

Aug. 25, 1936.

A. KONOFF ET AL

2,051,865

DOLL'S HEAD

Filed Jan. 22, 1932

2 Sheets-Sheet 1

Fig. 1.

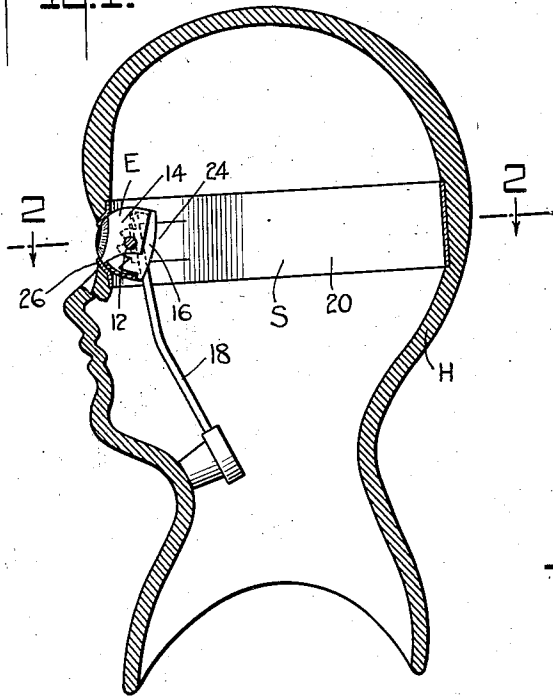


Fig. 3.

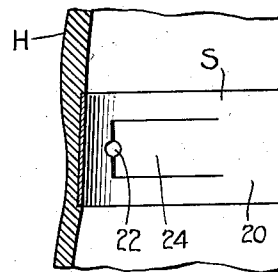


Fig. 3.a

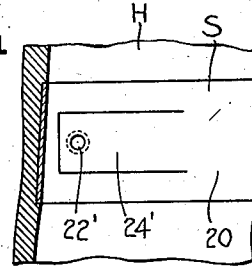


Fig. 2.

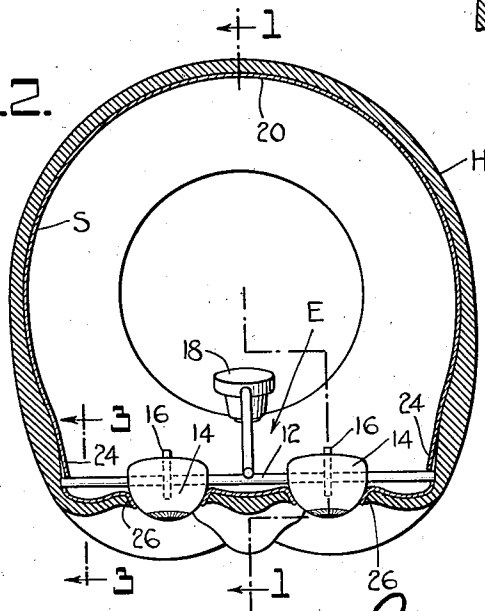
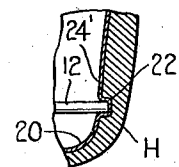


Fig. 2.a



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2 Sheets-Sheet 2

Fig. 4.

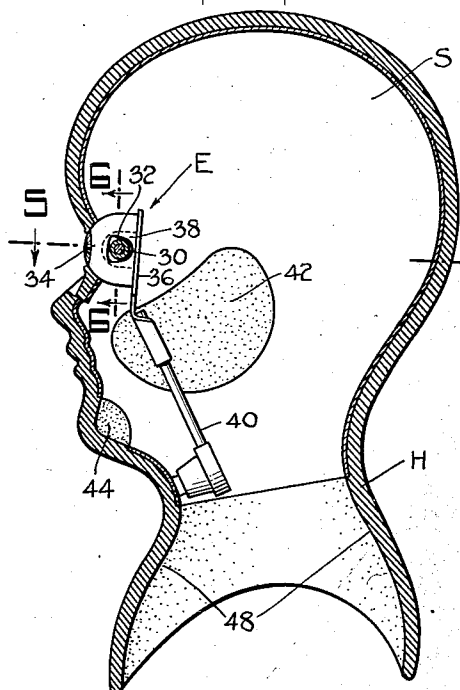


Fig. 5.

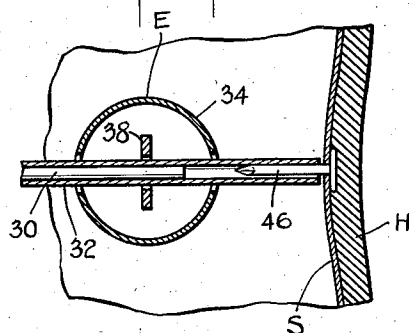


Fig. 7.

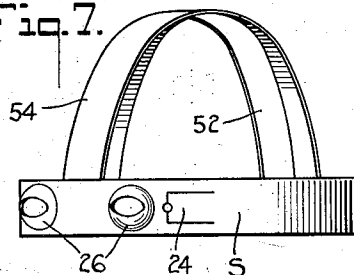
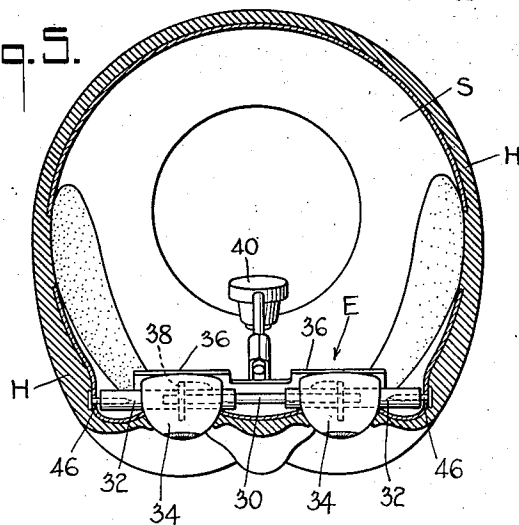


Fig. 6.



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DOLL'S HEAD

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Application January 22, 1932, Serial No. 588,068

20 Claims. (Cl. 46—169)

This invention relates to toys, particularly dolls, and more especially to a novel kind of doll's head provided with movable eyes.

Dolls' heads are ordinarily rigid and are made of separately molded front and back halves cemented in edge to edge relation. It has been suggested to make the head of a resilient or elastic material, such as rubber, in which case an advantage in manufacture is obtained, due to the ability to strip a one-piece head from a unitary core. What is even more important is the advantage in use resulting from the elasticity of the material, for the head, instead of being rigid and lifeless, yields to the touch more nearly like a human head. However, this advantage is offset by the fact that the head yields even where it is undesirable to have it yield. Furthermore, the better class of dolls' heads are invariably equipped with movable or oscillatable eyes, and, probably for obvious reasons, no one has heretofore proposed or succeeded in combining a yieldable or rubber doll's head with movable eyes such as the conventional and well-known gravity operated type.

The object of the present invention, generally, is to overcome the foregoing difficulties. More particularly, one object of the present invention is to devise suitable means for successfully mounting a movable eye set in a yieldable or rubber head of the type here considered. Another object of the present invention is to reinforce or stiffen the doll's head, so that while retaining the advantages of softness and yieldability to the touch, it will not be completely collapsible under pressure in an unnatural manner. Still another object of the present invention is to combine the mounting means for the movable eye set, and the stiffening means for the head, in order to simplify the resulting construction.

Further and more detailed objects of the present invention are to so design the mounting means for the eye set that the eye set may readily be inserted through the neck opening of the doll's head, and attached in place after the head has been otherwise completed; to so design the eye set supporting or/and head stiffening means that a portion thereof may also be used to define and form eye sockets or bearing surfaces for the oscillatable eye members; to provide, when desired, stiffening means for the doll's head, which will rigidly support and hold the shape of part of the head and yet permit complete yieldability of desired portions of the head, and in every case to fulfill in the design of the improved doll's head the important desideratum that the head be read-

ily moldable and easily stripped from its core while molding the head in one piece, in contradistinction to the use of front and back halves.

A further object of the invention resides in the provision of a rubber head, the wall or rubber body of which is formed into a minor compartment subordinate to and open to the interior of the head for receiving, seating and retaining in place a preferably metallic stiffening casing preferably located at or near the eye openings and having means for supporting movable doll eyes at the eye openings.

To the accomplishment of the foregoing and such other objects as may hereinafter appear, our invention consists in the doll's head and eye set 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 vertical section taken through one form of doll's head embodying features of the present invention;

Fig. 2 is a horizontal section taken in the plane of the line 2—2 in Fig. 1;

Fig. 2a is a portion of Fig. 2, modified to show a variation of the invention;

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

Fig. 3a is a similar view of the aforesaid variation;

Fig. 4 is a vertical section through a doll's head embodying features of the present invention in different form;

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

Fig. 6 is an enlarged detail section taken in the plane of the line 6—6 in Fig. 4; and

Fig. 7 is explanatory of a still further modification of the invention.

Referring first to Figs. 1, 2, and 3 of the drawings, the present invention is illustrated as comprising a doll's head H, a movable eye set E, and combined stiffening and mounting means S. The head H is made of a moderately yieldable and resilient substance, such as rubber, and the rubber is vulcanized, but it is not hardened. While the resulting head tends to maintain its normal shape, it is nevertheless soft and yieldable to the touch. The head is preferably molded as a single piece around an integral or unitary core, for it may be stripped from the core by reason of the elasticity of the material used.

The eye set E may be of any desired or conventional type, and in the present case is illustrated

as comprising simply a cross rod 12, a pair of generally hemispherical eye shells 14 mounted freely and self-adjustably on said cross rod, key or intermediate members 16 frictionally locked on said cross rod and causing rotation of the eye shells 14 with the cross rod, and a depending gravity weight 18 for causing the desired oscillation of the eye set.

The combined stiffening and mounting means S in the present case is in the form of a generally annular strip of metal 20 which extends circumferentially around the interior of the head and closely follows its internal configuration. At the sides of the head adjacent the eye openings, the strip of metal 20 is provided with bearing holes 22, best shown in Fig. 3, and has struck therefrom resilient or spring bearing tongues 24, the forward or free ends of which pass through the bearing holes 22. These tongues normally extend inwardly of the remainder of the strip of metal, as is best shown in the horizontal section of Fig. 2. The ends of the tongues are therefore adapted to bear against and hold the cross rod 12 in place in the doll's head. It will be evident that because of the springy or resilient nature of the tongues 24, the eye set, after being inserted through the neck opening of the head, may be pushed into place past the tongues 24 by means of the depending weight 18. The eye set, once mounted in place, is difficult to dislodge, for the head of the doll is rigidly reinforced between the temples and at the points of mounting of the eye set. From another viewpoint, it may be stated that the mounting of the eye set is in no way affected by the yieldability of parts of the head, because the direct mounting of the eye set is in the reinforcement itself, rather than in the head. As here disclosed, the front portion of the strip 20 passes directly across the eye openings in the doll's head, and the strip is therefore cut away at the eye openings. If desired, the edges of the openings in the strip may be flanged outwardly, as shown at 26, thereby forming an accurate eye socket or bearing seat for the oscillatable eye shells 14. Inasmuch as this metallic bearing seat may be accurately predetermined in dimension, location, and shape, it helps secure an accurate fit between the eye shells and the eye sockets.

In molding the head, the band S may be preliminarily fitted over the core which defines the interior of the head. The tongues 24 will at that time be forced outwardly flush with the remainder of the strip 20. The annular strip is preferably located at the point of largest diameter of the doll's head, as will be evident from an inspection of Fig. 1 of the drawings. During the molding operation, the rubber or other material used is molded directly around the metallic insert S. When the molding operation is completed, the edges of the head at the neck opening are turned back and pulled toward the top of the head. In this manner the head may be drawn from the core as far as the insert S. However, when the insert is reached, the maximum diameter of the core has also been reached, and the remainder of the head together with the insert is readily drawn from the core. A slight tilting of the head during its removal will permit this stripping operation in spite of the use of projections on the core at the eye openings. It should be noted, however, that if desired such projections may be omitted when the flanges or bearing seats 26 are formed on the insert S, because these flanges will themselves limit the flow of the ma-

terial being molded. It should also be appreciated that if desired the head may be molded without having the reinforce S in place, and the latter may subsequently be inserted within the head. When this procedure is followed, the core should preferably be provided with raised portions, in order to form recesses corresponding to the insert S, so that when the insert is subsequently fitted in place, it may be received and securely held within the aforesaid recesses.

In either case, it will be understood that the head or rubber body is so shaped as to form a compartment subordinate to and open to the interior of the head, which compartment receives and seats and retains the reinforce or casing S in position. This reinforce or casing is preferably located at or near the eye openings and is provided with means to support the movable doll eyes in the eye openings. More broadly, the eye opening may be referred to as an apertured facial characteristic, and the eye may be referred to as a facial element. The subordinate compartment has been illustrated as relatively shallow in depth, but may, of course, be deepened if desired.

Figs. 2a and 3a are respectively similar to Figs. 2 and 3, and are presented as showing a slight modification of the form of the invention so far described. Referring to the said figures, it will be observed that the insert S similarly consists of a generally annular strip of metal 20, and that tongues 24' are struck from the sides of the strip 20. In this case, however, the tongues 24' are provided with outwardly projecting cups or recesses 22' for receiving the ends of the cross rod 12. In this case the tongues 24' may be left flush with the strip 20, or may be bent inwardly in the manner indicated in Figs. 1, 2, and 3. In either case the eye set is inserted in place just as was described in connection with the earlier figures of the drawings. In case the tongues 24' are left flush with strip 20, as shown in Fig. 2a, the resilience or yieldability of the material of the head H may be relied upon to permit the necessary displacement of the tongues 24' during the insertion of the eye set.

Another form of the invention is illustrated by and may be described in connection with Figs. 4, 5, and 6 of the drawings. In this form of the invention, the head H is generally similar to that already described, in that it may be made of a relatively resilient or yieldable material, preferably rubber. The eye set E may be of any desired or conventional type, but in the present case is illustrated as comprising a short cross rod 30 having frictionally mounted thereon a pair of tubular members 32. A pair of generally hemispherical eye shells 34 are freely mounted on the tubular members 32. The eye shells are oscillated together by a plate 36 which is pivoted on the tubular members 32 by forwardly extending lugs 38. An operating or weight mechanism 40 is secured in downwardly depending relation to the plate 36.

The stiffening member S in the present form of the invention is quite different from that previously described, for it takes the form of a metal backing or lining extending generally throughout the interior of the doll's head. This lining is cut away, of course, at the eye openings in the doll's head, and, if desired, may be accurately dimensioned at the said openings in order to form bearing seats for the eye members 34. The sheet metal lining is further cut away at any desired places, in order to permit the outer surface of the head H to

yield in a natural manner at the said places. For example, in the present case the lining S is cut away at the cheeks 42 and at the chin 44, so that the outer surface of the doll's head is soft and yieldable to the touch at these points, corresponding to the fleshy portions of a natural head. At the same time, the entire head, exclusive of the selected or cut-away portions, is rigid in the sense that it holds its shape accurately. Even the reinforced portions of the head, however, have a slight and desirable yieldability due to the softness of the material of the head outside of the metal lining.

A pair of nail-like pins 46 project inwardly from the head adjacent the eye openings, in order to receive and support the eye set E. These pins are preferably mounted, as shown, with their heads anchored between the lining S and the outer material H of the head. To mount the eye set in place, it is simply necessary to insert the same through the neck opening of the head, and, after locating the eye shells 34 in the openings, to expand or oppositely reciprocate the sleeves or tubes 32 outwardly over the pins 46.

The present application is directed primarily to the doll's head as an article of manufacture, but it may be briefly pointed out that the lining or insert S is first made preferably by pressing sheet metal into the desired shape, and that the said lining is preferably itself used as a core when molding the doll's head. The core may be of full dimension to form the lower portion 48 below the neck opening, but within the head itself the core consists simply of locating members for supporting the sheet metal lining S in proper relation to the core. It further consists of pads covering the cut-away portions 42 and 44 of the lining, but these are detachably or otherwise collapsibly related to the core so as to permit extraction of the core through the neck opening of the head. It will be perceived that by this method the moldable material and the sheet metal lining of the head are intimately and integrally bound together.

The invention may be still further modified to effect a compromise between the limited supporting or backing function of the first arrangement described, and a complete backing or lining function of the second arrangement described, by adding to the first arrangement one or more arcuate strips of metal for rigidifying the arch or cranium of the head. Such a modification is illustrated in Fig. 7, referring to which it will be seen that the annular strip 50 of the insert S has added thereto an upwardly extending arch-like strip 52. The ends of this strip may be secured to the annular strip 50 by spot-welding the same together. If desired, still another upwardly extending arch-like strip 54 may be provided transversely of strip 52, and this may similarly be secured to the strips 50 and 52 by spot welding. The complete insert may be substituted for that already described in connection with Figs. 1 to 3, without any change in the mode of manufacture of the head, for, as was previously pointed out, when stripping the head from the core, the elasticity of the material of the head may be taken advantage of until the annular strip 50 is reached, and from that point on, the head is directly removable from the core, regardless of whether it is rigid or yieldable. At the same time, the various parts of the stiffening assembly S will be directly embedded in and securely adherent to the material of the head.

It is believed that the doll's head of the present invention, and the many advantages thereof, will, for the most part, be apparent from the foregoing detailed description. The head is soft and yieldable to the touch in a natural manner, and yet retains its over-all shape. The head is provided with movable eyes, and the latter are securely mounted in place despite the resilience of some portions of the head. The mounting means and stiffening means for the head are preferably combined and thereby simplified. The mounting means may take a variety of forms, and yet in each case it is possible to insert the eye set in place through the neck opening of the head. The head may be made very yieldable in some areas, and only slightly yieldable in others, and these areas may be apportioned and located as desired by changing the location and shape of the reinforcing metal.

All of the advantages of using a relatively soft and yieldable substance, such as rubber, for the doll, which advantages have already led to the use of rubber for the arms, legs, and body of high grade dolls, are retained by the present invention, and at the same time a number of important disadvantages and difficulties are overcome, as a result of which it is possible to keep the general configuration and any desired parts of the head quite stiff, in contrast with the fleshy parts of the head, and it is further possible to provide the head with a movable eye set which cannot be dislodged by rough treatment of the doll.

It will be apparent that while we have shown and described our invention in 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.

We claim:

1. A doll's head comprising a hollow shell made of a moderately resilient and yieldable rubber, said shell having a pair of eye openings, a metallic frame or support located within the shell and extending from the front to the back of the head in order to stiffen the same, the shell being molded directly in contact with and embedding said frame, a pair of eye members, and means on the aforesaid metallic frame for receiving and supporting the aforesaid eye members in the eye openings.

2. A doll's head comprising a hollow shell made of at least moderately soft rubber, said shell having a pair of eye openings, a metallic frame or support located within the shell in order to stiffen the same, the shell being molded directly in contact with and embedding said frame, an oscillatable eye set including a pair of eyes and means for operating the same, and means on the aforesaid metallic frame for receiving and supporting the aforesaid eye set in the eye openings.

3. A doll's head comprising a hollow one-piece shell made of only partially hardened rubber, said shell having a pair of eye openings, a metallic frame or support located within the shell and extending from the front to the back of the head in order to stiffen the same, the shell being molded directly in contact with and embedding said frame, an oscillatable eye set including a pair of eyes and gravity weight means for operating the same, and means formed integrally with the aforesaid metallic frame for receiving and supporting the aforesaid eye set in the eye openings.

4. A doll's head comprising a hollow shell made of at least moderately soft rubber, and having a pair of eye openings, an oscillatable eye set, and a metallic frame or support in the form of a generally annular strip of metal extending circumferentially around the interior of the head, said frame further including at its sides means adapted to receive and hold the aforesaid eye set in place in the doll's head, the rubber shell being molded directly in contact with and embedding the metal frame.

5. A doll's head comprising a hollow shell made of at least moderately soft rubber, and having a pair of eye openings, an oscillatable eye set including a cross rod, a pair of eye shells, and a depending weight, and a metallic backing or support in the form of a generally annular strip of metal extending circumferentially around the interior of the head, said frame passing over the aforesaid eye openings and being apertured to form bearing seats for the eyes, said frame further including at its sides means adapted to receive and hold the aforesaid eye set in place in the doll's head, the rubber shell being molded directly in contact with and embedding the metal frame.

6. A doll's head comprising a hollow one-piece shell made of only partially hardened rubber, and having a pair of eye openings, an oscillatable eye set including a cross rod having a pair of eye shells and a depending weight mounted thereon, and a metallic backing or support in the form of a generally annular strip of metal extending circumferentially around the interior of the head at its point of largest diameter in order to stiffen and hold the shape of the head, said frame passing over the aforesaid eye openings and being apertured and appropriately shaped at said eye openings to form bearing seats for the eyes, said frame further including at its sides a pair of spring tongues adapted to receive and hold the aforesaid eye set in place in the doll's head, the rubber shell being molded directly in contact with and embedding the metal frame.

7. A doll's head comprising a hollow one-piece shell made of at least moderately soft rubber, and having a pair of eye openings, an eye set, a stiff metal backing or lining extending over a large area of the doll's head, said lining being cut away at desired places in order to permit the outer surface of the head to yield in a natural manner at the said places, and means on said metal lining for receiving and holding the eye set in place, the rubber shell being molded directly in contact with and at least partially embedding the metal lining.

8. A doll's head comprising a hollow one-piece shell made of rubber, and having a pair of eye openings, an eye set, a metal backing or lining extending generally throughout the interior of the doll's head, said lining being cut away at the cheeks and chin of the head, in order to permit the outside surface of the head to yield at the said places, and means on said metal lining for receiving and holding the eye set in place, the rubber shell being molded directly in contact with and at least partially embedding the metal lining.

9. A doll's head comprising a hollow one-piece shell made of rubber, and having a pair of eye openings, an eye set including a cross rod, a pair of tubular members on said cross rod, a pair of eye shells, and a depending weight arm, a pressed sheet metal backing or lining extending over a large area of the doll's head, said lining being

cut away at selected places in order to permit the outside surface of the head to yield in a natural manner at the said places, and a pair of pins directed inwardly from the sheet metal lining of the head, the aforesaid tubular members of the eye set being mounted on said pins, the rubber shell being molded directly in contact with and at least partially embedding the metal lining.

10. A doll's head comprising a hollow one-piece shell made of rubber, and having a pair of eye openings, an eye set including a cross rod, a pair of tubular members on said cross rod, a pair of eye shells, and a depending weight arm, a pressed sheet metal backing or lining extending generally throughout the interior of the doll's head, said lining being cut away at the cheeks and chin of the head, in order to permit the surface to yield at the said points, and being cut away at the eye openings in order to form bearing seats for the eye shells, and a pair of inwardly directed pins having their heads supported between the resilient material and the sheet metal lining of the head, the aforesaid tubular members of the eye set being mounted on the pins in order to permit oscillation of the eye set in the eye openings, the rubber shell being molded directly in contact with and at least partially embedding the metal lining.

11. A doll's head comprising a hollow shell made of rubber, and a metal backing or lining extending over a large area of the doll's head, said lining being cut away at desired places in order to permit the outer surface of the head to yield at the said places in a natural manner, the rubber shell being molded directly in contact with and at least partially embedding the metal lining.

12. A doll's head comprising a hollow one-piece shell made of only partially hardened rubber, and a pressed sheet metal backing or lining extending generally throughout the interior of the doll's head, said lining being cut away at the cheeks and chin of the head in order to permit the outer surface to yield at the said points, the rubber shell being molded directly in contact with and at least partially embedding the metal lining.

13. A doll's head comprising a hollow molded shell made of at least moderately soft rubber, said head having a pair of eye openings, a single metallic stiffening and reinforcing means for said shell, said means being substantially larger than the eye openings and positioned to reinforce the head in the region of the eye openings, the material of the shell being molded directly around and embedding said means, an oscillatable eye set comprising a pair of eyes and means for operating the same, and means supporting said eye set for oscillation in the aforesaid eye openings.

14. A doll's head comprising a hollow molded shell made of at least moderately soft rubber, said head having a pair of eye openings, a single metallic stiffening and reinforcing ring for said shell, said ring being substantially larger than the eye openings and positioned to reinforce the head in the region of the eye openings, the material of the shell being molded directly around and embedding the metal ring, an oscillatable eye set comprising a pair of eyes and means for operating the same, and means supporting said eye set for oscillation in the aforesaid eye openings.

15. A doll's head comprising a hollow molded shell made of at least moderately soft rubber,

said head having a pair of eye openings, a single metallic stiffening and reinforcing means for said shell, said means being substantially larger than the eye openings, the material of the shell being molded directly around and embedding said means, said means having a configuration conforming to that of the head and positioned to stiffen the frontal portion of the head, an oscillatable eye set comprising a pair of eyes and gravitational means for operating the same, and means supporting said eye set for oscillation in the aforesaid eye openings.

16. A doll's head comprising a hollow molded shell made of at least moderately soft rubber, said head having a pair of eye openings, a single metallic stiffening and reinforcing ring for said shell, said ring being substantially larger than the eye openings, the material of the shell being molded directly around and embedding the metal ring, said ring having a configuration conforming to that of the head and positioned to stiffen the frontal portion of the head, an oscillatable eye set comprising a pair of eyes and gravitational means for operating the same, and means supporting said eye set for oscillation in the aforesaid eye openings.

17. A hollow doll head comprising a pliable rubber body, the front wall of said rubber body being formed to provide an eye opening, a rigid casing for stiffening said wall locally at the eye opening and having means for supporting and exposing a movable doll eye at the eye opening, said rubber body being formed into a compartment subordinate to and open to the interior of the

head for seating and retaining said casing in position.

18. A hollow doll head comprising a pliable rubber body, the front wall of said rubber body being formed to provide an apertured facial characteristic, a rigid casing having means for supporting and exposing a facial element at the aperture, said rubber body being so shaped as to form a compartment subordinate to and open to the interior of the head for seating and retaining said casing in position.

19. A hollow doll head comprising a pliable rubber body, the front wall of said rubber body being formed to provide a pair of eye openings, a rigid casing member for stiffening said wall locally at the eye openings and having means for supporting and exposing a connected pair of movable doll eyes at the eye openings, said rubber body being formed into a compartment subordinate to and open to the interior of the head for seating and retaining said casing in position.

20. The combination with a hollow head of a rubber doll provided with eye sockets, of a bowed strip of substantially stiff material extending from the temple portions of the head around the back of said head, an arbor in said head and having its ends pivotally mounted in opposite portions of said reinforcing member at the temple portions thereof, spaced eyes carried by the arbor and disposed in said sockets of the head and a pendulum depending from said arbor.

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