

No. 697,926.

Patented Apr. 15, 1902.

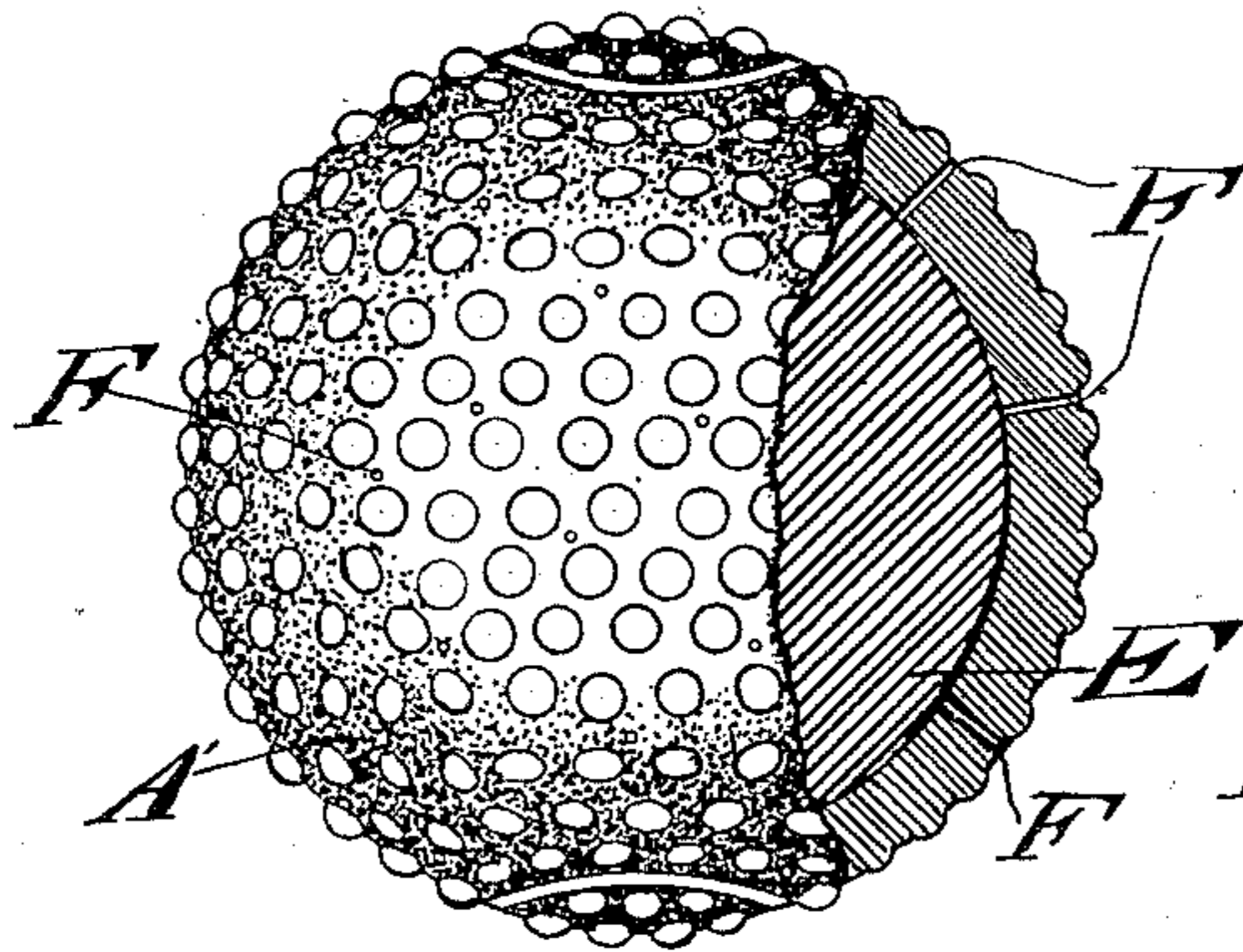
F. H. RICHARDS.

GOLF BALL.

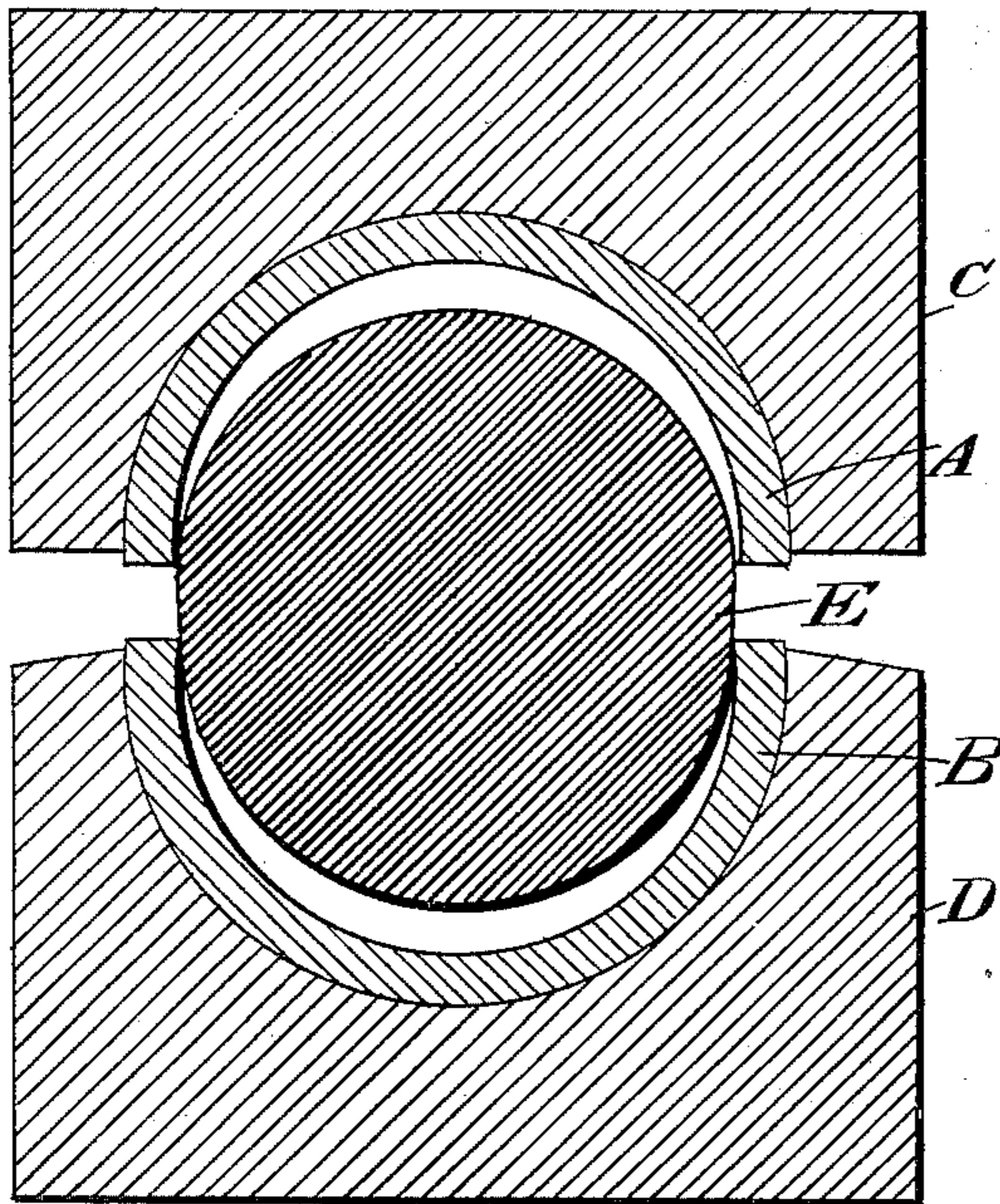
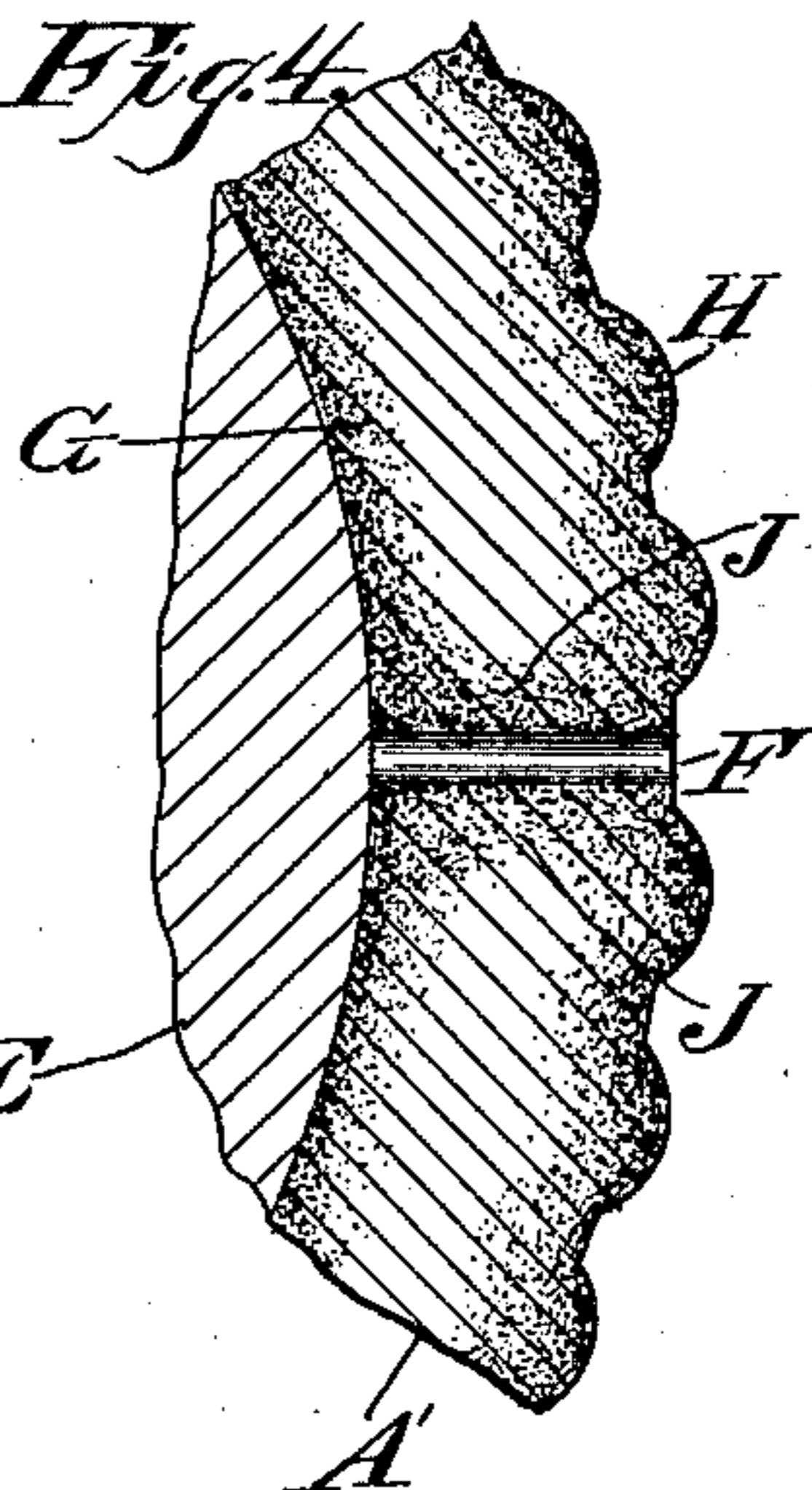
(Application filed Feb. 25, 1902.)

(No Model.)

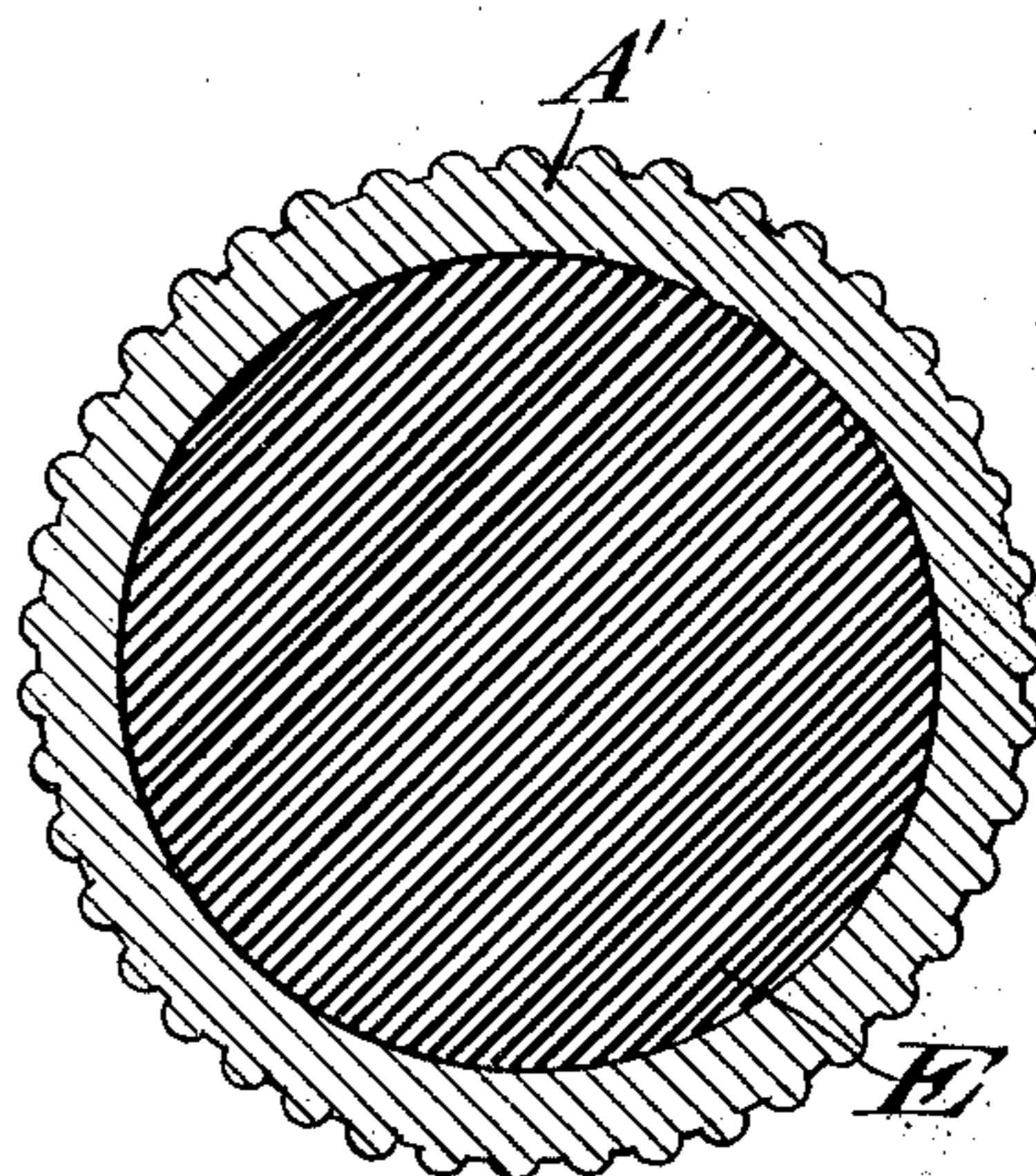
*Fig. 1.*



*Fig. 4.*



*Fig. 2.*



*Fig. 3.*

Witnesses:

Ralph Lancaster.  
Fred. C. Maynard.

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.

## GOLF-BALL.

SPECIFICATION forming part of Letters Patent No. 697,926, dated April 15, 1902.

Application filed February 25, 1902. Serial No. 95,556. (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 Golf-Balls, of which the following is a specification.

This invention relates to playing-balls of the kind set forth in application for Letters Patent of the United States, filed September 27, 1901, Serial No. 76,814, in which a celluloid shell is compressed upon a filling consisting of gutta-percha or other material; and its object is to improve the shell and thereby increase the efficiency and value of the ball.

In the drawings forming part of this specification, Figure 1 is a view, partly broken away, of a ball made in accordance with my present improvements. Fig. 2 indicates one way of forming a shell upon a ball, and Fig. 3 is a cross-section of an entire ball. Fig. 4 is a fragmentary diagram intended to illustrate the manner in which I apprehend the curing of the improved celluloid shell occurs.

Similar characters of reference designate like parts in the drawings.

In forming the ball as set forth in said application celluloid half-shells A and B are compressed by heated dies C and D upon a filling E of gutta-percha, rubber, or other material, the edges of the half-shells being welded and forming a complete shell upon the core, as at A', Figs. 1 and 3. The core is placed under compression by the action of the dies, and the latter are allowed to cool and the shell to harden while the pressure is maintained, so that the shell may constantly hold the core under compression.

I make in the shell a series of perforations F all over the ball at intervals of one-half inch, more or less, these perforations being, preferably, of small diameter—say, one thirty-second of an inch. The chief object thereof is to provide vents for the interior of the celluloid shell, so that both the interior and exterior may season or cure, making the shell throughout harder, tougher, and springier, and hence materially improving the playing qualities of the ball. Moreover, by enabling practically the entire shell to season more thorough shrinkage of the same takes place,

whereby the core is placed under extraordinary compression, and the ball is vastly improved. G, Fig. 4, is intended to indicate the seasoning of the interior of the shell, and H that of the exterior. By the provision of said holes, moreover, the shell is rendered somewhat more springy, since the holes afford room or opportunity for slight distortion of the material, so that the ball is enabled to fly a longer distance when given a hard blow, while being comparatively dead when given a light touch by an implement, thus making it especially desirable for the game of golf.

It will be understood that the forming of the holes in the shell does not weaken the same, since the material of the celluloid around said holes rapidly cures, and hence the shell at these parts becomes stronger and less liable to break than elsewhere. (See J, Fig. 4.)

Thus by means of my invention the seasoning of the shell after the ball is completed is materially hastened and is also made much more thorough. My improvements are also applicable to shells consisting of plies of celluloid and fabric.

The material of the core may be varied, and the ball may be otherwise formed within the scope of my present improvements. In using the term "celluloid" I mean to include all compositions, varieties, or derivatives of celluloid or pyroxylin products of analogous material.

Having thus described my invention, I claim—

1. A playing-ball comprising a filling and a shell of celluloid thereon, said shell having a series of holes.

2. A playing-ball comprising a springy filling and a shell consisting largely or wholly of celluloid, said shell having numerous scattered perforations.

3. A playing-ball comprising a springy filling and a shell consisting largely or wholly of celluloid and holding said filling under compression, said shell having numerous scattered perforations.

FRANCIS H. RICHARDS.

Witnesses:

B. C. STICKNEY,  
JOHN O. SEIFERT.