July 28, 1959 D. COHN 2,896,373

DOLLS' HEADS PROVIDED WITH SLEEPING EYES

Filed Jan. 16, 1956 2 Sheets-Sheet 1

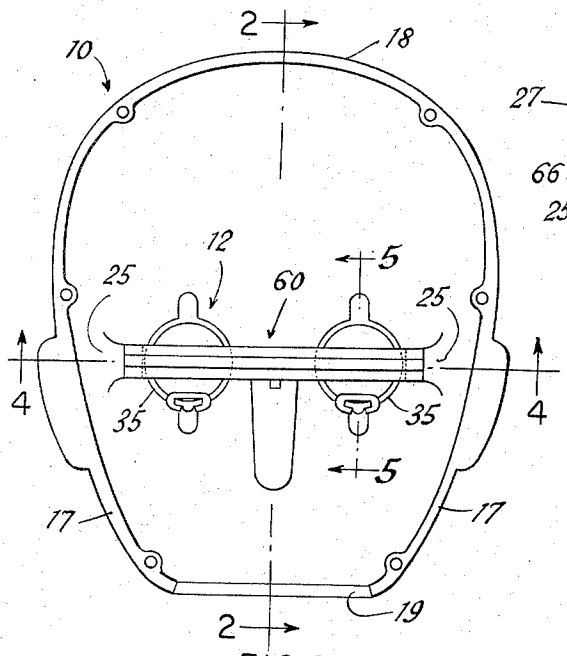


FIG. 1

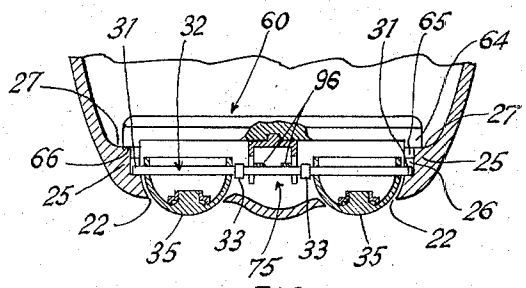


FIG. 4

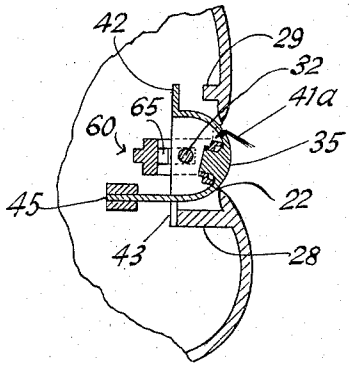


FIG. 5

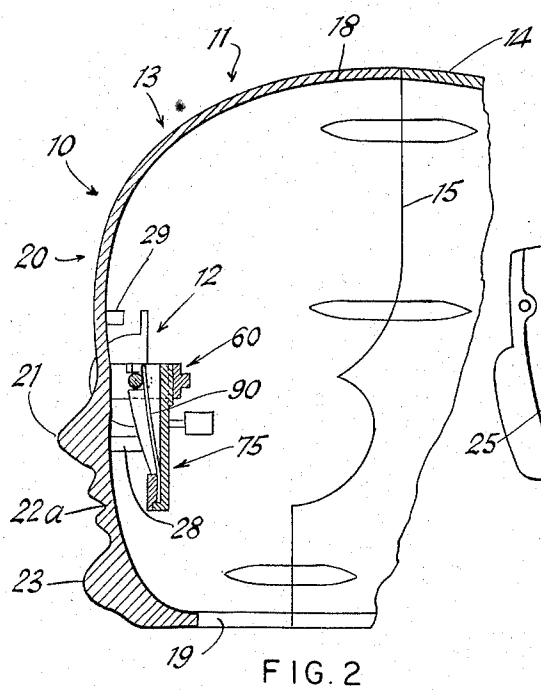


FIG. 2

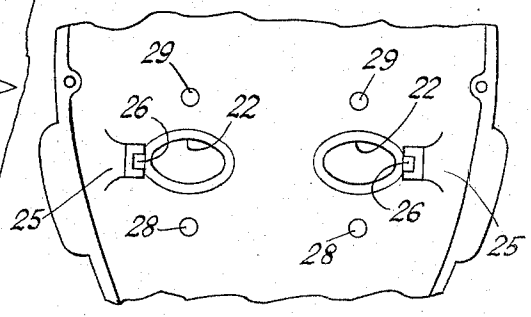


FIG. 3

INVENTOR.
DAVID COHN
BY
ATTORNEY

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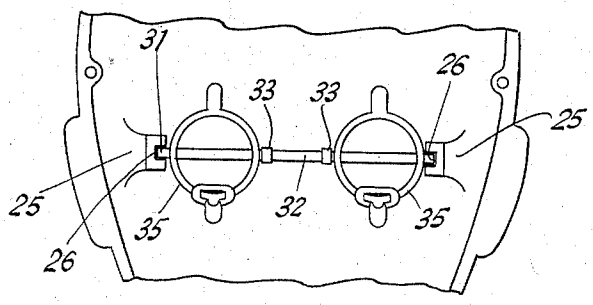


FIG. 6

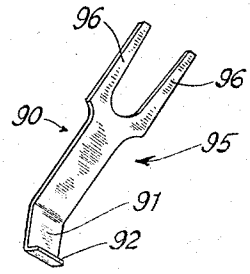


FIG. 10

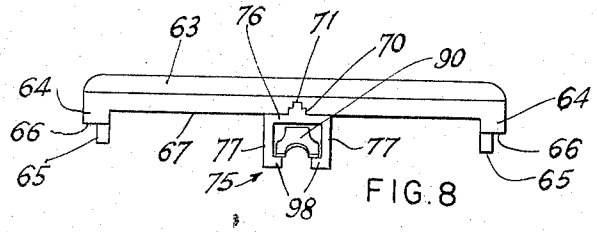


FIG. 8

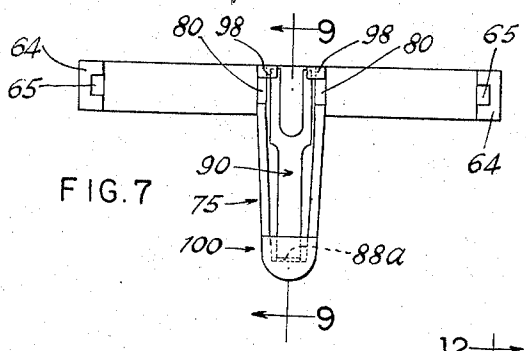


FIG. 7

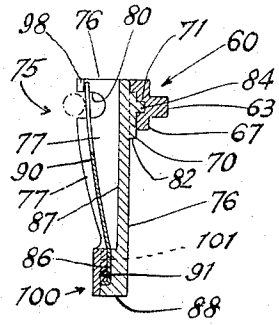


FIG. 9

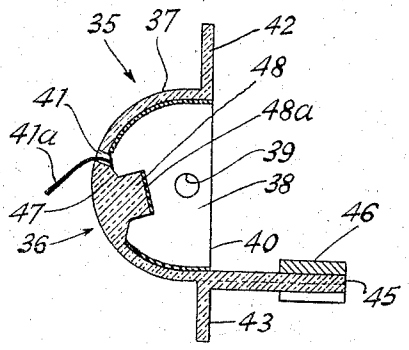


FIG. 12

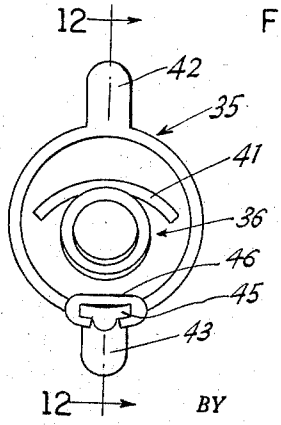


FIG. 11

INVENTOR.
DAVID COHN
BY
J. B. Felsher
ATTORNEY

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DOLLS' HEADS PROVIDED WITH SLEEPING EYES

David Cohn, New York, N.Y., assignor to Model Plastic Corp., White Plains, N.Y., a corporation of New York

Application January 16, 1956, Serial No. 559,224

6 Claims. (Cl. 46—169)

This invention relates to dolls' heads provided with sleeping eyes.

An object of this invention is to provide a doll construction of the character described, comprising a pair of doll's eyes rotatably mounted on a shaft about the axis of the doll's eyes, and highly improved means being provided to stop rotation of the doll's eyes in both open and closed position of the eyes, highly improved means being further provided to resiliently press the shaft forwardly whereby to resiliently press the doll's eyes toward the eye sockets or eye openings, whereby to facilitate free rotation of the eyes.

Another object of this invention is to provide in a doll construction of the character described, highly improved doll's eyes made of molded synthetic plastic material and comprising a hollow, substantially hemispherical eyeball portion formed with an upwardly and a downwardly extending tab to contact stop pins in the doll's head for limiting rotation of the eyeball, and being further provided with a rearwardly extending integral arm to support a counterweight, and being further formed with an integral rearwardly extending conical iris portion from which extends a cylindrical pupil portion, with a ferrule fitted over and cemented to the pupil portion and having a portion backing up the rear of the iris portion.

Yet another object of this invention is to provide in a doll construction of the character described, a doll's head formed at the outer sides of the eyes with horizontal rearwardly extending slots to receive the ends of a shaft carrying doll's eyes projecting through the eye openings of the doll's head, and a bridge fixed to the inner side of the doll's head and closing said slots, said bridge having a downwardly extending arm housing a spring anchored to the lower end of the arm, and said arm being formed with slots through which the shaft passes, and said spring being formed with fingers engaging the back of the shaft to press the latter forwardly.

Yet a further object of this invention is to provide in a doll construction of the character described, a bridge which may be made of interfitting molded synthetic plastic parts that can be readily cemented together to assure accurate relationship of the parts of the bridge, and at the same time anchor and house the spring, and said bridge being further formed with means adapted to be received in the slots which receive the outer ends of the shaft, said bridge being provided with portions contacting shoulders on the head, to accurately position the bridge with relation to the doll's head when the bridge is cemented in fixed position within the head.

Yet a further object of this invention is to provide a highly improved, rugged and durable doll construction of the character described, which shall be relatively inexpensive to manufacture, which shall be easy to assemble, which shall be smooth and positive in operation, in which the parts are accurately interfitted, and which shall yet be practical and efficient to a high degree.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts, which will be exemplified in the construction hereinafter described, and of which the scope of invention will be indicated in the appended claims.

In the accompanying drawings in which is shown various illustrative embodiments of this invention;

Fig. 1 is a rear view of the front portion of a doll's head provided with sleeping doll's eyes and embodying the invention;

Fig. 2 is a cross-sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a partial inside view of the doll's head with the doll's eye assembly removed;

Fig. 4 is a cross-sectional view taken on line 4—4 of Fig. 1;

Fig. 5 is a cross-sectional view taken on line 5—5 of Fig. 1;

Fig. 6 is a partial inside view of the front of the doll's head showing the shaft and doll's parts positioned within the head before attachment of the bridge to the head;

Fig. 7 is an inside view of the bridge before it is assembled with the doll's head;

Fig. 8 is a top plan view of the structure shown in Fig. 7;

Fig. 9 is a cross-sectional view taken on line 9—9 of Fig. 7;

Fig. 10 is a perspective view of the spring removed from the bridge;

Fig. 11 is an enlarged inside view of one of the doll's eyes; and

Fig. 12 is a cross-sectional view taken on line 12—12 of Fig. 11.

Referring now in detail to the drawing, **10** designates a doll construction embodying the invention and comprising a doll's head **11**, and doll eye mechanism **12** located therein.

The doll's head **11** comprises a front head member **13** to which is attached a rear head member **14**, the two parts being assembled together along a split **15** in the usual well known manner. The front member **13** comprises side portions **17**, a top portion **18**, and is provided at the bottom with a neck opening **19**.

At the front of member **13** is the face wall **20** which is formed with the usual nose **21**, mouth **22***a* and chin **23**.

On opposite sides of the bridge of the nose, the front wall **20** is formed with a pair of eye sockets or eye openings **22** of usual construction. The head is provided at the outer sides of the eye openings **22** with thickened boss portions **25** formed with horizontal parallel slots **26** extending in a front to rear direction. The slots **26** are located substantially midway between the upper and lower edges of the eye openings **22**. The thickened portions **25** have rear aligned, vertical, flat shoulder surfaces **27**, said slots **26** extending to said vertical surfaces.

The front wall **20** is furthermore formed centrally below each of the eye openings **22** with a rearwardly extending stop pin **28** and centrally above each of the openings **22** with a rearwardly extending stop pin **29**. The lower stop pins **28** extend rearwardly further than the upper stop pins **29**, as clearly shown in Fig. 5 of the drawing.

Slideably received in the slots **26** are the ends **31** of a horizontal metal shaft **32**. The shaft **32** is formed with a pair of thickened collar portions **33** spaced equally from the center of the shaft and disposed inwardly of the eye openings **22**.

Mounted for rotation on the shaft **32**, on opposite sides of the stop collars **33**, are eye members **35**. The eye members **35** are identical and only one of them will be described. Each eye member **35** comprises a member **36** which may be made of molded, relatively rigid synthetic plastic material. Member **36** comprises an eyeball portion **37** of hemispherical shape, but provided with a skirted portion **38** extended rearwardly of a vertical plane passing through the center of the eyeball portion. The eyeball portion is formed at opposite sides thereof with through openings **39** concentric with a horizontal transverse axis passing through the center of the eyeball.

At the rear end of the skirted portion **38** is an annular edge **40**. The hemispherical portion **37** is furthermore formed with an arcuate slot **41** through which pass eye lashes **41***a* adhered within the slot. Extending upwardly from the upper side of the rear edge **40**, is a vertical lug **42**, and extending downwardly from the lower end of the rear edge **40** is a vertical lug **43**. The purpose of these lugs will be explained hereinafter.

The lugs are vertically aligned and spaced somewhat rearwardly of a vertical plane passing through the axis of the hemispherical portion **37**. Extending rearwardly from the lower end of the skirted portion **38** is an arm **45** about the rear end of which is wrapped a lead counterweight **46** secured to the outer end of said arm.

Extending rearwardly from the front portion of the eyeball **37** is a frusto-conical iris portion **47** terminating in a cylindrical eye pupil portion **48**. The axis of the iris portion **47** and pupil portion **48** is inclined somewhat upwardly and rearwardly, as shown in Fig. 12. The iris portion **47** is located somewhat below the horizontal mid-portion of the eyeball.

The rear surface **48***a* of the pupil portion **48** may be painted blue. The inner surface of eye portions **37**, **38**, may be painted with white paint, or enamel.

It will now be understood that the eyes **35** are received in the eye openings **22**, and rotate about the shaft **32**. Movement of the eyeballs toward each other is limited by the collars **33** which are located at the inner sides of the eyes **35**. The eyes project into the eye openings **22**, and the lashes **41***a* pass through said eye openings.

Means is provided to resiliently press the shaft **32** forwardly so as to retain the outer ends **31** thereof against the forward ends of the slots (the forward ends of the slots **26** are so located that when the shaft is pressed forwardly as far as it will go, the eyes **35** will freely rotate within the eye openings **22** without jamming or frictional contact). To this end, there is provided a bridge member **60**. The bridge member **60** comprises a horizontal transverse cross member which may be in the form of molded, rigid, synthetic plastic material. The cross member may be formed at its rear or inner side with a longitudinal strengthening rib **63**. At its outer ends, it is formed with forwardly extending arms **64** from which extend forwardly, fingers **65**. At the forward ends of the arms **64** are shoulders **66**. The fingers **65** are received in the rear ends of the slots **26**. The shoulders **66** contact the shoulders or faces **27** of the thickened portions or bosses **25** of the head. Thus, the fingers **65** close the rear ends of the slots. The fingers **65** and the surfaces **66** are cemented within the slots **26**, and to the shoulders **27** by means of any suitable solvent cement, or by the use of any other suitable adherent. Said cross member is formed in the front face **67** thereof and at the center thereof, with a slot **70** extending upwardly from its lower edge. At the bottom of the slot **70** is a pin hole **71**.

Attached to the front face **67** of the cross member is a vertical arm or casing **75**. Said casing **75** may also be made of rigid synthetic plastic material and comprises a rear wall **76** from which extend forwardly, side walls **77**. The front edge **78** of said side walls is somewhat inclined forwardly and upwardly. Adjacent the

upper edges **76** of the side walls **77**, are formed aligned notches **80**, adapted to receive the central portion of the shaft **32** between the collars **33**. Extending rearwardly from the rear wall **76** of member **75**, is a projection **82** received in the slot or recess **70** of said transverse cross member. Extending from the projection **82** is a pin **84** received in the pin hole **71**. The casing **75** may be fixed to the cross member by means of a solvent type cement, or any other suitable adherent.

The slot and lug connections **80**, **70**, and pin hole connections **84**, **71** assure a correct and exact relationship between the casing **75** and the cross member.

At the lower end of arm **76** is a thickened portion having a front surface **86** spaced forwardly of the inner surface **87** of the rear wall **76**. The side walls **77** are interconnected by a bottom wall **88**.

Fitted within the casing is a leaf spring **90**, the purpose of which is to press the shaft **32** forwardly. The spring **90** comprises a portion **91** which contacts the surface **86**. Extending from the portion **91** is a finger **92** which contacts the inner surface **88***a* of portion **88**.

Extending upwardly and forwardly at an inclination from the portion **91**, is a portion **95**. The upper end of the portion **95** is bifurcated to form a pair of spring fingers **96**. The spring **95** is housed between the side walls **77**. The outer tips of the fingers **86** contact a pair of inwardly extending, rigid fingers **98**, formed at the forward upper corners of the side walls **77**.

Means is provided to fix the portions **91**, **92** of the spring, rigidly within the casing **75**. To this end there is fitted on to the lower end of the arm **75**, a cap **100**. The cap **100** overlies the lower ends of the side walls **77**, and an interconnecting portion **88**. Said cap **100** is formed with a rearwardly extending thickened portion **101** projecting into the casing and pressing portion **91** of the spring against the surface **86**, and pressing the finger **92** against the inner surface of the portion **88** of the casing. The cap **100** may be cemented or otherwise firmly adhered to the casing for anchoring the lower end of the spring.

The upper ends of the fingers **96**, thus press the central portion of the shaft forwardly. The shaft, however, cannot move out of the slots **80**. While the eyes **35** may be pushed rearwardly, thus causing the shaft to be pushed rearwardly against the tension of the spring **95**, nevertheless, the shaft cannot move up or down out of the slots **80**. When the shaft **32** is pressed forwardly against the inner closed ends of the slots **26**, the eyeballs nevertheless do not touch the edges of the eye openings so that they may freely rotate.

When the head is in vertical position, the weights **46** tend to rotate the eyes in a clockwise direction, looking at Fig. 2, and in a counterclockwise direction looking at Fig. 5, causing the lower projections **43** to contact the rear ends of the lower stop pins **28** for maintaining the eyes in correct open position and for holding the eye lashes **41***a* near the upper edges of the eye openings **22**. In such position, the upper lugs **42** are spaced from the upper stop pins **29**. When the doll is brought to horizontal position facing upwardly, the doll's eyes will have a tendency to rotate about the shaft **32** in a clockwise direction, looking at Fig. 5, bringing the projections **42** against the upper pins **29**. In such position, the eye lashes **41***a* will be near the lower edges of the eye openings **22** and the doll will appear to be sleeping.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative 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 combination, a doll's head having a front face wall formed with eye openings, said head being formed at the outer sides of said eye openings and at the sides of the front face wall portion and on the inner surface thereof with thickened boss portions formed with horizontal rearwardly extending parallel slots, a transverse horizontal shaft having the ends thereof received in said slots, doll's eyes rotatably mounted on said shaft and projecting into the eye openings, a transverse horizontal bridge member in back of the shaft contacting the rear surfaces of said thickened portions, and having lugs received and secured in the rear ends of said slots whereby to limit rearward movement of the shaft in said slots, an arm fixed to the front of the bridge at the center thereof, and extending downwardly therefrom, said arm having side walls formed at their front edges with rearwardly extending notches through which the shaft passes, a leaf spring having its lower end anchored at the lower end of the arm, and having a free upper end engaging the back of the shaft and pressing the shaft forwardly to retain the doll's eyes within said eye openings.

2. The combination of claim 1, said eyes having upwardly and downwardly extending lugs, and stop pins extending rearwardly from the front face wall of said doll and engageable with said lugs to limit rotation of said eyes about the shaft.

3. The combination of claim 2, said eye lugs being disposed in a common plane and the lower of said stop pins extending rearwardly further than the upper stop pins.

4. In combination, a doll's head provided with a front face wall having eye openings, said head being formed at the inner surface thereof and at the outer sides of the eyes with thickened portions formed with horizontal rearwardly extending slots, a transverse shaft having the ends thereof slidably received in said slots, a transverse horizontal bridge having portions engaging the rear surfaces of said thickened portion, and being formed with lugs received within the rear ends of said slots and being fixed to the head to limit rearward movement of the

shaft, said bridge being formed at the center thereof with a vertical slot, an arm having a rear wall formed at its upper end with a projection received in said vertical slot and attached thereto, said arm extending downwardly from said bridge having a rear vertical wall and side walls, said side walls having at the upper ends thereof inwardly extending fingers, a leaf spring, means to anchor the lower end of the leaf spring to the lower end of the arm, the upper end of the leaf spring being biased forwardly into engagement with said fingers, said side walls being formed below said fingers with rearwardly extending notches receiving said shaft, whereby the free end of said spring presses the shaft forwardly.

5. The combination of claim 4, said head formed above and below said eyes with rearwardly extending stop pins, the lower stop pins extending rearwardly to a greater extent than the upper stop pins, said doll's eyes each being formed with upwardly and downwardly extending lugs adapted to alternately engage said stop pins, as the doll's head is moved from upright position to lying down position, said doll's eyes being formed with rearwardly extending arms at the lower ends thereof and counterweights on said arms.

6. The combination of claim 4, the means to anchor the spring to the arm comprising a cap fitted into the lower end of said arm and being secured thereto and contacting an end of said spring and pressing said end against said arm.

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