

No. 697,922.

Patented Apr. 15, 1902.

E. KEMPSHALL.

GOLF BALL.

(Application filed Mar. 12, 1902.)

(No Model.)

Fig. 1.

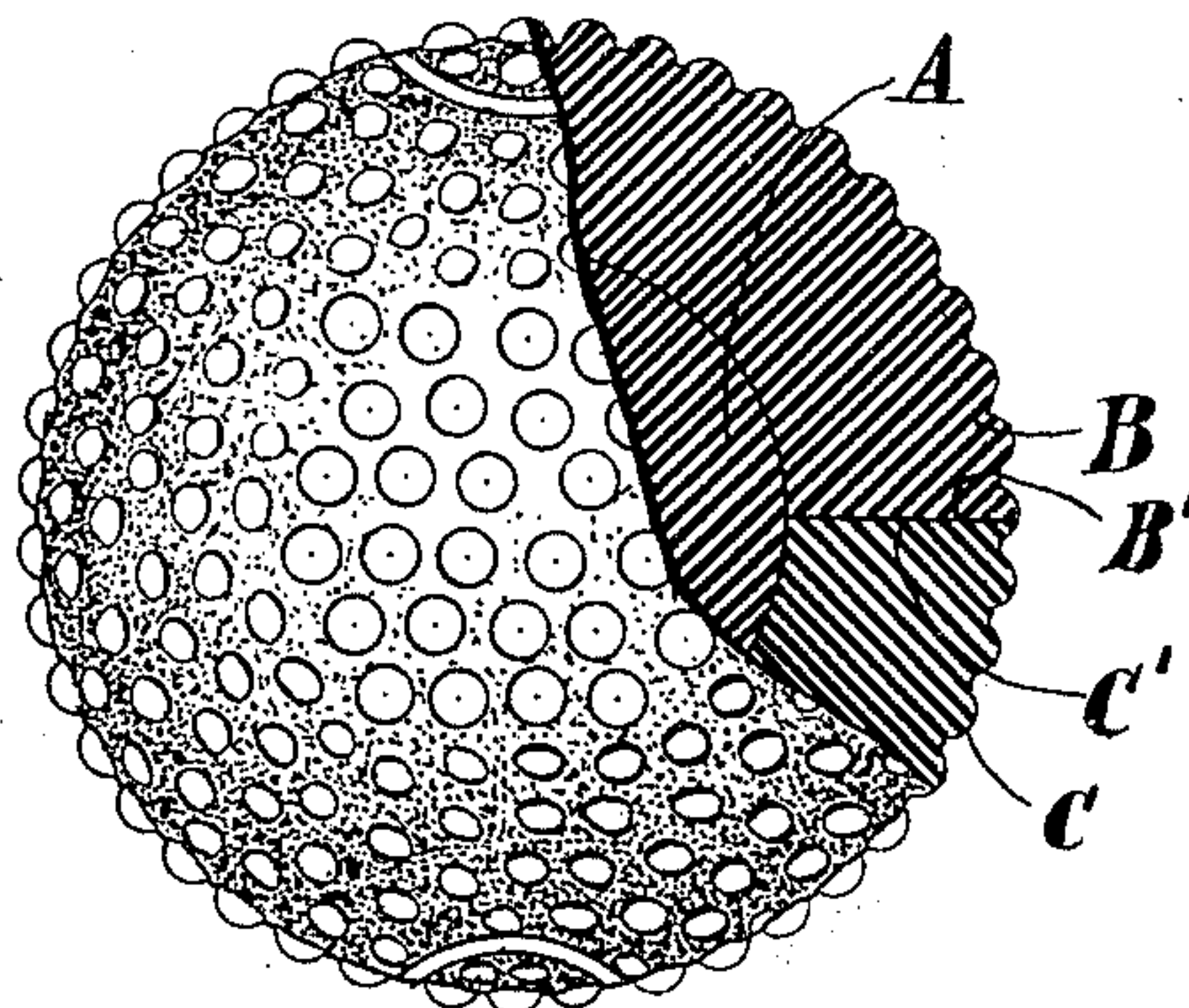
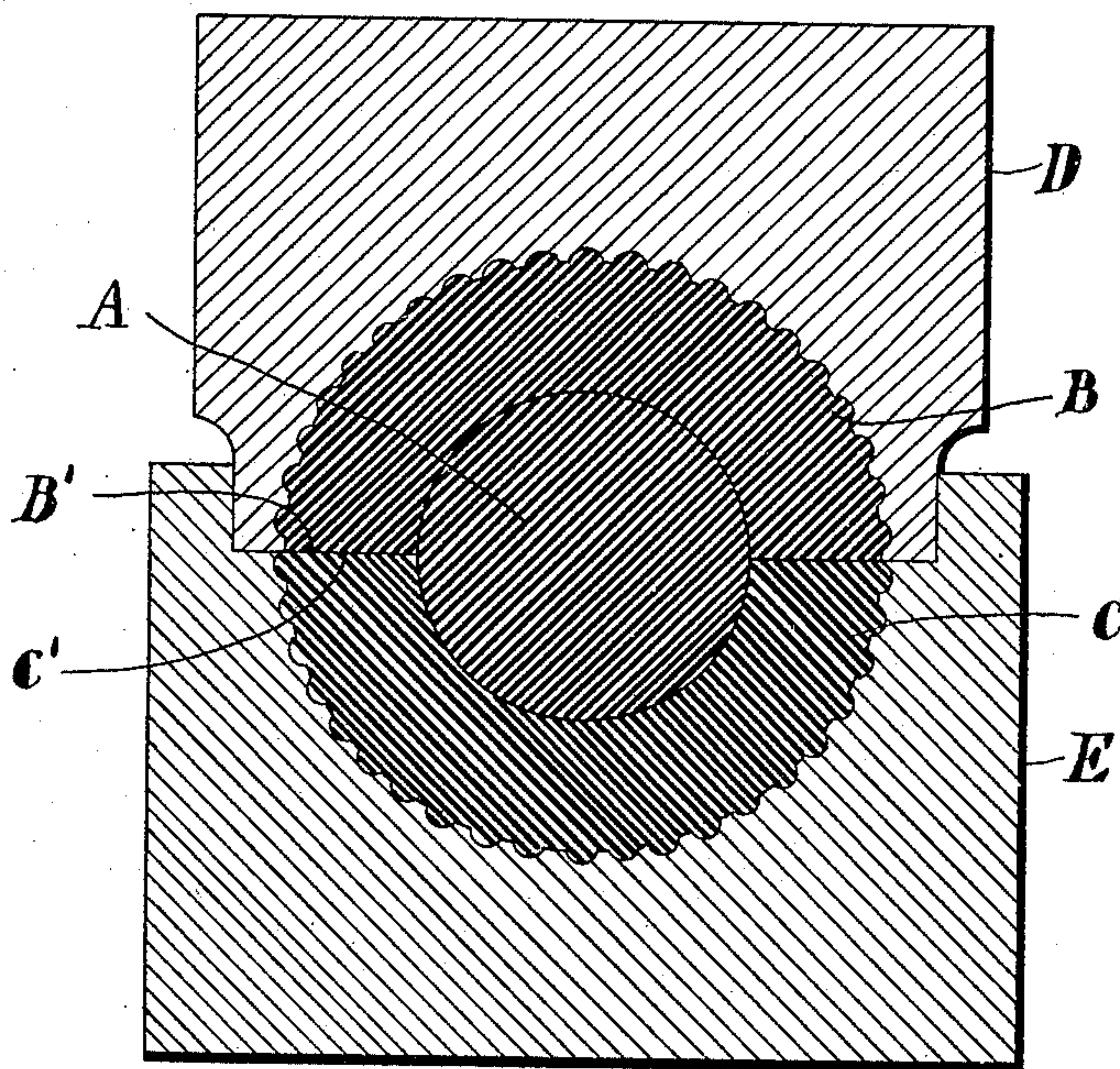


Fig. 2.



Witnesses:
Caldron C. Fuss
A. W. Pittman

Inventor:
Eleazer Kempshall
By his Attorney
J. H. Richards

UNITED STATES PATENT OFFICE.

ELEAZER KEMPSHALL, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE KEMPSHALL MANUFACTURING COMPANY, A CORPORATION OF NEW JERSEY.

GOLF-BALL.

SPECIFICATION forming part of Letters Patent No. 697,922, dated April 15, 1902.

Application filed March 12, 1902. Serial No. 97,885. (No model.)

To all whom it may concern:

Be it known that I, ELEAZER KEMPSHALL, a citizen of the United States, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Golf-Balls, of which the following is a specification.

This invention relates to balls for use in golf and other games; and its objects are to improve the quality and efficiency of the balls and also to provide for producing balls of uniform and reliable quality at very low cost.

In my pending application, filed September 27, 1901, Serial No. 76,814, I show a ball constructed with a celluloid shell compressed upon an elastic substance, whereby the shell is elastically supported against distortion produced by a blow. Certain of the claims in said application cover, broadly, the construction made the subject-matter hereof, this application being based upon certain features not specifically claimed in said pending application. In the present instance I compress a shell of gutta-percha upon a hard filling, preferably plastic material—such, for instance, as gutta-percha.

Referring to the drawings forming part of this specification, Figure 1 is a view, partly in section, of a ball made according to my present improvements and partly broken away. Fig. 2 illustrates the preferred method of manufacturing the balls.

Similar letters of reference designate like parts in the figures.

I produce a center piece (designated by A) of the required size and shape of highly-compacted gutta-percha, although other hard material may be used. This center piece or filling is preferably somewhat too bulky for the capacity of the finished shell. The latter is made of well-seasoned and compacted gutta-percha of high quality, and I preferably form the same of two hemispherical segments (designated in Fig. 2 by B and C, respectively) by means of suitable apparatus, whereby the segments are shaped and the gutta-percha is subjected to a high degree of pressure and becomes solidified and toughened. The center piece A is placed between said segments, and these assembled parts are placed between forming-dies—as, for instance, D and E—

whereupon the dies are brought together by means of suitable mechanism, forcing the shells together until their edges are in intimate contact. The dies may be heated by steam or otherwise for bringing the gutta-percha segments into suitable condition and consistency for uniting them and completing the shell.

The abutting edges of the original segments at B' and C' may be made somewhat full, thereby to furnish material for properly forming the joint between them as they are subjected to the final compression, at which operation the ball is finally shaped and at the same time the material of the shell is compressed between the dies and the resisting mass A within the shell. Since this central portion is first prepared somewhat over-size, and the shell is compressed over the same, as explained, the resistance of said central portion while under such compression furnishes a substantial support for sustaining the shell against the pressure of the forming-dies. By properly sizing the center piece the shell may be sustained against any necessary degree of pressure of the dies.

Preferably the edges B' and C' contact before much, if any, compression of the core is effected, so as to avoid liability of the latter squeezing out between said edges.

The compression of the ball is maintained while the shell cools and hardens, so that the latter may hold the ball under permanent compression or grip. It is to be understood that in case condensation of the bulk of either shell or core takes place in the operation of compressing the shell upon the core it is due to the presence of air-spaces or impurities in the material. It is not essential in all cases that the core be condensed in bulk so long as when the ball is finished the core is powerfully gripped by the shell, thereby enabling shell and core to act conjointly, and hence vastly improving the playing qualities of the ball.

By the compressing and heating operation the gutta-percha, particularly that of the shell, is further compacted or solidified and put into better condition to resist damage, and the core is put under considerable compression, and thereby rendered exceedingly

sensitive in responding to a blow from an implement. Thus I produce a twofold springiness in the ball, or, in other words, I enable the elasticity of the compressed filling to co-
5 operate with the springiness of the compressed shell, so as to instantly restore the latter to its normal shape after distortion by a blow. The promptness of the ball in re-
10 sponding to a blow is augmented by having the filling under compression, since the outward pressure thereof tends constantly to cause the shell to maintain a spherical shape, or, in other words, the outward pressure due
15 to the constant effort of the compressed core to enlarge its confines is of material assistance in enabling the ball to spring instantly back to its original shape, and hence con-
20 duces to the efficiency thereof. Moreover, owing to its compression, said core is more resisting, and when struck it sooner reaches the limit of compression, so that less force is wasted in changing and rechanging the shape of the ball and more momentum is acquired by the ball from the implement.
25 Owing to the separate preparation by heating and compression of the core and the shell the liability to permanent distortion of the ball, which is a common fault of solid gutta-percha balls, is avoided. The compressed core
30 gives an even resistance at all portions of the shell, so that a reliable and uniform action of the ball is secured. Thus at low cost I pro-

duce a solid gutta-percha ball of improved quality.

Variations in method and structure may be 35
resorted to within the scope of the improvements set forth herein.

Having described my invention, I claim—

1. A playing-ball comprising a gutta-percha shell consisting of welded segments, and a 40
solid sphere consisting entirely of gutta-percha filling said shell and held under compression thereby.

2. A playing-ball consisting of a highly-compacted shell built up from gutta-percha 45
segments, said segments being welded edge to edge, and a filling consisting of gutta-percha powerfully gripped by said shell.

3. A playing-ball comprising a shell built up of highly solidified or compacted thick 50
hemispherical sections of well-seasoned gutta-percha, and a sphere of highly-compacted gutta-percha held under compression by said shell.

4. A playing-ball comprising a highly-com- 55
pacted substantial gutta-percha shell and a sphere of highly-compacted gutta-percha powerfully gripped by said shell; the diameter of said sphere being about one-half that of the complete ball.

ELEAZER KEMPSHALL.

Witnesses:

B. C. STICKNEY,
JOHN O. SEIFERT.