July 1, 1952 C. KUSOLD 2,601,742

DOLL HEAD WITH MOVABLE EYES

Filed Aug. 13, 1946

Fig.1.

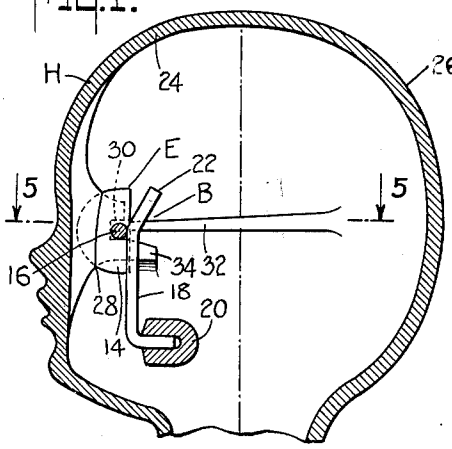


Fig.2.

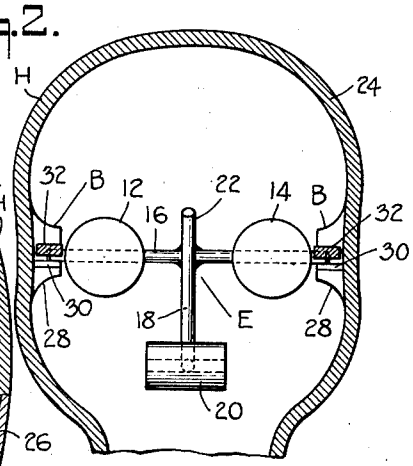


Fig.5.

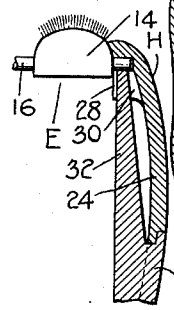


Fig.3.

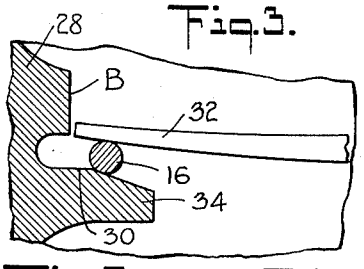


Fig.4.

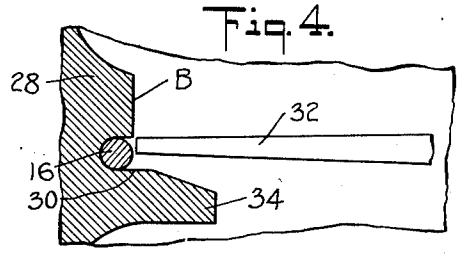


Fig.7.

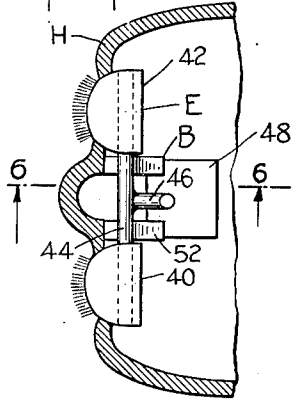


Fig.6.

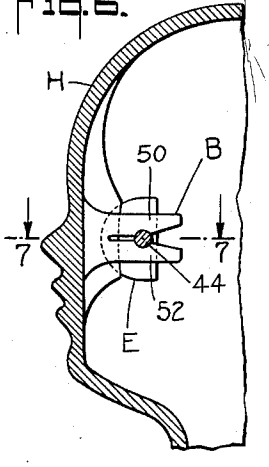


Fig.8.

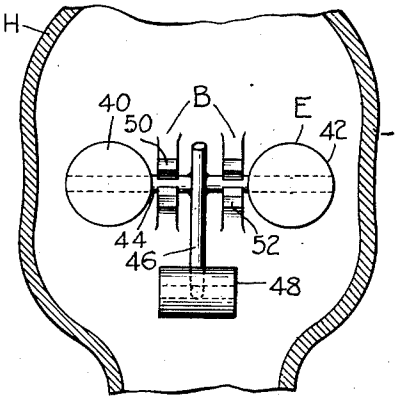


Fig.9.

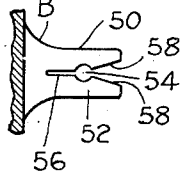
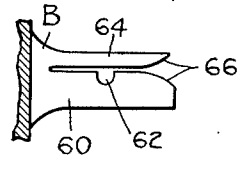


Fig.10.



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DOLL HEAD WITH MOVABLE EYES

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14 Claims. (Cl. 46—169)

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This invention relates to dolls, and more particularly to doll heads with movable eyes.

The primary object of the invention is to generally improve doll heads with movable eyes. A more particular object is to facilitate the insertion and mounting of the movable eyes in the head. A further object is to provide a molded doll head made, for example, out of thermoplastic material, and having the entire bearing assembly or mounting means for the eye set molded integrally with the doll head as a part of the main molding operation. A still further object of the invention is to provide the doll head with integrally molded bearing parts which, when in normal position, hold the eye shaft, but at least some of which are resiliently movable to a position which opens the bearing for reception of the eye shaft.

To accomplish the foregoing general objects and other more specific objects which will hereinafter appear, my invention resides in the doll head, eye set, and bearing elements, and their relation one to the other, as are hereinafter more particularly described in the following specification. The specification is accompanied by a drawing, in which:

Fig. 1 is a vertical section through a doll head embodying features of my invention;

Fig. 2 is a vertical section taken across the head behind the eye set;

Figs. 3 and 4 are fragmentary views drawn to enlarged scale, and explanatory of the operation of the invention;

Fig. 5 is a horizontal section through a part of the head taken approximately in the plane of the line 5—5 of Fig. 1;

Fig. 6 is a vertical section through a modified form of the invention, and is taken approximately in the plane of the line 6—6 of Fig. 7;

Fig. 7 is a horizontal section taken approximately in the plane of the line 7—7 of Fig. 6;

Fig. 8 is a vertical section behind the eye set;

Fig. 9 shows one of the bearings before adding the eye set; and

Fig. 10 is a view similar to Fig. 9, but showing a modification.

Referring to the drawing, all forms of the invention comprise generically a doll head H, and a movable eye set E, said head having bearing parts integrally molded therewith and generally designated B. The bearing parts B receive and retain the eye set in desired position, at least some of said bearing parts being resiliently movable relative to other bearing parts to such a position as will open said bearings for insertion of the eye set.

Considering the first form of the invention in greater detail, and referring to Figs. 1 through 5 of the drawing, the eye set E comprises approximately hemispherical eyes 12 and 14 carried on a

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suitable cross-rod or eye shaft 16. The shaft 16 has secured thereto, as for example by welding, a weight arm 18 carrying a suitable weight 20. If desired, the upper end of the weight arm may be extended and appropriately bent, as indicated at 22, to act as a motion limiting stop to limit the closing movement of the eyes when the doll is changed from standing to lying position.

The doll head H is made of a front half 24, and a back half 26, these parts being separately molded and subsequently secured together in edge to edge relation. The bearing parts 28 have a bearing slot 30, which is open at one end. The head includes additional long slender bearing parts 32, the ends of which when in normal position serve to close the open ends of the bearing slots, thereby retaining the eye shaft 16 in position, as is best shown in Fig. 4. However, the slender bearing parts 32 are resiliently movable away from the open ends of the bearing slots, as is best shown in Fig. 3, thus opening the bearing for reception of the eye shaft.

In the preferred form of the invention here illustrated, the stationary bearing part 28 is molded integrally with the front wall of the head, and the bearing slots 30 open rearwardly. The yieldable parts 32 are molded integrally with the rear wall of the doll head, and project forwardly therefrom, as is best shown in Fig. 5. This facilitates the molding operation, and at the same time gives the parts 32 adequate length for the necessary yielding movement.

The bearing 28 is preferably extended rearwardly at the bottom of the bearing slot 30 to form an inclined guide 34. The manner in which the eye set is applied to the head is readily seen by comparison of Figs. 3 and 4, the eye set being inserted through the neck opening of the head, and then moved forwardly over the inclined guide surfaces 34, thus bending the bearing parts 32 upwardly, as shown in Fig. 3. When the eye shaft has been moved fully into the bearing slots, the parts 32 spring back to normal position behind the eye shaft, as shown in Fig. 4.

Another form of the invention is illustrated in Figs. 6 through 9 of the drawing. Referring to those figures, the eye set E is similar to that previously described in comprising a pair of eyes 40 and 42 carried on an eye shaft 44 provided with a weight arm 46 and weight 48. In the present case, the bearing parts B are located between the eyes, and it is therefore not necessary for the ends of the eye shaft 44 to project beyond the eyes.

There are upper and lower bearing parts 50 and 52, appropriately recessed therebetween to hold the eye shaft when the bearing parts are in normal position. The recesses are best shown at 54 in Fig. 9. The separation of the upper and lower bearing parts is carried beyond the recesses,

as shown at 56, so that the upper and lower parts will be resiliently movable away from one another. The surfaces leading to the recess 54 are preferably inclined, as indicated at 58, thereby facilitating insertion of the eye set in the doll head. It will be understood from inspection of the drawing that it is merely necessary to pass the eye set through the neck opening of the head, and to then force it forwardly between the inclined surfaces 58 until the bearing parts are spread apart enough for the eye shaft 44 to spring into position.

A modified form of bearing is shown in Fig. 10, this differing from that shown in Fig. 9 in providing a relatively heavy stationary bearing part 60 having a bearing recess 62 formed in the top surface thereof. A relatively slender bearing part 64 is disposed immediately over recess 62 and normally closes the recess. However, the part 64 may be sprung away from the part 60 enough to receive the eye shaft. The approach surfaces may be inclined, as shown at 66, to facilitate insertion of the eye shaft. The arrangement of Fig. 10 has an advantage over the arrangement of Fig. 9, in that it is more difficult to accidentally dislodge the eye set from the bearing by rough handling or abuse of the doll.

The bearing of either Fig. 9 or Fig. 10 may be molded without the use of movable cores by omitting the recesses 54 or the recess 62. These recesses are formed later by using an appropriate cutting tool, or a special punch and die arrangement designed for the particular purpose. It is also possible to mold the bearings, including the recesses 54 or the recess 62, by using a transversely movable core in the die. Moreover, the recesses 54, in the arrangement of Fig. 9, may be molded while using a core which is not transversely movable, by taking advantage of the fact that the material may be sprung off the core provided that the parts 50 and 52 are no longer bound within the mold. In other words, the mold may be so designed that the parts 50 and 52 are withdrawn from the mold, together with the core forming the slot 56 and the recesses 54. The movement of the core is arrested after a short distance, whereupon the molded head may be stripped from the core, the molded parts 50 and 52 springing apart for that purpose.

It will be understood that the arrangement of Figs. 1 through 5 may be employed with bearings located between the eyes, instead of outside the eyes, and conversely that the arrangement of Figs. 7 through 10 may be employed with bearings located outside the eyes, instead of between the eyes.

The doll head may be molded of any suitable molding material. Substantially all thermoplastics which are rigid at room temperature may be used, for example, cellulose acetate, cellulose acetate butyrate, acrylic resins such as methyl methacrylate, and styrene resins such as polystyrene. The thermoplastic used should be satisfactory both from the viewpoint of providing an accurately dimensioned head with the bearing parts appropriately located relative to the eye openings, and also from the viewpoint of providing sufficient elasticity for the yieldable parts.

It is believed that the construction and operation, as well as the advantages of my improved doll head, will be apparent from the foregoing detailed description. It will also be apparent that while I have shown and described the invention in several preferred forms, changes may be made in the structures disclosed without departing from the spirit of the invention, as sought to be defined in the following claims. In the claims, the term "shaft" is intended to include trunnions or shaft ends which might be employed without necessarily using a single long shaft extending all the way through the eye set.

I claim:

1. A molded doll head arranged to receive an eye set having a journal, said head having bearing parts for said journal molded integrally therewith of the same material, some of said integrally molded bearing parts having a bearing slot open at one end, an additional one of said integrally molded bearing parts being a relatively long slender bearing part the end of which when in normal position serves to close the open end of the bearing slot in order to enclose the journal, said slender bearing part being resiliently movable away from the open end of the bearing slot to a position which opens the bearing for reception of the journal.

2. A molded doll head arranged to receive an eye set having a journal, said head having bearing parts molded integrally therewith of the same material, the front wall of said head having rearwardly projecting bearing parts with a bearing slot open at the rear end, the back of said doll head having integrally molded therewith relatively long slender forwardly projecting bearing parts, the forward ends of which when in normal position serve to close the open rear ends of the bearing slots in order to enclose the journal, said forwardly projecting bearing parts being resiliently movable away from the open end of the bearing slot to a position which opens the bearing for reception of the journal.

3. A doll head molded out of thermoplastic material and arranged to receive an eye set having journals, said head having bearing parts molded integrally therewith of the same material, the front wall of said head having rearwardly projecting bearing parts with a bearing slot open at the rear end, the back of said doll head having integrally molded therewith relatively long slender forwardly projecting bearing parts, the forward ends of which when in normal position serve to close the open rear ends of the bearing slots in order to enclose the journals, said forwardly projecting bearing parts being resiliently movable in a vertical direction away from the open end of the bearing slot to a position which opens the bearing for reception of the journals.

4. In combination, a molded doll head, and a movable eye set, said eye set comprising a pair of eyes, an eye shaft, and a weight arm, said doll head having bearing parts integrally molded therewith of the same material, said bearing parts receiving and retaining said eye shaft in desired position, some of said integrally molded bearing parts having bearing slots open at one end, other of said integrally molded bearing parts being relatively long slender bearing parts the ends of which are normally disposed at the open ends of the bearing slots to retain the eye shaft in the bearing slots, said slender parts being resiliently movable away from the open ends of the bearing slots to such a position as will open said bearings for insertion of the eye set.

5. In combination, a molded doll head, and a movable eye set, said doll head comprising a front wall and a rear wall, said eye set comprising a pair of eyes, an eye shaft, and a weight arm, the front wall of the doll head having integrally molded rearwardly projecting bearing parts of

the same material with bearing slots open at the rear, the back wall of the doll head having integrally molded therewith relatively long slender forwardly projecting bearing parts of the same material, the forward ends of which are normally disposed at the open ends of the bearing slots to retain the eye shaft in the bearing slots, said forwardly projecting bearing parts being resiliently movable away from the open ends of the bearing slots to such a position as will open said bearings for insertion of the eye set.

6. In combination, a doll head molded out of thermoplastic material, and a movable eye set, said eye set comprising a pair of eyes, an eye shaft, and a weight arm, the front wall of the doll head having integrally molded rearwardly projecting bearing parts of the same material with bearing slots open at the rear, the back wall of the doll head having integrally molded therewith relatively long slender forwardly projecting bearing parts of the same material, the forward ends of which are normally disposed at the open ends of the bearing slots to retain the eye shaft in the bearing slots, said forwardly projecting bearing parts being resiliently movable away from the open ends of the bearing slots to such a position as will open said bearings for insertion of the eye set.

7. A molded doll head arranged to receive an eye set having an eye shaft, said head having bearing parts molded integrally therewith of the same material, there being upper and lower bearing parts appropriately recessed therebetween so that said bearing parts when in normal position provide a bearing for holding a part of the eye shaft, said upper and lower bearing parts being resiliently relatively movable to a spread position which opens the bearing recess for reception of the eye shaft.

8. A doll head molded out of thermoplastic material and arranged to receive an eye set having an eye shaft, said head having bearing parts molded integrally therewith of the same material, there being upper and lower bearing parts appropriately recessed therebetween so that said bearing parts when in normal position provide bearings for enclosing parts of the eye shaft, said upper and lower bearing parts being resiliently relatively movable away from one another to a spread position which opens the bearing recess for reception of the eye shaft.

9. In combination, a molded doll head, and a movable eye set, said eye set comprising a pair of eyes, an eye shaft, and a weight arm, said doll head having bearing parts integrally molded therewith of the same material, said bearing parts receiving and retaining said eye shaft in desired position, there being upper and lower bearing parts appropriately recessed therebetween so that said bearing parts when in normal position hold the eye shaft, said upper and lower bearing parts being resiliently relatively movable to a spread position which opens the bearing recess for reception of the eye shaft.

10. In combination, a doll head molded out of thermoplastic material, and a movable eye set, said eye set comprising a pair of eyes, an eye shaft, and a weight arm, said doll head having bearing parts integrally molded therewith of the same material, said bearing parts receiving and retaining said eye shaft in desired position, there being upper and lower bearing parts appropriately recessed therebetween so that said bearing parts when in normal position enclose the

eye shaft, said upper and lower bearing parts being resiliently relatively movable away from one another to a spread position which opens the bearing recess for reception of the eye shaft.

11. A molded doll head arranged to receive a movable eye set having a journal, said head having relatively movable bearing parts molded integrally therewith of the same material, said bearing parts when in normal position acting as a bearing for holding the journal, at least one of said integrally molded bearing parts being sufficiently long and slender to be resiliently movable relative to the other of said integrally molded bearing parts to a position which opens the bearing for reception of the journal.

12. A doll head molded out of thermoplastic material and arranged to receive a movable eye set having journals, said head having relatively movable bearing parts molded integrally therewith of the same material, said bearing parts when in normal position acting as bearings for enclosing the journals, at least some of said integrally molded thermoplastic bearing parts being sufficiently long and slender to be resiliently movable in a vertical direction relative to the other of said integrally molded thermoplastic bearing parts to a position which opens the bearings for reception of the journals.

13. In combination, a molded doll head and a movable eye set, said eye set comprising a pair of eyes and a journal and weight means, said doll head having relatively movable bearing parts integrally molded therewith of the same material, said bearing parts acting as a bearing for receiving and retaining said journal in desired position, at least one of said integrally molded bearing parts being sufficiently long and slender to be resiliently movable relative to the other of said integrally molded bearing parts to such a position as will open said bearing for insertion of the journal.

14. In combination, a molded doll head made of thermoplastic material, and a movable eye set, said eye set comprising a pair of eyes and journals and weight means, said doll head having relatively movable bearing parts integrally molded therewith of the same material, said bearing parts acting as bearings for receiving and retaining said journals in desired position, at least some of said integrally molded thermoplastic bearing parts being sufficiently long and slender to be resiliently movable in a vertical direction relative to the other of said integrally molded thermoplastic bearing parts to such a position as will open said bearings for insertion of the journals.

CHARLES KUSOLD.

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