1 and 2 so that said sockets and surfaces bear a predetermined and definite relation to each other, as will be more fully set forth in an application for patent presently to be filed.

In Fig. 5 the attaching member is shown in position just prior to being forced into the recess 6. The inclined toothed edge portions 46 and 47 are shown resting against the outer opposite corner portions as 54 and 55 of the nose lugs. A suitable tool as 56 is illustrated in position ready for pressing the attaching member into the recess.

The tool 56 may be of any desired construction suitable for its purpose and it will therefore not be specifically described or illustrated herein except in-so-far as to refer to the fact that it includes spaced parts as 57 and 58 for engaging against the main surface portions 42 and 43 of the attaching member at opposite sides of the central U-shaped portion, the engagement being preferably at points spaced as far as possible from the legs 44 and 45 of the attaching member, and the parts 57 and 58 being preferably movable toward and away from each other, by manual manipulation for insuring final positioning of the attaching member.

In Fig. 6 the attaching member is shown as having been forced to its maximum depth within the recess 6, that is to say that the attaching member has been moved relatively into the recess until the relative movement has been arrested by engagement of the opposite eyes G and H against their respective eye sockets 1 and 2 of the doll head. It will be seen that in this position the attaching member has been flexed by the cam movement of the toothed portions 46 and 47 over the edges 54 and 55. The legs 44 and 45 have been inclined toward each other, and the main surface parts 42 and 43 have been correspondingly inclined due partially to the inward bending of the legs 44 and 45 and partially to the pressure of the portions 57 and 58 of the tool which was required to move the attaching member into the recess against the resistance offered by engagement between the teeth 46—47 and the corner and walls of the recess.

In Fig. 7 the attaching member is shown as it appears after the pressure of the tool against the main surface parts 42 and 43 has been relieved. The inherent resiliency of the material of the attaching member has caused it to return to approximately its normal contour. The teeth 46 and 47 have been thereby forced to sink into the walls 52 and 53. The legs 44 and 45 have become again parallel with each other, the main surface parts 42 and 43 have moved back to their common plane, and the entire mid U-shaped portion has been thus moved bodily backwardly. The inclined disposition of the teeth 46 and 47 has at the same time operated to cam or wedge the entire attaching member backwardly a distance corresponding to the inclination of said teeth and the degree to which they have been driven into the walls.

This backward movement of the attaching member upon release of pressure from the tool, although of a very definite and effective quantity is nevertheless only slight, this due to the smallness of all of the parts concerned. It is sufficient nevertheless to relieve the former tight engagement between the eyes and their sockets which arrested the inward movement of the attaching member.

By manipulation of the tool the portions 57 and 58 thereof may be forcefully moved apart to definitely insure that the teeth 46 and 47 be driven a positive distance into the walls 52 and 53, as illustrated in Fig. 7, if desired.

In some instances it is desirable to adjust the eyes upon a vertical axis, as for instance to correct an appearance of the iris to converge or diverge with respect to the iris of the opposite eye, and to this end the present invention suggests that the cross rod 7 may be of bendable material so that it may be readily manually bent to accomplish this adjustment, or that it may be provided with weakened portions as 59 and 60 to thus permit of and localize the bending movement.

In some instances also it is desirable to adjust the eyes upon a horizontal axis, as for instance to correct an appearance of one iris to be directed higher or lower than the other, and to this end the present invention suggests that the legs 11 and 12 shall be of bendable material so that they may be readily manually and independently bent to accomplish this adjustment. As a simple expedient by means of which to localize the regions within which bending of the legs may take place said legs are formed with portions as 61 and 62 connecting the eye carrying parts of the legs respectively with the stem portion of the operating member and which portions diverge sharply from the upper end of the stem portion at a point immediately above the upper edge of the weight and are more nearly horizontal than vertical, being thus almost parallel with the

cross rod. These parts 61 and 62 are therefore disposed so that they will be subjected to a torsional strain whenever force is applied to bend the leg for adjusting the eye and they will readily succumb to this strain.

If, when an eye set is about to be fastened in position within the doll head, that is when the eye set has been moved to the position as in Fig. 5 prior to the driving home of the attaching member, the operator notices that either iris is not correctly centered with respect to its eye socket he may remove the set from the head and bend either the cross rod or one or the other of the legs 11 and 12, to effect the proper adjustment, whereupon he will return the eye set into the doll head, and if the adjustment has been correctly effected he will proceed to press the eye set and its attaching member into final fixed engagement with the head.

If for any reason it should become desirable to remove the eye set from the doll head after it has been finally affixed therein as in Fig. 7, this may be accomplished by forcing the teeth 46 and 47 out of engagement with the walls 52 and 53 and then lifting the set away from the recess 6 and from the head. To this end the nose lugs 4 and 5 are shown as each having a notch 63 provided in the walls 52 and 53 thereof adapted to receive the ends 57 and 58 of the tool 56, or any other suitable implement, for enabling such implement to engage the attaching member at a proper point to press the legs 44 and 45 toward each other and disengage the teeth from the walls 52 and 53.

The portion or extension 49 of the cross rod which projects through the opening 48 of the attaching member is adapted to serve the further purpose of a finger or tool grip by which the eye set may be conveniently handled when placing it into and out of the doll head for preliminary adjustment of the eye balls with respect to each other as above mentioned.

In the structure Figs. 9 and 10 the cross rod 7 and the operating member 10 are the same as already described.

The eye balls or shells are shown without the flattened portions 34 and 35 heretofore described, which is optional.

The attaching member has its central or mid portion formed the same as already described but its outer tooth carrying legs are so arranged and shaped as to define a circle concentric with the centre point as 64 of the cross rod. The nose lugs as 4 and 5 have their opposing wall surfaces as 65 and 66, corresponding with the wall surfaces 52 and 53 of the previous figures, curved to correspond with the circular contour of the tooth carrying legs of the attaching member.

The tooth carrying legs of the attaching member in this instance are preferably formed as separate segments as 67—67 to better facilitate the flexing movement thereof during the introduction of the attaching member into the space between the wall surfaces 65 and 66 during the operation of attaching the eye set, as will be readily understood.

The invention as embodied in this modification provides for a pivot adjustment of the cross rod vertically upon a horizontal axis so as thus to permit proper positioning of the eyes in their respective sockets in the event that one socket should happen to be slightly elevated with respect to the other. When the eye set has been inserted to the position as suggested by Fig. 5, if the operator notices necessity for adjusting one eye higher or lower than the other he simply rotates the set upon a horizontal axis about centre 64 to a suitable degree, which is usually very slight, and then proceeds to force the attaching member home while standing in this adjusted position.

All of the adjustments mentioned with respect to the previous figures are contemplated with respect to the structure Figs. 9 and 10 as may be desired.

In Figs. 11 and 12 an attaching member is illustrated which is identical with that shown in Figs. 9 and 10 except that the portion thereof for engaging the cross rod, instead of being a bent U-shaped mid portion of the attaching member consists simply of ears as 68 and 69 bent laterally at opposite sides of the main or base portion 70 of the attaching member, said ears each having an opening as 71 therethrough to accommodate the cross rod. These openings may fit snugly to the cross rod so as to prevent any relative movement, or they may be shaped irregularly to correspond with any irregular cross sectional contour of the cross rod so as to prevent rotation of the cross rod while not interfering with longitudinal movement, or otherwise, as may be desired.

The modification illustrated in Figs. 13 and 14 comprises a cross rod 7, attaching member 10, and eyes G and H the same as in the previous figures. The attaching member is shown as having its mid portion formed and connected with the cross rod in the same manner as in Fig. 1, but it will be understood that it may be connected with the cross rod in the manner suggested with regard to Figs. 11 and 12 is desired.

The manner of connecting the attaching member with the lugs 4 and 5 in this instance consists in forming the attaching member with two pairs of spring arms, one pair as 72—72 projecting upwardly from the mid portion adapted to straddle the upper nose lug 4 and the other pair as 73—73 projecting downwardly from the mid portion adapted to straddle the lower nose lug 5. At the outer ends of each of the arms is formed a tooth as 74 adapted to

engage with and sink into the material of the lugs in substantially the same manner as already described with respect to the teeth 46 and 47.

The essential characteristic of this modification is that the teeth 74—74 which lock the attaching member to the lugs are disposed practically in the same plane as the main or base portion 75 of the attaching member and thus enable the use of lugs which are of less height than the lugs required with respect to the structures in the previous figures.

When the attaching member of Figs. 13 and 14 is pressed home the arms 72 will yield resiliently, permit movement of the main or base portion 75 to a degree beyond the position which it will occupy when the inserting pressure has been relieved, and the teeth will bite into the sides of the lugs and cam the attaching member backwardly, all in substantially the same manner as already described with respect to the previous figures.

It will be apparent that by the use of the present invention eye sets may be manufactured all one size and be yet adapted for the automatic adjustment of their eye balls toward and away from each other to correspond with the distance apart of eye sockets of different size heads. All necessary preliminary adjustments may be quickly and easily performed, and the final operation of connecting the eye set with the doll head may be effected by the simple act of pressing, or snapping, the eye set into position between the nose lugs. No particular care is required in driving the attaching member between the lugs, and yet it will always automatically operate to ease the eyes just the required distance backwardly from their initial tight fit against the eye sockets, thus insuring an ease of attachment and uniformity of results not heretofore attained.

Notches such as those indicated by the reference character 63 in Fig. 1 may of course be provided at appropriate points in the nose lug 4 of the structures Figs. 9 to 14 to afford access of suitably shaped tools behind the teeth carrying portions of the attaching members of said figures for the same purposes as described with respect to the notches in structure Fig. 1.

In all instances where the walls or legs 39 and 40 of the attaching member are arranged adjacent the parts 50 and 51 of the cross rod the engagement of the legs against said parts of the cross rod will positively prevent movement of the legs toward each other particularly at the time when the attaching member is being squeezed into the pocket or recess 6. The spring pressure of the teeth of the attaching member against the walls of the recess will be thus materially increased and it becomes therefore possible to utilize a correspondingly lighter weight of sheet material for a given size of attaching member.

In Fig. 16 it is suggested that a small spring as 76 may be employed for urging the cross rod in a direction to press the eye shells into the eye sockets of the head. Of course it will be understood that the spring illustrated is merely an example of a resilient means co-operative between the attaching member and the cross rod to take up any slight play which may be present between these parts and always urge the eyes into the eye sockets of the head.

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 set comprising a pair of eyes, a cross rod upon which said eyes are mounted spaced apart, and an attaching member engaging the cross rod between said eyes, the portion of the cross rod intermediate the eyes having a lateral extension, the attaching member having an opening through which said extension projects to assist in connecting the attaching member with the cross rod, and having parts at opposite sides of said opening comprising spring portions for resiliently engaging against opposing portions of the doll head to retain the eye set within the doll head.

2. An eye set comprising a pair of eyes, a cross rod upon which said eyes are mounted spaced apart, and an attaching member engaging the cross rod between said eyes, the portions of the cross rod intermediate the eyes having a lateral extension, the attaching member having a portion engaging said lateral extension to assist in connecting the attaching member with the cross rod, and having parts at opposite sides of said portion comprising spring portions for resiliently engaging against opposing portions of the doll head to retain the eye set within the doll head.

3. An eye set comprising a pair of eyes, a cross rod upon which said eyes are mounted spaced apart, and an attaching member engaging the cross rod between said eyes, the portion of the cross rod intermediate the eyes having lateral extensions thereon, the attaching member having an opening through which one of said extensions projects to assist in connecting the attaching member with the cross rod, the attaching member also having a portion engaging an-

other of said extensions to further assist in connecting the attaching member with the cross rod, and the attaching member having parts at opposite sides of said mentioned portions thereof comprising spring portions for resiliently engaging against opposing portions of the doll head to retain the eye set within the doll head.

4. The combination with a doll head providing a pair of members spaced apart and each of said members having oppositely disposed wall portions, of an eye set having spaced eyes and having an attaching member providing a central portion arranged to be received between said two members and two pairs of spring arms one pair projecting from each side of said central portion, each pair being disposed with its two arms embracing one of said spaced members and frictionally engaging the oppositely disposed wall portions of said spaced member to thereby retain the attaching member connected with the doll head.

5. The combination with a doll head having a recess formed interiorly thereof in the space between the eye sockets of the doll head, said recess providing opposingly facing walls, of an eye set having spaced eyes and having an attaching member by which to connect the eyes with the head, said attaching member being intended to be thrust into said recess and being resilient and being of a size larger than the recess but being compressible to enter the recess thereby providing frictional engagement with the walls of the recess to hold it within the recess.

6. An eye set for dolls comprising an attaching member, a shaft carried by the attaching member, a pair of hollow eyes open at the rear mounted on the shaft one at each side of the attaching member, a weight, a wire secured to the weight and having end portions extending to the eyes respectively, said end portions each being bent around the shaft inside of the respective eye at such an angle that the wire touches each side of the eye and engages the inner surface of the shaft at a point inside the eye whereby to retain the wire connected with the eye and shaft, the eyes being longitudinally slidable upon the shaft and each having a guide-way provided therein to receive the wire and having stops at the opposite ends of the guide-way to abut the wire for limiting sliding movement of the eye.

7. An eye set comprising a pair of eyes, supporting means by which the eyes are rotatably mounted to swing upon a horizontal axis, a weight, and weight arms extending from the weight being connected with the eyes to move the eyes by gravity, said weight arms consisting of a single length of wire bent upon itself to provide two leads extending to the eyes respectively, the weight being spaced upwardly from the lower ends of the leads and from the connecting portion of the wire between said leads and serving to hold said leads in fixed relation to each other, and the weight comprising a pair of weighty members and means to connect said members together, the leads of the wire extending between said weighty members, and the connecting means between said weighty members extending between said leads and serving to clamp said weighty members fixedly against said leads.

8. An eye set comprising a pair of eyes, supporting means by which the eyes are rotatably mounted to swing upon a horizontal axis, a weight, and weight arms extending from the weight being connected with the eyes to move the eyes by gravity, said weight arms consisting of a single length of wire bent upon itself to provide two leads extending to the eyes respectively, portions of said leads being disposed below the weight to constitute a bumper for engaging the doll head to limit swinging movement of the weight, and the bumper forming portions of said leads being of relatively reduced cross section in one locality to thereby render the bumper resilient.

9. An eye set comprising a pair of eyes, a cross rod extending between and connecting said eyes, an attaching member engaging the cross rod intermediate the eyes, said attaching member having tangs thereon adapted to be driven into wall parts of a doll head spaced above and below the cross rod in the region between the eyes, and said tangs pointing in opposite directions upwardly and downwardly from the cross rod and being inclined with respect to their path of movement when being driven into said spaced wall parts for thereby effecting an adjustment of the eyes with respect to the head co-incident with the operation of driving said tangs into said spaced wall parts.

10. An eye set comprising a pair of eyes, supporting means by which said eyes are supported spaced apart, and attaching means arranged in the space between said eyes in connection with said supporting means and by which to connect the eyes with a doll head, said attaching means including two members spaced apart one above and the other below the horizontal plane of a straight line between the centers of the eyes and said members being connected to swing with respect to each other and to the remainder of the device and having doll head engaging means at their free edges.

11. An eye set comprising a pair of eyes, a cross rod extending between and connecting said eyes, an attaching member engaging the cross rod intermediate the eyes, and said attaching member having portions arranged above and below the cross rod and

movable away from each other and hence in opposite directions upwardly and downwardly away from the cross rod together with doll head engaging means carried by said mentioned portions and movable therewith in opposite directions upwardly and downwardly away from the cross rod for engaging spaced parts of the doll head lying above and below the cross rod to fix the attaching member in position within the doll head.

12. In a doll head having front and side walls and having eye openings in the front wall, means for supporting an eye set within said head comprising a pair of lugs connected with the head projecting inwardly thereof spaced away from each other and from the side walls of the head being located in the region between the eye openings of the head adapted to receive an attaching part of the eye set held between them by pressure against the opposing walls of said two lugs, and the mentioned wall of at least one of said lugs being formed with a depression therein in position to provide for access of a tool to said attaching part for displacing said attaching part.

13. In a doll head having front and side walls and having eye openings in the front wall, means for supporting an eye set within said head comprising a pair of lugs connected with the head projecting inwardly thereof spaced away from each other and from the side walls of the head being located in the region between the eye openings of the head adapted to receive an attaching part of the eye set held between them by pressure against the opposing walls of said two lugs, and the opposing walls of said two lugs being cylindrically curved about a common horizontal axis extending from front to rear of the head thereby providing a cylindrical seat to receive a circular eye set attaching part rotatably adjustable therein about the mentioned axis.

14. An eye set comprising a pair of eyes, and an attaching member by which to attach said eyes within a doll head, said attaching member having one portion connected with the eyes and having other portions providing a pair of spring parts independently movable with respect to each other and to the first part, said spring parts being arranged respectively above and below the horizontal plane of a straight line between the eyes and having a tendency to spring away from each other in a direction upwardly and downwardly from said horizontal plane to thereby press against opposing portions of the doll head above and below said horizontal plane.

15. The combination with a doll head comprising parts providing a rearwardly opening recess interiorly thereof in the space between the eye sockets of the head, of an eye set having spaced eyes and having an attaching member intended to be moved forwardly into said recess through the open end of said recess, said attaching member being of a size to be received in said recess constituting the sole connection of the eyes with the doll head, and said attaching member having one part for engaging and supporting the eyes, and having another part to stand within the recess and which is of a springy character causing it to spread in opposite directions against opposing wall surfaces of the recess to thereby retain the attaching member against displacement from the recess.

16. In combination, a doll head having spaced eye sockets, means providing a rearwardly opening recess interiorly of the head intermediate said eye sockets, said recess being cylindrical about an axis at right angles to a straight line between the center of the eye sockets, and the center of said recess being mid-way between the centers of the sockets and in the horizontal plane of said straight line, an eye set having eyes positioned within said sockets, said eye set including an attaching member having one part connected with the eyes and having another part of cylindrical contour to stand within the recess of the head said cylindrical part of the attaching member being of a springy character causing it to spread radially against the opposing cylindrical wall surfaces of the recess, and the center of the cylindrical portion of the attaching member being mid-way between the eyes and in the horizontal plane of a straight line between the centers of the eyes.

17. In combination, a doll head having spaced eye sockets, means providing a rearwardly opening recess interiorly of the head intermediate said eye sockets, said recess being cylindrical about an axis at right angles to a straight line between the centers of the eye sockets, and the center of said recess being mid-way between the centers of the sockets and in the horizontal plane of said straight line, an eye set having eyes positioned within said sockets, said eye set including an attaching member having one part connected with the eyes and having another part providing a plurality of toothed resilient sections collectively defining a radially expansible cylindrical portion for insertion within the recess of the head to engage the cylindrical walls of said recess, the center of the cylindrical portion of said attaching member being mid-way between the eyes and in the horizontal plane of a straight line between the centers of the eyes.

In testimony whereof I affix my signature.

ALEXANDER KONOFF.