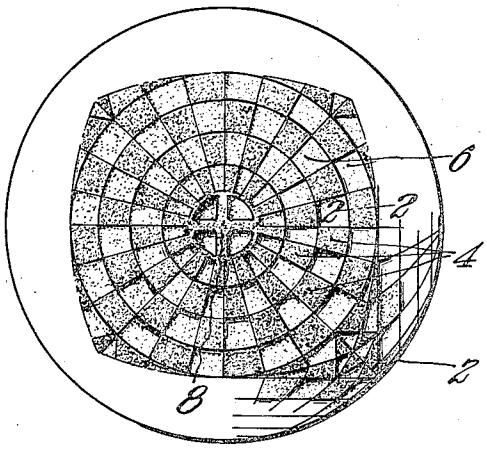
Feb. 1, 1938. H. K. B. DAVIS 2,106,704

GOLF BALL

Filed Feb. 20, 1936

Fig. 1.



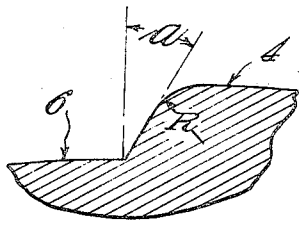


Fig. 2.

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GOLF BALL

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2 Claims. (Cl. 273—62)

This invention relates to improvements in golf balls and is directed more particularly to the provision of a novel surface for a golf ball.

It is one of the principal objects of the invention to provide a golf ball which has an outer surface formed in a novel manner so that it is possible to achieve greater distance of flight than is possible with golf balls at present used. That is to say, I have found that my new ball will travel a greater distance when struck with a club than will any of the golf balls now in use when struck with the same amount of force and in the same manner.

It is another object of the invention to provide a ball having a surface of such a character as to bring about greater controllability. That is to say, with my new surface construction it is possible for the player to have more control over the direction and travel-distance of the ball as well as control of the amount of back-spin, etc.

It is another object of the invention to provide a golf ball which is of usual size and material, according to the standards set by the United States Golf Association, for example, but which has the added advantage of at least appearing to be of greater size than the balls now commonly used. As is obvious, it is desirable from the player's point of view, at least, that the ball preferably be easy to see and be of such a nature as to facilitate the player's keeping his eye on the ball. It is for that reason that most golf balls are painted white, for example, and it is one of the advantages of the golf ball of my invention that while it is not different than others in this respect, it is so formed as to create what may be called an optical illusion, if so desired, so that it at least appears to the naked eye to be of greater diameter than it actually is and is therefore of course easier to hit.

Various other novel features and advantages of the invention will become more apparent after a reading of the following description of the present preferred form thereof, reference being had to the accompanying drawing wherein:

Fig. 1 is a plan view of the golf ball of the invention; and

Fig. 2 is a sectional view on the line 2—2 of Fig. 1.

Referring now to the drawing in detail, my invention will be now fully described.

In Fig. 1 there is shown a golf ball 2 in the general form of a sphere, as is usual. The ball may be formed of various materials, of course, and the particular internal construction of the ball is not an important part of this invention.

However, it is desirable that the ball be of more or less standard size since when the ball is to be used in official tournaments, at least, certain specifications as to size must perforce be complied with. As will presently appear, while my new ball conforms to these specifications in every respect, its distinctive formation tends to render the ball easier to see so that the user thereof has the advantage over the users of the ordinary ball.

The manufacture of golf-balls has come, within the past few years, to be more or less of a science and much attention has been paid to the surface thereof. That is, it has been commercially necessary to construct balls which will fly as far as possible without wobbling or wavering and which at the same time may be kept under the control of the player as much as possible; that is, may be hit without skidding either on the club or on the ground and with or without back-spin, as desired.

While the internal construction of a ball is important, of course, it is also important to form the outside of the sphere so that best results may be attained since it is known that no appreciable distance can be obtained with a perfectly smooth sphere.

It is desirable therefore that the surface may be roughened in order to attain the desired controllability and distance. This has been done by providing a plurality of spaced-apart depressions in the surface. I have discovered, however, that if the depressions are too deep or not deep enough, the desired distance and proper degree of controllability can not be attained, but that in order to cut down air resistance as much as possible without sacrificing distance and controllability a not-too-rough surface is preferable.

It is believed to be desirable here to refer to the formation of the golf-balls now most commonly used, namely the so-called "mesh" and "dimpled" balls. The mesh ball has a roughened surface formed by providing a plurality of continuous raised bands extending around the ball, some horizontally and some vertically, and, of course, crossing one another in the manner of a mesh so as to provide relatively depressed portions surrounded by raised portions. It is to be noted that these bands are commonly of the same width throughout their length and are crossed a number of times throughout their length by a plurality of other bands of the same width.

The so-called dimpled ball is molded into a true sphere but has a plurality of more or less equally spaced concave circular depressions thereon surrounded by raised portions. This ball also has

continuous raised bands extending both horizontally and vertically around the ball but the bands are not of the same width throughout their length since, as is obvious, the bands of the dimpled ball have outwardly curving portions extending away and around the circular indentations. In both cases the raised portions are all joined together so that the total area of the raised portions is considerable and constitutes a generally continuous raised part.

I have found that these balls tend to skid on the club and do not stop as quickly as is desirable on a back-spin shot and one reason for this appears to be the continuous bands or generally continuous raised portion. Furthermore, it has been usual to cut depressions in these balls between .0125 and .0145 of an inch since only in this way can the desired distance, steadiness and controllability be approximated.

As will presently appear, the novel surface of my golf-ball more nearly approximates a smooth surface, to thereby cut down air resistance. At the same time the surface is roughened to provide controllability without sacrifice of steadiness or distance. I have found that with the surface construction of this invention the depressions may be as shallow as from .006 to .008 of an inch and actual tests have shown the balls to be superior to prior art balls in respect to distance and controllability and other characteristics.

It is also one of the common objections of prior art golf balls that they not only may have depressions which are too deep, but that the depressions are too angular and have sharp corners. The sharp corners are readily broken down as the ball is used and since it is customary to either enamel or paint the balls after molding, it will be obvious that if the corners are too sharp, the enamel or paint is very likely to be chipped off which, of course, is objectionable.

To this end, I form the surface of the ball so that the corners of the marginal edges of the raised portions are more or less rounded, as will be described, and I have found for the most desirable results that the radii of these curvatures depend somewhat upon the depth of the adjacent depressions as well as the angle of the marginal sides of the depressions.

I accomplish these and other objects by constructing the ball so that it has a distinctively-formed outer surface which has, I believe, as one advantage, less wind-resistance than balls now commonly used, and which, in addition, makes it possible for the player to attain more accurate control over the ball's direction when struck. It is usual to form the outer cover, at least, of a golf-ball by a molding process and my golf ball may be made in this way, although the resulting product is more important than the particular manner in which it is obtained.

As shown in Fig. 1 of the drawing, I provide on the surface of a sphere **2** a plurality of rows of alternately depressed and raised portions, **4** and **6** respectively. That is to say, the surface of the sphere is formed to be more or less like a checker-board with depressed portions spaced in the manner of the red squares of a checker-board and raised portions positioned relatively thereto in the manner of the black squares.

However, as will presently appear, there are certain features of my ball which are novel over a checker-board-effect, one of the more important of which is that the portions **4** and **6** are not all of the same size as is the case with the spaces of a checker-board.

The surfaces of the prior art balls are in distinct contrast with my ball for a number of reasons.

In this case there are no continuous raised bands extending around my ball, but, instead, a continuous relatively straight path taken around the ball consists of alternate raised and depressed portions. In other words the surface is broken up to a greater extent than prior art balls.

According to this invention, the greater part of the plurality of raised and depressed portions **4** and **6** are formed to be of greater width at one end than the other. This is preferably arranged by forming the portions **4** and **6** so that they each have four sides with one pair of opposite sides of substantially equal length, but converging towards one another, and with the other pair of opposite sides of unequal length, as is obvious.

The sphere **2** is also formed to have six poles **8**, all substantially equally spaced from one another, and, according to this invention, the surface of the ball is divided into six panels with each panel having one of the poles as its approximate center, as shown in Fig. 1. Then, each panel is formed to have a plurality of rows of alternately arranged raised and depressed portions above described, the rows extending radially and concentrically relative to the control pole.

For purposes of description, one panel is shown in Fig. 1. Preferably a plurality of rows of adjacently-disposed raised and depressed portions **4** and **6** extend outwardly from the pole **8** of each panel towards the outer edges of the panel with their narrower sides innermost, as shown. It will be seen that extending outwardly from the outermost side of each raised portion **4**, for example, is a depressed portion **6**, with the narrower side of the latter adjacent the wider side of the former. Preferably the opposite equal sides of the portions of a row are in alignment as shown.

Of course, with this arrangement, it is obvious that the areas of the portions **4** and **6** of a panel are greater farthest from the pole **8**, of the panel in which they are contained, than those nearest the pole. That is, the radially extending rows just described diverge in width outwardly so that the portions are of gradually increasing size.

I have found that this effect tends to give to the ball a greater capacity for travel as well as facilitates the obtaining of a greater degree of control over the ball by the player. I also have found, particularly where the surface formation which I have just described is provided around each pole of the ball, that the ball is easier to see and is, therefore, easier to strike with a club.

Especially is this so when the player places the ball on the tee in such a way that a pole **8** is squarely in the line of vision so that the player's eye is concentrated on a panel with the pole **8** exactly in the center and diverging rows radially extending therefrom. It will be seen then that not only does this construction break down wind resistance and facilitate accuracy in control of the ball but it makes it easier for the player to keep his eye on the ball.

It is, of course, desirable that the ball be uniform on all sides in order to prevent wobbling. It is obvious then that since, as stated, the portions **4** and **6** are not of the same area, but of different areas, that the surface of the sphere must be divided up into several equal areas having substantially the same number of portions **4** and **6** and formation of rows. Otherwise, the ball would be out of balance and this is one of the reasons

why I provide what I call panels, one each around each pole 8, with the alternate depressed and raised portions 4 and 6 of each area extending radially from the pole thereof preferably in the same manner.

Now I provide in each panel, as stated, a plurality of these rows just described extending radially of the pole and with the portions 4 and 6 thereof gradually increasing in area. These rows are adjacent to one another and are staggered relative to one another, as shown.

That is to say, the raised portions 4 of one row are opposite the depressed portions 6 of the rows on opposite sides thereof. Thus, it will be seen, there are constructed a plurality of concentric rows of alternate depressed and raised portions 4 and 6 which are disposed concentrically of the pole 8.

The areas of the portions 4 and 6 of each of these concentric rows are equal, with the areas of the outermost rows greater than the areas of the innermost rows. This concentric row formation does, I have found, tend to increase the flight of the ball and further prevents its wobbling.

As has been before mentioned, the raised and depressed portions 4 and 6 are preferably formed to have four sides, two of which are equal and two of which are unequal. With the staggered construction which has just been outlined, the raised portions 4 are all substantially surrounded by depressed portions 6 with the raised portions 4 abutting one another at their corners only.

As one feature of the invention the sides or edges of the raised portions of a panel extend radially and concentrically relative to the pole of the panel so that altogether the edges throughout the surface of the ball are disposed at various angles relative to one another and extend in many various directions. This may account for the fact that the ball is capable of great distance and has marked controllability without the depressions being of depth that might be said to be objectionable.

While I have described the invention in great detail and with respect to a preferred form thereof, it is not desired to be limited thereto since many changes and modifications may be made therein without departing from the spirit and scope of the invention. What it is desired to claim and secure by Letters Patent of the United States is:

1. As a new article of manufacture, a golf ball consisting of a sphere formed to have on its outer surface a plurality of rows of alternately arranged relatively depressed and raised portions, said portions having four sides and the raised portions being disposed so as to abut one another at the corners thereof only.

2. As a new article of manufacture, a golf ball consisting of a sphere having a plurality of poles and formed to have on its outer surface a plurality of rows of alternate depressed and raised portions radiating outwardly from each pole, said portions having four sides and the rows and portions being arranged so that the raised portions abut one another at the corners thereof only.

HENRY K. B. DAVIS.