

June 16, 1925.

1,542,005

R. E. RILEY

HOLLOW ELASTIC PLAYING BALL

Original Filed Oct. 31, 1921

Fig. 1.

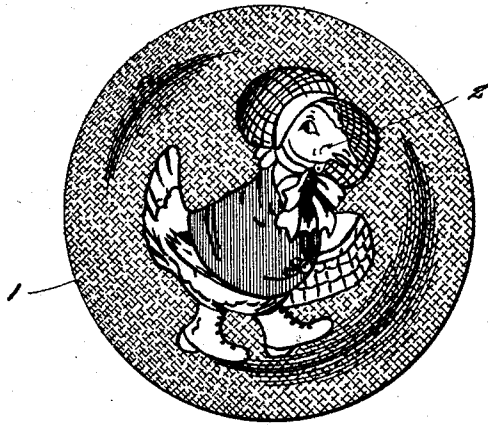


Fig. 2

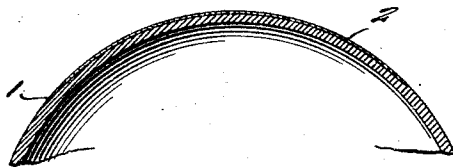
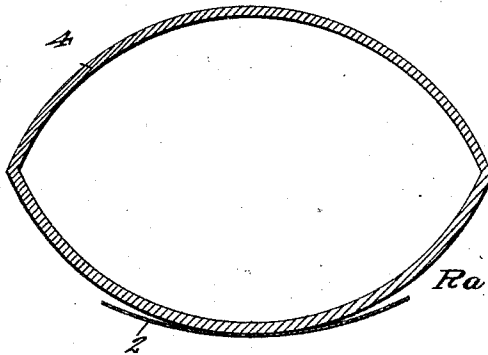


Fig. 3.



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Patented June 16, 1925.

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UNITED STATES PATENT OFFICE.

RALPH E. RILEY, OF AKRON, OHIO, ASSIGNOR TO THE MILLER RUBBER COMPANY,
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HOLLOW ELASTIC PLAYING BALL.

Original application filed October 31, 1921, Serial No. 511,720. Divided and this application filed January 17, 1922. Serial No. 529,876.

To all whom it may concern:

Be it known that I, RALPH E. RILEY, a citizen of the United States, and resident of Akron, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Hollow Elastic Playing Balls, of which the following is a specification, division of application Serial Number 511,720, filed Oct. 31, 1921.

One object of the invention is to provide a hollow playing ball having a decoration, design, picture or figure on its face which will be attractive and pleasing to the user, the ball being as elastic and as durable as an ordinary ball having no decoration thereon.

In carrying out the invention I aim to provide a construction which will avoid the use of objectionable paint or enamel, in providing the design or ornamentation, and in which the elasticity of the ball will be maintained indefinitely at approximately its full degree throughout all its parts.

The invention comprises the novel article hereinafter described and particularly defined by the appended claims.

In the accompanying drawings—

Figure 1 is an outside view of the ball.

Fig. 2 is a sectional view.

Fig. 3 is a view of an uncured ball and the inlay piece juxtaposed thereto but before being incorporated therewith.

In these drawings 1 indicates the body material of the ball, and 2 the elastic rubber piece providing the design. This piece may assume various forms, and it may function in different ways, that is, it may be of the shape in outline of the figure, design, or picture, and being differently colored in respect to the ball's body, it will of itself give an ornamental design or picture effect, or as shown it is considered best to print on this piece the details of the picture or design.

This piece of rubber, for instance, may be white and the design may be printed thereon in red and black. The sheet rubber piece is trimmed to the outline of the design by means of cutting dies made to correspond to the outline of the printing form or plate.

In the production of the ball I take the two halves or blanks which make up the main body and cut them together with a

blower between. I then place the rubber piece or pieces 2 upon the ball body and because of the tacky condition of the rubber the piece will stick to the body blank. It may be tacked at desired points by tapping it by any pointed instrument like a lead pencil point as disclosed for example in my application filed Oct. 31, 1921, No. 511,720 of which this application is a division. I preferably use two pieces of rubber arranged at substantially diametrically opposite points of the ball.

The uncured ball with the thin sheet rubber design piece attached thereto is placed in a mold and the heat of the mold generates gas from the blower and softens the rubber so that the inlaying of the sheet rubber design member into the surface of the ball will be effected and the autogenous union between this member and the body of the ball secured, while at the same time the ball is expanded to conform to the mold cavity.

I term this action inlaying, as the sheet rubber piece is set into the surface of the ball flush therewith. This inlaying action takes place automatically when the heating in the mold and the generation of the gas from the blower takes place. The exterior of the completed ball is smooth and flush throughout, no joint being perceptible to the eye or touch where the edge of the design piece connects with the adjacent portion of the body of the ball.

While I do not limit myself to any particular form of design or outline for the rubber inlay member, it is preferable to select forms of designs or pictures having radiating parts presenting indentations between them because they are more readily applied without buckling to a spherical surface. For instance, a star is more easily applied than a circular disc. Design pieces of animals or birds or human beings, all of which consist of a central body portion and limbs extending therefrom, are easy of application. Further, the material of the inlay pieces being thin rubber, the tendency to buckle is slight. In the drawing it will be understood that the Mother Goose representation of a chicken in wearing apparel and carrying a basket consists of a rubber piece cut to the outline of chicken, basket, and wearing apparel and having its surface

printed to complete the picture and this design presents the indented configuration well adapted for application to the ball without buckling.

Referring to Figure 3 the design or inlay piece is indicated at 2 and the uncured ball at 4, and as the latter has a tacky surface it will pick up the design piece, which may be tacked down at various points around its contour by the use of any suitable instrument like an awl which is applied here and there by the workman. The uncured ball is then ready to be placed in the mold.

It will be understood that the design member is made of rubber considerably thinner than the wall of the ball, and it is found that the thickness of the composite wall portion of the ball 2^e where the inlay occurs is practically no thicker than the adjacent portions of the main wall of the ball. That is, the inlay adds no appreciable thickness at the point at which it is applied. A section of the ball cut across the joint between the inlay and the main body wall reveals to the eye or touch no added thickness. There is no shoulder back of the joint but the interior appears as smooth and as free from any ribbed or shoulder effect here as at the adjacent portions of the wall. This is doubtless due to the elasticity of the rubber and its capacity to stretch under the pressure of the gas.

The structure, therefore, is substantially of the same resiliency at all parts.

Such a ball may be produced in quantities at a cost that will enable marketing at a low price.

The sheet rubber piece is as elastic as the body of the ball, that is, all parts are elastic to about the same degree, and the ball will bounce approximately as high when the design portion hits the floor or other surface as when the main body of the ball hits.

It will be noticed that no cement is employed in uniting the sheet rubber piece to the ball, but the union is autogenous, and the ball, when fully cured, presents a perfect outer spherical surface, despite the fact that the design piece in the manufacture is laid onto the thickness of rubber constituting the body wall of the ball.

No paint being used, the objection will be

avoided of the design cracking, becoming chipped and dropping off. Where paint is used the rubber will deteriorate from the oil therein and its resiliency where the design is located will be lessened.

Fig. 3 is of a diagrammatic character, the uncured ball being represented in a conventional manner.

I claim:

1. A hollow elastic thin walled rubber playing ball having a design portion of elastic sheet rubber inlaid in the surface of the ball, and autogenously united therewith.

2. A hollow elastic thin walled rubber playing ball having a design portion of elastic sheet rubber inlaid in the surface of the ball, and autogenously united therewith, the surface of said inlay being flush with the surface of the body of the ball, substantially as described.

3. A hollow elastic thin walled rubber playing ball having an inlay of elastic rubber in its surface and exposed on its outer face, said inlay bearing a design on its surface, substantially as described.

4. A hollow elastic thin walled rubber playing ball having an elastic sheet rubber piece united therewith with its outer surface flush with the adjacent spherical surface of the ball, the composite wall of the ball where the inlay occurs being of substantially the same thickness as the adjacent wall portions of the main body and of substantially equal resiliency, substantially as described.

5. A hollow elastic thin walled rubber playing ball having design portions of elastic sheet rubber inlaid in its surface at substantially opposite points thereof and autogenously united therewith.

6. A hollow resilient rubber ball having a resilient rubber piece inlaid in its surface and composed of a central body part and substantially radiating extensions, substantially as described.

7. A hollow resilient rubber ball having a resilient rubber piece inlaid in its surface, said piece being thinner than the underlying wall portion of the ball, substantially as described.

In testimony whereof, I affix my signature.

RALPH E. RILEY.