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(54) **MOLDED GAME BALL**

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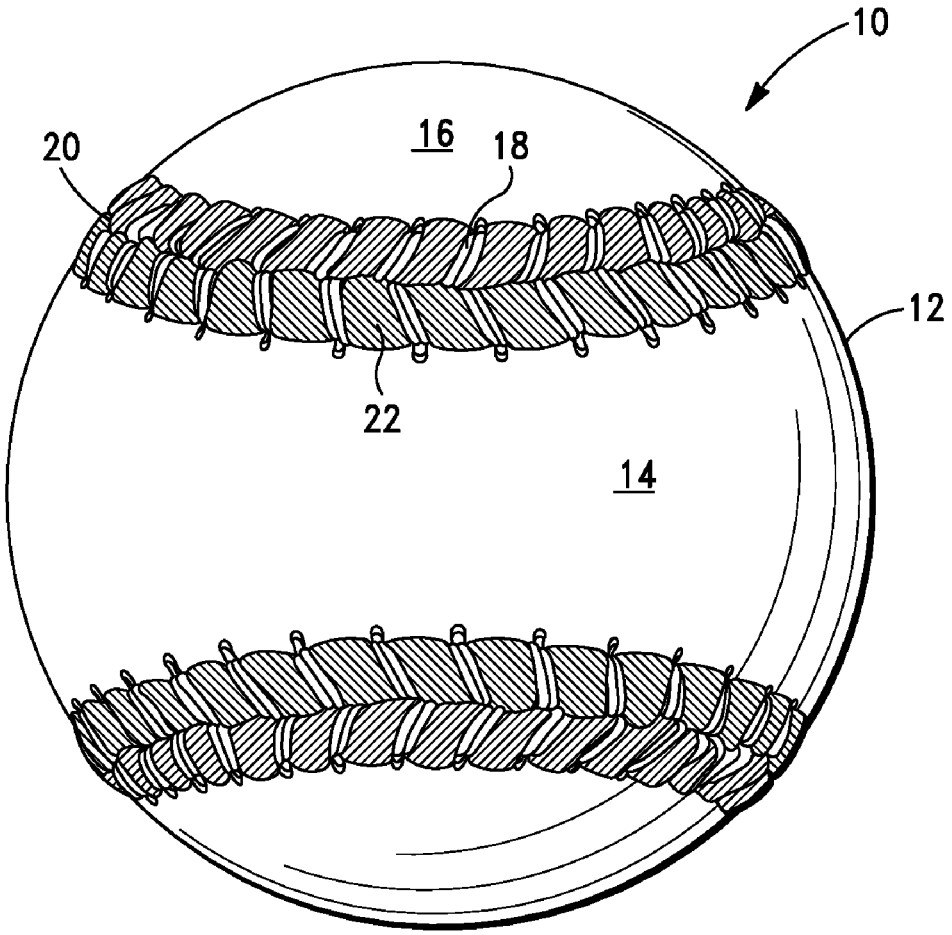
USPC **473/597**

(57) **ABSTRACT**

A baseball or softball comprising a cover having an outer surface that is formed of a first material. A second material that is easier to grip than the first material is affixed to the cover in the same location as the seam on a conventional baseball or softball. The ball's outer surface is molded and stitchless, meaning that the outer covering is not made by stitching panels together. While the ball may be stitchless, it may have simulated, molded stitches. The second material, when positioned on a planar surface, comprises a continuous strip having two generally semicircular ends each integral with a pair of opposed concave sides (e.g. a FIG. **8** configuration).



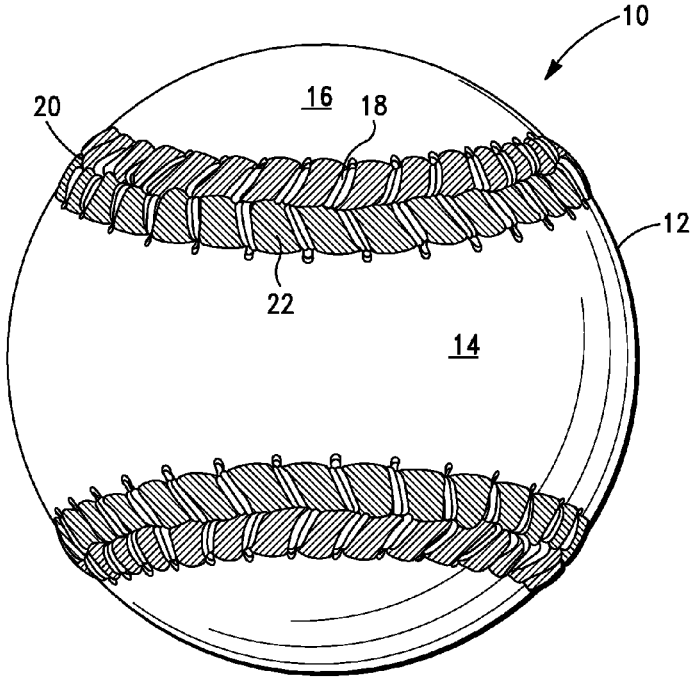


FIG. 1

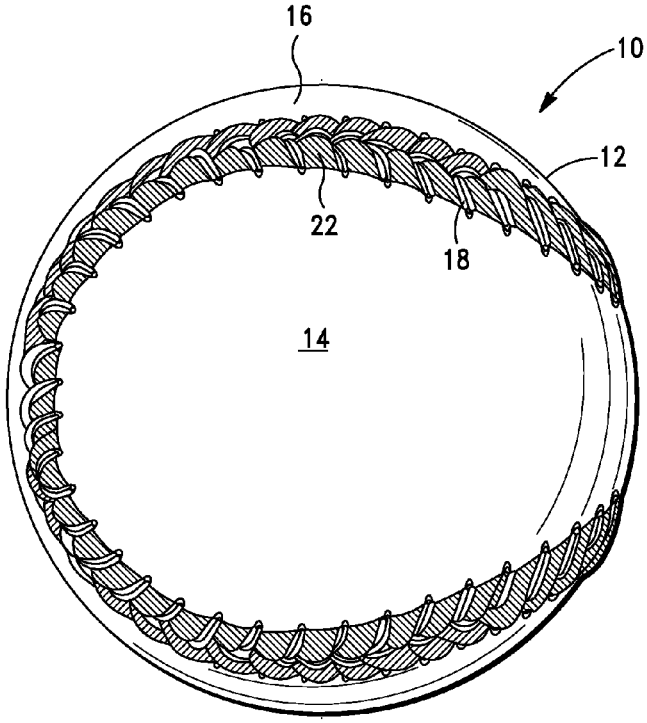


FIG. 2

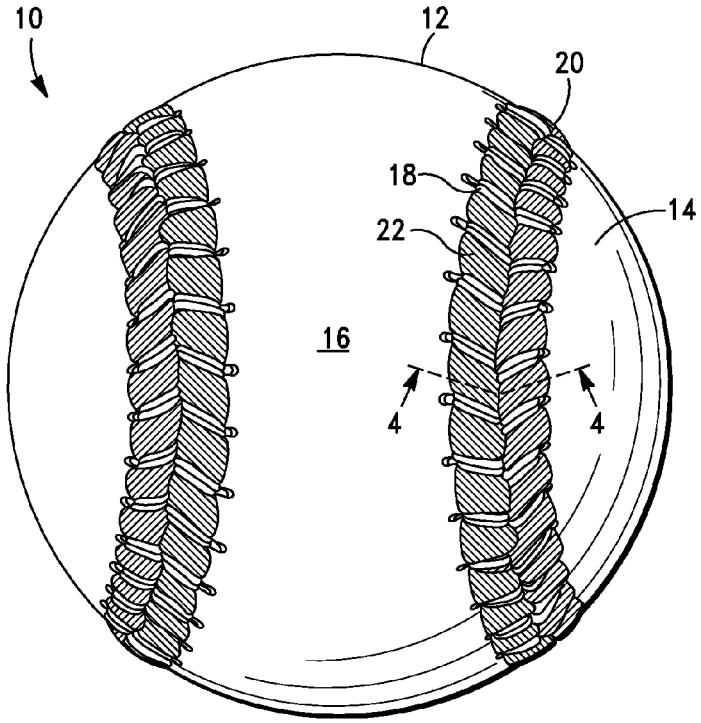


FIG. 3

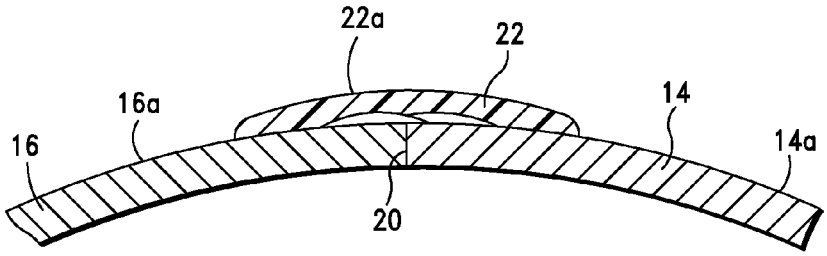


FIG. 4

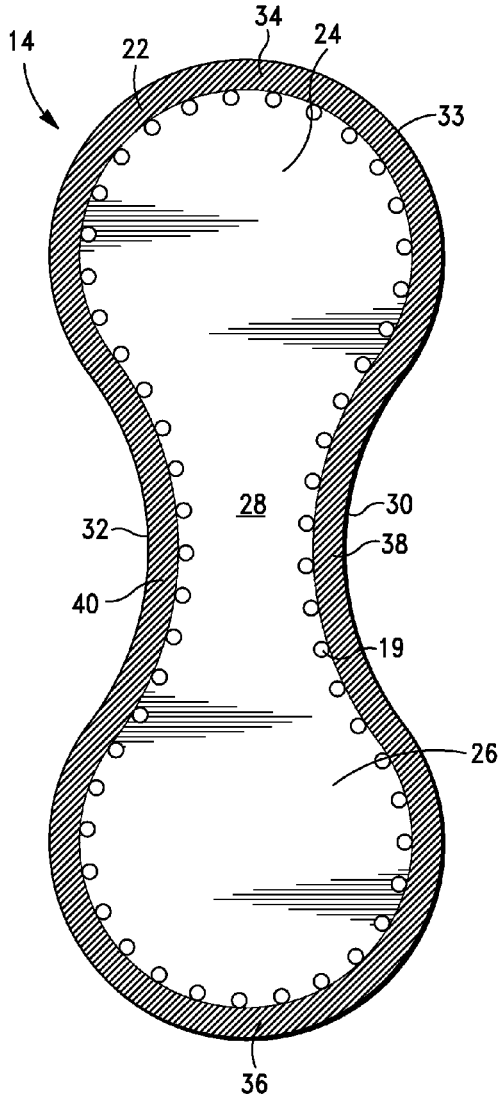


FIG. 5

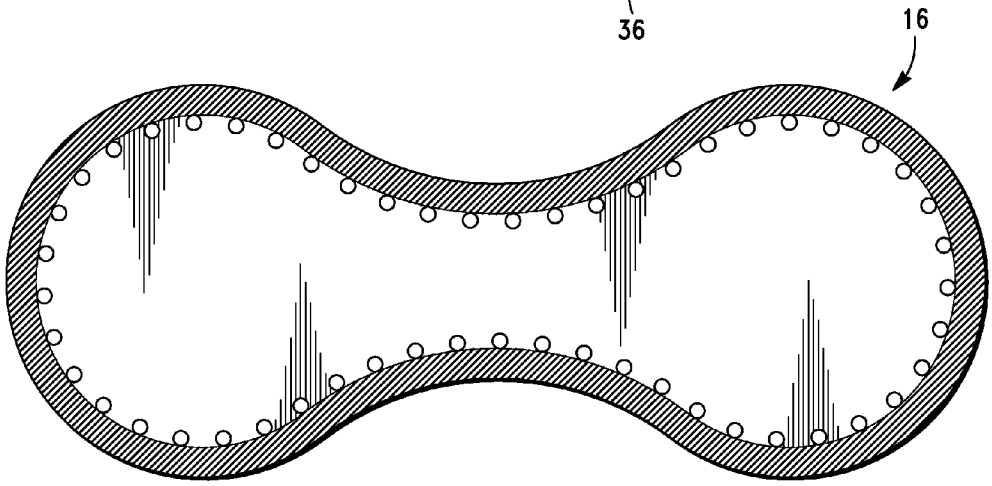


FIG. 6

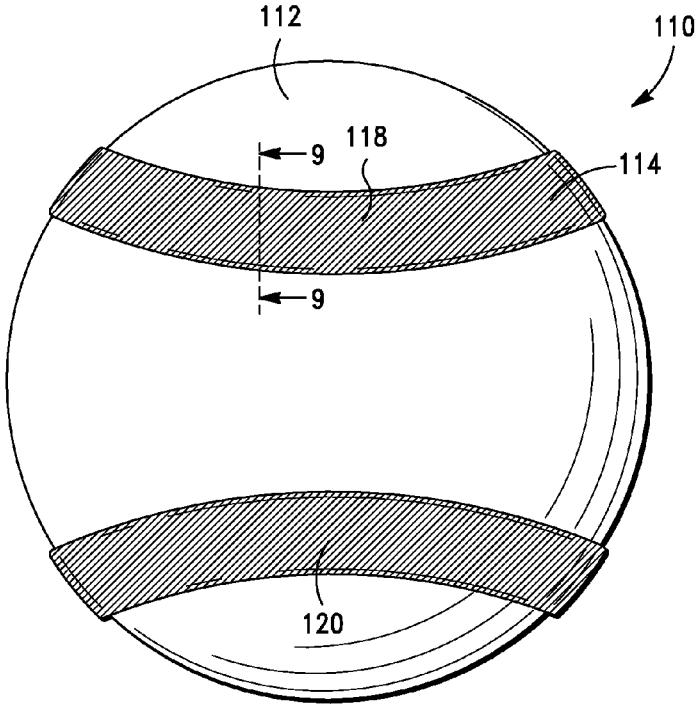


FIG. 7

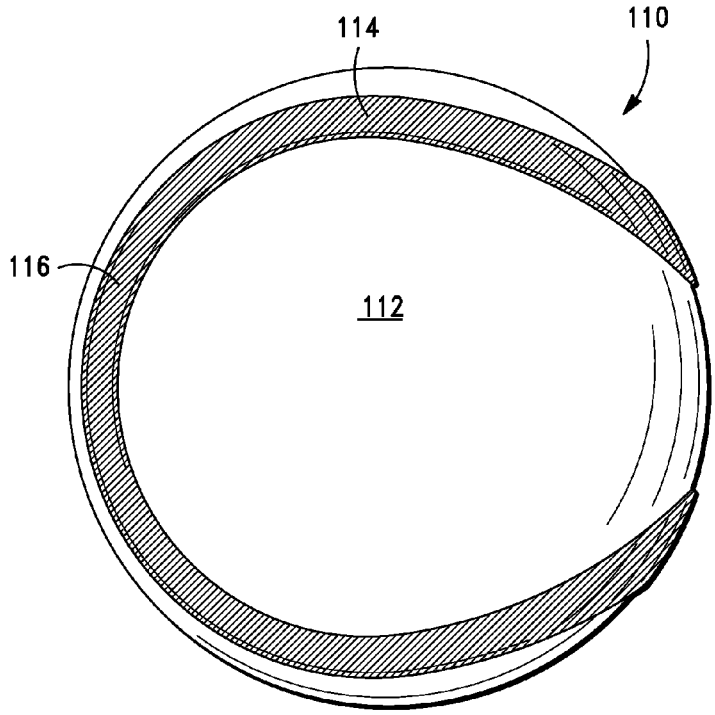


FIG. 8

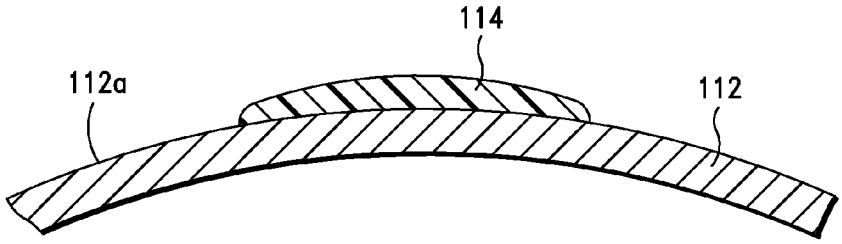


FIG. 9

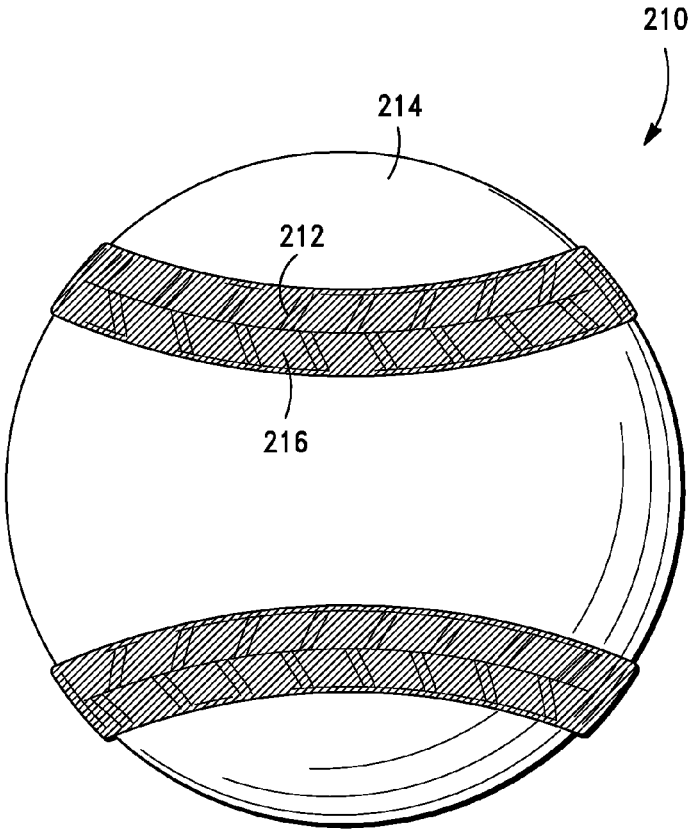


FIG. 10

MOLDED GAME BALL

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a divisional application of, and claims priority to, U.S. Ser. No. 12/958,956 filed Dec. 2, 2010 which is incorporated herein by reference.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not applicable.

BACKGROUND OF THE INVENTION

[0003] 1. Field of the Invention

[0004] The present invention relates generally to a game ball, and in particular, to a game ball having a grip enhancing material affixed to its cover.

[0005] 2. Description of Related Art

[0006] The covers of conventional baseballs and softballs are typically formed from two panels which are positioned over an interior structure of the ball and stitched together to form a seam. The panels may be formed from a variety of materials depending on the anticipated use and desired cost of the ball. For example, the panels may be formed from leather, polyurethane, polyvinylchloride, or blends thereof. Alternatively, baseballs and softballs may be "stitchless" having an outer cover that is molded from a polymeric material. These stitchless balls may have simulated stitching molded to the outer cover in the same general location as the stitches on a conventional baseball or softball. Before throwing either type of ball, a player typically utilizes the seams to obtain a preferred grip on the ball. Further, players and coaches view the seams of a thrown ball in order to determine the ball's rotation, which typically is indicative of the flight path that the ball will follow.

BRIEF SUMMARY OF THE INVENTION

[0007] The present invention is directed to a game ball having grip enhancing material on the exterior surface of the ball, wherein the grip enhancing material is presented on the ball in a pattern that resembles or mimics the pattern of the seam on a conventional stitched ball. The grip enhancing material is preferably presented in a prominent color to enable players and/or coaches to determine the rotation of the ball when thrown.

[0008] One embodiment of the present invention is directed toward a game ball comprising a cover having at least two panels that are coupled together along a seam. Each panel comprises an outer surface that is formed of a first material. A second material that is easier to grip than the first material is affixed to each of the panels adjacent to the seam. The second material may be affixed to the first material in any manner. For example, the second material may be sprayed, coated, screened, adhered, welded, bonded, or chemically bonded to the first material. The second material enhances a player's ability to grip the game ball by presenting a surface surrounding the ball's seam that is easier to grip than the remainder of the ball's cover. Preferably, the second material also has a different color than the first material in order to enhance a player's ability to determine the rotation of the ball when thrown. Most preferably, stitching joins the two panels and the second material is the same color as the stitching.

[0009] The second material of the game ball is easier to grip than the first material. For example, the second material may comprise a material that is tackier than the first material; a material that has a higher coefficient of friction, static and/or dynamic, than the first material; a material that has a lower hardness or durometer than the first material; and/or a material that is textured differently from the first material. Preferably, the second material of the game ball has a greater frictional interaction with a player's hands than the first material.

[0010] Another embodiment of the present invention is directed toward a baseball or softball comprising a cover having an outer surface that is formed of a first material. A second material that is easier to grip than the first material is affixed to the cover in the same location as the seam on a conventional baseball or softball. Preferably, the ball's outer surface is molded and stitchless, meaning that the outer covering is not made by stitching panels together. While the ball may be stitchless, it may have simulated, molded stitches. Preferably, the second material, when positioned on a planar surface, comprises a continuous strip having two generally semicircular ends each integral with a pair of opposed concave sides (e.g. a FIG. **8** configuration). The second material is easier to grip than the first material as described above.

[0011] Additional aspects of the invention, together with the advantages and novel features appurtenant thereto, will be set forth in part in the description which follows, and in part will become apparent to those skilled in the art upon examination of the following, or may be learned from the practice of the invention. The objects and advantages of the invention may be realized and attained by means of the instrumentalities and combinations particularly pointed out in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIG. **1** is a front elevational view of a game ball according to one embodiment of the present invention;

[0013] FIG. **2** is a side elevational view of the ball of FIG. **1**;

[0014] FIG. **3** is a rear elevational view of the ball of FIG. **1**;

[0015] FIG. **4** is a cross-sectional view taken through the line **4-4** in FIG. **3**;

[0016] FIG. **5** is a top plan view of one panel of the ball of FIG. **1**;

[0017] FIG. **6** is a top plan view of another panel of the ball of FIG. **1**;

[0018] FIG. **7** is a front elevational view of a stitchless game ball in accordance with another embodiment of the present invention;

[0019] FIG. **8** is a side elevational view of the game ball of FIG. **7**;

[0020] FIG. **9** is a cross-sectional view taken through the line **9-9** in FIG. **7**; and

[0021] FIG. **10** is a front elevational view of a stitchless game ball having simulated molded stitches in accordance with another embodiment of the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

[0022] Referring now to FIGS. **1-6**, an enhanced grip game ball according to one embodiment of the present invention is shown generally as **10**. Game ball **10** is a softball or baseball having a cover **12** that is formed from a pair of substantially identical panels **14** and **16**. Panels **14** and **16** are stitched together with thread **18** that passes through openings **19** (FIG.

5) in the panels to form a seam **20**. The panels **14** and **16** enclose an interior structure of the ball (not shown), which may be formed from any material or combination of materials. Preferably, the ball's interior structure is formed in the same manner as a conventional baseball or softball that is suitable for competitive use. However, it is within the scope of the invention for the ball's interior structure to be formed in any manner.

[0023] Referring to FIG. **4**, outer surfaces **14***a* and **16***a* of panels **14** and **16**, respectively, are formed from a first material, and a second material **22** is affixed to each of the outer surfaces **14***a* and **16***a* adjacent to seam **20**. The thickness of the second material **22** is exaggerated for clarity in FIG. **4**. The panels **14** and **16** may be constructed entirely from the first material, or the panels **14** and **16** may be formed from more than one material such that the first material which makes up the outer surfaces **14***a* and **16***a* of the panels **14** and **16** is applied, affixed, or otherwise joined to the material or materials that make up the remainder of the panels **14** and **16**. The second material **22** may comprise any type of material that is easier to grip than the first material which forms outer surfaces **14***a* and **16***a*. The second material **22** enhances a player's ability to grip the game ball **10** by presenting a surface surrounding the ball's seam **20** that is preferably tackier than the outer surfaces **14***a* and **16***a* which are formed from the first material, has a coefficient of friction, static or dynamic, that is greater than the first material, is textured, and/or has a lower hardness or durometer than the first material.

[0024] The first material that forms outer surfaces **14***a* and **16***a* may be any type of material but is preferably full grain leather, split leather, a synthetic polymeric material such as vinyl, polyurethane, polyvinylchloride, or blends thereof. As described above, panels **14** and **16** may be formed from more than one material, such as full grain or split leather coated with a polymeric material such as vinyl, polyurethane, polyvinylchloride, or blends thereof that forms the outer surfaces **14***a* and **16***a* of the panels. The second material **22** that is affixed to outer surfaces **14***a* and **16***a* is preferably ink, silicone enhanced ink, paint, adhesive, polyurethane, polyvinylchloride, rubber, leather, synthetic leather, elastomer, or combinations thereof.

[0025] The second material **22** may be applied to each outer surface **14***a* and **16***a* in any manner. For example, the second material **22** may comprise paint or ink that is applied to outer surfaces by silk screening, pad printing, coating, or spraying **14***a* and **16***a* and allowed to dry. The second material **22** may also comprise a strip or strips of material that are adhered, bonded, chemically bonded, or thermally bonded to outer surfaces **14***a* and **16***a*. The second material **22** may also comprise an ink that is first applied to the outer surfaces **14***a* and **16***a* and then is heated to permanently bond it to the outer surfaces **14***a* and **16***a*. Further, the second material **22** may be applied to the outer surfaces **14***a* and **16***a* after they are stitched together along seam **20**, or before they are stitched together as shown in FIGS. **5** and **6**.

[0026] It is also within the scope of the present invention for the second material **22** to be positioned in a recess that is formed in panels **14** and **16**. For example, the panels **14** and **16** may be skived, compressed, or otherwise reduced in thickness before the second material **22** is affixed to the reduced thickness portion of the panels **14** and **16**. Alternatively, the second material **22** may be affixed to the edges of panels **14** and **16** such that the second material **22** is positioned directly adjacent to the interior structure of the ball.

[0027] When a player's hand is in direct contact with ball **10**, the frictional interaction between the second material **22** and the player's hand is preferably greater than the frictional interaction between the first material that forms panel outer surfaces **14***a* and **16***a* and the player's hand. Further, the coefficient of friction of the second material **22** is preferably greater than the coefficient of friction of the first material. Preferably, both the dynamic and static coefficients of friction are greater for the second material **22** than for the first material. However, it is also within the scope of the invention for either the static or dynamic coefficient of friction to be greater for the second material **22** than for the first material. Preferably, the static coefficient of friction for the first material is between 0.75 to 1, and most preferably between 0.9 to 1. Preferably, the static coefficient of friction for the second material is between 1 to 1.4, and most preferably between 1.1 to 1.3. Preferably, the dynamic coefficient of friction for the first material is between 0.5 to 0.95, and most preferably between 0.75 to 0.95. Preferably, the dynamic coefficient of friction for the second material is between 0.95 to 1.2, and most preferably between 1 to 1.1.

[0028] The second material **22** may present a textured surface that enhances a player's ability to grip the game ball **10**. For example, the second material **22** may have a pebbled surface or have any other pattern of contours, protrusions or depressions that present a textured surface. If the second material **22** has protrusions, preferably the protrusions have a height that is less than the height of the stitching **18** on the ball, which is preferably between approximately 0.01 to 0.08 inches.

[0029] The second material **22** may also be easier to grip than the first material because the second material is tackier than the first material. For example, the second material **22** may be formed from an adhesive or any of the other materials referenced above that is tackier than the first material.

[0030] It is also within the scope of the invention for the second material **22** to have a lower hardness or durometer than the first material so that the second material **22** is easier to grip than the first material.

[0031] The second material **22** also preferably has a different color than the first material so that it is easier to determine the ball's rotation when it is thrown or pitched. Typically, players and coaches focus on the seams of a thrown ball in order to determine the ball's rotation, which can be indicative of the flight path that the ball will follow. Because the second material **22** is visually more prominent than the seams on a typical baseball or softball, it is easier for players and coaches to determine the rotation of ball **10** than the rotation of a typical softball or baseball. The ball **10** may be used for training pitchers and batters to spot the rotation of different types of pitches since it is easier to view the rotation of ball **10**. For instance, pitchers and pitching coaches can more easily see the rotation of ball **10** when it is pitched to determine and improve upon a pitcher's effectiveness. Ball **10** may also be used for training a batter to spot different types of pitches based on their rotation, which can help the batter anticipate a ball's flight path. The thread **18** that joins panels **14** and **16** is preferably the same color as the second material **22**. However, it is within the scope of the invention for the thread **18** to be a different color than the second material **22**. Preferably, the second material **22** has a color that is highly visible and that contrasts with the color of the first material to enhance vis-

ibility. Most preferably, the second material **22** is formed from a bright red or neon color that contrasts with the remainder of the ball **10**. If the ball **10** is for use in a competition that is sanctioned by a particular organization, preferably the second material is the color that is required by that particular organization. For example, the second material **22** is preferably blue if the ball **10** is a softball for use in an USSSA sanctioned competition, the second material **22** is preferably black if the ball **10** is a softball for use in a NSA sanctioned competition, and the second material **22** is preferably green if the ball **10** is a softball for use in an ISA sanctioned competition.

[0032] Ball **10** is particularly advantageous for use as a training aid because the second material **22** makes it easier for a player to grip the ball and because the second material **22**, when having a different color than the first material, makes it easier for a player or coach to determine the ball's rotation when thrown. However, it is also within the scope of the invention for ball **10** to be used as a competition baseball or softball if desired.

[0033] The shape of panel **14** is described herein with reference to FIG. **5**. Because panel **16** (FIG. **6**) is identical to panel **14**, its shape is not described in detail herein and it should be understood that the description of panel **14** herein also applies to panel **16**. Panel **14** is a generally planar sheet of material having a pair of circular ends **24** and **26** that are joined by a middle section **28** which has concave sides **30** and **32**. The second material **22** is affixed to a peripheral edge **33** of panel **14** and has a FIG. **8** shape that is defined by a pair of semicircular ends **34** and **36** that are each joined with a pair of opposed concave sides **38** and **40**. As described above, the second material **22** may be affixed to panels **14** and **16** either before or after they are stitched together. Further, if the second material **22** is affixed to edges of panels **14** and **16** such that the second material **22** is adjacent to the ball's interior structure, the second material **22** for each panel **14** and **16** may be stitched together.

[0034] As shown in FIGS. **5** and **6**, the second material **22** is positioned between the holes **19** and the peripheral edges of the panels **14** and **16** such that it is coextensive with the stitching **18** of the ball as shown in FIG. **1**. However, it is within the scope of the invention for the second material **22** to cover more or less of the panels **14** and **16** then shown in FIGS. **5** and **6**. The width of second material **22** on each of panels **14** and **16** is preferably between approximately 3 to 12 millimeters, more preferably between approximately 5 to 8 millimeters, and most preferably approximately 5 millimeters. Thus, when the panels **14** and **16** are joined together at seam **20** the total width of second material **22** is preferably between approximately 6 to 24 millimeters, more preferably between approximately 10 to 16 millimeters, and most preferably approximately 10 millimeters. The thickness of the second material **22**, or the distance from outer surfaces **14***a* and **16***a* to the top **22***a* of the second material **22**, as shown in FIG. **4**, is preferably between approximately 0.25 to 3 millimeters, and most preferably approximately 1.5 millimeters. Panels **14** and **16** may have any desirable thickness.

[0035] While game ball **10** is shown in FIGS. **1-6** as a baseball or softball formed from two panels **14** and **16** that are sewn together along a seam **20**, other types of game balls are within the scope of the present invention. For example, soccer balls, volleyballs, basketballs, and footballs having an easy to grip second material **22**, as described above, affixed to their outer surface adjacent to a seam are also within the scope of the present invention.

[0036] Referring now to FIGS. **7-9**, a second embodiment of game ball according to the present invention is shown generally as **110**. Game ball **110** has a stitchless cover **112** that is preferably molded. Stitchless, as used herein, encompasses a game ball that has simulated, molded stitches, as shown in FIG. **10** and described below. An outer surface **112***a* (FIG. **9**) of cover **112** is preferably formed from a first material. A second material **114** is affixed to the outer surface of cover **112** in the same location as the seam on a conventional baseball or softball that is formed from two panels which are stitched together, such as the ball **10** shown in FIGS. **1-6**. The second material **114**, when positioned on a planar surface, has the same shape as the shape of the second material **22** that is shown in FIG. **5**. Thus, the second material **114**, when positioned on a planar surface, comprises a continuous strip in the general shape of a FIG. **8** having two generally semicircular ends, one of which is shown as **116** in FIG. **8**, each integral with a pair of opposed concave sides **118** and **120**. Preferably, the second material **114** has a width of between approximately 6 to 24 millimeters, more preferably between approximately 10 to 16 millimeters, and most preferably approximately 10 millimeters.

[0037] The first and second materials of ball **110** have the same properties as the first and second materials of ball **10** and preferably are each formed from one of the materials listed above for the first and second materials of ball **10**. Most preferably, the first material making up the cover **112** of ball **110** is formed from thermoplastic polyurethane, polyurethane, rubber, ionomer, polyvinylchloride, or combinations thereof, which is molded over any type of interior structure to form a molded cover. The cover **112** of the ball **110** may also be formed from more than one material. For example, the cover **112** may comprise a backing material that is coated with one of the materials described above. The backing material may comprise a woven backing or be formed from full grain leather, split leather, or microfiber. The cover **112** may be injection molded over the interior structure of the ball. The cover **112** may also be formed from panels that are positioned over the ball's interior structure and thermally bonded to each other to present the outer cover **112**. Most preferably, the second material **114** is formed from an ionomer, rubber, ink, silicone enhanced ink, paint, adhesive, polyurethane, polyvinylchloride, leather, synthetic leather, elastomer, or combinations thereof. The second material **114** is preferably silk screened, pad printed, coated, sprayed, adhered, bonded, chemically bonded, thermally bonded, or molded to the cover **112**.

[0038] As described above with respect to ball **10**, the second material **114** of ball **110** also preferably has a different color than the first material for the purpose of making it easier to identify the ball's rotation when thrown.

[0039] It is also within the scope of the present invention for the second material **114** to be positioned in a recess that is formed in cover **112**. For example, the cover **112** may be skived, compressed, or otherwise reduced in thickness before the second material **114** is affixed to the reduced thickness portion of the cover **112**. Alternatively, the second material **114** may be integrally molded with the remainder of the cover **112** such that the second material **114** is positioned directly adjacent to the interior structure of the ball and forms the entire thickness of cover **112** where it is positioned.

[0040] Referring now to FIG. **10**, another embodiment of game ball according to the present invention is shown as **210**. Game ball **210** is substantially similar to game ball **110** except that game ball **210** has raised, molded protrusions **212** extending outward from the ball's cover **214** in the same location as the stitches on a conventional baseball or softball that is formed from two panels which are stitched together, such as ball **10** shown in FIGS. **1-6**. The protrusions **212** simulate the look and feel of the stitching on a conventional baseball or softball. Like game ball **110**, the cover **214** of game ball **210** is formed from a first material, and a second material **216** is affixed to the outer surface of cover **214** in the same location as the seam on a conventional baseball or softball that is formed from two panels which are stitched together.

[0041] The first and second materials of ball **210** have the same properties as the first and second materials of balls **10** and **110** and preferably are each formed from one of the materials listed above for the first and second materials of balls **10** and **110**. Most preferably, the first and second materials of ball **210** are formed from the same materials and in the same manner as described above with respect to ball **110**. The molded protrusions **212** on ball **210** may be formed from the same material as either the first or second material, or they may be formed from a different material. Further, the molded protrusions **212** may be integrally molded with cover **214** during the cover's molding process. As described above with respect to ball **10**, the second material **216** of ball **210** also preferably has a different color than the first material for the purpose of making it easier to identify the ball's rotation when thrown. The molded protrusions **212** may have the same color as the second material **216**. However, it is also within the scope of the invention for the protrusions **212** to have the same color as the first material or a different color.

[0042] From the foregoing it will be seen that this invention is one well adapted to attain all ends and objectives hereinabove set forth, together with the other advantages which are obvious and which are inherent to the invention.

[0043] Since many possible embodiments may be made of the invention without departing from the scope thereof, it is to be understood that all matters herein set forth or shown in the accompanying drawings are to be interpreted as illustrative, and not in a limiting sense.

[0044] While specific embodiments have been shown and discussed, various modifications may of course be made, and the invention is not limited to the specific forms or arrangement of parts and steps described herein, except insofar as such limitations are included in the following claims. Further, it will be understood that certain features and subcombinations are of utility and may be employed without reference to other features and subcombinations. This is contemplated by and is within the scope of the claims.

What is claimed and desired to be secured by Letters Patent is as follows:

1. A game ball, comprising:
- a molded stitchless cover comprising an outer surface at least a portion of which is formed of a first material molded over an interior structure of the ball to form a molded cover; and
- a second material affixed to said cover and positioned to mimic the pattern of a seam of a conventional baseball or softball, said second material being easier to grip than said first material.

2. The game ball of claim **1**, wherein said first material is formed from thermoplastic polyurethane, polyurethane, rubber, ionomer, polyvinylchloride, or combinations thereof

3. The game ball of claim **1**, wherein said second material has a coefficient of friction that is greater than said first material.

4. The game ball of claim **1**, wherein said second material is tackier than said first material.

5. The game ball of claim **1**, wherein said second material is textured.

6. The game ball of claim **1**, wherein said second material has a lower hardness or durometer than said first material.

7. The game ball of claim **3**, wherein said second material has a static coefficient of friction that is greater than said first material.

8. The game ball of claim **7**, wherein said first material has a static coefficient of friction between 0.75 to 1, and said second material has a static coefficient of friction between 1 to 1.4.

9. The game ball of claim **3**, wherein said second material has a dynamic coefficient of friction that is greater than said first material.

10. The game ball of claim **9**, wherein said first material has a dynamic coefficient of friction between 0.5 to 0.95, and said second material has a dynamic coefficient of friction between 0.95 to 1.2.

11. The game ball of claim **1**, wherein said second material has a different color than said first material.

12. The game ball of claim **1**, wherein said second material is ink.

13. The game ball of claim **1**, wherein said second material is affixed with adhesive or a chemical bond to said first material.

14. The game ball of claim **2**, wherein said second material comprises ink, silicone enhanced ink, paint, adhesive, polyurethane, polyvinylchloride, rubber, leather, synthetic leather, or an elastomer.

15. The ball of claim **1**, wherein molded raised protrusions are formed on said outer surface to simulate the stitches of a conventional baseball or softball.

16. The ball of claim **1**, wherein molded raised protrusions are formed on said second material to simulate the stitches of a conventional baseball or softball.

* * * * *