March 26, 1940. J. T. RIDDELL 2,194,674

FOOTBALL

Filed Aug. 29, 1938

Fig. 1

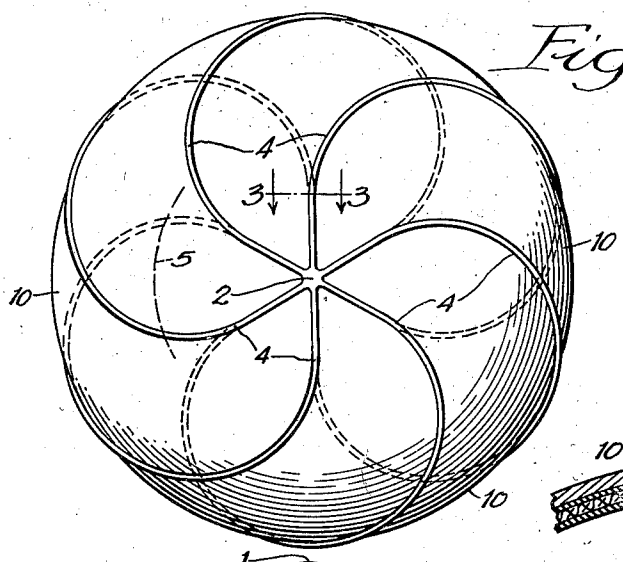


Fig. 2

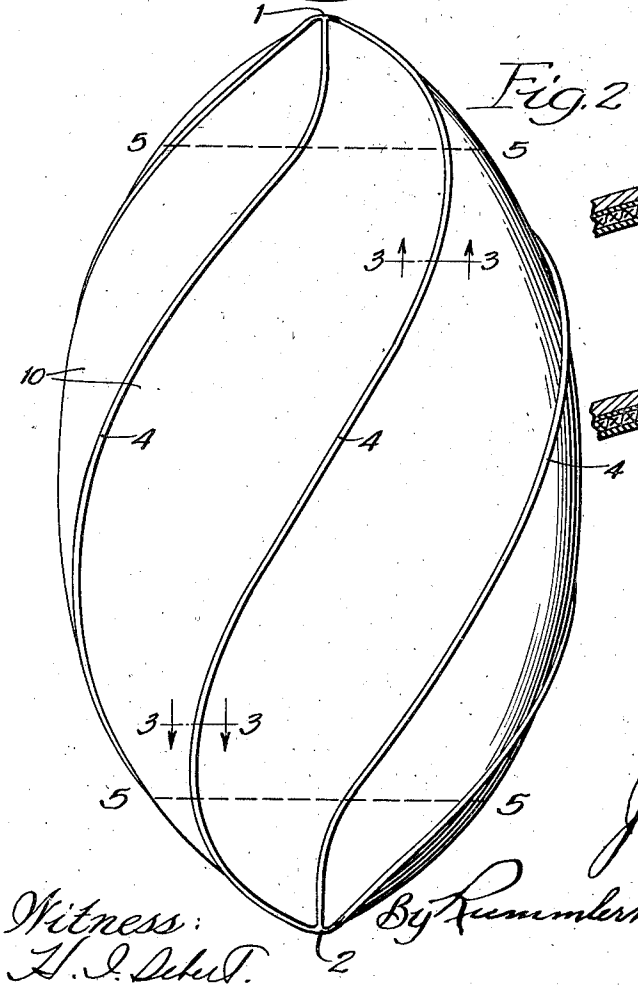


Fig. 3

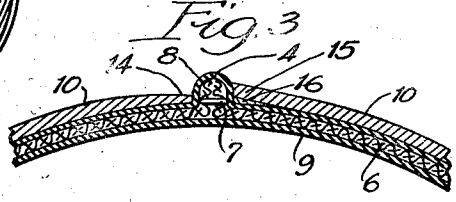


Fig. 4

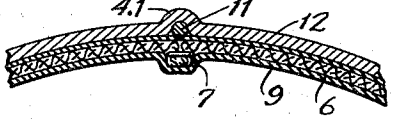
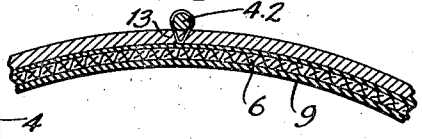


Fig. 5



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2,194,674

FOOTBALL

John T. Riddell, Chicago, Ill.

Application August 29, 1938, Serial No. 227,291

2 Claims. (Cl. 273—65)

This invention relates to playing balls, and particularly to elongated spheroidal balls such as are used in the game of football.

The main object of this invention is to provide an improved form of football closely resembling the usual spheroidal form, but equipped with fins or ridges projecting from its outer surface in the form of helicoids disposed in the direction of its major axis, whereby the ball may be thrown so that its passage through the air will maintain a spinning movement in flight.

A further object is to provide a plurality of such fin-like surface ridges in such relative arrangement with respect to each other as to facilitate the player's grasping the ball in one hand with some degree of security in such plays as passing, catching and throwing the ball.

A specific embodiment of this invention is shown in the accompanying drawing, in which:

Figure 1 is an end view of a spirally ribbed football constructed according to this invention.

Fig. 2 is a side view of the same.

Figs. 3, 4 and 5 are sectional details showing different specific methods of construction for producing the ribbed effect on a leather-covered football.

In the form shown, the ball has the general contour of a spheroidal surface of revolution, of which its major axis, the line connecting the pole points 1 and 2 is slightly less than twice the diameter of its transverse mid section. Extending over the exterior surface and projecting outwardly beyond the spheroidal contour of the ball are a plurality of helicoidal spiral fin-like ridges that are arranged at equidistant angular intervals about the major axis. In forming these ridges it is preferred to have them run helicoidally about the surface so as to as closely approximate a screw thread of uniform pitch as is possible with the changing diameters of the surface of revolution upon which they are laid. This uniformity of pitch is maintained throughout the greater medial part of the length of the ball, as for example, between the lines 5—5 of Fig. 2, or the corresponding small circles 5 in Fig. 1. Between the lines 5 and the pole points 1 and 2 the lateral curvature of the ribs is more abrupt so as to merge into radial or meridian lines meeting each other at the pole points.

It is apparent that the spiral ridges might be made in various ways, as for example, in the form shown in Fig. 3, a rubberized canvas carcass 6 is formed with upstanding seams 7 covered by a layer of latex 8 applied in such manner as to form a soft solid round-crested rib. The carcass is inflated in the usual manner by a bladder 9 and its outer surface between the ribs is covered by casing sections of leather 10, each shaped to conform with the surface area of the ball that is bounded by adjacent pairs of ridges 4 and cemented to the surface of the carcass with its marginal edges abutting against the sides of the ridges 4. This form of construction is described and claimed in my copending application, Serial No. 225,319, filed August 17, 1938.

In the type of construction represented by the section shown in Fig. 4, the rib 4.1 is formed by applying spirally laid cords 11 to the surface of the carcass, either along the grooves formed by an inwardly-turned seam or elsewhere on the surface of the carcass, and applying the leather casing 12 to the exterior of the ball without necessarily having the lines of its section edges conform with those of the ridges. Such a construction is described and claimed in my Patent No. 2,129,238 of September 6, 1938.

A still further modification is illustrated in Fig. 5, wherein the spiral rib is a separately formed cord or bead strip 4.2 that is laid upon and attached as by stitching 13 to the surface of the ball without affecting the structural details of the casing.

With balls of present day standard dimensions, the spiral ridges enable the player to grasp the ball in one hand applied somewhere between the end and middle of the ball. In certain plays it is desirable to have the ball travel endwise through the air and to spin on its major axis. The spiral ridges facilitate such movement and tend to keep the ball on its intended course.

With this objective in view the spiral should as nearly as possible conform to the movement of point travelling along its surface at a uniform axial speed and simultaneously travelling around the axis at a uniform angular speed.

Such a spiral approximates a helix in the greater part of the medial portion of the ball but of course departs widely from a helix in the immediate vicinity of the poles. For structural reasons the margins of the casing sections conform to radial sector lines near the poles and are gradually merged with the helicoidal ridge lines in the vicinity of the reference lines 5 of Figs. 1 and 2.

In the sectional detail shown in Fig. 3, the marginal portion of the inner face along one side of each leather casing section or panel 14 is skived to tapered form while the other side 15 is retained in its full thickness and may be raised by filler 16. This construction has the

effect of positioning the casing surface areas at opposite sides of the ridges at respectively different levels with respect to the crests of the ridges and causing the ribs to present more resistance to the air on one side than on the other as the ball travels endwise through the air, thus tending to augment the spin of the ball.

With respect to each individual ridge the high and low sides of the ridge are at respectively opposite sides of the ridge at respectively opposite ends of the ball as is indicated by the arrows on the section lines 3—3 of Fig. 2, so that if the ball is designed for example for spinning to the right when thrown, the ridges will have the same effect regardless of which end of the ball is turned to the front.

It will be understood that details of the construction illustrated may be modified or omitted without departing from the spirit of this invention as defined by the following claims:

I claim:

1. A playing ball of elongated spheroidal form having a casing with one or more outstanding fin-like surface ridges extending spirally in the direction of its major axis, the adjacent outer surface areas of the casing at opposite sides of said ridges being positioned at respectively different levels with respect to the crests of said ridges and causing the ridges to present greater resistance to rotation in one direction than in the other.

2. A play ball of oblong spheroidal shape having a casing with outstanding fin-like surface ridges extending spirally in the direction of its major axis, the adjacent surface marginal areas of the casing being at materially different levels relative to the crests of said ridges, being low on the polar side and relatively high on the equatorial side.

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