Oct. 18, 1938. E. G. SCHAEFFER 2,133,636

DOLL

Original Filed July 24, 1936

Fig. 1

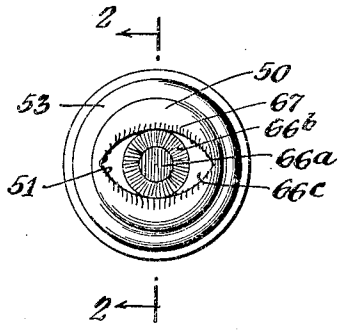


Fig. 2

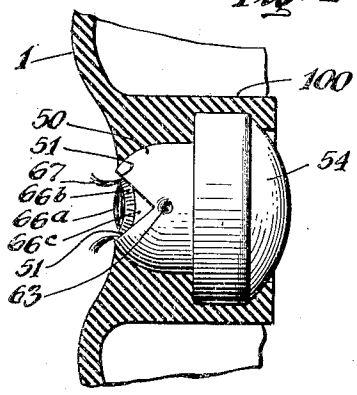


Fig. 3

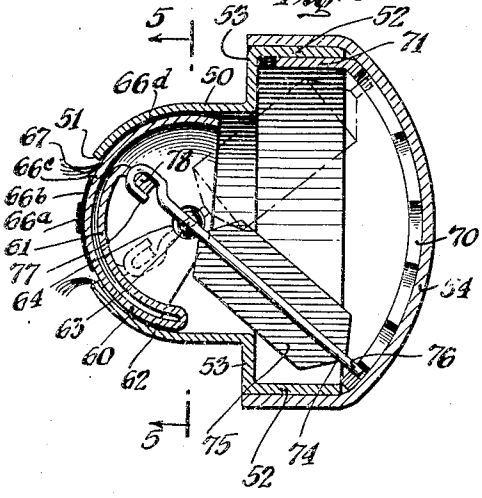


Fig. 4

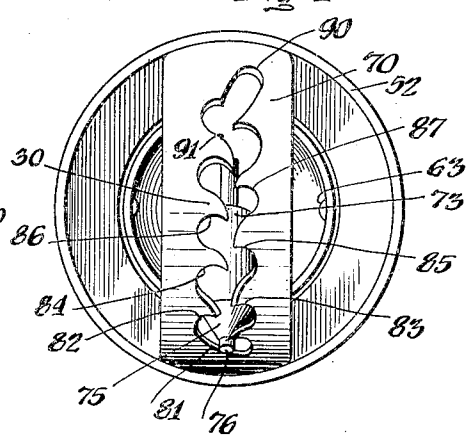
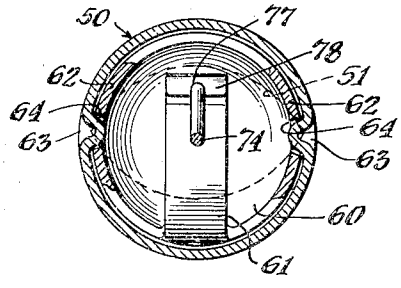


Fig. 5



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2,133,636

DOLL

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Original application July 24, 1936, Serial No. 92,333. Divided and this application October 21, 1937, Serial No. 170,178

7 Claims. (Cl. 46—169)

This invention relates to dolls and more particularly to a doll structure having eyeballs pivotally mounted therein with automatic mechanism for moving the eyeballs into closed, sleeping position and into open, waking position. This is a deviation of my copending application Serial No. 92,333, filed July 24, 1936.

In accordance with this invention, an eyeball assembly is provided which includes one or more eyeballs pivotally mounted for movement into open and closed position having associated therewith eyeball-operating mechanism assembled as a complete unit before it is inserted into the doll head. The unit may be suitably clipped, fixed, or otherwise attached within the doll head or, if desired, the unit may be incorporated with the doll head mold and then molded into place as the doll head itself is molded or formed.

In accordance with my invention, a housing is provided which may contain one or both eyeballs, as desired. The eyeballs are pivotally mounted within the housing and are moved into closed, sleeping position and to open, aroused position by means of a swinging pendulum whose movement is controlled by a guide rack fixed within the housing. The eyeballs are brought into closed, sleeping position in successive stages by sidewise rocking movement of the doll. When the doll is picked up so as to assume a substantially vertical, aroused position, the eyeballs return to waking position by the action of gravity on the pendulum.

The eyeball and eyeball-operating unit can be inexpensively made and assembled with a minimum of operations, and largely by unskilled labor, and can be advantageously assembled in doll heads designed to retail at comparatively low cost. The movement of the eyeballs is such as to closely simulate the eyeball movement in the human baby when it is rocked to sleep and when picked up and aroused. The child-mother obtains great happiness and delight from the doll as herein constructed, since its eye performance, to which the child is immediately attracted, is very similar to that of a natural baby.

An object of this invention is to provide a sleeping doll having eyeballs which can be closed by a solicitous rocking movement of the doll.

Another object of this invention is to provide an improved eyeball mounting and eyeball-operating mechanism which may be assembled as a complete unit and the unit thereafter inserted, attached, or otherwise applied to the doll head.

Still another object of this invention is to provide an improved eyeball unit having eyeball-mounting and operating mechanism associated therewith which can be produced at low cost, which is substantially foolproof and positive in operation, and which is sturdy and strong in construction.

Other objects of this invention will become apparent as the disclosure proceeds.

Various other features and advantages of the invention will be apparent from the following particular description and from an inspection of the accompanying drawing.

Although the novel features which are believed to be characteristic of this invention will be particularly pointed out in the claims appended hereto, the invention itself, as to its objects and advantages, and the manner in which it may be carried out, may be better understood by referring to the following description taken in connection with the accompanying drawing forming a part thereof, in which:

Fig. 1 is a front face view of a socket or housing within which is mounted an eyeball and eyeball-operating mechanism;

Fig. 2 is a side elevational view of the eyeball and eyeball-containing housing as shown in Fig. 1;

Fig. 3 is an enlarged vertical cross-sectional view through the eyeball and eyeball-containing housing showing the eyeball-manipulating mechanism contained therein, this view being taken on line 3—3 of Fig. 1;

Fig. 4 is an enlarged rear elevational view of the eyeball-supporting housing, the rear cover thereof having been removed to expose certain parts of the eyeball-manipulating mechanism; and

Fig. 5 is a transverse cross-sectional view through the eyeball-containing housing illustrating particularly the manner in which the eyeball may be mounted within the socket, this view being taken on line 5—5 of Fig. 3.

Similar reference characters refer to similar parts throughout the several views of the drawing and the specification.

My improved eyeball unit comprises an eyeball socket or housing **50**, having a generally dome-shaped contour and which is provided with an eye opening **51** shaped to simulate the natural eye opening in the human head. The housing **50** is provided with a laterally extending flange portion **53** and a shoulder portion **52** which provide a raised rim around one end of the housing **50**. The housing **50** is closed by means of a suitable cover **54** which telescopes over the shoulder portion **52** and may be secured thereto either by

frictional engagement or other suitable means. The housing **50** and the cover member **54** may be inexpensively made from stamped metal parts.

As shown more particularly in Figs. 3 and 5, the eyeball may be formed of stamped metal shaped in the form of a dome having an arcuate portion **60** which seats within and conforms to the contour of the inner face of the dome-shaped housing **50**. A portion of the outer surface of the dome-shaped eyeball **60** is decorated to represent respectively the pupil **66***a*, and the iris **66***b*, and the surrounding sclerotic coat or white portion **66***c* of the eyeball. The upper portion of the dome-shaped eyeball is decorated as at **66***d* to represent the upper eyelid. Suitable hairs or fibers **67** as desired may be secured to the eyeball member **60** to simulate the eyelashes. The dome-shaped eyeball member **60** is provided with side portions or flanges **62**, which are provided with diametrically opposed openings **64** therein to receive the pivotal stud elements **63** projecting inwardly from the housing **50**. The stud elements **63** may, if desired, be formed by punching in the metal of the housing so as to provide a projection **63** upon which the eyeball member **60** may freely pivot. Sufficient clearance between the eyeball member **60** and the inner surface of the housing **50** should be provided to permit free swinging movement of the eyeball member **60**.

Mechanism is provided to pivot the eyeballs as the doll is rocked so as to bring the eyeballs into closed, sleeping position by gradual stages. A bar **74** having a hook portion **77** at one end thereof is provided, which is hooked or connected to a lip portion **78** extending laterally from a flange **61** which may be stamped integrally from the dome-shaped eyeball member **60**. The bar **74** is so connected to the flange **61** as to permit free sidewise swinging movement of the bar **74**, but any movement of the bar **74** in a direction transverse of the eyeball will operate to pivot the eyeball **60** about the stud elements **63**.

The opposite end **76** of the bar **74** is operatively connected to a guide member **70** which has a generally arcuate shape and is provided with an elongated slot **73** into or through which the end **76** of the bar **74** projects. The guide or rack member **70** may be provided with a flange **71** which may be suitably secured, as by welding, to the inside face of the shoulder portion **52**. The bar **74** is weighted by means of a weight **75** which may comprise a lump of lead or other suitable heavy material. When the bar **74** is in the position shown in Figs. 3 and 4, the eye appears open, the end **76** of the bar **74** then resting at what may be termed the lower end **81** of the slot **73**. A plurality of barbs **30** project inwardly into the slot **73** so that the end **76** of the bar **74** can be moved to the other end **90** of the slot **73** only by taking a zigzag path which is effected by rocking the doll sidewise.

When it is desired to put the doll to sleep, the child-mother lays the doll flat in its crib or in the child-mother's arms, in which position the bar **74** will hang suspended from the lip portion **78**. Sidewise rocking movement of the doll will cause the slot-engaging end **76** of the bar to travel, under the force of gravity, toward the opposite end **90** of the slot. At the beginning of the rocking movement, the end **76** of the bar will rest upon the shoulder **81**, but when the doll is rocked sidewise the end **76** of the bar will drop so as to rest on the opposite shoulder **82**. Further rocking movement will bring the end portion **76** of the bar **74** successively into seating contact with the shoulder portion **83**, the shoulder portion **84**, the shoulder portion **85**, the shoulder portion **86**, the shoulder portion **87**, and so on continuously until the end of the slot **90** is reached, in which position the eyeball will appear closed and the opening **51** will disclose the eyelid portion **66***d* of the eyeball. When the doll is to be aroused, the doll is lifted into vertical position, which causes the weighted bar **74** to drop back through the slot **73** by the force of gravity to again seat the end **81** of the slot, in which position the eyes appear open. It is understood that the slot **73** may be provided with any desired number of opposed barbs so that the eyes can be closed with a relatively few number of rocking movements or closed only upon the execution of a considerable number of rocking movements. When the doll is lifted from sleeping position and aroused, the end **76** of the bar **74** will slip back into eye-opening position through the slot substantially without interference, which movement is facilitated by the cam surfaces **91** of the barbs **30**.

It is understood that a housing **50** may be shaped to enclose a single eyeball or both eyeballs and associated operating mechanism. In the construction here shown all the elements are made from stamped parts which can be formed and assembled together substantially by machine operation requiring a minimum of hand labor, and consequently can be manufactured at low cost. The eye-ball-operating mechanism and housing is assembled as a complete unit before the insertion into the doll head. The shoulder portion **52** serves to retain the housing in fixed position within the doll head, as shown in Fig. 2. A resilient mass **100** suitably cemented or otherwise secured to the inside of the doll head, is provided with a housing-receiving cavity. The resilient material **100** is sufficiently expansible to permit stretching and the ready insertion of the housing **50** and its associated eyeball and eyeball-operating mechanism.

The eyeball mounting and operating mechanism herein described can be used with many different varieties of dolls. Heretofore, so-called sleeping dolls have been expensive due to the fact that the eye-operating mechanism has been unduly complicated and difficult to assemble in the doll head. The eye-ball operating mechanism herein disclosed is assembled with the eyeball as a complete, integral functioning unit, thus avoiding the difficulty of assembling the parts under cramped conditions within the doll head. The complete eyeball-operating unit may be inserted into the doll head through the neck opening, or if the head is assembled in two parts the eyeball-operating unit can be inserted in the head prior to the application of the back portion of the head to the facial portion, or if desired the unit may be placed in a suitable head-shaping mold and the head molded around the unit. In such cases the molding material would be made of disintegratable material so that it can be removed after the head has been cast.

Since the eyeball, eyeball mounting and operating mechanism are first formed as an assembled unit prior to the insertion thereof into the doll head, the same can be made and assembled on a mass production basis substantially entirely by automatic machinery and with a minimum amount of labor. The unit can thus be made at very low cost and can be embodied as a feature

in doll bodies marketable at a price considerably below the price of dolls heretofore made having eyes which are rocked to sleep. The unit is sturdy and strong in construction, positive in operation, and the functional parts are so correlated as to operate efficiently and effectively. The moving parts are so supported that jars given to the doll body or doll head will not displace or disarrange the parts. The eyeball-operating mechanism can be associated with doll bodies of innumerable shapes and forms and made from all the various materials commonly used in the art.

While certain novel features of the invention have been disclosed and are pointed out in the annexed claims, it will be understood that various modifications, omissions, substitutions and changes may be made by those skilled in the art without departing from the spirit of the invention.

What is claimed is:

1. A sleeping doll including in combination, a doll head, a self-contained housing having a dome-shaped portion, an eye opening in said dome-shaped portion, a dome-shaped eyeball pivotally mounted within said dome-shaped housing portion, means within and supported by said housing operative to move said eyeball into closed position when the doll is placed in supine position and given a sidewise rocking movement, and a closure for said housing enclosing said eyeball-moving means within said housing.

2. A sleeping doll including in combination, a doll head, an eyeball, eyeball-operating mechanism, a self-contained housing enclosing said eyeball and eyeball-operating mechanism, means in the doll head for supporting said housing, means for pivotally mounting said eyeball in said housing, said eyeball-operating mechanism including a pendulum operatively connected with said eyeball and designed to pivot said eyeball into open and closed position, and a guide rack associated with said pendulum positioned within and supported by said housing.

3. A sleeping doll including in combination, a doll head having an eye opening in the facial portion thereof, an eyeball, an enclosed housing containing said eyeball supported within said doll head, means for pivotally mounting said eyeball in said housing, and means within and supported by said housing operative to move said eyeball by successive stages into closed position when the doll is placed in reclining position and given a sidewise rocking movement.

4. A sleeping doll including in combination, a doll head, an eye assembly in the doll head including a dome-shaped housing, an eyeball pivotally mounted in said housing, means within said housing operative to move said eyeball by successive stages into closed position when the doll is given a sidewise rocking movement, said eyeball and said eyeball-operating means being entirely supported by and contained within said housing, and a cover closure for said housing.

5. A sleeping doll including, in combination, a doll head having an eye opening therein, a resilient member secured within the doll head, a socket cavity in said resilient member adjacent said eye opening, and an eye assembly positioned in said socket cavity, said eye assembly including, a housing having a dome-shaped portion and a continuous laterally projecting rim portion seating within a corresponding continuous recess surrounding said socket cavity, an eyeball pivotally mounted in said housing, means within said housing operative to move said eyeball by successive stages in closed position when the doll is given a sidewise rocking movement, said eyeball and eyeball-operating means being supported by and entirely contained within said housing.

6. An eye unit adapted to be inserted in a doll head including, a housing having a dome-shaped portion and a rim portion, a closure member having telescoping engagement with said rim portion, a dome-shaped eyeball pivotally mounted in said dome-shaped portion, means within said housing operative to move said eyeball by successive stages to closed position when the doll is given a sidewise rocking movement, said means including a pendulum having one end thereof connected to said eyeball and the other end thereof projecting through and cooperating with a rack member, said rack member being entirely contained within said housing.

7. An eye unit adapted to be inserted in a doll head including, a housing having a dome-shaped portion and a continuous laterally projecting rim portion, a closure member telescoping over said rim portion, a dome-shaped eyeball pivotally mounted in said dome-shaped portion, and means entirely contained within said housing operative to move said eyeball by successive stages to closed position when the doll is placed in reclining position and given a sidewise rocking movement, said means including a plate member having an elongated slot therein positioned adjacent the inside face of said closure, means operatively connected to said eyeball designed to pivot said eyeball to open and closed position, and barbs projecting inwardly into said slot so as to cause said pivoting means to describe a zig-zag path as it is moved along said slot.

EDWARD G. SCHAEFFER.