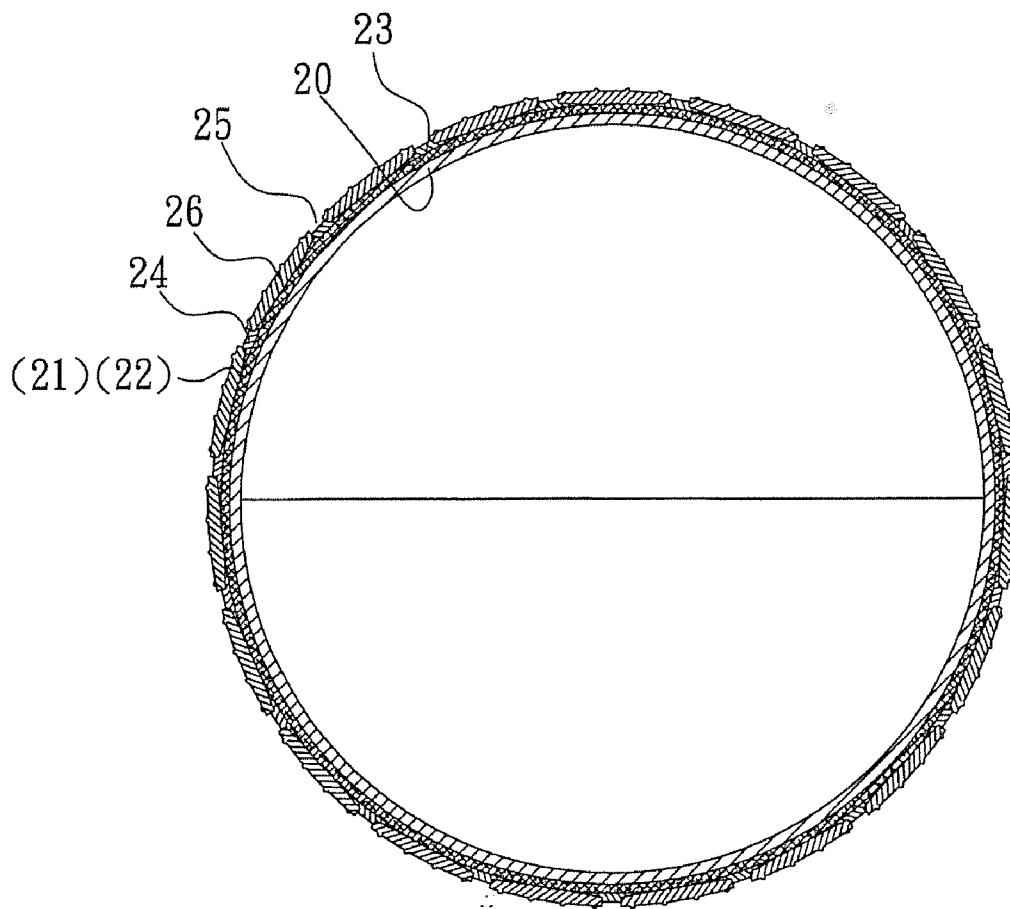


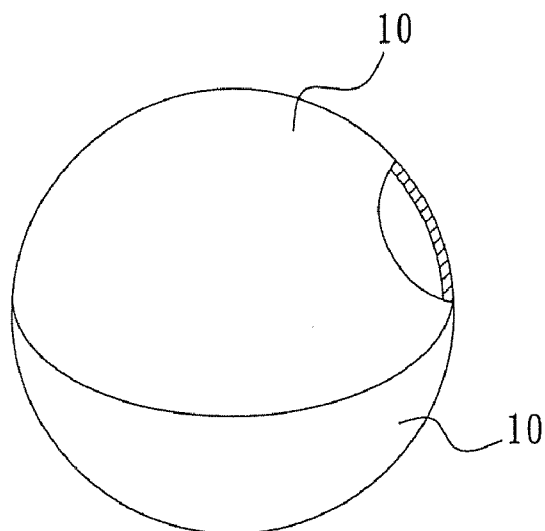


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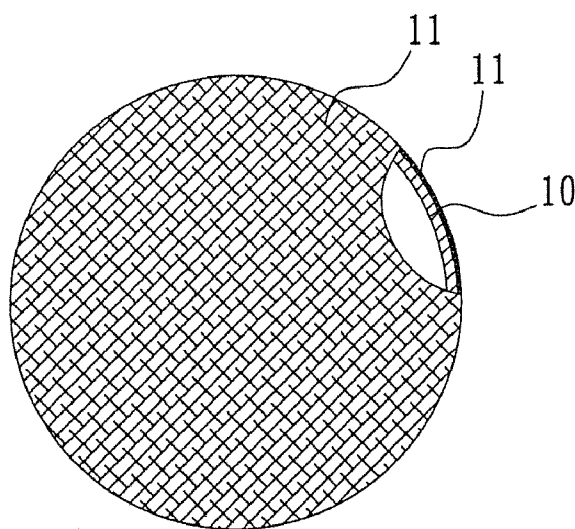
(19) **United States**(12) **Patent Application Publication**
WANG(10) **Pub. No.: US 2012/0316015 A1**(43) **Pub. Date: Dec. 13, 2012**(54) **LAMINAR BALL**(52) **U.S. Cl. 473/600**(76) **Inventor: ANDREW WANG, TAIPEI CITY (TW)**(57) **ABSTRACT**(21) **Appl. No.: 13/158,655**

A laminar ball includes a spherical rubber core member, a reinforcing thread layer formed of a mixture of threads and latex and surrounding the spherical rubber core member to have the latex be bonded with the spherical rubber core member, an outer rubber layer surrounding the reinforcing thread layer and bonded with the latex and having intersected reinforcing ribs, a rubber surface layer bonded to the outer rubber layer, and a plurality of grooves defined in the rubber surface layer corresponding to the reinforcing ribs.

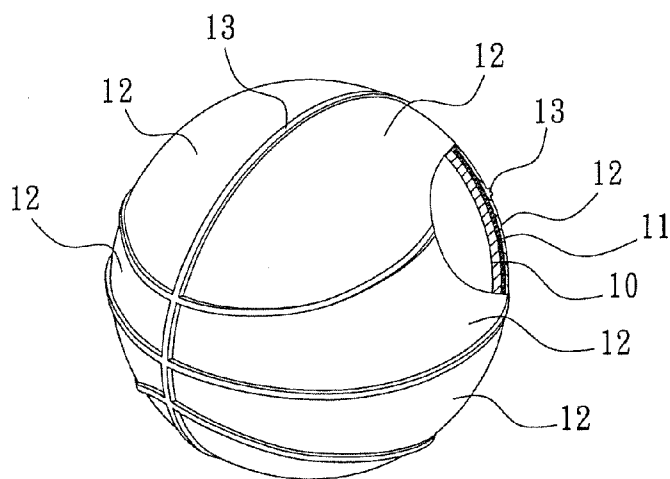
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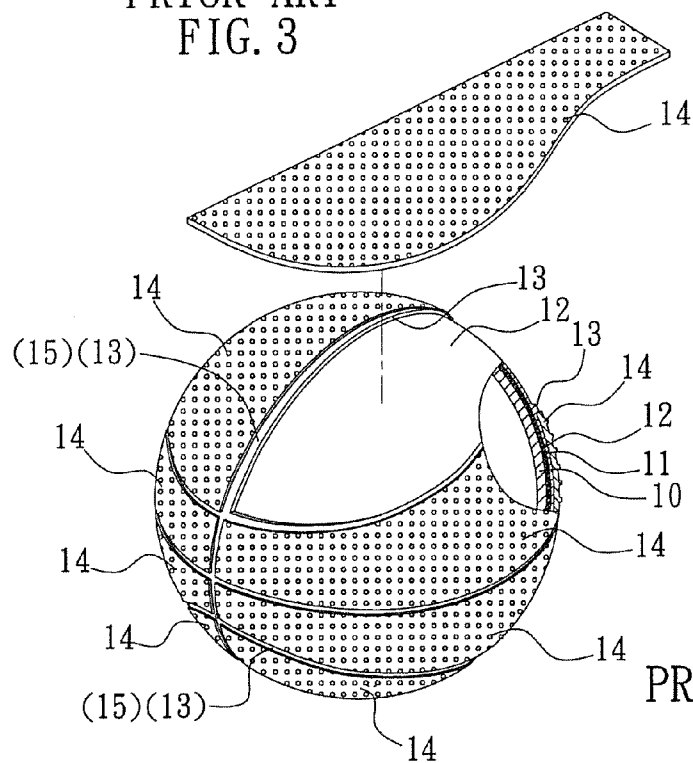
PRIOR ART
FIG. 1



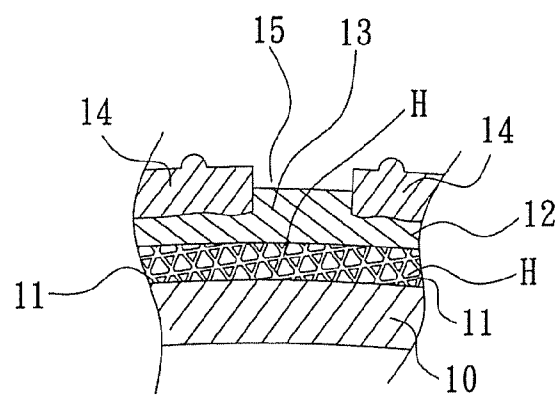
PRIOR ART
FIG. 2



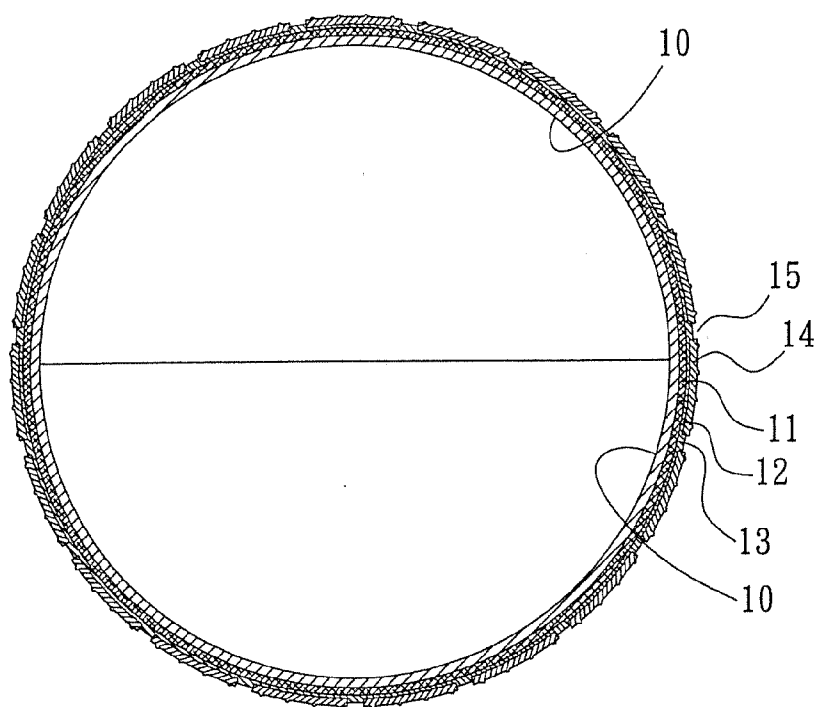
PRIOR ART
FIG. 3



PRIOR ART
FIG. 4



PRIOR ART
FIG. 5A



PRIOR ART
FIG. 5

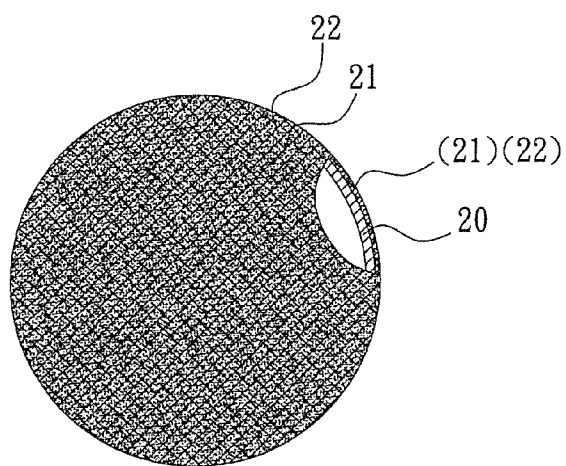


FIG. 6

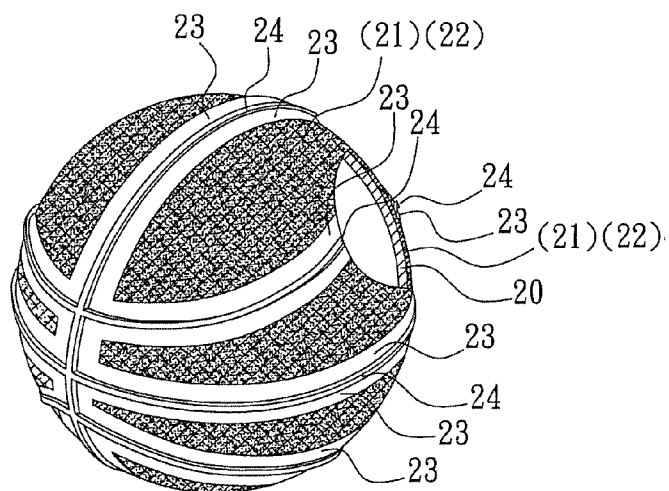


FIG. 7

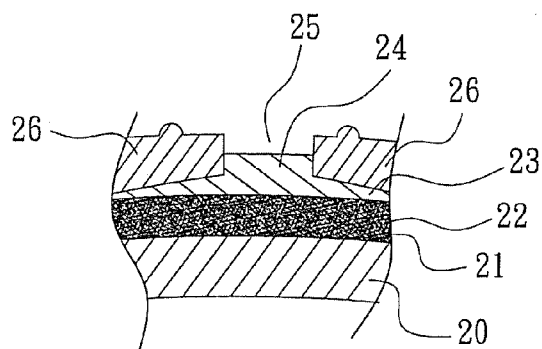


FIG. 8A

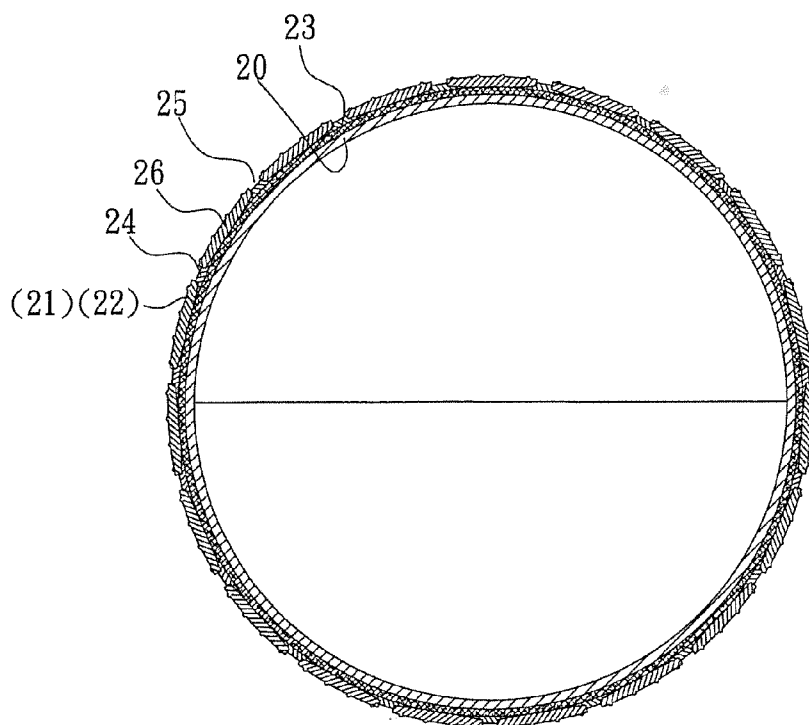


FIG. 8

LAMINAR BALL

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to laminar balls for sports game and more particularly, to an improved structure of laminar ball, which facilitates fabrication and has high a durability characteristic.

[0003] 2. Description of the Related Art

[0004] A conventional laminar ball (for example, basket ball) generally comprises spherical rubber core member 10, a reinforcing thread layer 11 surrounding the spherical rubber core member 10 (see FIGS. 1-3), an outer rubber layer 12 and reinforcing ribs 13 vulcanized and bonded to the reinforcing thread layer 11 by a vulcanizing machine (see FIG. 4), and a rubber surface layer 14 bonded to the outer rubber layer 12 such that grooves 15 are defined in the rubber surface layer 14 corresponding to the reinforcing ribs 13 to increase friction and to avoid slipping (see FIG. 5 and FIG. 5A).

[0005] This design of laminar ball has drawbacks as follows:

[0006] 1. The reinforcing thread layer 11 has open spaces H in it, lowering the bonding strength between the spherical rubber core member 10 and the reinforcing thread layer 11.

[0007] 2. As the reinforcing thread layer 11 has open spaces H in it, the outer rubber layer 12 is simply bonded to a small part of the outer surface of the reinforcing thread layer 11 when molded, lowering the bonding strength.

[0008] 3. Because of low bonding strength between the reinforcing thread layer 11 and the outer rubber layer 12 and between the reinforcing thread layer 11 and the spherical rubber core member 10, the outer rubber layer 12 and the reinforcing ribs 13 wear quickly with use, shortening the lifespan of the laminar ball.

[0009] 4. The outer rubber layer 12 has a large surface area and small thickness. When vulcanizing the outer rubber layer 12, air bubbles may be produced to lower the quality.

SUMMARY OF THE INVENTION

[0010] The present invention has been accomplished under the circumstances in view. It is the main object of the present invention to provide a laminar ball, which facilitates fabrication and has high a durability characteristic.

[0011] To achieve this and other objects of the present invention, a laminar ball comprises a spherical rubber core member, a reinforcing thread layer surrounding the spherical rubber core member, an outer rubber layer surrounding the reinforcing thread layer and having intersected reinforcing ribs, a rubber surface layer bonded to the outer rubber layer, and a plurality of grooves defined in the rubber surface layer corresponding to the reinforcing ribs. The reinforcing thread layer is a mixture of threads and a latex layer. The latex is bonded with the spherical rubber core member. Further, the outer rubber layer is formed of multiple strips and bonded with the latex of the reinforcing thread layer.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] Other and further benefits, advantages and features of the present invention will be fully understood by reference to the following specification in conjunction with the accompanying drawings, in which:

[0013] FIG. 1 is a perspective view of a spherical rubber core member formed of two symmetrical halves for laminar ball according to the prior art.

[0014] FIG. 2 corresponds to FIG. 1, illustrating a reinforcing thread layer bonded to the spherical rubber core member according to the prior art.

[0015] FIG. 3 corresponds to FIG. 2, illustrating an outer rubber layer bonded to the reinforcing thread layer according to the prior art.

[0016] FIG. 4 corresponds to FIG. 3, illustrating bonding of rubber surface layer according to the prior art.

[0017] FIG. 5 is a schematic sectional view illustrating the structure of the laminar ball according to the prior art. FIG. 5A is an enlarged view of a part of FIG. 5.

[0018] FIG. 6 is a cutaway view of a spherical rubber core member and reinforcing thread layer assembly for laminar ball in accordance with the present invention.

[0019] FIG. 7 is a cutaway view of a laminar ball in accordance with the present invention.

[0020] FIG. 8 is a schematic sectional view illustrating the structure of the laminar ball according to the present invention.

[0021] FIG. 8A is an enlarged view of a part of FIG. 8.

DETAILED DESCRIPTION OF THE INVENTION

[0022] The various objects and advantages of the present invention will be more readily understood from the following detailed description of four embodiments when read in conjunction with the appended drawings, in which like reference numbers denote like elements of structure. Referring to FIGS. 6, 7, 8 and 8A, a laminar ball in accordance with the present invention is shown comprising a spherical rubber core member 20, a reinforcing thread layer 21 surrounding the spherical rubber core member 20, an outer rubber layer 23 surrounding the reinforcing thread layer 21 and having intersected reinforcing ribs 24, a rubber surface layer 26 bonded to the outer surface of the outer rubber layer 23, and grooves 25 defined in the rubber surface layer 26 corresponding to the reinforcing ribs 24. The laminar ball of the present invention is characterized that the reinforcing thread layer 21 comprises a latex layer 22, i.e., the reinforcing thread layer 21 is a mixture of latex 22 and threads and the latex 22 is bonded to the spherical rubber core member 20; the outer rubber layer 23 is formed of multiple strips and bonded with the latex 22 the reinforcing thread layer 21.

[0023] The laminar ball of the present invention has the features and advantages as follows:

[0024] 1. The reinforcing thread layer 21 comprises a latex layer 22 filled in the threads thereof and bonded with the spherical rubber core member 20, achieving excellent bonding and sealing effects.

[0025] 2. The outer rubber layer 23 is formed of multiple strips and bonded with the latex 22 of the reinforcing thread layer 21, holding the spherical rubber core member 20 and the reinforcing thread layer 21 for durable application.

[0026] 3. The latex 22 of the reinforcing thread layer 21 can also be bonded with the rubber surface layer 26 positively.

[0027] 4. As shown in FIG. 7, the outer rubber layer 23 is formed of multiple strips, facilitating vulcanizing and avoiding air bubbles during vulcanizing.

[0028] Although a particular embodiment of the invention has been described in detail for purposes of illustration, various modifications and enhancements may be made without

departing from the spirit and scope of the invention. Accordingly, the invention is not to be limited except as by the appended claims.

What is claimed is:

1. A laminar ball, comprising a spherical rubber core member, a reinforcing thread layer surrounding said spherical rubber core member, an outer rubber layer surrounding said reinforcing thread layer, said outer rubber layer comprising a plurality of intersected reinforcing ribs, a rubber surface layer

bonded to an outer surface of said outer rubber layer, and a plurality of grooves defined in said rubber surface layer corresponding to said reinforcing ribs, wherein said reinforcing thread layer comprises a plurality of threads and a latex layer merged in said threads and bonded to said spherical rubber core member; said outer rubber layer is formed of multiple strips and bonded with said latex layer of said reinforcing thread layer.

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