

No. 711,529.

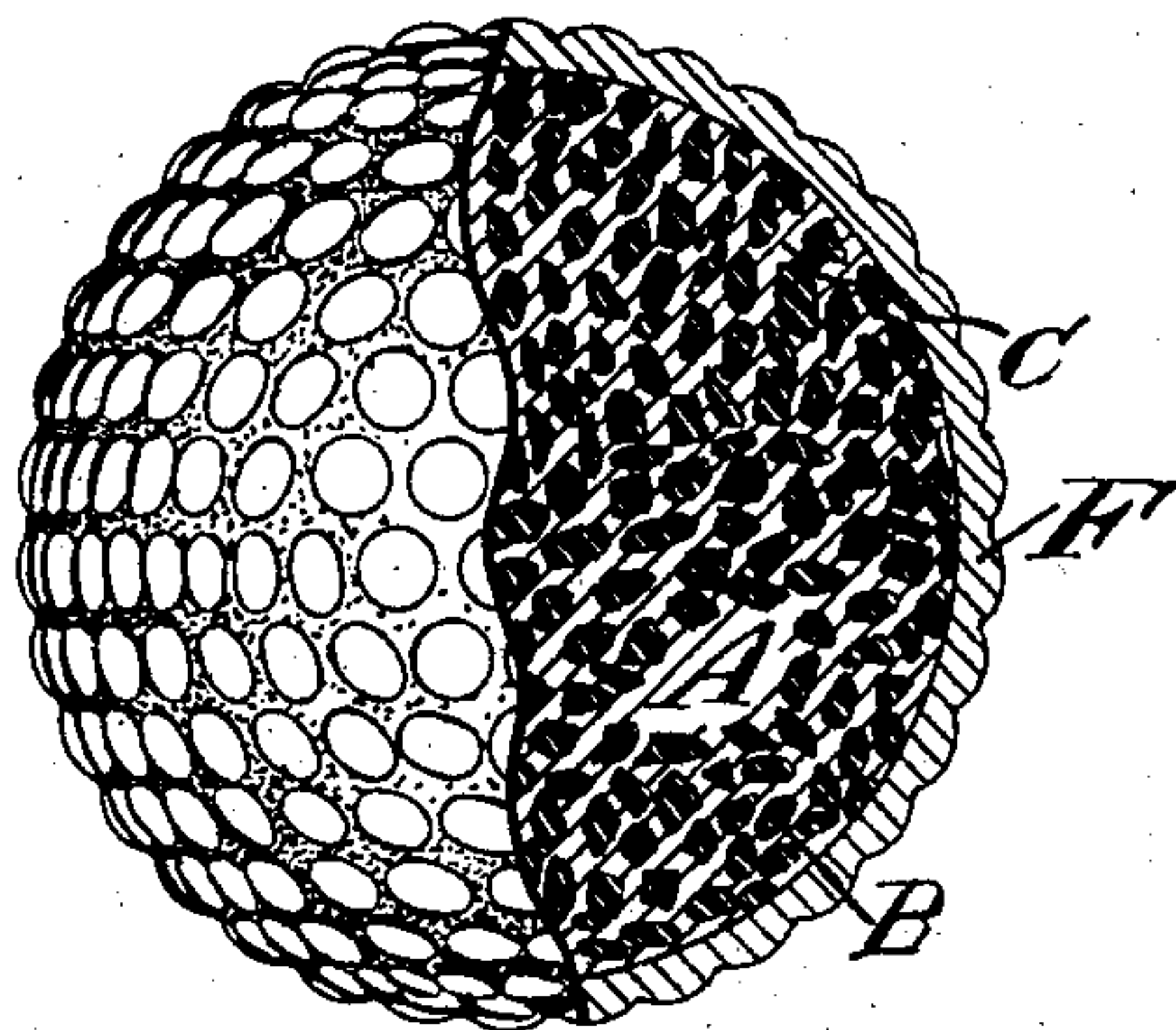
Patented Oct. 21, 1902.

F. H. RICHARDS.  
PLAYING BALL.

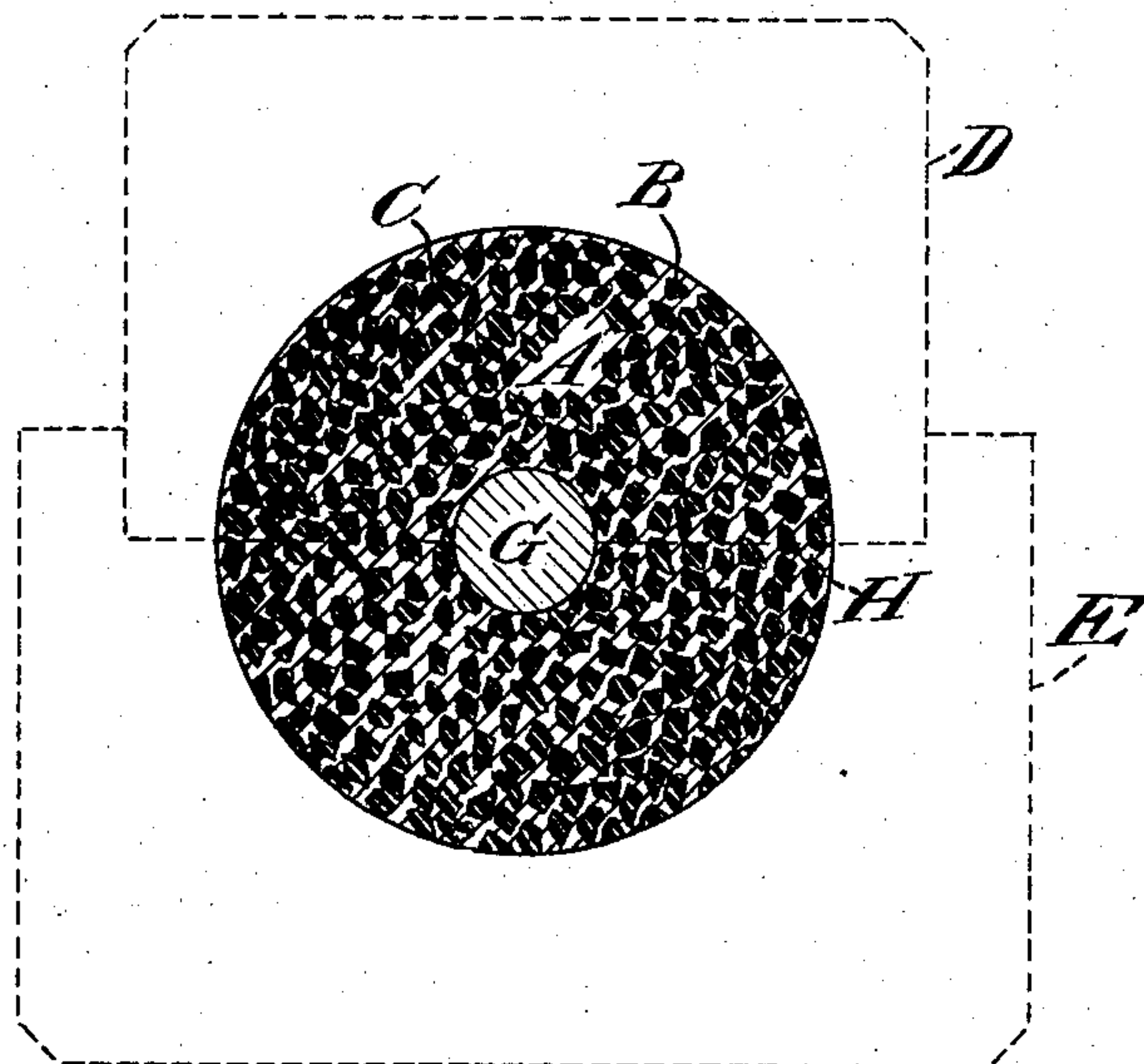
(Application filed July 30, 1902.)

(No Model.)

*Fig. 1.*



*Fig. 2.*



Witnesses:  
Herbert J. Smith  
W. B. M. Lutz

Inventor  
F. H. Richards.

# UNITED STATES PATENT OFFICE.

FRANCIS H. RICHARDS, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE  
KEMPSHALL MANUFACTURING COMPANY, A CORPORATION OF NEW  
JERSEY.

## PLAYING-BALL.

SPECIFICATION forming part of Letters Patent No. 711,529, dated October 21, 1902.

Application filed July 30, 1902. Serial No. 117,610. (No model.)

*To all whom it may concern:*

Be it known that I, FRANCIS H. RICHARDS, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Playing-Balls, of which the following is a specification.

This invention relates to golf-balls; and its object is to produce at low cost a ball having excellent flying quality and well adapted for putting and also having great durability.

In the accompanying drawings, Figure 1 illustrates, partly in section, a ball made in accordance with my present improvements. Fig. 2 illustrates the operation of making the filling of the ball.

I form a filling A of a mixture of gutta-percha and rubber or gutta-percha and leather or gutta-percha, leather, and rubber, the rubber or leather being in the form of granules B and the gutta-percha being indicated at C. Preferably the gutta-percha forms half of the weight of the sphere A, which is made under heat and great compression. The heat of the dies D and E renders the gutta-percha constituent of the sphere soft, and great pressure applied to the dies compresses the leather or rubber. The pressure is maintained while the sphere cools and hardens, so that the leather or rubber, or both, are held under compression by the gutta-percha, and hence are highly active, while the gutta-percha, being in the form of a honeycomb, acts better under a blow than is the case when the gutta-percha is in solid form.

If desired, the sphere A may be used in the game of golf without further treatment; but I prefer to cover it with a plain gutta-percha shell F, which is applied to the sphere A under heat and great compression, this operation not only further solidifying the core A, but also improving the toughness and other qualities of the shell and the heat causing the gutta-percha in the shell and filling to soften and unite or become integral, while the rubber, if used, also adheres to the shell F. The compression is maintained while the gutta-percha

cools and hardens, so that the shell F holds the compound filling under compression.

If desired, the sphere A may be formed with a center piece G, and in that case said sphere may be originally formed of two half-shells, the division between which is indicated by the line H; but it will be understood that at the operation illustrated at Fig. 2 said half-shells are welded into one substantial shell, which may be used either with or without the plain gutta-percha cover F. The center piece G may be of celluloid or other material of sufficient hardness to withstand the pressure of the dies.

In place of rubber or leather sawdust or other shredded or comminuted material may be used.

Having described my invention, I claim—

1. A sphere for a playing-ball consisting of a homogeneous mixture of gutta-percha and leather.
2. A sphere for a playing-ball consisting of a combination of leather and plastic material, the latter holding the leather in a state of compression.
3. A sphere for a playing-ball consisting of a combination of rubber, leather and plastic material, the latter holding the rubber and the leather in a state of compression.
4. A sphere for a playing-ball consisting of gutta-percha mixed with granules of soft leather, said gutta-percha holding said granules in a state of compression.
5. A sphere for a playing-ball consisting of gutta-percha mixed with granules of soft leather and rubber, said gutta-percha holding said granules in a state of compression.
6. A sphere for a playing-ball consisting of a homogeneous mixture of gutta-percha and leather, and a shell of gutta-percha upon said sphere and holding the same under compression.
7. A sphere for a playing-ball consisting of a homogeneous mixture of gutta-percha, leather and rubber, and a shell of gutta-percha upon said sphere and holding the same under compression.



8. A sphere for a playing-ball consisting of a combination of leather and plastic material, the latter holding the leather in a state of compression, and a shell of gutta-percha upon  
5 said sphere and holding the same under compression.
9. A sphere for a playing-ball consisting of a combination of rubber, leather and plastic material, the latter holding the rubber and  
10 the leather in a state of compression, and a shell of gutta-percha upon said sphere and holding the same under compression.
10. A sphere for a playing-ball consisting of a mixture of gutta-percha and granules of  
15 other suitable material making a homogeneous mass, and a shell of gutta-percha upon said sphere and holding the same under compression.
11. A sphere for a playing-ball consisting  
20 of gutta-percha mixed with granules of soft leather, said gutta-percha holding said granules in a state of compression, and a shell of gutta-percha upon said sphere and holding the same under compression.
- 25 12. A sphere for a playing-ball consisting of gutta-percha mixed with granules of soft leather and rubber, said gutta-percha holding said granules in a state of compression, and a shell of gutta-percha upon said sphere  
30 and holding the same under compression.
13. A sphere for a playing-ball consisting of a homogeneous mixture of gutta-percha and leather; said sphere consisting of welded half-shells and being provided with a center  
35 piece of hard material.
14. A sphere for a playing-ball consisting of a homogeneous mixture of gutta-percha, leather and rubber; said sphere consisting of welded half-shells and being provided with a  
40 center piece of hard material.
15. A sphere for a playing-ball consisting of a combination of leather and plastic material, the latter holding the leather in a state of compression; said sphere consisting of  
45 welded half-shells and being provided with a center piece of hard material.
16. A sphere for a playing-ball consisting of a combination of rubber, leather and plastic material, the latter holding the rubber and  
50 the leather in a state of compression; said sphere consisting of welded half-shells and being provided with a center piece of hard material.
17. A sphere for a playing-ball consisting  
55 of a mixture of gutta-percha and granules of other suitable material making a homogeneous mass, said sphere consisting of welded half-shells and being provided with a center piece of hard material.
- 60 18. A sphere for a playing-ball consisting of gutta-percha mixed with granules of soft leather, said gutta-percha holding said granules in a state of compression; said sphere consisting of welded half-shells and being provided  
65 with a center piece of hard material.
19. A sphere for a playing-ball consisting of gutta-percha mixed with granules of soft leather and rubber, said gutta-percha holding said granules in a state of compression; said sphere consisting of welded half-shells  
70 and being provided with a center piece of hard material.
20. A sphere for a playing-ball consisting of a homogeneous mixture of gutta-percha and leather, and a shell of gutta-percha upon said  
75 sphere and holding the same under compression; said sphere consisting of welded half-shells and being provided with a center piece of hard material.
21. A sphere for a playing-ball consisting  
80 of a homogeneous mixture of gutta-percha, leather and rubber, and a shell of gutta-percha upon said sphere and holding the same under compression; said sphere consisting of welded half-shells and being provided with a  
85 center piece of celluloid.
22. A sphere for a playing-ball consisting of a combination of leather and plastic material, the latter holding the leather in a state of compression, and a shell of gutta-percha  
90 upon said sphere and holding the same under compression; said sphere consisting of welded half-shells and being provided with a center piece of hard material.
23. A sphere for a playing-ball consisting  
95 of a combination of rubber, leather and plastic material, the latter holding the rubber and the leather in a state of compression, and a shell of gutta-percha upon said sphere and holding the same under compression; said  
100 sphere consisting of welded half-shells and being provided with a center piece of hard material.
24. A sphere for a playing-ball consisting of a mixture of gutta-percha and granules of  
105 other suitable material making a homogeneous mass, and a shell of gutta-percha upon said sphere and holding the same under compression; said sphere consisting of welded half-shells and being provided with a center  
110 piece of hard material.
25. A sphere for a playing-ball consisting of gutta-percha mixed with granules of soft leather, said gutta-percha holding said granules in a state of compression, and a shell of  
115 gutta-percha upon said sphere and holding the same under compression; said sphere consisting of welded half-shells and being provided with a center piece of hard material.
26. A sphere for a playing-ball consisting  
120 of gutta-percha mixed with granules of soft leather and rubber, said gutta-percha holding said granules in a state of compression, and a shell of gutta-percha upon said sphere and holding the same under compression; said  
125 sphere consisting of welded half-shells and being provided with a center piece of hard material.
27. A playing-ball comprising a spherical filling and a cover, said filling consisting of  
130



a mixture of gutta-percha and granules of other suitable material making a homogeneous mass, and said cover consisting of gutta-percha which is united or integral with the  
5 gutta-percha in the filling.

28. A playing-ball comprising a spherical filling and a cover, said filling consisting of gutta-percha and leather making a homoge-

neous mass, and said cover consisting of gutta-percha which is united or integral with to the gutta-percha in the filling.

FRANCIS H. RICHARDS.

Witnesses:

B. C. STICKNEY,  
JOHN O. SEIFERT.