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J. H. WILHELM

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MEANS FOR MOUNTING MOVABLE EYES

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Fig. 1.

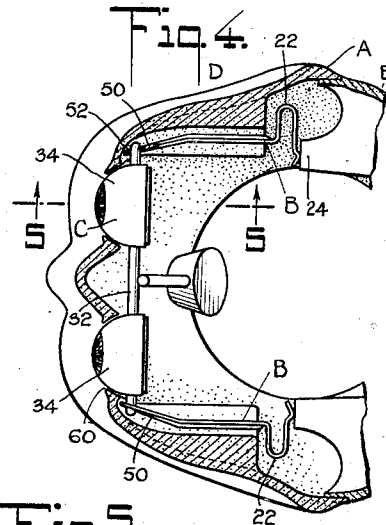
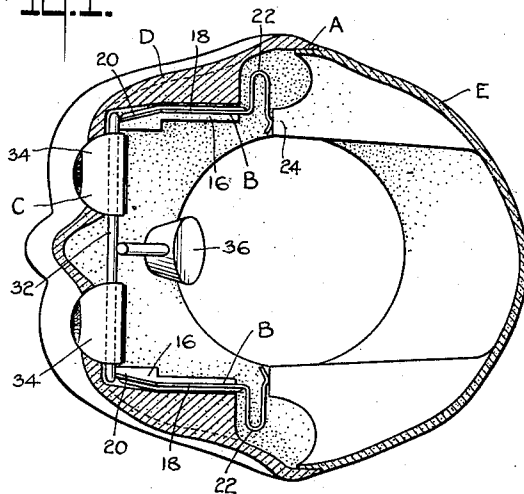


Fig. 2.

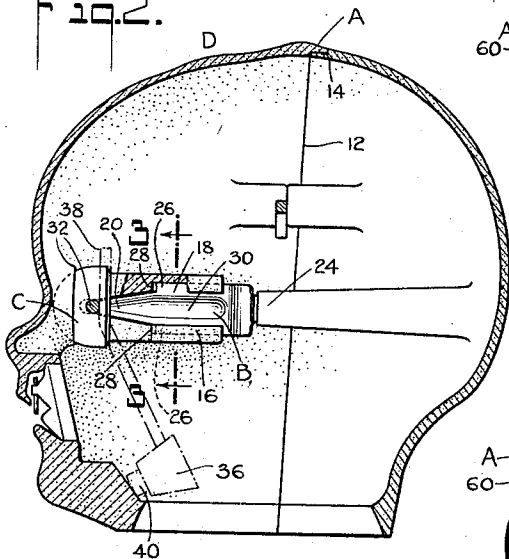


Fig. 5.

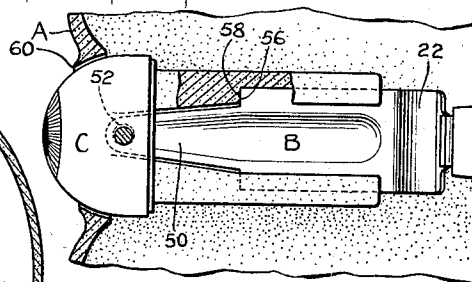


Fig. 6.

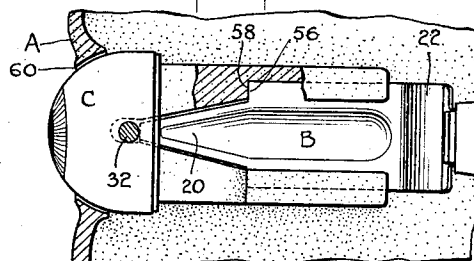


Fig. 3.

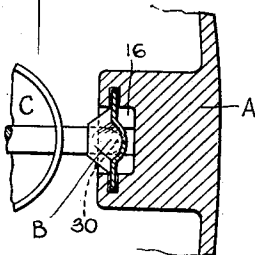
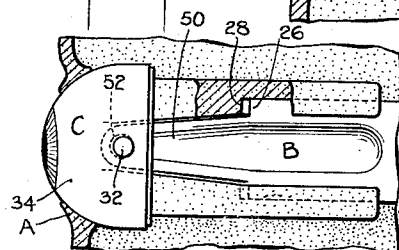


Fig. 7.



INVENTOR
John H. Wilhelm
BY *Charles J. Jones*
ATTORNEYS

UNITED STATES PATENT OFFICE

JOHN H. WILHELM, OF ROCKAWAY BEACH, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO MARGON CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

MEANS FOR MOUNTING MOVABLE EYES

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This invention relates to toys, and more particularly to dolls and similar toys having movable eyes, and to means for mounting the eyes in the head.

Numerous schemes have been proposed for mounting movable eyes in the heads of dolls and similar toys. Of these the most popular forms have proven to be those which permit of insertion of the eyes or eyeset through the neck opening of the doll's head. For this purpose, however, it has heretofore proved necessary to employ rather complex eyesets and special tools cooperating therewith.

The primary object of the present invention resides in the provision of a doll's head especially prepared for receiving a movable eyeset. More specific objects of the present invention are to provide such a doll's head adapted to receive an eyeset consisting simply of a cross bar having mounted thereon a pair of eyes and a pendant weight for gravity control of the movement of the eyes, and adapted to receive such an eyeset by simple manual insertion thereof through the neck opening of the doll's head, the eyeset being held by the pendant weight and simply snapped into holding relation with supporting members previously provided during the manufacture of the doll's head, and without necessitating the use of a special tool of any kind.

In using the mounting means of the prior art it has been necessary either to bolt mounting means to the head, which disfigures the same and makes necessary a concealing wig or the like, or to impale fastening prongs on the mounting into the material on the inside of the doll's head. This becomes of disadvantage when it is desired to use special material molded under high pressure with a view to obtaining accurate dimension of the parts of the head and a good finish on the surface thereof. Accordingly, another object of the present invention is to dispense with screw fastening means, or impaling means, or any similar mounting means necessitating mutilation or penetration of the material of the head.

Further objects of the present invention are to make possible any desired relation be-

tween the eye shells and the eye openings or sockets as, for example, resilient frictional engagement of the eye shells with the eye sockets, or clearance between the eye shells and the eye sockets and, in the latter case, either a fixed center of oscillation or a movable center of oscillation of the eye shells.

To the accomplishment of the foregoing and such other objects as will hereinafter appear, my invention consists in the doll's head, the eyeset, and the mounting elements and their relation one to the other as hereinafter are more particularly described in the specification and sought to be defined in the claims. The specification is accompanied by drawings in which:

Fig. 1 is a section in plan taken through the eyeset of a doll's head embodying my invention;

Fig. 2 is a section taken in elevation through the same head;

Fig. 3 is a detail section taken in the plane of the line 3—3 in Fig. 2;

Fig. 4 is a partial section in plan similar to Fig. 1, but illustrating a modification;

Fig. 5 is a vertical section taken in the plane of the line 5—5 in Fig. 4;

Fig. 6 is a section similar to that shown in Fig. 5 illustrating another modification of the invention; and

Fig. 7 is a section similar to Fig. 5 taken through still another modified form of my invention.

Referring to the drawings, the invention in each of the several forms here disclosed comprises a doll's head A provided during its manufacture with means B for subsequently receiving and supporting an eyeset C. The doll's head A preferably is formed of a front head portion D arranged to carry mounting means B and a rear head portion E cemented to the front head portion and arranged to permanently hold the mounting means B in the head of the doll. The mounting means B are preferably resiliently separable, so that the eyeset C may readily be snapped into holding relation with the supporting members.

Considering the invention more in detail, the doll's head A is preferably molded of a

material adapted to withstand relatively high molding pressure with a view to obtaining an accurate and clean-cut impression. Such materials have been developed and make possible the production of a doll's head in which the parts are of correct size and in accurate relative relation, but these materials have not come into wide use heretofore because of the difficulty of penetrating the relatively hard material with the impaling means ordinarily used for mounting eyesets within the head.

The front and rear head portions D and E of the doll's head are preferably separated on a straight parting line 12 located behind the ears of the doll and formed with an interlocking joint 14 as is disclosed in a copending application of Samuel Marcus, Ser. No. 189,519, filed May 7, 1927. The halves of the doll's head may be molded to the desired accurate shape under high pressure in a mold such as is disclosed in the copending application of Samuel Marcus, Ser. No. 120,347, filed July 3, 1926.

The front head portion D has integrally molded therein a pair of channels 16 which extend rearwardly from the eye sockets along the side walls of the head. The mounting means B are preferably made of resilient material and include an intermediate portion 18 which is reciprocable in the channels 16, thereby permitting movement of the supporting means B toward and from the eye sockets; a forward end portion or supporting finger 20, the fingers 20 being resiliently separable to permit the eyeset C to be pushed or snapped into supporting relation therewith; and resilient means 22 preferably formed simply by bending the rear ends of the mounting means B, the resilient means 22 serving to urge the mounting means toward the eye sockets of the doll's head. The reaction of the resilient means 22 is taken upon bearing surfaces 24 preferably formed by being integrally molded with the rear head portion E. As is best shown in Fig. 2, the mounting means B is provided at the forward end of the intermediate portion 18 with shoulders 26 which mate with abutting shoulders 28 to limit the movement of the supporting fingers 20 toward the eye sockets. The intermediate and forward portions 18 and 20 of the mounting means B are preferably stamped to form a concave groove or channel 30, best shown in Fig. 3, which leads toward the tip of the mounting means.

It is important to observe that after the front and rear portions of the doll's head have been molded and before they are cemented together the mounting means B are simply and readily slid into the channels 16 for receiving the same, and thereafter the front and rear head portions are cemented together. In this manner the doll's head is permanently provided with eyeset mounting

means of extraordinary simplicity and cheapness, and without necessitating any extra steps in the manufacture of the doll's head. The mounting means B remain in place during the additional manufacturing steps needed to finish and paint the doll's head preparatory to the final insertion of the eyeset C therein.

The eyeset C is of the simplest possible form, comprising merely a cross rod 32 and a pair of eyes 34 and a pendant weight 36 mounted on the cross rod 32. The pendant weight 36 may be extended upwardly as at 38, and provided with a shock absorbing insert 40 in order to limit the rotation of the eyes to the desired opening and closing movement. The ends of the cross rod 32 are preferably given a rounded or conical shape. This simple and economical eyeset may be held by the weight 36 and inserted through the neck opening of the doll's head, the ends of the cross rod 32 being readily located opposite the grooves or channels 30, and guided thereby until pushed past the ends of the supporting fingers 20 which, because of their resilience, snap back behind the ends of the cross rod, as is indicated in Figs. 1 and 3.

In Figs. 1 and 2 a form of the invention is disclosed in which it is desired that the eye shells 34 be in resilient frictional engagement with the eye sockets of the doll's head. To this end the shoulders 26 and 28 are so related that when the eyeset is in position the shoulders are slightly separated so that the pressure of the springs 22 holds the eye shells directly in engagement with the eye sockets. The shoulders 26 and 28 should, however, not be dispensed with entirely because it then would be difficult, if not impossible, to push the ends of the cross rod 32 beyond the ends of the supporting fingers 20. With the arrangement here disclosed, in which the shoulders 26 and 28 permit only a slight forward movement of the supporting fingers, the eyeset may be successfully pushed into position, particularly in view of the conical shape given to the ends of the cross rod 32.

In many cases it may be desired to make the eye shells 34 freely rotatable rather than in frictional engagement with the eye sockets. Such an arrangement is illustrated in Figs. 4 and 5 of the drawings, referring to which it will be seen that the most important difference between this form of the invention and that already described is that the supporting fingers 50 are provided with apertures 52 for receiving the ends of the cross rod 32. Furthermore, the shoulders 56 and 58 now abut at a point permitting appreciable clearance indicated at 60 between the eye shells and the eye sockets. In other respects this form of the invention is similar to that previously described, and the method of manufacturing the doll's head and the

method of inserting the eyeset therein obviously will in no way differ from that previously outlined.

It is not essential that the supporting fingers be provided with apertured bearings for the cross rod in order to give the eye shells a loose mounting. This is illustrated by the modification of the invention shown in Fig. 6 in which the ends of the supporting finger 20 terminate in a simple bearing surface similar to that in the first form of the invention described, but in which the shoulders 56 and 58 abut to allow clearance 60 between the eye shells and the eye socket similar to the second form of the invention described. However, in the present case the cross rod 32 is free to move slightly toward and from the eye socket, that is, the center of oscillation is not fixed, as is the case in Figs. 4 and 5.

Fig. 7 illustrates how the eye shells 34 may be brought into frictional engagement with the eye socket when using the apertured mounting means described in connection with Figs. 4 and 5. In this case the supporting finger 50 is provided with an aperture 52 for receiving the end of the cross rod 32, but the shoulders 26 and 28 are separated slightly against the pressure of the springs 22 by the pressure of the eye shells 34 against the eye sockets. In this case, as in the case of the arrangement described in connection with Figs. 1, 2, and 3, it is especially desirable to form the cross rod 32 with conical ends in order to facilitate the insertion of the eyeset in the mounting means in spite of the slightly excess forward movement of the mounting means prior to receiving the eyeset.

Referring now generally to all of the species of the invention set forth, it is important to notice that a receding movement of either eye alone is permitted, as well as a simultaneous movement of both eyes. This is important in practice because children often push the eyeballs inwardly with their fingers, and many types of eyeset mounting may be permanently damaged by pressure applied in this manner to one eye or the other. In the present arrangement the eyeset is supported at the ends of the cross rod, which is most favorable for strength and stability and, nevertheless, the eyes are capable of independent rearward movement due to the fact that each supporting finger is provided with resilient means of its own for urging it toward the eye socket.

The bearing surfaces 24 are so positioned with relation to the rear ends of the reciprocable supporting members B or, differently expressed, the springs 22 are so proportioned that the maximum permissible rearward movement of the supporting fingers is insufficient to permit escape of the end of the cross rod. For this reason the eyeset cannot be dislodged even though only one eye

is pushed inwardly. Furthermore, when the eyes are pushed inwardly the supporting fingers 20, which are already bent toward the center of the doll's head, tend to bend further inwardly, and so insure against the end of the cross rod ever escaping from the bearing surface or bearing aperture at the end of the supporting finger. This function of the bearing surfaces 24 is an addition to the previously mentioned functions of taking the normal reaction of the springs 22 and permanently locking the supporting members B in the doll's head regardless of the presence or absence of an eyeset in the head.

It will thus be seen that the eyeset is securely mounted in place and cannot be dislodged by mishandling the doll. However, if for some reason it is desired to remove the eyeset this may readily be done by pressing one of the supporting fingers 20 toward the outer wall of the doll's head and simultaneously removing the eyeset by means of the weight 36, the eyeset being first turned about the opposite or bound end of the cross rod 32, and finally removed entirely.

While I have illustrated my invention as applied to a doll's head consisting of front and rear head portions cemented together, it will be clear that many features of the invention are equally applicable to a doll's head differently divided or differently molded. It will also be clear that although I have illustrated as a preferred form a doll's head in which the eyeset is pushed or inserted into holding relation with the bearing surfaces through the neck opening of the doll's head the invention may be practiced by inserting the eyeset through the top of the head as is frequently done with dolls which are to be provided with wigs.

The structural characteristics of my invention and the manner of constructing and using the same will, for the most part, be apparent from the foregoing description thereof. It will further be apparent that an eye mounting is provided which is economical because it requires but slight material and no extra labor. The eye mounting forms an integral part of the head and is permanently mounted therein without necessitating mutilation or penetration of the material of the head. The mounting is adapted to receive an eyeset of the simplest possible form by simple manual insertion through the neck opening of the head and without the use of a special tool of any form. Either frictional or free movement of the eye shells in the sockets may be provided as desired.

It will be apparent that while I have shown and described my invention in the preferred forms, many changes and modifications may be made in the structures disclosed without departing from the spirit of the invention, defined in the following claims.

I claim:

1. A molded doll's head prepared for receiving a movable eyeset, said head comprising resilient metallic means for subsequently receiving and supporting an eyeset, and recess means molded integrally in the head and appropriately shaped for receiving, encompassing, and holding the said eyeset supporting means prior to the insertion of the eyeset.

2. A molded doll's head prepared for receiving a movable eyeset and comprising eye sockets, means movable toward and from the eye sockets for receiving and subsequently supporting an eyeset, recess means molded integrally in the head and appropriately shaped for receiving, encompassing and reciprocally supporting the said eyeset supporting means, and means for urging the eyeset supporting means toward the eye sockets prior to the insertion of the eyeset.

3. A doll's head prepared for receiving a movable eyeset, said head comprising eye sockets, a pair of spaced and resiliently separable supporting members located at the sides of the head and movable toward and from the eye sockets, said members being so arranged that an eyeset may subsequently be inserted in the doll's head and pushed into holding relation with the supporting members, and means urging the supporting members toward the eye sockets.

4. A doll's head prepared for receiving a movable eyeset, said head comprising a front head portion, means for receiving and supporting an eyeset mounted therein, a rear head portion cemented to the front head portion and provided with means for engaging and holding the eyeset supporting means in the front head portion, said eyeset supporting means including a pair of spaced and resiliently separable supporting members located at the sides of the head and so arranged that an eyeset may subsequently be inserted in the doll's head and pushed into holding relation with the supporting members.

5. A doll's head prepared for receiving a movable eyeset, said head including a pair of spaced and resiliently separable spring metal supporting members located at the sides of the head and having bearing surfaces so arranged that the ends of the cross rod of an eyeset may subsequently be inserted in holding relation therewith.

6. A doll's head prepared for receiving a movable eyeset, said head including a neck opening and a pair of spaced and resiliently separable spring metal supporting members located at the sides of the head and having bearing surfaces so arranged that an eyeset comprising a cross rod and a pair of eyes and a pendant weight mounted thereon may subsequently be inserted through the neck opening by means of the weight and the ends

of the cross rod inserted in holding relation with the supporting members.

7. A doll's head prepared for receiving a movable eyeset, said head comprising a pair of channels extending rearwardly from the eye sockets, a pair of reciprocable supporting fingers in said channels, and resilient means for urging the supporting fingers toward the eye sockets.

8. A doll's head prepared for receiving a movable eyeset, said head having a pair of channels extending rearwardly from the eye sockets, a pair of reciprocable supporting fingers in said channels, resilient means for independently urging the supporting fingers toward the eye sockets, and bearing surfaces for taking the reaction of said resilient means and for limiting the rearward movement of the supporting fingers.

9. A doll's head prepared for receiving a movable eyeset, said head comprising a front portion having integrally molded therein a pair of channels extending rearwardly from the eye sockets, a pair of reciprocable supporting fingers in said channels the rear ends of which are bent to form resilient means for urging the supporting fingers toward the eye sockets, and a rear head portion cemented to the front head portion and having integrally molded therewith bearing surfaces for taking the reaction of said resilient means.

10. A doll's head prepared for receiving a movable eyeset, said head comprising a pair of channels extending rearwardly from the eye sockets, a pair of reciprocable supporting fingers in said channels, resilient means for urging the supporting fingers toward the eye sockets, and means for limiting the movement of the fingers.

11. A doll's head prepared for receiving a movable eyeset, said head comprising a pair of channels extending rearwardly from the eye sockets, a pair of reciprocable supporting fingers in said channels the rear ends of which are bent to form resilient means for urging the supporting fingers toward the eye sockets, and mating shoulders on said channels and fingers for limiting the movement of the fingers toward the eye sockets.

12. A doll's head prepared for receiving a movable eyeset, said head comprising a pair of channels extending rearwardly from the eye sockets, a pair of reciprocable supporting fingers in said channels, and resilient means for urging the supporting fingers toward the eye sockets, said reciprocable supporting fingers being resiliently separable so that an eyeset may be inserted in the doll's head and pushed into supporting relation with the supporting fingers.

13. A doll's head prepared for receiving a movable eyeset, said head comprising a pair of channels extending rearwardly from the eye sockets, a pair of reciprocable supporting fingers in said channels, and resilient means

for urging the supporting fingers toward the eye sockets, said reciprocable supporting fingers being resiliently separable and having bearing surfaces so arranged that the ends of the cross rod of an eyeset may be inserted in holding relation with the supporting fingers.

14. A doll's head comprising a pair of spaced resilient metallic supporting means mounted therein at the sides thereof and movable toward and from the eye sockets for supporting an eyeset, an eyeset supported by said means, and means formed on said head for preventing removal of the supporting means from the doll's head and for holding the supporting means with the eyeset at the front of the doll's head.

15. A doll's head comprising a pair of channels extending rearwardly from the eye sockets, a pair of supporting fingers mounted reciprocably in said channels, an eyeset supported at the forward ends of said supporting fingers, and means urging the supporting fingers toward the eye sockets.

16. A doll's head comprising a front head portion having a pair of channels extending rearwardly from the eye sockets, a pair of supporting fingers mounted reciprocably in said channels, an eyeset supported at the forward ends of said supporting fingers, resilient means urging the supporting fingers and the eyeset toward the eye sockets, a rear head portion cemented to the front head portion, and means formed on said rear head portion for taking the reaction of said resilient means.

17. A doll's head comprising a pair of channels extending rearwardly from the eye sockets, a pair of supporting fingers mounted reciprocably in said channels, an eyeset comprising a cross rod and a pair of eyes and a pendant weight mounted thereon supported at the ends of the cross rod by the forward ends of said supporting fingers, and resilient means at the rear ends of the supporting fingers urging the supporting fingers and the eyeset toward the eye sockets.

18. A doll's head comprising a pair of channels extending rearwardly from the eye sockets, a pair of resiliently separable supporting fingers mounted reciprocably in said channels, an eyeset comprising a cross rod and a pair of eyes and a pendant weight mounted thereon supported at the ends of the cross rod by the forward ends of said supporting fingers, and resilient means at the rear ends of the supporting fingers urging the supporting fingers and the eyeset toward the eye sockets.

19. A doll's head comprising a pair of channels extending rearwardly from the eye sockets, a pair of resiliently separable supporting fingers mounted reciprocably in said channels, the rear ends of said fingers being bent to form resilient means for urging the

fingers toward the eye sockets, and an eyeset comprising a cross rod and a pair of eyes and a pendant weight mounted thereon supported at the ends of the cross rod by the forward ends of said supporting fingers.

20. A doll's head comprising a front portion having integrally molded therein a pair of channels extending rearwardly from the eye sockets, a pair of resiliently separable supporting fingers mounted reciprocably in said channels, the rear ends of said fingers being bent to form resilient means for urging the supporting fingers toward the eye sockets, the rear head portion cemented to the front head portion, and having integrally molded bearing surfaces for taking the reaction of said resilient means and for preventing removal of the supporting fingers, and an eyeset comprising a cross rod and a pair of eyes and a pendant weight mounted thereon supported at the ends of the cross rod by the forward ends of said supporting fingers.

21. A doll's head comprising a pair of channels extending rearwardly from the eye sockets, a pair of resiliently separable supporting fingers mounted reciprocably in said channels, an eyeset comprising a cross rod, and a pair of eyes and a pendant weight mounted thereon, supported at the ends of the cross rod by the forward ends of said supporting fingers, resilient means urging the supporting fingers and the eyeset toward the eye sockets, and means for limiting the movement of the fingers in the channels.

Signed at New York, in the county of New York and State of New York, this 8th day of January, A. D. 1930.

JOHN H. WILHELM.