No. 737,698. PATENTED SEPT. 1, 1903.

C. E. BOUTWOOD.

GOLF BALL.

APPLICATION FILED FEB. 2, 1903.

NO MODEL.

Fig. 1.

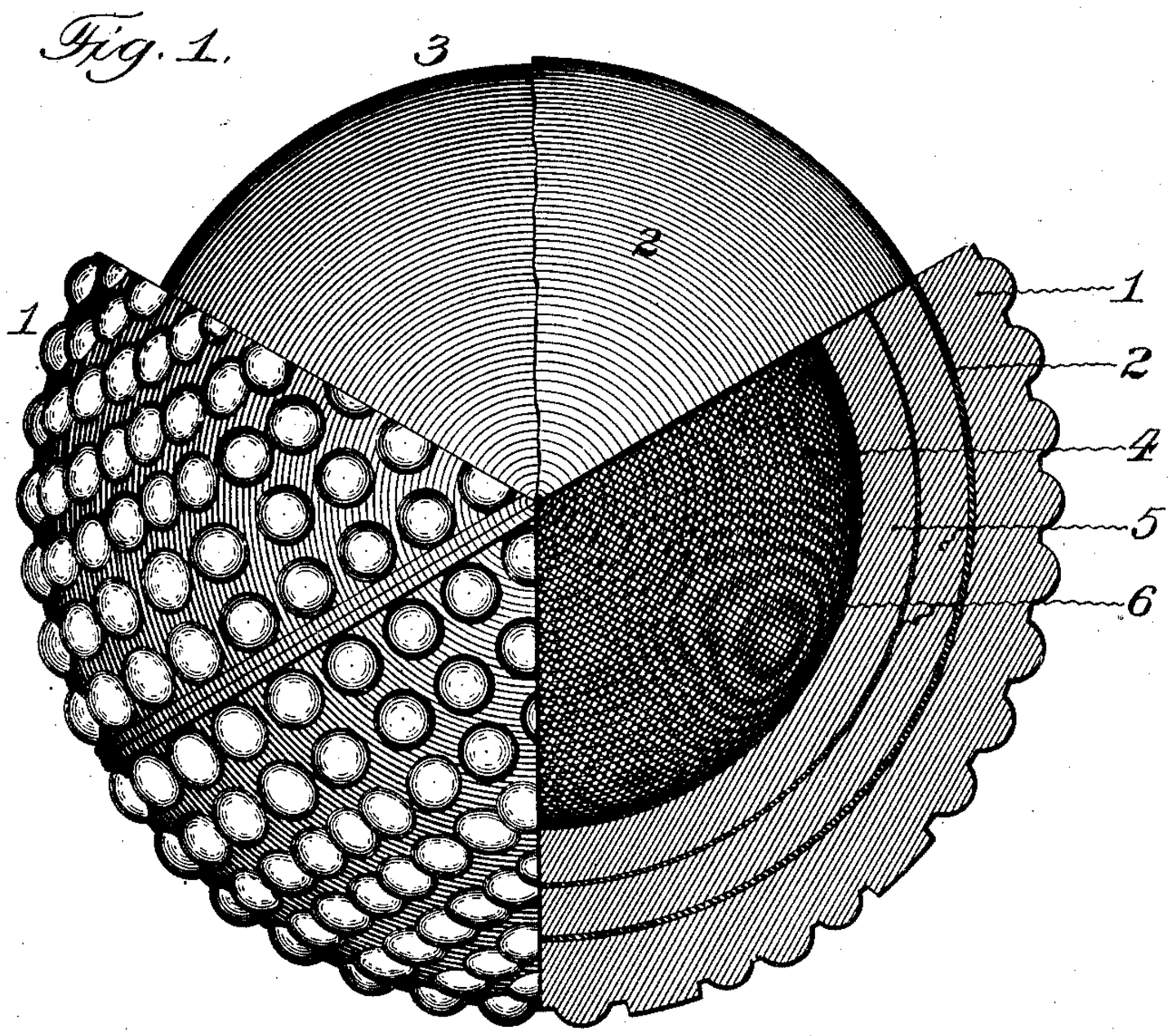
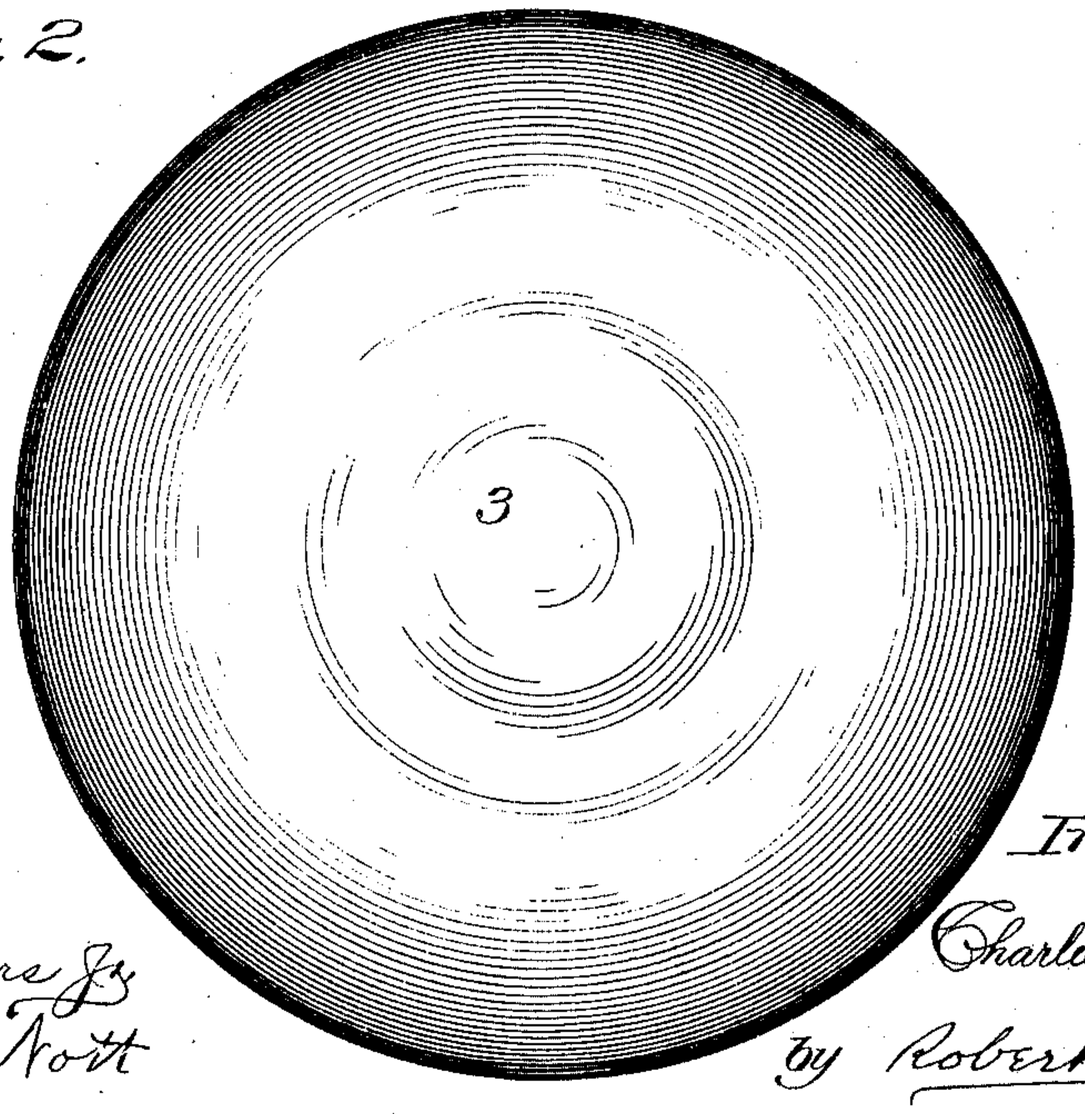


Fig. 2.



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No. 737,698. Patented September 1, 1903.

UNITED STATES PATENT OFFICE.

CHARLES EDWARD BOUTWOOD, OF HINSDALE, ILLINOIS.

GOLF-BALL.

SPECIFICATION forming part of Letters Patent No. 737,698, dated September 1, 1903.

Application filed February 2, 1903. Serial No. 141,426. (No model.)

To all whom it may concern:

Be it known that I, CHARLES EDWARD BOUTWOOD, a citizen of the United States of America, and a resident of Hinsdale, in the county of Dupage and State of Illinois, have invented certain new and useful Improvements in Golf-Balls, of which the following is a specification.

The present invention relates to composite golf-balls, and has for its object to provide a simple and efficient composite construction of golf-balls involving an outer cover of gutta-percha or an equivalent material and an inner core the outermost portion of which involves a series of spherical layers or stratums of gutta-percha or like material arranged in close physical apposition, which permits of a movement of one layer upon the other in the actual use of the ball and by means of which the ideal qualities in a golf-ball of a graded resiliency under graded impacts and a certain and rapid resumption of sphericity after an impact regardless of the force of the same are attained in a very effective and durable manner and with which the permanent impression which is frequently left in a solid gutta-percha ball by a misdirected blow is prevented, as well as the cutting through and opening up of the case or cover by such misdirected blows upon the ordinary rubber-filled balls, where the core is made chiefly of wound elastic, in that the cover is of necessity comparatively thin and the sharp instruments used will, under a misdirected blow, cut clean through such cover, to the expense and inconvenience of the player, all as will hereinafter more fully appear, and be more particularly pointed out in the claims.

In the accompanying drawings, illustrative of the present invention, Figure 1 is a view one-third in elevation, one-third in elevation with parts removed, and one-third in axial section; Fig. 2, an elevation of the core or center portion of the ball with the outer case or cover removed.

Referring to the drawings, 1 represents the outer case or cover of a composite golf-ball formed of gutta-percha or like material and having on its outer surface the usual bramble or other like markings.

2 is a quilt or layer of elastic india-rubber underlying the outer case or cover 1, as shown, and adapted to permit a local surface movement of the outer case or cover with relation to the under surface of the core or center, hereinafter described.

3 is the core or center of the ball, which in the present invention consists of an inner spherical portion 4 and an outer series of spherical layers or stratums 5, of gutta-percha or an equivalent material, surrounding said inner spherical portion 4 to constitute the core or center of the present golf-ball. In the present improvement the inner spherical portion 4 is preferably made of elastic threads or bands wound at high tension from its inception to its circumference and which may be readily and conveniently performed by winding the same upon a spindle or spindles, which are subsequently withdrawn. It is, however, within the province of this part of the present invention to make such windings under the described high tension upon a small central body or to use any other usual and suitable elastic formation as an inner central portion of ball core or center. In like manner the series of spherical layers or stratums 5, which inclose the inner spherical portion 4, have close physical apposition one with the other in a manner which permits of a local surface movement of one upon the other. In the case of the innermost layer or stratum the same may or may not have a like local surface movement of the inner surface of the same upon the periphery of the inner spherical portion 4 of the core or center, as may be found most desirable. Such physical surface separation of the parts will be attained in any usual and suitable manner, and preferably by separating interfaces 6, formed by coatings of any material which will prevent a union of one layer or stratum with the other or with the inner spherical portion 4 during the process of manufacturing the ball. Such separating interfaces or coatings will necessarily be very thin with a view to the greater efficiency in the desired qualities of a golf-ball and will usually consist of a wash of metallic or mineral powders or a thin layer of impregnated paper, silk, or other like web, which is adapted to effect the described surface separation of the parts.

With the present improved construction

each layer or stratum composing the outer portion of the core or center of the ball has surface abutment against and is supported by the surface of the next adjacent layer or stratum, while the innermost layer or stratum has like abutment against and support from the periphery of elastic inner spherical portion 4 of the core, and in consequence of the surface separation of the parts heretofore described a graded elasticity is imparted to the present construction of golf-ball, so that it is adapted to respond in a rapid and efficient manner to the varied blows to which it is exposed in actual use, in that with the present construction of the core or center the inner elastic spherical portion 4 thereof is reached by a blow and its resiliency utilized in a very efficient manner. The effect so imposed on the present core or center, when it again resumes its normal shape, readily aids in restoring the layers or stratums of such core, as well as the outer cover or case, back into their normal and proper spherical shape and prevent a permanent distortion in the same. Such permanent distortion would ordinarily take place if the described layers or stratums were united together and to the outer case or cover as a single or solid part, and for the reason that the elastic force of the inner elastic spherical portion 4 would not be sufficient to effect a re-formation of such part to its original sphericity, and in consequence the distortion would remain and the ball would become flattened. For a similar reason the outer case or cover 1 will be made thick and rigid enough to be forced back into roundness after a blow has been given, as in "driving."

A ball of the present construction "putts on the green" like an ordinary ball, as moderate blows do not reach the inner elastic spherical portion 4 in a manner to effect or utilize the resiliency of the same to any appreciable extent.

The term "rigid" as applied to a constituent part of the present ball is intended to imply a hard resilient material, such as gutta-percha, while the term "yielding" in like manner is intended to apply to a readily-impressed elastic material, such as windings of gum-elastic threads or films wound under tension or other analogous formations possessing a high degree of elasticity under comparatively light impulses.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A golf-ball, the core or center of which is composed of an inner elastic spherical portion, and an outer series of spherical layers or stratums of rigid material in close physical apposition one to the other and in a manner which permits of a local surface movement of one upon the other.

2. A golf-ball, composed of an outer rigid case or cover, and an inner core or center composed of an inner elastic spherical portion and an outer series of spherical layers or stratums of rigid material in close physical apposition one to the other and in a manner which permits of a local surface movement of one upon the other.

3. A golf-ball, composed of an outer rigid case or cover, and an inner core or center composed of an inner elastic spherical portion formed by windings of elastic threads or bands under tension and an outer series of spherical layers or stratums of rigid material in close physical apposition one to the other and in a manner which permits of a local surface movement of one upon the other.

4. A golf-ball, composed of an outer rigid case or cover, an elastic quilt or layer underlying such case or cover, and an inner core or center composed of an inner elastic spherical portion and an outer series of spherical layers or stratums of rigid material in close physical apposition one to the other and in a manner which permits of a local surface movement of one upon the other.

5. A golf-ball, composed of an outer rigid case or cover, an elastic quilt or layer underlying such case or cover, and an inner core or center composed of an inner elastic spherical portion formed by windings of elastic threads or bands under tension and an outer series of spherical layers or stratums of rigid material in close physical apposition one to the other and in a manner which permits of a local surface movement of one upon the other.

6. A golf-ball, the core or center of which is composed of an inner elastic spherical portion, and an outer series of spherical layers or stratums of rigid material separated by thin interfaces of a different material to afford a local surface movement of one layer or stratum upon the other.

7. A golf-ball, composed of an outer rigid case or cover, and an inner core or center composed of an inner elastic spherical portion and an outer series of spherical layers or stratums of rigid material separated by thin interfaces of a different material to afford a local surface movement of one layer or stratum upon the other.

8. A golf-ball, composed of an outer rigid case or cover, and an inner core or center composed of an inner elastic spherical portion formed by windings of elastic threads or bands under tension and an outer series of spherical layers or stratums of rigid material separated by thin interfaces of a different material to afford a local surface movement of one layer or stratum upon the other.

9. A golf-ball, composed of an outer rigid case or cover, an elastic quilt or layer underlying such case or cover, and an inner core or center composed of an inner elastic spherical portion and an outer series of spherical layers or stratums of rigid material separated by thin interfaces of a different material to afford a local surface movement of one layer or stratum upon the other.

10. A golf-ball, composed of an outer rigid

case or cover, an elastic quilt or layer underlying such case or cover, and an inner core or center composed of an inner elastic spherical portion formed by windings of elastic threads or bands under tension and an outer series of spherical layers or stratums of rigid material separated by thin interfaces of a different material to afford a local surface movement of one layer or stratum upon the other.

Signed at Chicago, Illinois, this 28th day of January, 1903.

CHARLES EDWARD BOUTWOOD.

Witnesses:

ROBERT BURNS,

HENRY A. NOTT.