March 15, 1927. 1,621,073

A. KONOFF

MEANS FOR ATTACHING DOLL EYES

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Fig. 1.

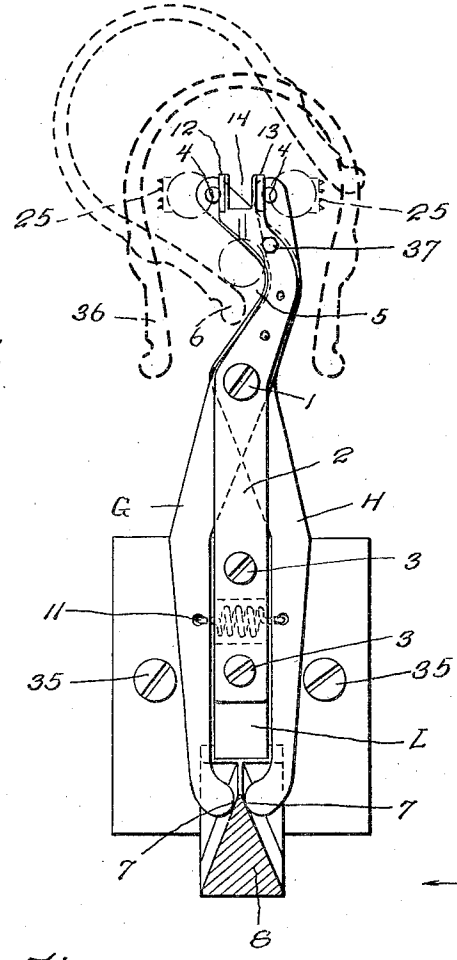
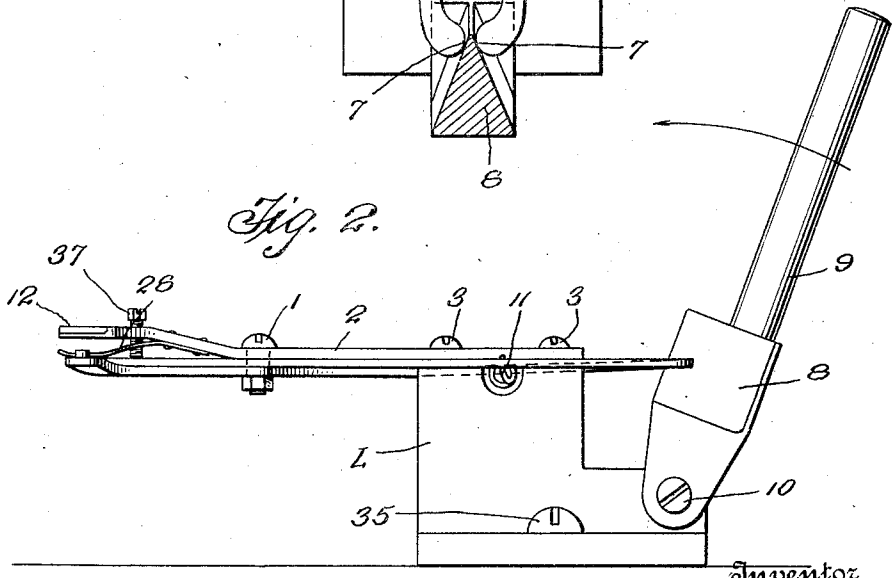


Fig. 2.



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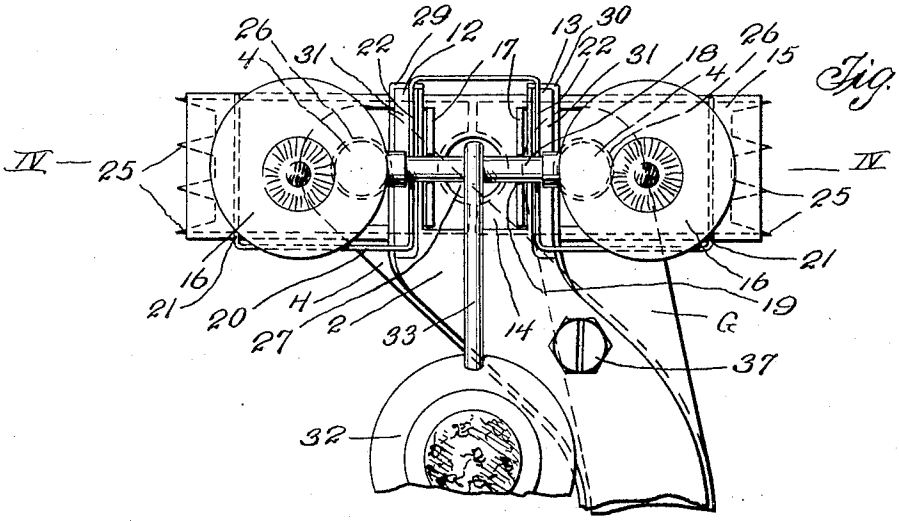


Fig. 3.

Fig. 4.

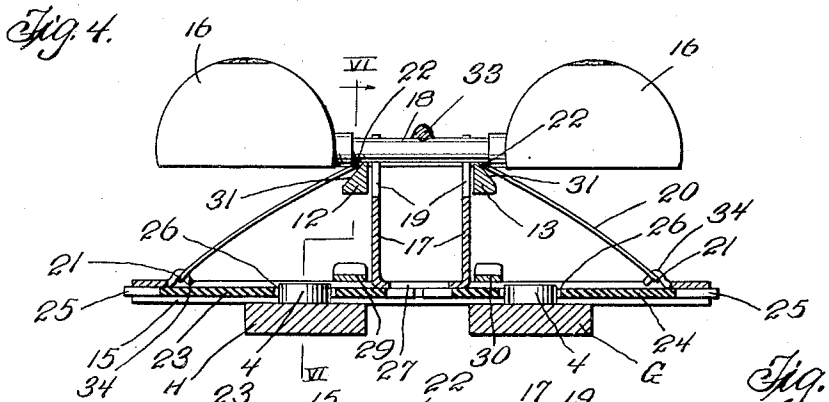
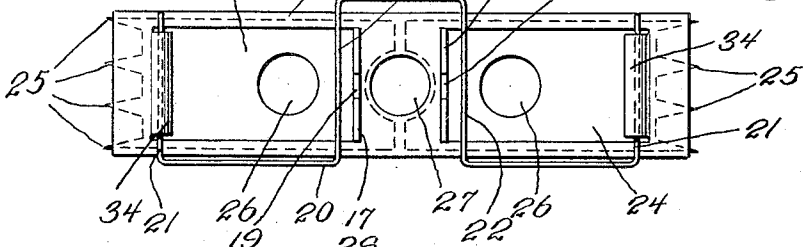


Fig. 5.



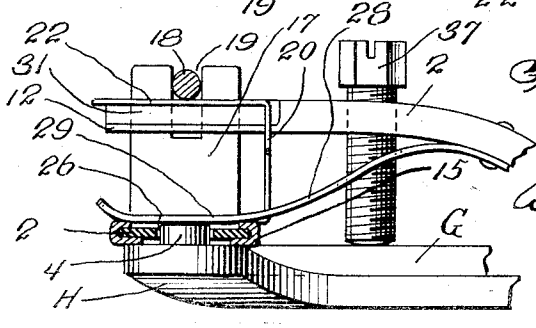


Fig. 6.

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Patented Mar. 15, 1927. 1,621,073

UNITED STATES PATENT OFFICE.

ALEXANDER KONOFF, OF NEW YORK, N. Y., ASSIGNOR TO OVERLAND METAL NOVELTY CO., INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

MEANS FOR ATTACHING DOLL EYES.

Application filed April 15, 1926. Serial No. 102,146.

This invention relates to doll eyes and to a device by which to attach said eyes in position within a doll head, and an object of the invention is to provide means whereby doll eyes may be quickly, easily and accurately mounted within the doll head.

A more detailed object is to provide an eye-set and a tool for handling said set and said two elements having co-operative parts whereby the eye-set may be moved relatively into the doll head through the neck opening of the head, and be placed and securely fastened in operative position within the head, all without requirement for any other means of access into the head than the neck opening.

A further detailed object is to provide a simple and easily operable tool adapted to serve as a carrier for the eye-set in carrying the eye-set through the neck opening and into operative position within the doll head, and to construct the tool so that by the simple movement of a single lever it may be operated to fasten the eye-set in its final operative position.

A further detailed object is to so construct the tool and the eye-set that after the eye-set has been fastened in position and the tool withdrawn the eyes comprised in the eye-set will have a certain degree of looseness within the eye sockets of the doll head, which is desirable for permitting proper oscillatory action of said eyes.

A further detailed object is to provide the eye-set with improved resilient means for holding the eyes of said set resiliently against their seats in the doll head notwithstanding the looseness of fit afforded by the removal of the tool as just referred to.

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 top plan view of a tool constructed in accordance with this invention, an eye set being diagrammatically illustrated in position upon the tool, and a doll head being shown by dotted lines in two different positions with respect to the tool;

Fig. 2 is a side elevational view of the tool illustrated in Fig. 1;

Fig. 3 is an enlarged top plan view of the eye-set-holding end of the tool, and illustrating an eye set in position held thereby;

Fig. 4 is a longitudinal central sectional view taken substantially upon the plane of line IV—IV of Fig. 3;

Fig. 5 is a top plan view of the body member of the eye set, with the eyes removed, and said body member being shown removed from the tool; and

Fig. 6 is a vertical transverse sectional view taken substantially upon the plane of line VI—VI of Fig. 4.

Referring to the drawings for describing in detail the structure therein shown the reference character L indicates a suitable standard or base member upon which is mounted a pair of levers as G and H. These levers are pivotally connected together, as by a pivot bolt 1 which is carried by an extension plate 2 from the base L, said extension plate being connected with the base in any suitable manner as for instance by screws or the like as 3.

The levers project beyond the pivot 1 and at their forward ends each is formed with an upstanding stud 4 intended to engage moving parts of the eye set for moving said parts in a manner which will be described.

Between the pivot 1 and the outer ends of the levers said levers are suitably bowed or bent so as to provide a notch or recess as 5 at one side of the levers into which a portion of the doll head may be received, as indicated by the dotted line representation of the doll head 6, in Fig. 1.

The rear ends of the levers are turned inwardly to provide end surfaces 7—7 arranged to rub against opposite sides of a wedge shaped cam 8. The cam 8 is formed upon a lever 9 which is pivotally mounted as at 10 upon the base L and adapted, upon swinging the lever, to be thrust forwardly between the ends 7—7 of the levers for forcing said ends apart. The levers are crossed at the pivot 1, after the manner of an ordinary pair of tongs, so that the spreading apart of the rear ends produces simultaneous spreading apart of the studs 4—4 at the forward ends.

A suitable tension spring as 11 is connected between the levers for holding the rear ends 7 always against the surface of the cam 8 and for thus moving the studs 4—4 toward each other whenever the cam is thrown backwardly.

The extension plate 2 projects forwardly beyond the pivot 1, following the off-set contour of the underlying levers, and at its forward end is formed with a pair of fingers as 12 and 13 between which is a recess 14. The fingers 12 and 13 are arranged on a common plane elevated somewhat above the plane of the forward ends of the levers.

The eye set which the tool thus far described is adapted for handling consists of a body portion 15 upon which the eyes as 16—16 are resiliently supported. The body portion is adapted to extend horizontally across the interior of the doll head, and intermediate its length is provided with a pair of arms 17—17 which project forwardly from the body portion and directly support the cross rod as 18 at the opposite ends of which the eyes 16 are mounted.

The arms 17 are formed with aligned slots 19—19 therein into which the cross rod 18 is received so that the cross rod is permitted a certain desirable movement toward and away from the body portion although held by the side walls of the slots against any appreciable up and down movement within the slots.

A suitable spring as 20 is provided engaging the cross rod to urge it lightly against movement toward the inner ends of the slots 19. In the instance illustrated this spring consists of a single length of fine spring wire connected by its ends, as at 21—21, to the end portions of the body portion 15, and having its intermediate part bent in U-shape about the arms 17 so as to provide leg portions as 22—22 arranged to engage against the cross rod 18 at opposite sides of the arms 17—17, the entire length of the wire being suitably bent so that the legs 22—22 are normally elevated with respect to the body portion 15, and thus provide a desirable resilient pressure against the cross rod.

An eye set of this general type is more fully shown and described in my co-pending application Serial No. 95,198, the spring for urging the cross rod outwardly of the slots 19—19 in the present instance differing from the springs illustrated in said co-pending application however, the spring in the present instance being more peculiarly adapted for co-operation with the tool herein shown and described.

The body portion 15 is of channel shape in cross section and within the channel thereof is arranged a pair of attaching members 23 and 24. These are longitudinally slidable along the channel and their outer end portions are formed with tangs 25 which, when the attaching members are slid outwardly, sink into the cheek portions of the doll head.

Before the application of the eye set into the doll head the attaching members are of course in their inner-most positions, as indicated in the drawings, and their movement outwardly for driving the tangs into embedded relation within the cheek portions of the doll head is not performed until after the eye set has been moved into the proper and correct position within the doll head.

The fit of the attaching members within the channel is sufficiently tight so that the attaching members will have no movement except by the application of considerable force, such as the present tool is designed to apply. For this purpose each of the attaching members is formed with an aperture as 26 therein arranged to receive the studs 4—4 at the forward ends of the tool levers respectively.

The forward ends of the tool levers are arranged on a common plane, as clearly indicated, and thus constitute a sort of platform upon which the body portion 15 may rest with the studs 4 projecting into the apertures 26—26.

It will be apparent that any movement of the levers relative to each other while the studs 4—4 are within the apertures of the attaching members will produce a corresponding movement of the attaching members, and while the drawings herewith show the cam 8 of the tool as being designed merely to spread the studs apart for driving the attaching members into the cheeks of the doll head, nevertheless the cam could readily be made to also positively force the levers together for retracting the attaching members upon backward swinging of the cam if desired, but even with the cam of the form illustrated the levers are so arranged that they may be readily grasped by the hand of an operator and the levers be thus operated, in the same manner as would an ordinary pair of tongs, to retract the attaching members. It is here noted that in some instances it is desirable to move one attaching member, either inwardly or outwardly, without the other, and on this account the body portion 15 is provided with a central aperture 27 within which one of the operating studs of the tool may be engaged while the other operating stud is engaged with the attaching member which is to be moved, the second attaching member being in this event unaffected. In this case of course the tool employed, while being of the same type as that here shown and described, would be of different proportions so that its operating studs would be adapted to operate as set forth.

A suitable spring device as 28 is provided, fixed, for convenience, to the underside of

plate 2, for engaging over the upper surface of the body portion to yieldingly hold the body portion against accidental detachment from the studs 4—4. This spring device is preferably formed to provide two fingers as 29 and 30 arranged for engaging the body portion at opposite sides of the arms 17.

The purpose of the fingers 12—13 which are provided at the forward end of the extension plate 2 is to constitute a rest upon which the cross rod 18 engages to positively hold the cross rod and eyes from moving toward the body portion 15 during the time while the eye set is being positioned in the doll head and the attaching members 25 are being driven home. It will be appreciated in this connection that if this rest were omitted the operator in moving the eye set into position within the doll head might easily and unconsciously compress the light spring 20, even to the extent of having the cross rod engage against the inner ends of the slots 19, when he drives the attaching members home, which would of course be detrimental to the proper operation of the eye set.

The fingers 12 and 13 are preferably beveled off on their upper outer corners, as at 31, so as to provide proper space to accommodate the legs 22—22 of the spring. It being noted that the fingers 12 and 13 engage the cross rod at spaced points and intermediate the arms 17 and said legs 22, the points of engagement of the fingers 12—13 and the legs 22—22 being closely adjacent the respective eyes 16—16 so as to thereby more effectually control the position of the respective eyes.

The usual weight 32 is provided for oscillating the cross rod and eyes said weight being rigidly connected with the cross rod by an arm 33 the upper end of which is attached to the cross rod intermediate the slotted arms 17—17.

The opposite ends 21—21 of the spring 20 may be connected to the body portion 15 in any appropriate manner, but for the purpose of illustration here they are shown to be bent into parallelism with the legs 22—22 and caught beneath ears as 34 provided by the material of the body portion and bent so as to confine and retain the end portions of the spring while yet preferably permitting said end portions to oscillate within the ears as pivot bearings so as to accommodate the easy flexing of the spring in the proper support of the cross rod and eyes.

In operation, the tool being fastened firmly to a suitable foundation, as by means of the retaining screws or the like as 35, an eye set, minus the cross rod and eyes is placed in position upon the forward ends of the levers, that is the body portion 15 is slipped under the spring fingers 29 and 30 so that it rests upon the upper surfaces of the levers with the studs 4 engaging within the apertures 26, the arms 17—17 being received within the recess 14 of the extension plate 2. This done, the cross rod, with the eyes mounted thereon, is then placed in position within the slots 19 and resting upon the upper edges of the fingers 12—13, which as hereinabove set forth positively space the cross rod from the body portion 15 and prevent compression of the spring 20.

The eye set is now ready for insertion in the doll head and this is accomplished preferably by moving the doll head over the eye set and tool rather than by moving the eye set into the doll head. In instances where the neck opening of the doll head is smaller than the length of the eye set the doll head is introduced over the eye set and tool first by movement into the position substantially as indicated by the dotted lines 6 in Fig. 1, and is thereafter turned to the position indicated by the dotted lines 36 in said figure, whereupon the eyes 16—16 are adjusted to a proper engagement within the eye sockets of the head, and then the lever 9 of the tool is swung forwardly to drive the retaining members firmly into the cheek portions of the head.

The adjustment of the eye set into the head is now completed and by a simple movement of the head relative to the tool the attaching members are disengaged from the studs 4 and the head is then lifted off of the tool.

When the tool has been withdrawn the eyes 16 are thereafter held yieldingly against the eye sockets of the head by the spring 20, it being now apparent that with the removal of the fingers 12 and 13 the cross rod 18 is free to move against the tension of the spring 20 toward the bottom of the slots 19. If said fingers have been holding the eyes against the sockets of the doll head so tightly that the eyes could not oscillate under the gravity influence of weight 32 this tightness is now relieved and the pressure of the eyes against the sockets is determined wholly by the tension of the spring 20 which, being designed for the purpose, will produce just the desired amount of friction of the eyes against the sockets to enable the proper gravity movements of the eyes.

In some cases the spring 20 may be entirely omitted. In this instance the eyes would be held against undue movement toward the body portion 15, that is backwardly from the eye sockets of the doll head, by reducing the depth of the slots 19 in the arms 17 so that the end walls of said slots would oppose backward movement of the cross rod within proper limits.

An adjusting screw as 37 or other appropriate means may be arranged for adjusting to a nicety the distance between the upper

surfaces of the lever arms and the upper surfaces of the fingers 12 and 13. The material of plate 2, as well as the material of the lever arms, is suitably flexible and resilient to enable the screw 37 to alter this distance within desirable limits as may be required by conditions met with in different types and sizes of doll heads, it being borne in mind that the distance between the lever arm and the fingers should always be just right for obtaining the benefit of the most efficient spring tension in spring 20 for holding the eyes in operative engagement with the eye seats.

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. In a tool for attaching an eye-set within doll heads said eye-set having attaching parts movable away from each other into attaching position, supporting means for supporting the eye-set in position to receive the doll head relatively thereover, the attaching parts of the eye-set each having an aperture therein, and said supporting means including lugs for engaging within said apertures and means to move said lugs to thereby move said attaching parts to attaching position.

2. In a tool for attaching an eye-set within a doll head said eye-set having attaching parts movable away from each other into attaching position, supporting means for supporting the eye-set in position to receive the doll head relatively thereover, and said supporting means comprising a pair of levers adapted to have engagement with the attaching parts, and means by which to operate said levers to move the attaching parts to attaching position.

3. A tool for attaching eye-sets in doll heads, said tool comprising a pair of levers having parts to engage and support the eye-set and by which the eye-set may be held in position to receive the doll head relatively thereover and by which the eye-set may be fastened within the doll head, together with means for operating said levers.

4. A tool for attaching eye-sets in doll heads, said tool comprising a pair of levers having parts to engage and support the eye-set and by which the eye-set may be held in position to receive the doll head relatively thereover and by which the eye-set may be fastened within the doll head, means pivotally connecting said levers together, a spring urging said levers in one direction, and a cam for urging said levers against tension of said spring for thereby operating the levers to fasten the eye-set within the doll head.

5. A tool for attaching eye-sets in doll heads, said tool comprising a pair of levers having parts to engage and support the eye-set and by which the eye-set may be held in position to receive the doll head relatively thereover and by which the eye-set may be fastened within the doll head, means pivotally connecting said levers together, a spring urging said levers in one direction, a pivoted lever, and a cam operable by said lever for urging the first levers against the tension of said spring for thereby operating said first levers to fasten the eye-set within the doll head.

6. A tool for attaching eye-sets in doll heads, said tool comprising a pair of levers having end portions arranged to constitute a platform to receive the eye-set thereon, operating means formed upon and operable by said levers also to engage the eye-set for fastening the eye-set in position in the doll head, and yieldable means to retain the eye-set upon said platform in engagement with said operating means.

7. A tool for attaching eye-sets in doll heads, said tool comprising a pair of levers having end portions arranged to constitute a platform to receive the eye-set thereon, operating means formed upon and operable by said levers also to engage the eye-set for fastening the eye-set in position in the doll head, and a spring arranged to engage the eye-set for yieldingly retaining the eye-set upon said platform in engagement with said operating means.

8. A tool for attaching eye sets in doll heads, said tool comprising a base member, an extension member projecting from said base member, a pair of levers pivoted upon said extension member, a spring engaging said levers to urge them in one direction, a cam pivoted upon the base member and engaging said levers manually operable to move the levers in opposition to said spring, and means provided upon said levers for engaging the eye set for operating movable parts of the eye set upon operation of the levers.

9. A tool for attaching eye sets in doll heads, said tool comprising a pair of pivotally connected levers, and means provided upon said levers for engaging the eye set for operating movable parts of the eye set upon operation of the levers.

10. A tool for attaching eye sets in doll heads, said tool comprising a pair of pivotally connected levers, a supporting member upon which said levers are pivotally mounted, means provided upon said levers for engaging the eye set for operating movable parts of the eye set upon operation of the levers, and a spring carried upon said supporting member arranged to engage the eye

set to yieldingly hold the eye set in engagement with the eye set engaging part of the levers.

11. A tool for attaching eye sets in doll heads, the eye set comprising a body portion having parts movable to rigidly attach the body portion in the doll head and an eye carrying portion movably engaging the body portion, said tool comprising a pair of levers for respectively engaging the movable parts of the body portion to move said parts to attaching position by operation of said levers, and said tool comprising also a part to engage the eye carrying portion to prevent movement of said eye carrying portion in one direction relative to the body portion.

12. A tool for attaching eye sets in doll heads, the eye set comprising a body portion having parts movable to rigidly attach the body portion in the doll head, the body portion having a pair of slotted arms projecting forwardly therefrom, and an eye carrying portion received in the slots of said arms movable along said slots toward said body portion, said tool comprising a pair of levers for respectively engaging the movable parts of the body portion to move said parts to attaching position by operation of said levers, and said tool comprising also a part to engage the eye carrying portion to prevent movement of said eye carrying portion along said slots.

13. A tool for attaching eye sets in doll heads, the eye set comprising a body portion having parts movable to rigidly attach the body portion in the doll head, the body portion having a pair of slotted arms projecting forwardly therefrom, and an eye carrying portion received in the slots of said arms movable along said slots toward said body portion, said tool comprising a pair of levers for respectively engaging the movable parts of the body portion to move said parts to attaching position by operation of said levers, and said tool comprising parts adapted to straddle said arms and arranged to engage the eye carrying portion at opposite sides of said arms to prevent movement of said eye carrying portion along said slots.

14. A tool for attaching eye sets in doll heads, the eye set comprising a body portion having parts movable to attach the body portion in the doll head, the body portion having a pair of slotted arms projecting forwardly therefrom, and an eye carrying portion received in the slots of said arms movable along said slots toward said body portion, together with a spring yieldingly urging the eye portion along said slots in a direction away from the body portion, said tool comprising a pair of levers for respectively engaging the movable parts of the body portion to move said parts to attaching position by operation of said levers, and said tool comprising also parts arranged to engage the eye carrying portion closely adjacent the points of engagement of the spring with said eye carrying portion adapted to prevent movement of said eye carrying portion against the tension of said spring.

15. A tool for attaching eye sets in doll heads, the eye set comprising a body portion having parts movable to rigidly attach the body portion in the doll head, and an eye carrying portion movably engaging the body portion, said tool comprising a pair of levers for respectively engaging the movable parts of the body portion to move said parts to attaching position by operation of said levers, said tool comprising also a part to engage the eye carrying portion to prevent movement of said eye carrying portion in a direction toward said levers, and means by which to adjust the distance between said levers and the last mentioned part of the tool.

16. In a tool for attaching an eye set within a doll head, where the eye set includes attaching parts movable with respect to each other into attaching position and where said attaching parts have prepared localities adapted to be engaged by the tool, supporting means for supporting the eye set in position to receive the eye set relatively thereover, said supporting means including a pair of separately formed members movable relatively to each other each having a portion for engaging the prepared localities of the attaching parts respectively of the eye set, and means to move said separately formed members relative to each other to thereby move the attaching parts of the eye set to attaching position.

In testimony whereof I affix my signature.

ALEXANDER KONOFF.