Oct. 18, 1938. E. G. SCHAEFFER 2,133,635

DOLL

Filed July 28, 1936

Fig. 1

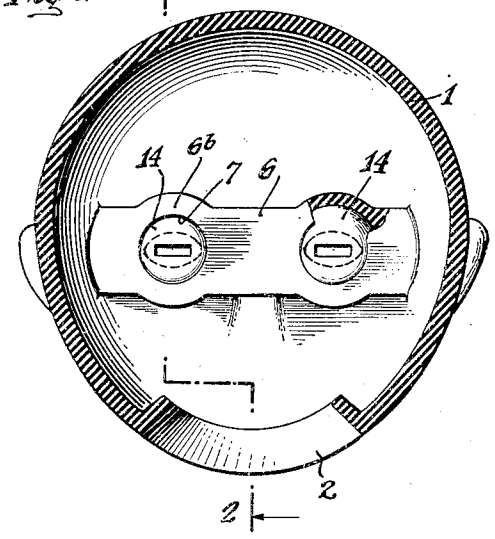


Fig. 2

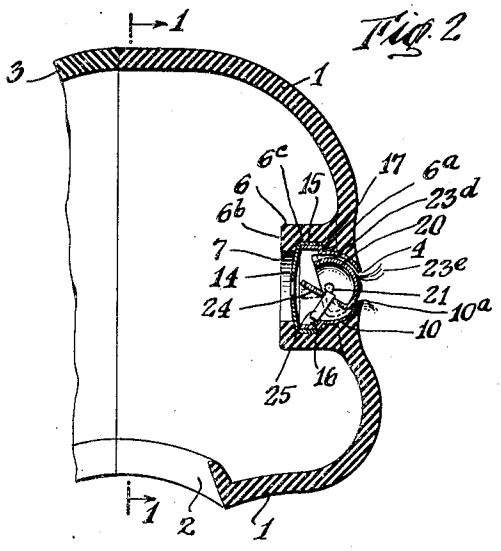


Fig. 3

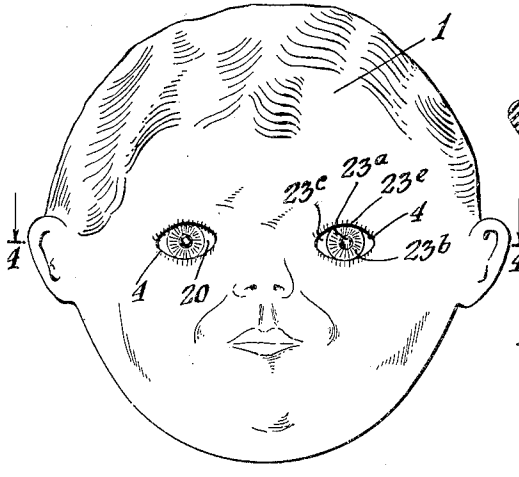
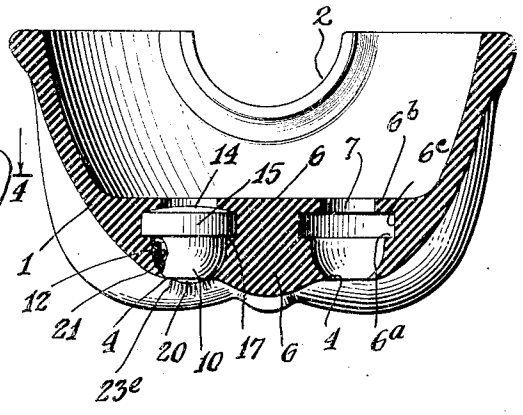


Fig. 4



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DOLL

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Application July 28, 1936, Serial No. 92,947

11 Claims. (Cl. 46—169)

This invention relates to dolls and more particularly to a doll skull having an eyeball assembly associated therewith.

In accordance with this invention, an eyeball assembly is provided which includes one or more eyeballs mounted within a protective housing which is assembled as a complete functioning unit prior to insertion within the doll skull. The eyeball assembly may comprise an eyeball which is pivotally mounted within the housing with suitable operating mechanism for tilting the eyeball into closed, sleeping position and into open, aroused position. The eyeball assembly is held in fixed operative position within the skull by means of a suitable socket member positioned within the doll skull. The socket member is preferably formed of resilient, expansible material such as rubber, so that it can be expanded to receive the eyeball assembly and which will thereafter automatically contract to grip or otherwise contain the eyeball assembly in fixed operative position.

The socket member may be molded as an integral part of the molded skull shell or it may be molded therein after the skull shell has been formed. If desired, the preformed socket element may also be inserted into the preformed skull shell and secured in fixed position therein by cement, or other securing means or devices. Pressure exerted on the eyeball assembly cannot displace it from its operative position within the skull.

The eyeball assembly 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 eyeball operating mechanism gives the eyeball a movement which closely simulates the eyeball movement of a human being, the eyeballs automatically moving into closed, sleeping position when the doll body is placed in reclining or substantially horizontal position, and the eyeballs moving into open, awake position when the body is raised into substantially upright, aroused position.

An object of this invention is to provide an improved eyeball assembly which can be formed as a complete assembled unit and the unit thereafter inserted within the doll head.

Another object of this invention is to provide a doll head having means therein for fixedly retaining the eye assembly in fixed mounted position therein so that the same cannot be moved, released, or disarranged from its proper operative position.

Another object of this invention is to provide an expansible mounting for an eyeball assembly which will facilitate the quick and positive insertion of the eyeball assembly within the doll head and which will permanently and securely retain the eyeball assembly in its proper operative position therein.

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, which is sturdy and strong in construction, and which can be quickly inserted and secured within the doll head.

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 vertical cross-sectional view through the doll skull, looking in the direction of the arrows along line 1—1 of Fig. 2 and into the facial portion thereof, this view illustrating particularly the means used for supporting the eyeball assembly in fixed position within the skull shell;

Fig. 2 is a longitudinal cross-sectional view through the facial portion of the doll skull looking in the direction of the arrows along line 2—2 of Fig. 1, this view showing in cross-section the construction of the eyeball assembly and the mounting therefor;

Fig. 3 is a front view of the assembled doll head looking at the face thereof, this view showing the eyeballs mounted within the doll head visible through the eye openings in the skull shell; and

Fig. 4 is a horizontal cross-sectional view through the facial portion of the skull shell taken along line 4—4 of Fig. 3, the right hand side of the figure showing a socket as it appears prior to the insertion of the eyeball assembly, the left hand side of the figure showing a socket with an eyeball assembly contained therein, certain parts of the eyeball assembly being broken away to illustrate certain features of the construction.

Similar reference characters refer to similar parts through the several views of the drawing.

My improved eyeball assembly is adapted to be mounted in any desired type of doll head. Doll heads are generally made hollow to provide a skull shell having an outer configuration and decoration which resembles in appearance the human head. The skull shell 1 is provided with a pair of eye openings 4, through which the eyeballs mounted within the skull shell are visible. The skull shell 1 may be made of vulcanized rubber, phenol resins, moldable clays, wood or other earthy, metallic, resinous, or fibrous materials known in the art. The doll head may be shaped and decorated to represent the head of a human baby, a child, adolescent or grown person. Fixed within the skull shell adjacent the eye openings 4 is a socket element 6 for receiving and retaining the eyeball assembly in fixed mounted position within the skull shell. The socket element 6 is preferably made of resilient or expansible material, such as relatively soft rubber, so that it may be flexed sufficiently to permit insertion of the eyeball assembly therein. When the eyeball assembly has been inserted the socket element contracts to grip, engage or hold the eyeball assembly in firm fixed position within the doll skull so that it cannot become disarranged therein.

The eyeball assembly comprises a housing having a dome-shaped portion 10 and an eye opening 10*a* therein. The housing is preferably formed of stamped sheet metal and can be inexpensively made. The eyeball member comprises a dome-shaped portion 20 which fits within the dome-shaped portion 10 of the housing.

The eyeball may, if desired, be made of metal which has an eye representation painted or otherwise applied to the outside surface thereof so as to simulate the human eye, including a pupil 23*a*, the iris 23*b*, the sclerotic coat or white portion 23*c* and the upper eyelid 23*d*. Eyelashes comprising parallel arranged hairs or fibres 23*e* may be fixed to the eyeball below the eyelid 23*d*.

The eyeball member is pivotally mounted within the housing so that when the doll is laid in a horizontal position the eyeball will pivot into a closed sleeping position, in which position only the eyelid portion 23*d* is visible. When the doll is raised into substantially vertical position, the eyeball will again pivot into eye-open position wherein the pupil 23*a* and iris 23*b* are clearly visible through the eye opening 4 in the skull shell. The dome-shaped eyeball member 20 may be provided with diametrically opposed openings 21 therein to receive the pivotal stud elements 12 projecting inwardly from the housing 10. The stud elements 12 may, if desired, be formed by punching in the metal of the housing so that it provides a stud projection upon which the eyeball member 10 may freely pivot. It is understood, however, that if desired outwardly extending projections may be provided on the eyeball member 20, which projections extend into a suitable bearing formed in the walls of the housing 10, thus pivotally mounting the eyeball member within the housing. Sufficient clearance between the eyeball member 20 and the inner surface of the housing 10 should be provided to permit free swinging movement of the eyeball member.

Mechanism is provided to pivot the eyeball members 20 as the doll head is manipulated so as to bring the eyeballs into closed, sleeping position when the doll body is placed in a substantially horizontal or reclining position, and to pivot the eyeballs into open, awake position when the doll body is placed in an upright or aroused position. As shown more particularly in Figs. 2 and 4 the eyeball-manipulating mechanism may comprise a lip portion 24 extending inwardly from the dome-shaped portion 20 and the same may be formed integrally therewith. A weight 25 suitably fixed to the lip portion 24 normally holds the eyeball member in open, awake position when the doll body is positioned in upright position.

The weight 25 may be telescoped onto the lip portion 24 so that the position of the weight 25 can be adjusted to give the desired leverage which will best effect swinging movement of the eyeball.

By referring to Fig. 2, it will be noted that the eyeball is so arranged that the pupil 23*a* and iris 23*b* is visible through the eye opening 4 and that the eyeball is held in this position by gravity acting on the weight 25. When the doll is placed in horizontal or inclined position however, gravity will cause the weight 25 to swing the eyeballs into closed, sleeping position. When the doll is raised into upright or aroused position gravity acting on the weight 25 will cause the eyeballs to swing into open position.

The dome-shaped eyeball portion 20 with the weight 25 assembled to the lip portion 24 thereof, is inserted into the dome-shaped portion of the housing and the stud elements 12 are inserted in the bearings 21 to pivotally mount the eyeball within the housing. A suitable pricking tool can be used to form the stud elements 12 when the eyeball has been properly positioned within the housing. A cover member 14 having a flange portion 15 is then telescoped over the flange portion 16 of the housing portion to enclose the eyeball and eyeball-operating mechanism therein. The flange portion 16 of the housing is connected with the dome-shaped portion 10 by an outwardly extending portion 17, so that when the cover member 14 is assembled to the housing, an outwardly extending shoulder is provided. The eyeball assembly may be generally acorn-shaped, as shown in Fig. 4, and can be inexpensively manufactured and assembled from stamped metal parts by automatic machinery and with a minimum of hand labor.

The socket member 6 is provided with a suitable opening 7 through which the eyeball assembly may be inserted. The opening 7 is preferably of smaller diameter than the diameter of the shoulder portion provided on the eyeball assembly. The abutment portion 6*b* surrounding the opening 7, being made of resilient material, will expand outwardly so as to enlarge the opening and permit insertion of the eyeball assembly. When inserted the abutment portion 6*b* will contract so as to overlie the cover 14 of the eyeball housing, so that it will be impossible to push the eyeball assembly inwardly into the skull by pressure applied to the eyeball assembly through the eye opening 4. When in operative position the outwardly flared portion 17 of the eyeball assembly seats against an abutment 6*a* formed as a part of the socket element 6, so that pressure applied within the head against the eyeball assembly cannot result in forcing the eyeball assembly outwardly from its properly mounted position. The abutment portions 6*a* and 6*b* define a recess 6*c* in the socket element within which the shoulder portion of the eyeball housing seats. Thus the eyeball assembly is fixedly and rigidly secured and held against movement within the skull shell, and no amount of pressure, except an actual disruption of the parts, can succeed in displacing or disarranging the eyeball assembly within the skull.

The socket element 6 may be suitably molded or formed within the skull shell either during the molding of the skull shell itself or after the skull shell has been formed. This invention contemplates the provision of a socket element 6 which is integrally cast with the skull shell or formed or molded within the skull shell after the skull shell has been formed. It also contemplates the provision of a preformed socket element 6 which is cemented, attached or otherwise secured to the preformed skull shell. Where the skull shell 1 is made of vulcanized rubber the socket element 6 may be secured thereto by a vulcanizing operation or by rubber cements known to the art of rubber manufacture.

The eyeball assembly can be inserted into the skull shell through the neck opening 2. Where the skull shell is made in two parts, such as the facial portion 1 and the back portion 3, the eyeball assembly can be inserted in position prior to the application of the back portion 3 to the facial portion 1 of the shell. If desired, the eyeball assembly can be cast integrally into the skull shell when the skull shell is molded or formed. This is made possible because the eyeball assembly is formed as an integral fully assembled unit whose parts require no adjustment after they have been inserted within the skull.

The eyeball assembly, comprising the housing, the eyeball pivotally mounted therein, and the eyeball-operating mechanism, can be used with many different varieties of dolls. Heretofore, so-called sleeping dolls have been expensive due to the fact that the eyeball-operating mechanism has been complicated in construction, expensive to manufacture and difficult to assemble in the doll head. The eyeball assembly herein disclosed is formed as an integral functioning unit, thus avoiding the difficulty encountered in assembling the separate parts under cramped conditions within the doll head.

Since the eyeball, eyeball housing 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, stamped, formed and assembled entirely by automatic machinery and with a minimum of labor. Due to its low cost, sleeping eyeball assemblies as herein disclosed can be embodied as a feature in dolls marketable at low cost and particularly doll bodies made of rubber, resins, and other moldable material. The assembled unit is firmly and rigidly held within the doll head and cannot be pushed out or disarranged from its proper functioning position. The eyeball unit is sturdy and strong in construction, positive in operation, and the parts are so correlated as to operate efficiently and effectively. The housing within which the eyeball and operating mechanism is contained fully protects the functioning parts, and jars and other abuse to which the doll head may be subjected will not displace or disarrange the parts. The eyeball assembly herein disclosed can be associated with doll bodies of numerous 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 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. An eyeball assembly for dolls including, a housing member having a dome-shaped portion and a separate cover portion, an eye opening in said dome-shaped portion, an eyeball member comprising an arcuate shell pivotally mounted within said dome-shaped portion and adjacent the eye opening in the dome-shaped portion thereof, said eyeball member having an eye representation applied thereto, an eyelid representation fixed to said eyeball member above said eye representation, and means contained within said housing member and enclosed by said cover portion for manipulating said eyeball member upon predetermined movement of said housing so as to selectively bring said eye representation and said eyelid representation into view through the eye opening in said dome-shaped portion.

2. In a doll head, a skull shell having an eye opening therein, a housing member held in fixed position within said skull shell having a dome-shaped portion and a continuous laterally projecting rim portion at the rear of said dome-shaped portion, and a closure for said housing telescoping over said rim portion, an eye opening in said dome-shaped portion in alignment with the opening in the skull shell, an eyeball, means for movably mounting the eyeball within the dome-shaped portion so as to be visible through the aligned openings in the skull shell and housing member, mechanism enclosed within said housing member for manipulating said eyeball into closed sleeping position and into open awake position, and means for securing said cover portion to said housing portion when said eyeball and eyeball manipulating mechanism has been inserted therein.

3. A doll head assembly including, a skull shell having a pair of spaced eye openings therein, a resilient socket-forming member substantially thicker than said skull shell projecting inwardly within said skull shell bridging said eye openings and extending continuously between the sides of said skull shell, socket cavities in said resilient member extending rearwardly from said eye openings respectively, a housing member having an eye opening therein positioned within each of said socket cavities, an eyeball movably mounted within each of said housings adjacent the eye opening therein, and a continuous laterally extending rim portion surrounding each of said housings and fitting within a corresponding continuous recess surrounding each of said socket cavities, each of said continuous recesses defining a resilient continuous flange portion extending to the rear of said housing for retaining said housings in fixed assembled position within the doll head.

4. A doll head assembly including a skull shell having an eye opening therein, a dome-shaped housing comprising an eye opening therein, an eyeball having a dome-shaped shell movably seated within said housing adjacent the eye opening therein, a resilient member fixedly secured within the skull shell having a socket cavity for receiving said housing positioned adjacent the eye opening in said skull shell, a continuous resilient flange portion encircling said socket cavity and positioned to the rear of said housing, and a continuous rim portion laterally projecting from said housing and cooperating with said flange portion for fixedly retaining said housing within the doll head.

5. A doll head assembly including, a skull shell having an eye opening therein, a socket member formed from resilient expansible material fixed

within the skull shell, said socket member having a socket cavity adjacent said eye opening, an eyeball assembly insertable through an opening at the rear of said socket cavity, and cooperating continuous shoulder portions associated with said eyeball assembly and said socket member for retaining the eyeball assembly in fixed assembled position within the doll head, the shoulder portion associated with said socket member being resiliently expansible to enlarge the insertion opening to permit the insertion of the eyeball assembly and its associated shoulder portion within said socket cavity.

6. A doll assembly including, a skull shell having an eye opening therein, a housing having a dome-shaped portion and a continuous laterally projecting rim portion positioned to the rear of said dome-shaped portion, an eyeball having a dome-shaped portion movably mounted within said dome-shaped housing portion, and a continuous resilient flange portion fixedly secured within the doll head which defines an expansible opening through which the dome-shaped portion and continuous rim portion of said housing may be inserted, said flange portion being normally contracted to seat behind and in abutting relationship with respect to said rim portion to retain the housing in fixed position within the skull shell.

7. In a doll head, a skull shell having an eye opening therein, an eyeball assembly including, an acorn-shaped housing having a dome-shaped portion and a continuous laterally projecting shoulder portion to the rear of said dome-shaped portion, and an eyeball movably mounted within said dome-shaped portion, a socket member fixedly secured within said skull shell, a socket cavity in said socket member positioned adjacent the eye opening within said skull shell, said socket member having a continuous abutment portion against which said shoulder portion seats, an eyeball assembly insertion opening and a continuous resilient flange portion surrounding said insertion opening adapted to be expanded to permit insertion of said acorn-shaped housing within the socket cavity and automatically contractable upon release to retain said housing in fixed position within the skull shell.

8. An eyeball assembly for a doll including, a housing member having a dome-shaped portion and a continuous laterally projecting rim portion at the rear of said dome-shaped portion, a closure for said housing having telescoping engagement with said rim portion, an eyeball comprising a dome-shaped shell movably mounted within the dome portion of said housing, said housing having an eye opening through which said eyeball may be viewed, and mechanism enclosed within said housing member for manipulating said eyeball member into closed sleeping position and into open awake position, said mechanism including a lip secured to said eyeball and extending rearwardly, and a weighted element supported by said lip.

9. An eyeball assembly for dolls including, a housing member having a dome-shaped portion and a continuous laterally projecting rim portion at the rear of said dome-shaped portion, an eye opening in said dome-shaped portion, an eyeball pivotally mounted within said dome-shaped portion adjacent said eye opening, mechanism enclosed within said housing member for manipulating said eyeball into closed sleeping position and into open awake position, and a closure for said housing having telescoping engagement with said rim portion adapted to be applied when said eyeball and eyeball manipulating mechanism has been positioned within said housing.

10. A doll head assembly including, a skull shell having an eye opening therein, an eye assembly positioned within the skull shell, a socket member formed from resilient, expansible material fixedly secured within said skull shell, said socket member having a socket cavity adjacent said eye opening, and a continuous peripheral flange portion at the rear of said socket cavity defining an expansible opening through which the eye assembly may be inserted, said eye assembly including, a housing member having a dome-shaped portion and a continuous laterally projecting rim portion at the rear of said dome-shaped portion, and a closure for said housing having telescoping engagement with said rim portion, said flange portion being automatically retractable upon insertion of the eyeball assembly into said socket cavity whereby said flange portion will enclose said continuous rim portion to retain the eyeball assembly in fixed position within the skull shell.

11. An eyeball assembly for dolls including, a housing member having a dome-shaped portion and a laterally projecting continuous rim portion positioned to the rear of said dome-shaped portion and integrally formed therewith, a closure for said housing having telescoping engagement with said rim portion, an eyeball comprising a dome-shaped shell movably mounted within the dome portion of said housing, an eye opening in said housing through which said eyeball may be viewed, and mechanism enclosed within said housing member for manipulating said eyeball into closed sleeping position and into open awake position.

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