

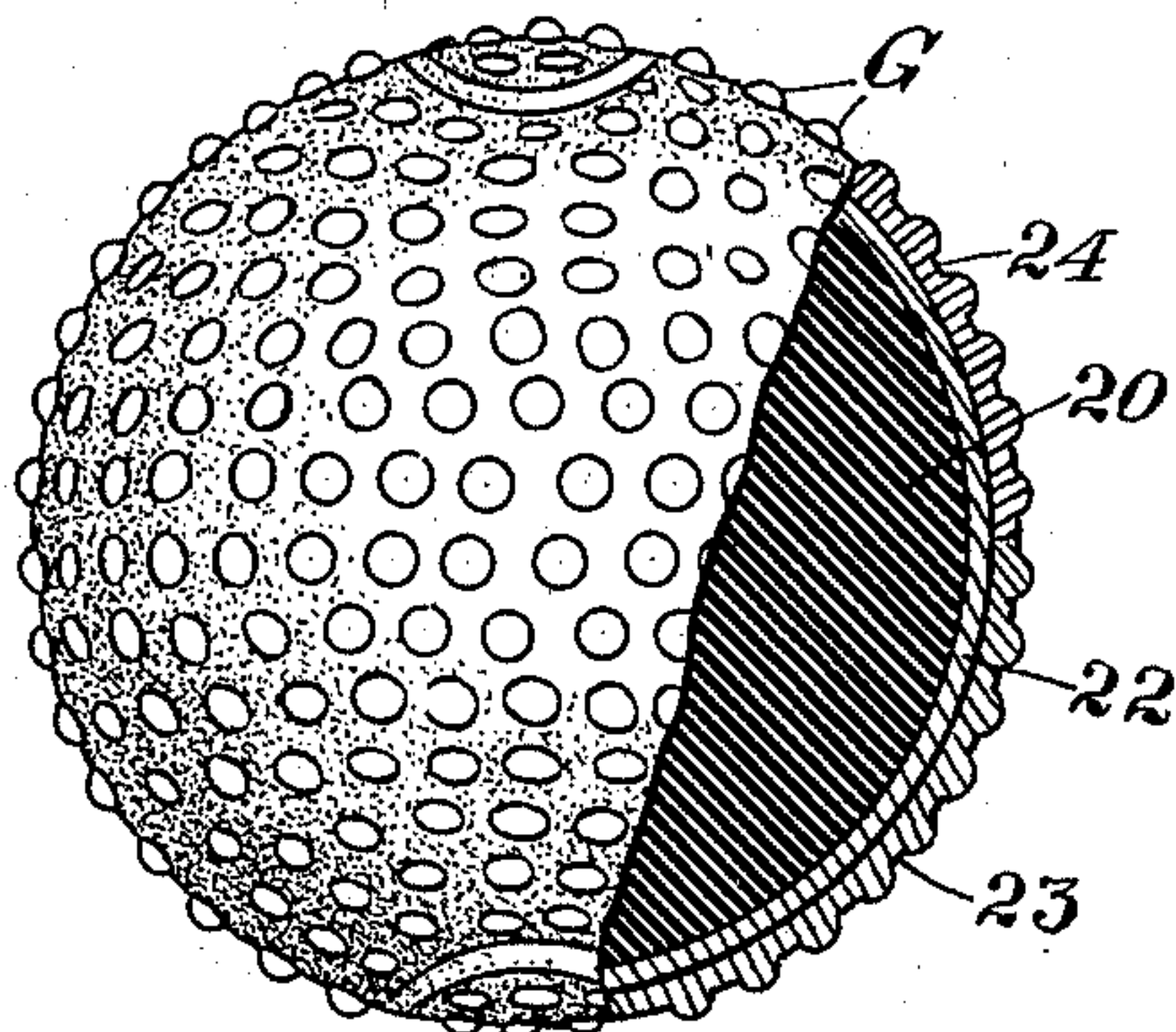
No. 698,514.

Patented Apr. 29, 1902.

E. KEMPSHALL.  
GOLF BALL.

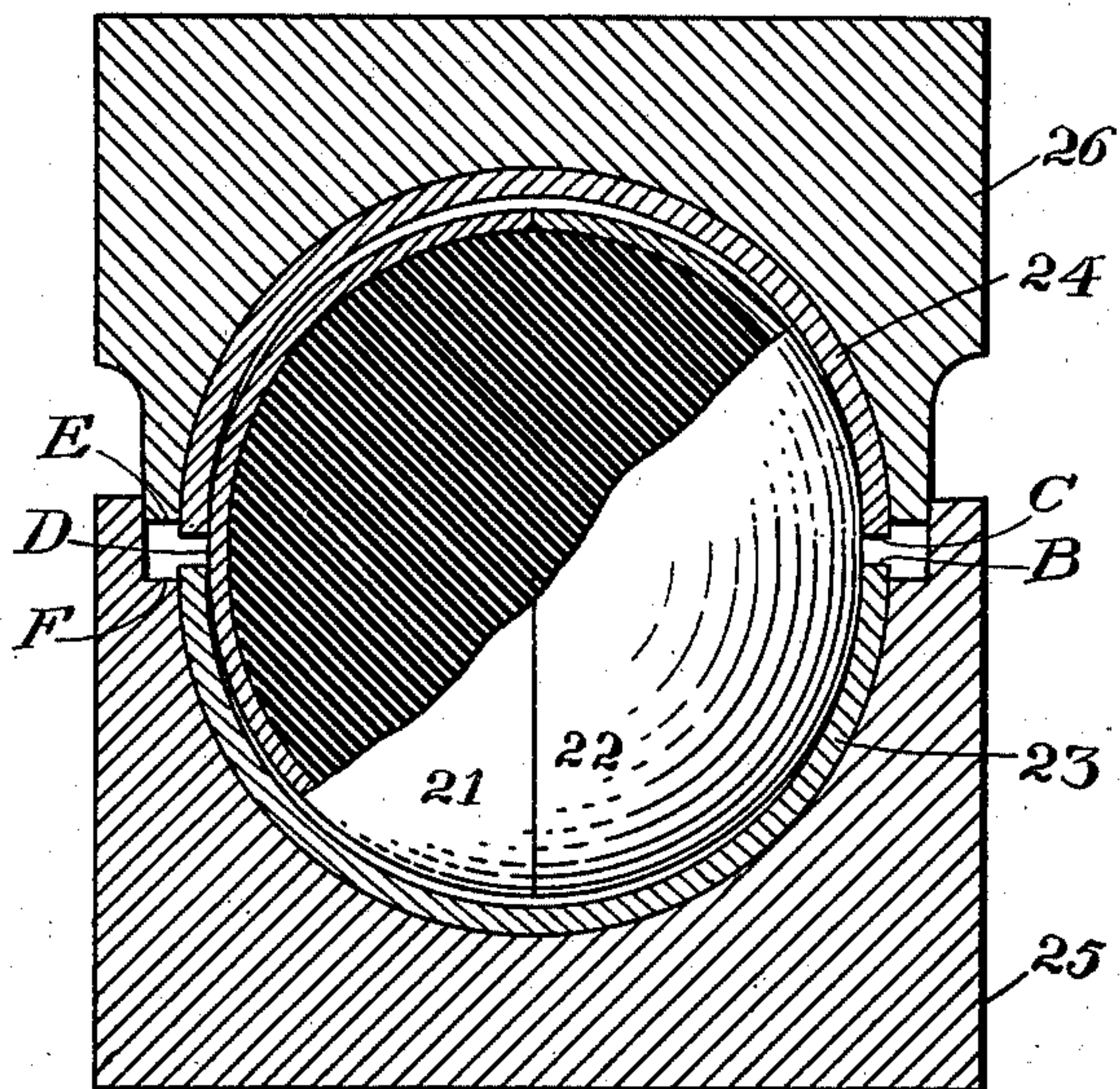
(Application filed Mar. 24, 1902.)

(No Model.)

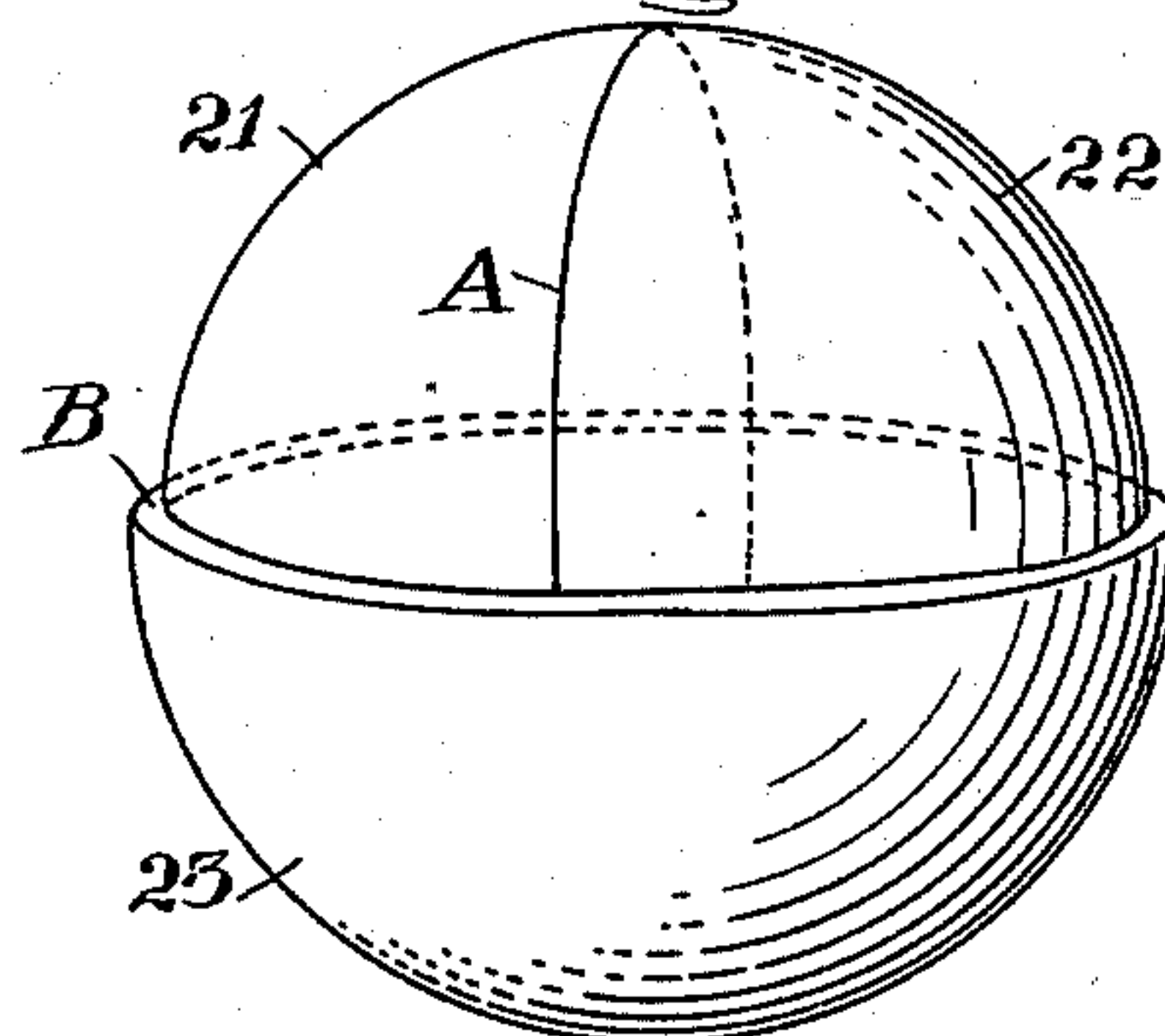


*Fig. 1.*

*Fig. 2.*



*Fig. 3.*



Witnesses:  
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Inventor:  
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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. 698,514, dated April 29, 1902.

Application filed March 24, 1902. Serial No. 99,717. (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 golf or playing balls; and its chief object is to produce improved covers or shells for balls, so as to make the same adaptable to severe usage, as in the game of golf.

In the accompanying drawings, Figure 1 is a view of my improved ball partly broken away so as to exhibit its construction. Fig. 2 illustrates a stage in the process of covering the ball, and Fig. 3 illustrates the relative arrangement of several layers used in forming the cover.

In the several views similar parts are designated by similar characters of reference.

Upon a core or filling 20 of soft rubber I place a plurality of segments 21 and 22 of gutta-percha, and this inner shell I inclose with an outer shell consisting of preferably hemispherical segments 23 and 24, also made of gutta-percha, placing the latter so that the seam A between the inner segments extends transversely and preferably at right angles to the edges B and C of the outer segments. The ball thus formed or assembled I place between heating and forming dies 25 and 26, the edges B and C preferably being parallel with the lips E and F of the dies. The latter I bring together forcibly, thereby closing the outer shell upon the inner shell and joining the edges B and C of the former. The filling or core 20 is nearly the full size of the ball and is originally prepared somewhat oversize—that is, of a bulk too great for the capacity of the finished shell—and one of the objects of compressing the shell upon the filling is to place the latter in a state of normal compression, so as to increase the efficiency of the ball, as set forth in my Letters Patent No. 695,866, dated March 18, 1902.

An advantage of my present improvements is that the material of the filling is prevented by the inner shell at D from squeezing out between the lips E and F of the dies.

The heating of the dies renders the material of the shell layers plastic and enables the edges at A, as well as those at B and C, to weld, and owing to the crossing of the welds the danger of the ball bursting at a weld when subject to rough usage in play is avoided, since the body portion of one of the layers reinforces the weld portion of the other thereof, thereby making a practically indestructible casing for the core. Moreover, the weld itself is improved in character in each layer by reason of the contiguity of the material of the other layer, the heating and pressure having a tendency to compact the material of both layers into one concrete thick shell. The pressure to which the shell is subjected tends also to compact the same, rendering it less liable to chip off and making it at the same time more springy, tenacious, and durable. Thus it will be seen that the ball at Fig. 1 comprises a solid core or filling of soft rubber compressed by a shell built up of layers of gutta-percha, each layer consisting of a plurality of segments welded at their edges, the welds preferably crossing and the layers being further welded together or adhering facewise, thereby producing a shell practically as strong as a seamless shell, in the normal expansive tendency of the filling serving or aiding to maintain the true spherical form of the shell, and also aiding materially to restore the ball to its true shape after a blow, thereby conducing to the flying power thereof. Moreover, by having the core in a state of initial compression less distortion of the ball under a blow occurs before the limit of compression is reached, whereby less force is wasted in changing and restoring the shape to the ball, so that nearly all of the force of the implement is utilized in speeding the ball.

It will be seen that one layer of the shell serves to reinforce the joint of the other layer, and it will be understood that such reinforcement not only enables the shell to withstand the normal expansive energy of the filling, but also prevents undue flexure and practically eliminates the danger of bursting at the joint.

It is to be understood that the condensation of the core or filling occurring at the



compressing operation is due to the elimination of minute air-spaces in the material. It is not essential in practicing my invention that the core be always condensed in bulk so long as when the ball is finished the core is gripped by the shell.

I prefer to employ soft rubber for the core, although any other yielding filling may be employed cooperating with the shell to increase the efficiency of the ball. The shell I make of gutta-percha and relatively thin, so that it may possess a degree of flexibility and springiness not present in a solid or nearly-solid ball of the same material, thus preserving the wear-resisting quality of the ball, while making it lively and efficient. More than two plies of layers of gutta-percha may be used for the shell, and two or more segments may be used in each layer within the scope of my invention.

Having described my invention, I claim—

1. In a playing-ball, a shell made up of layers of gutta-percha, one of said layers being formed of jointed spherical segments, and another of said layers reinforcing the joint.

2. In a playing-ball, a shell comprising a plurality of layers of gutta-percha, one of said layers being formed of jointed or welded hemispherical segments, and another of said layers reinforcing the weld.

3. In a playing-ball, a shell comprising two layers of gutta-percha, each consisting of jointed spherical segments, the joint or seam in one layer running crosswise of the joint or seam in the other layer.

4. In a playing-ball, a shell comprising an

inner and outer layer, both made of gutta-percha, and each consisting of a plurality of welded segments, each of said layers reinforcing the weld of the others.

5. In a playing-ball, the combination with a core of soft rubber, of a shell of gutta-percha comprising at least one layer made up of jointed segments and reinforced at the joint by another layer, said shell holding said core under compression.

6. In a playing-ball, the combination of a yielding core of soft rubber, and a shell of gutta-percha holding said core under compression, said shell comprising a plurality of layers, each of said layers consisting of segments welded together and the weld in one of said layers running crosswise of the weld in the other.

7. In a playing-ball, a shell of gutta-percha made up of layers, one of said layers being formed of jointed spherical segments and another of said layers reinforcing the joint, and a yielding core of soft rubber held under compression by said shell.

8. In a playing-ball, a shell of gutta-percha, comprising two layers, each consisting of jointed spherical segments, the joint or seam in one layer running crosswise of the joint or seam in the other layer, and a yielding core of soft rubber held under compression by said shell.

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Witnesses:

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