Sept. 2, 1952 H. T. WINTERBAUER 2,609,202

BALL AND METHOD OF MAKING IT

Filed Sept. 30, 1948 2 SHEETS—SHEET 1

Fig. 1

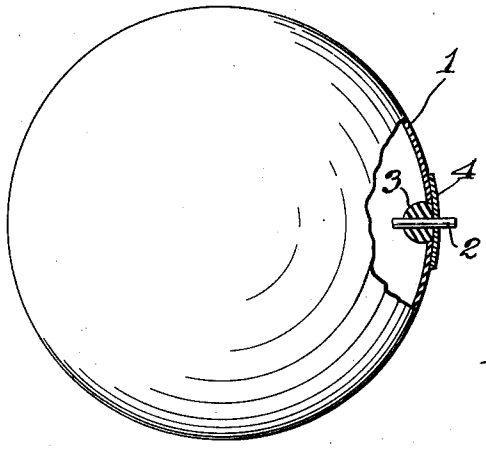


Fig. 2

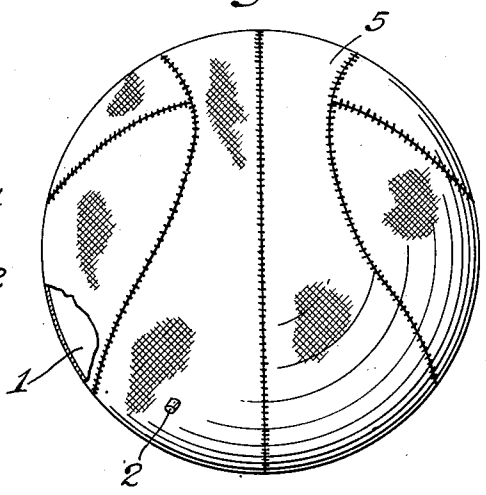


Fig. 3

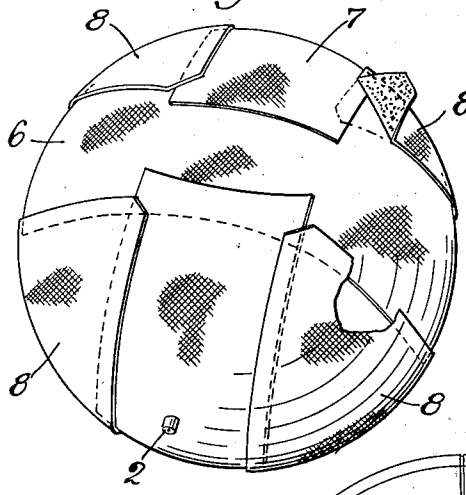


Fig. 4

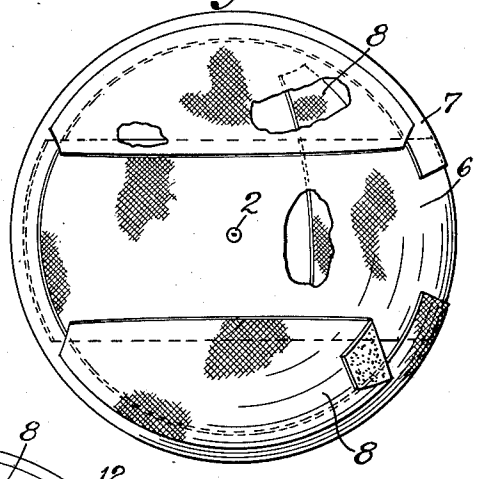
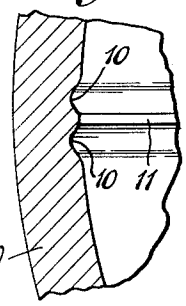


Fig. 6



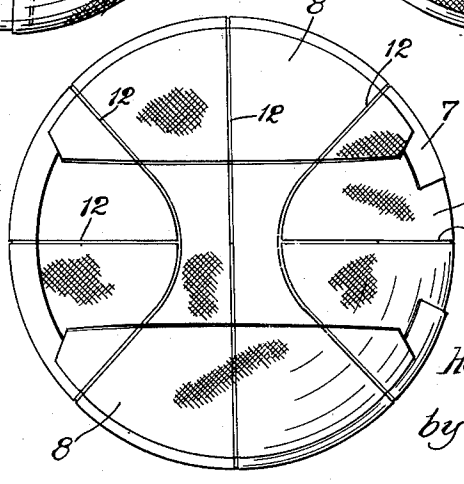


Fig. 5

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Fig. 7

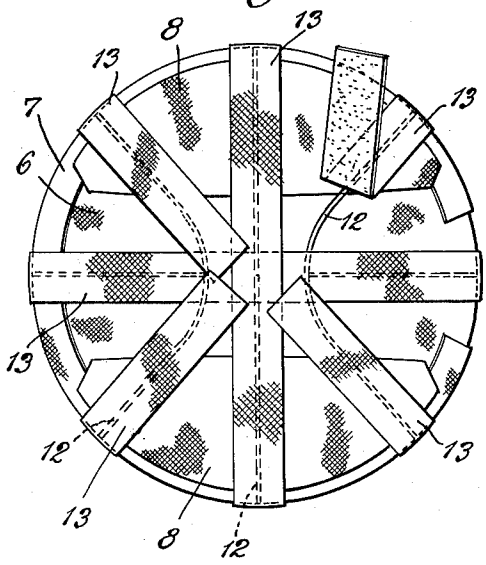


Fig. 8

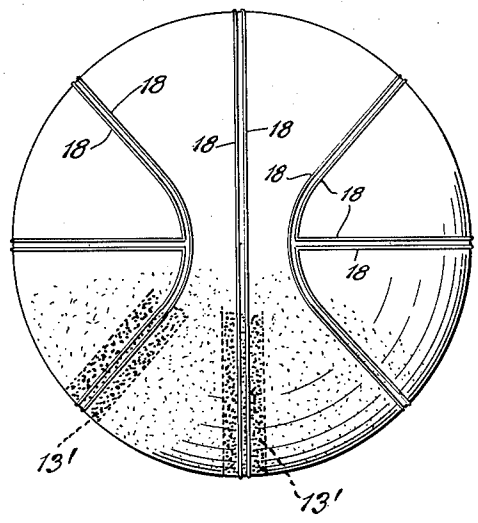


Fig. 9

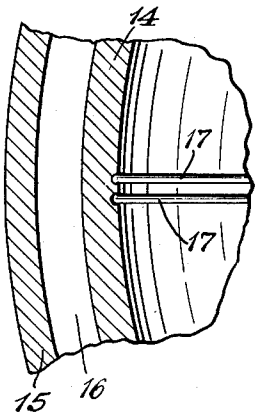


Fig. 11

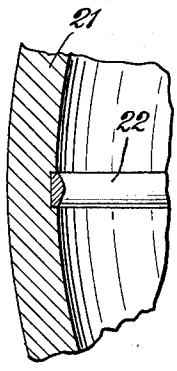
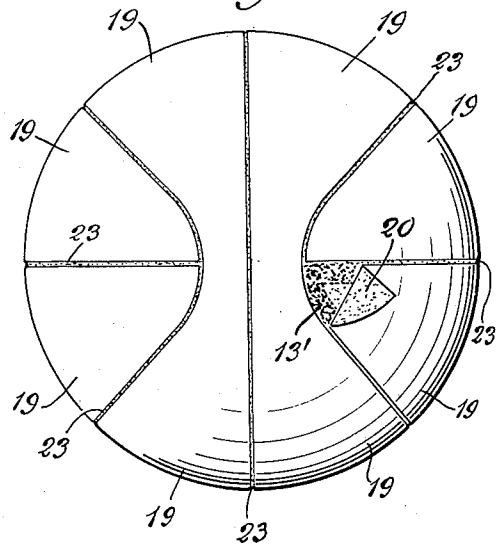


Fig. 10



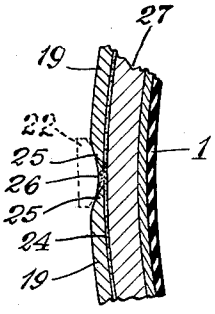


Fig. 12

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BALL AND METHOD OF MAKING IT

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Application September 30, 1948, Serial No. 52,098

13 Claims. (Cl. 273—65)

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This invention relates to a playing or game ball and has for one object to provide a ball and a method of making it.

Another object is to provide a ball which has or may have a leather surface and to provide a method for making a ball which insures the accurate spacing and positioning of leather surface members.

Another object is to provide a method of making a reinforced playing ball and to provide means for forming the space intermediate the leather surface members, to provide for accurate positioning of the surface members and to provide for an overlapping or sealing of the edges of the surface members.

Other objects will appear from time to time throughout the specification and claims.

This invention is illustrated more or less diagrammatically in the accompanying drawings, wherein:

Figure 1 illustrates a bladder for a ball with parts shown in elevation and parts in section and parts broken away;

Figure 2 is a side elevation illustrating the ball of Figure 1, with the preliminary or first cover in place;

Figure 3 is a side elevation illustrating the ball with one layer of covering strips in place;

Figure 4 illustrates the ball with additional layers of covering strips in place;

Figure 5 is a side elevation of the ball after all of the covering strips have been put in place and after the ball has been initially shaped by molding;

Figure 6 is a section through a portion of a mold in which the ball of Figure 6 is treated;

Figure 7 is a side elevation of the ball of Figure 5 after the tapes have been put in place at the spaces where cover members will approach each other;

Figure 8 is a side elevation of the ball of Figure 7 after it has been subjected to pressure and heating in a mold;

Figure 9 is a fragmentary section illustrating the mold used to produce the ball in the condition shown in Figure 8;

Figure 10 is a side elevation of the ball after leather or other covering members have been put in place;

Figure 11 is a fragmentary section of a mold into which the ball of Figure 10 is put for finishing; and

Figure 12 is a diagrammatic sectional detail on an enlarged scale of a portion of the completed ball.

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Like parts are indicated by like characters throughout the specification and the drawings.

In Figure 1 a bladder 1 is shown. It may have a filling connection 2 of any conventional type. The filling connection has a pressure member 3 positioned about it and a reinforcing member 4 may be positioned about the filler connection. The bladder and filler connection are conventional and their details form no essential part of the present invention. A bladder of this sort may be filled by inserting a needle through the connection 2 and by forcing gas under pressure through the needle. When the needle is removed pressure from within the bladder compresses the filler connection and prevents the discharge of gas or air.

As shown in Figure 2 a covering or coating 5 has been put in place over the bladder. This coating may be formed of rubberized material. It is conveniently sewn into shape and is fitted over the bladder while the latter is inflated.

As shown in Figure 3 a number of strips or sections of rubberized fabric have been put in place over the ball of Figure 2. The covering of Figure 3 includes strips 6 and 7 and segmental members 8. Any desired number of layers of covering members such as shown in Figures 3 and 4 may be applied. One or more layers may be used. Preferably the material is rubberized and after it has been initially put in place it is vulcanized by a heated tool or by being put into a mold and subjected to heat and, if desired, pressure. For the initial assembly of the members 6, 7 and 8 a heated tool may be used to fasten the members initially in place. When the desired number of layers has been put in place, the entire ball is preferably subjected to pressure and the mass of layers of members 6, 7 and 8, as well as the coating 5, is pressed into a unit.

As shown in Figure 4 the strips and segments are the same as those shown in Figure 3 and the same numbers are applied to them.

After the ball has been completed to the form of Figure 4, it is placed in a mold. The mold may comprise a wall 9 and it is provided with rows of parallel depressions 10, 10. Each pair of depressions 10 produces a raised portion 11 between them. The raised portion 11 is at the same level as the body of the mold but is higher than the depressions formed at 10, 10.

After the ball has been treated in the mold, it assumes the form shown in Figure 5, with a pattern of lines 12, 12. The depressions 10 in the mold are shaped to define generally the spaces or areas upon which the surface members are

finally to be placed, and the lines 12 of the ball serve thus as spacing and indicating members for the application of the surface parts or members.

As shown in Figure 7, the ball of Figure 5 has been modified by the addition of narrow tape-like members 13. These are placed generally to overlie the lines 12, 12. They may be of any desired color. Generally they will be of a color contrasting with the color of the surface member so that the open spaces between the edges of adjacent surface members will have a distinctive color. Preferably, although not necessarily, the tapes 13 are of a color which contrasts with the remainder of the surface of the ball at the time that they are required. Almost any color may be used, and the invention is not limited to any particular color.

After the tapes 13 have been put in place, the ball is again put into a mold and subjected to heat and pressure. The tapes will initially have been cemented in place by a rubber or rubber-like cement and the heat and pressure applied in the mold will have vulcanized or solidified the cement. The mold which renders the ball into the condition shown in Figure 8 is illustrated diagrammatically in Figure 9. It may include the inner spherical wall 14 and an outer jacket member 15 between which is provided a steam space 16. The inner mold or wall 14 is provided with pairs of parallel grooves 17, 17. These grooves produce corresponding raised ribs 18, 18, as shown in Figure 8. After the ball of Figure 8 is vulcanized in the mold of Figure 9, it is preferably covered over all with a rubber cement and thereafter an extra heavy layer of rubber cement is laid on the pattern defined generally by the tapes 13 and the ribs 18. This layer of extra heavy cement is indicated at 13' in Figure 8.

As shown in Figure 10 the ball in the form of Figure 8 has had applied to it a plurality of surface members 19. These members may be of leather or comparable material and are shaped to fit the spaces defined by the ribs or raised portions 18, 18. They are preferably initially held in place by rubber cement indicated at 20 in Figure 10. When the ball has been formed as shown in Figure 10, with the surface members 19 cemented in place, it is put into a mold and is again subjected to pressure and, if desired, to heat.

Figure 11 illustrates a fragmentary sectional view of a mold suitable for receiving a ball in the form shown in Figure 10. As there shown, the mold comprises a wall 21 within which are formed projecting rib-like members 22. These will be placed or formed on the interior of the wall 21 in conformity with the pattern of the ball, as shown in Figure 10, so that a member 22 is positioned over each of the lines 23 formed by the adjacent edges of cover members 19.

Figure 12 illustrates on an enlarged scale the details of the construction of the ball in completed form. There are shown in that figure the bladder 1, the first cover member 5, a layer of the various members 6, 7, 8 and 13. Since in the finished ball these members have been vulcanized or otherwise formed into a cohesive mass, this mass is designated in Figure 12 by the single numeral 27. On the exterior of the mass 27 the leather surface members 19 are mounted and they are held in place by the layer of rubber cement 24. The edges of the members 19 are reduced in thickness, as at 25, and an area of cement projects upwardly, as at 26, to extend above the edges of the leather cover members and to some degree to overlie them. This produces a strong construction and one in which the cement secures the edges of the leather members 19 particularly.

Obviously under conditions of hard wear the tendency of the cover members 19 to become loosened and displaced is greatest at their edges. Hence it is important to provide means for positively holding these members at their edges. As a result of the construction shown the surface members are not merely cemented to the ball over their entire inner faces, but the cement extends outwardly beyond the thickness of the edges and to some degree overlies the extreme edge portions and thus serves doubly to hold the surface members against displacement.

The ball itself as formed is of uniform thickness, and the ball or carcass of the ball is free from seams which project inwardly or outwardly. Under some conditions the seams of the coating 5 may deform the bladder 1 inwardly slightly, but with this exception the thickness of the carcass is uniform and free from inward or outward projections. This produces a ball of good quality and one which because of its uniformity of cross section can be made accurately spherical and will retain that shape for a long period.

Although I have shown an operative form of my invention, it will be recognized that many changes in the form, shape and arrangement of parts can be made without departing from the spirit of the invention, and my showing is therefore to be taken as, in a sense, diagrammatic.

I claim:

1. In combination in a playing ball, an airtight bladder, a body formed thereabout, and an outer coating formed of a plurality of surface members, cement positioned upon the outer surface of said body and holding said surface members in place, the edges of adjacent surface members being tapered so as to be substantially thinned and separated from each other to define areas of separation, the said cement extending across said areas of separation and extending outwardly away from the body of said ball and upwardly along the edges of said surface members and overlying said edges.

2. In combination in a playing ball, an airtight bladder, a body formed thereabout, and an outer coating formed of a plurality of surface members, cement positioned upon the outer surface of said body and holding said surface members in place, the edges of adjacent surface members being tapered so as to be substantially thinned and separated from each other to define uniform areas of separation, the said cement extending across said areas of separation and extending outwardly away from the body of said ball and upwardly along the edges of said surface members and overlying said edges.

3. In combination in a playing ball, an airtight bladder, a multi-layer body formed thereabout, and an outer coating formed of a plurality of surface members, cement positioned upon the outer surface of said body and holding said surface members in place, the edges of adjacent surface members being tapered so as to be substantially thinned and separated from each other to define areas of separation, the said cement extending across said areas of separation and extending outwardly away from the body of said ball and upwardly along the edges of said surface members, and terminating well below the outer surface of said surface members.

4. In combination in a playing ball, an airtight bladder, a multi-layer, unitary body formed thereabout, and an outer coating formed of a plurality of surface members, cement positioned upon the outer surface of said body and holding said surface members in place, the edges of adjacent surface members being tapered so as to be substantially thinned and separated from each other to define uniform areas of separation, the said cement extending across said areas of separation and extending outwardly away from the body of said ball and upwardly along the edges of said surface members and overlying said edges, and terminating below the outer surface of said surface members.

5. The method of making a playing ball which includes the following steps: preparing an air-impervious bladder, inflating said bladder, applying to said bladder a cover, thereafter successively applying a plurality of layers of material outside said cover, said layers being formed of rubberized fabric and comprising strips so applied that each such strip is positioned substantially at right angles to the strips above and below and comprising segmental members positioned in the area not covered by said strips, vulcanizing the said layers together under heat and pressure to form a unitary covering for said ball, and simultaneously forming on the exterior of said ball a pattern of lines, subsequently applying narrow strips of material along said lines, and finally forming a pattern of projecting lines on the exterior surface of said ball, thereafter cementing to the exterior surface of said ball a plurality of surface members with spaced apart edges, and causing the cement used in said cementing to fill the space between adjacent edges of said surface members.

6. The method of making a playing ball which includes the following steps: preparing an air-impervious bladder, inflating said bladder, applying to said bladder a cover, thereafter successively applying a plurality of layers of material outside said cover, said layers being formed of rubberized fabric and comprising strips so applied that each such strip is positioned substantially at right angles to the strips above and below and comprising segmental members positioned in the area not covered by said strips, vulcanizing the said layers together under heat and pressure to form a unitary covering for said ball, and simultaneously forming on the exterior of said ball a pattern of lines, subsequently applying narrow strips of material along said lines, and finally forming a pattern of projecting lines on the exterior surface of said ball, thereafter cementing to the exterior surface of said ball a plurality of surface members with spaced apart edges, and causing cement to fill the space between adjacent edges of said surface members and to extend outwardly beyond said edges.

7. The method of making a playing ball which includes the following steps: preparing an air-impervious bladder, inflating said bladder, applying to said bladder a cover, thereafter successively applying a plurality of layers of material outside said cover, said layers being formed of rubberized fabric and comprising strips so applied that each such strip is positioned substantially at right angles to the strips above and below and comprising segmental members positioned in the area not covered by said strips, initially securing each layer in place by heat, vulcanizing the said layers together under heat and pressure to form a unitary covering for said ball, and

simultaneously forming on the exterior of said ball a pattern of lines, subsequently applying narrow strips of material along said lines, and vulcanizing said strips in place, and finally forming a pattern of projecting lines on the exterior surface of said ball, thereafter cementing to the exterior surface of said ball a plurality of surface members with spaced apart edges, and causing cement to fill the space between adjacent edges of said surface members.

8. The method of making a playing ball which includes the following steps: preparing an air-impervious bladder, inflating said bladder, applying to said bladder a cover, thereafter successively applying a plurality of layers of material outside said cover, said layers being formed of rubberized fabric and comprising strips so applied that each such strip is positioned substantially at right angles to the strips above and below and comprising segmental members positioned in the area not covered by said strips, vulcanizing the said layers together under heat and pressure to form a unitary covering for said ball, and simultaneously forming on the exterior of said ball a pattern of lines, subsequently applying narrow strips of material along said lines, and finally forming a pattern of projecting lines on the exterior surface of said ball, thereafter cementing to the exterior surface of said ball a plurality of surface members with spaced apart edges, said surface members shaped to conform to the pattern provided by said parallel lines, and causing cement to fill the space between adjacent edges of said surface members.

9. The method of making a playing ball which includes the following steps: preparing an air-impervious bladder, inflating said bladder, applying to said bladder a cover, thereafter successively applying a plurality of layers of material outside said cover, said layers being formed of rubberized fabric and comprising strips so applied that each such strip is positioned substantially at right angles to the strips above and below and comprising segmental members positioned in the area not covered by said strips, vulcanizing the said layers together under heat and pressure to form a unitary covering for said ball, and simultaneously forming on the exterior of said ball a pattern composed of parallel lines, subsequently applying narrow strips of material along said lines, and vulcanizing said strips in place, and finally forming a pattern of parallel projecting lines on the exterior surface of said ball, thereafter cementing to the exterior surface of said ball a plurality of surface members with spaced apart edges, said surface members shaped to conform to the pattern provided by said parallel lines, and causing cement to fill the space between adjacent edges of said surface members.

10. The method of making a playing ball which includes the following steps: preparing an air-impervious bladder, inflating said bladder, applying to said bladder a cover, thereafter successively applying a plurality of layers of material outside said cover, said layers being formed of rubberized fabric and comprising strips so applied that each such strip is positioned substantially at right angles to the strips above and below and comprising segmental members positioned in the area not covered by said strips, vulcanizing the said layers together under heat and pressure to form a unitary covering for said ball, and simultaneously forming on the exterior of said ball a pattern composed of parallel lines, subsequently applying narrow strips of material along said

lines, and vulcanizing said strips in place, and finally forming a pattern of parallel projecting lines on the exterior surface of said ball, thereafter cementing to the exterior surface of said ball a plurality of surface members with spaced apart edges, said surface members shaped to conform to the pattern provided by said parallel lines, and completing said ball by vulcanizing it under heat and pressure, and causing cement to fill the space between adjacent edges of said surface members and to extend outwardly beyond said edges.

11. The method of making a playing ball which includes the following steps: preparing an air-impervious bladder, inflating said bladder, applying to said bladder a cover, thereafter successively applying a plurality of layers of material outside said cover, said layers being formed of rubberized fabric and comprising strips so applied that each such strip is positioned substantially at right angles to the strips above and below and comprising segmental members positioned in the area not covered by said strips, vulcanizing the said layers together under heat and pressure to form a unitary covering for said ball, and simultaneously forming on the exterior of said ball a pattern of lines, subsequently applying narrow strips of material along said lines, said strips being of a color contrasting with the remainder of the ball, and finally forming a pattern of projecting lines on the exterior surface of said ball, thereafter cementing to the exterior surface of said ball a plurality of surface members with spaced apart edges, and causing cement to fill the space between adjacent edges of said surface members.

12. The method of making a playing ball which includes the following steps: preparing an air-impervious bladder, forming the ball of a body thereabout, cementing surface members on the exterior of said body with the adjacent edges of said surface members separated and tapered so as to be substantially thinned, causing the cement which holds said surface members in place to flow outwardly beyond the edges of said surface members.

13. The method of completing a playing ball which includes the following steps: cementing surface members on the exterior of a ball body with the adjacent edges of said surface members separated and tapered so as to be substantially thinned, and causing the cement which holds said surface members in place to flow outwardly beyond the edges of said surface members.

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