

No. 701,765.

Patented June 3, 1902.

F. H. RICHARDS.
GOLF BALL.

(Application filed Mar. 24, 1902.)

(No Model.)

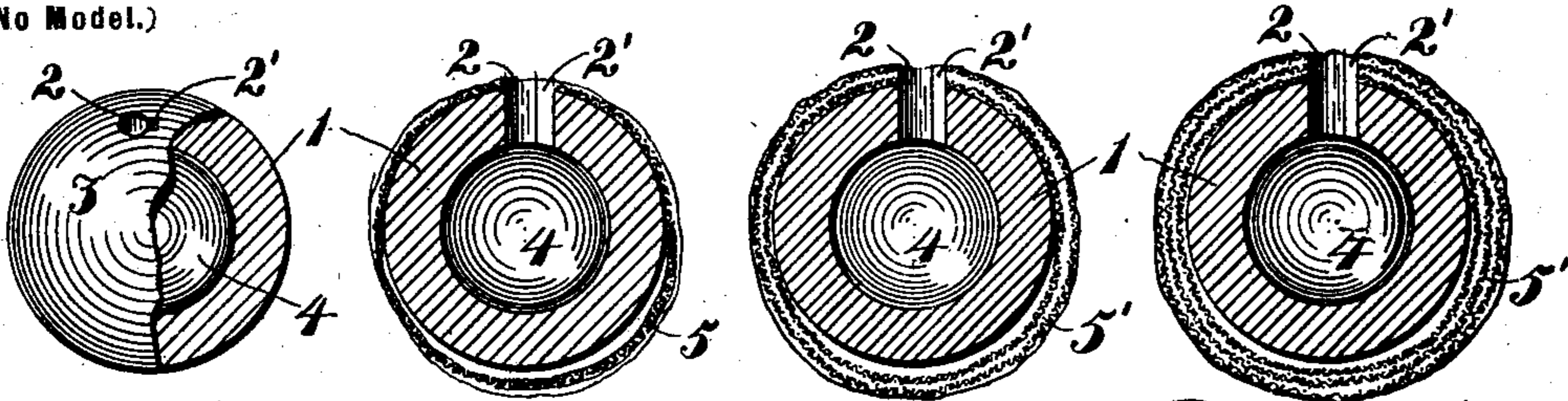


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

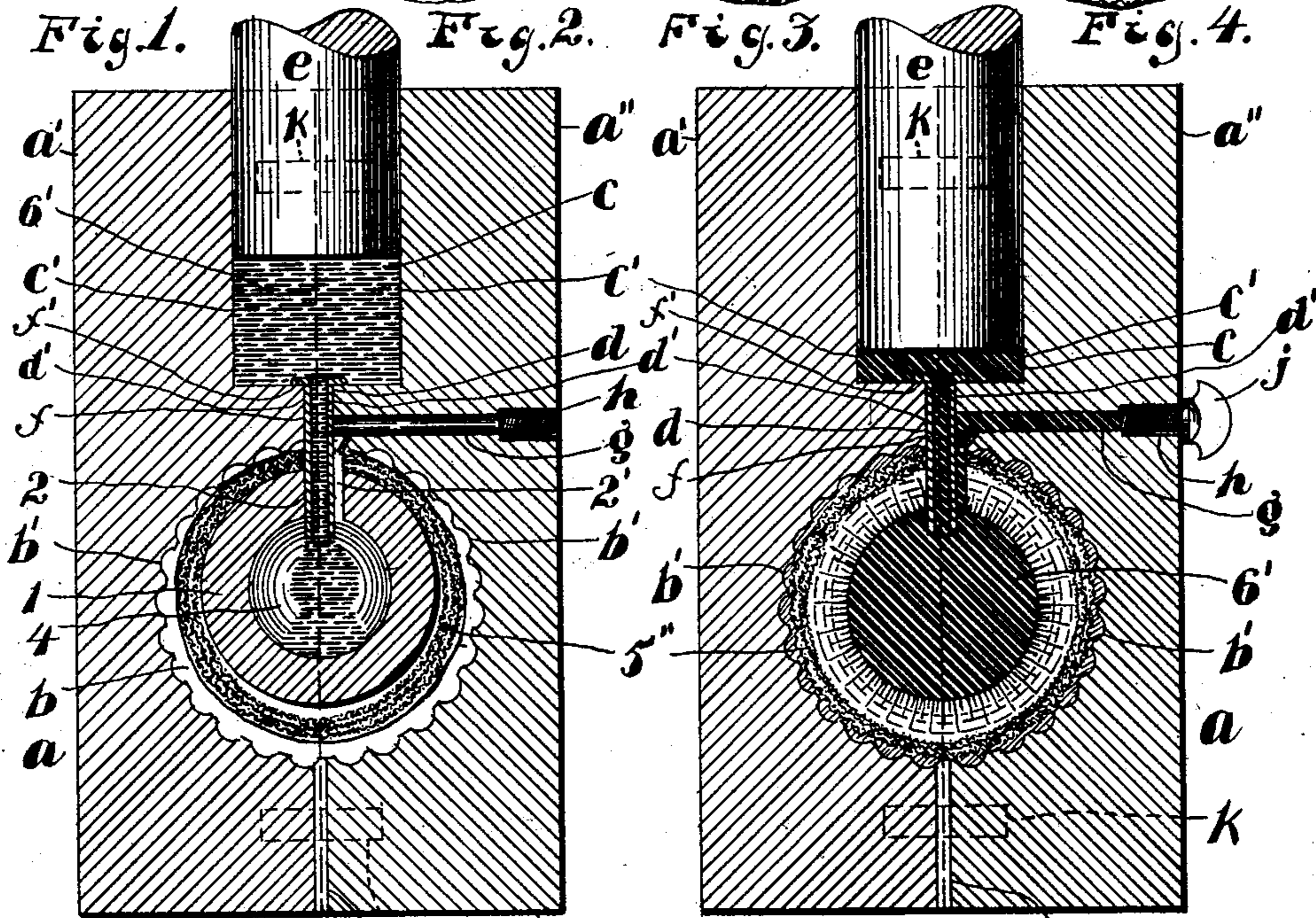


Fig. 5.

Fig. 6.

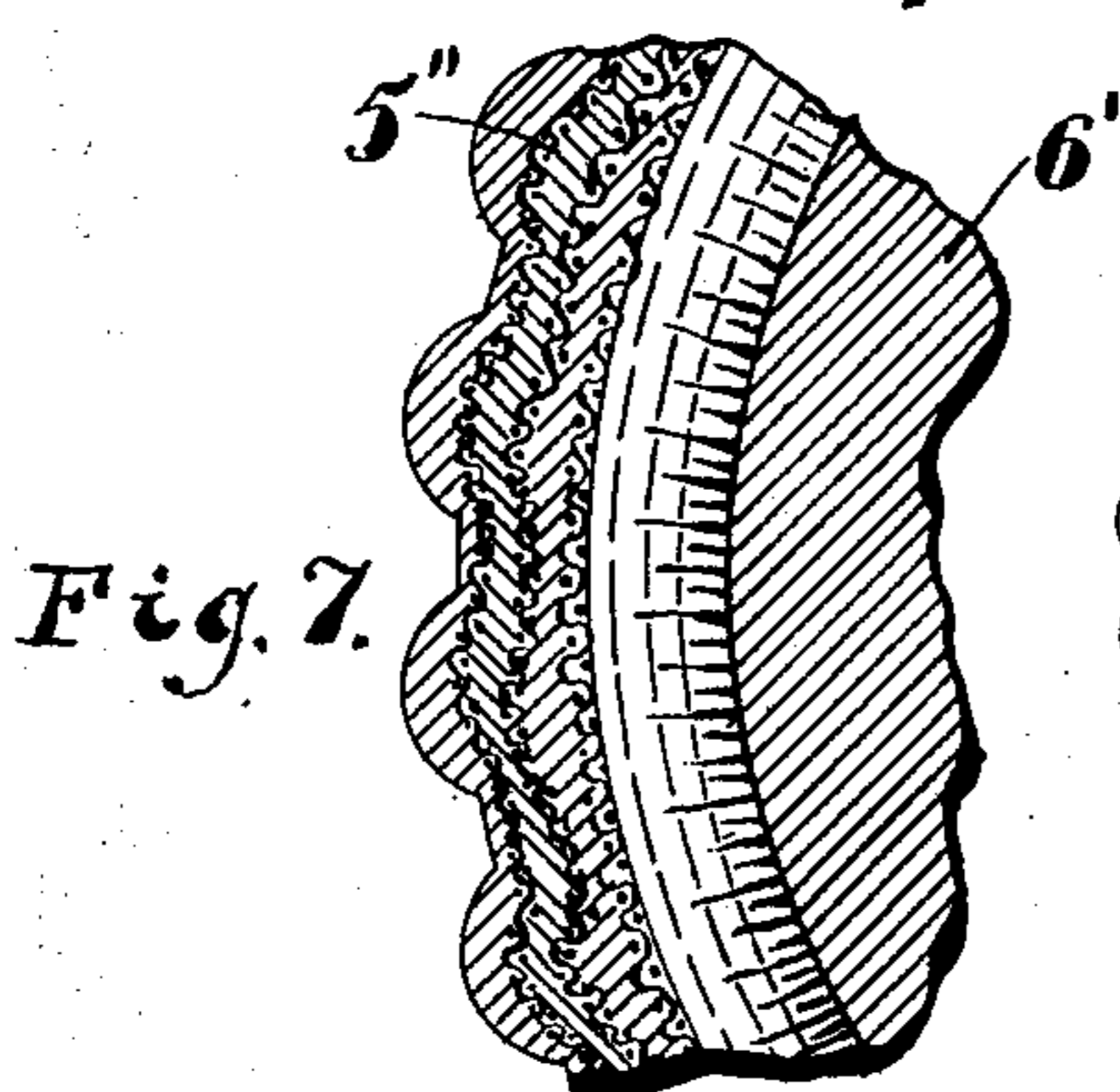


Fig. 7.

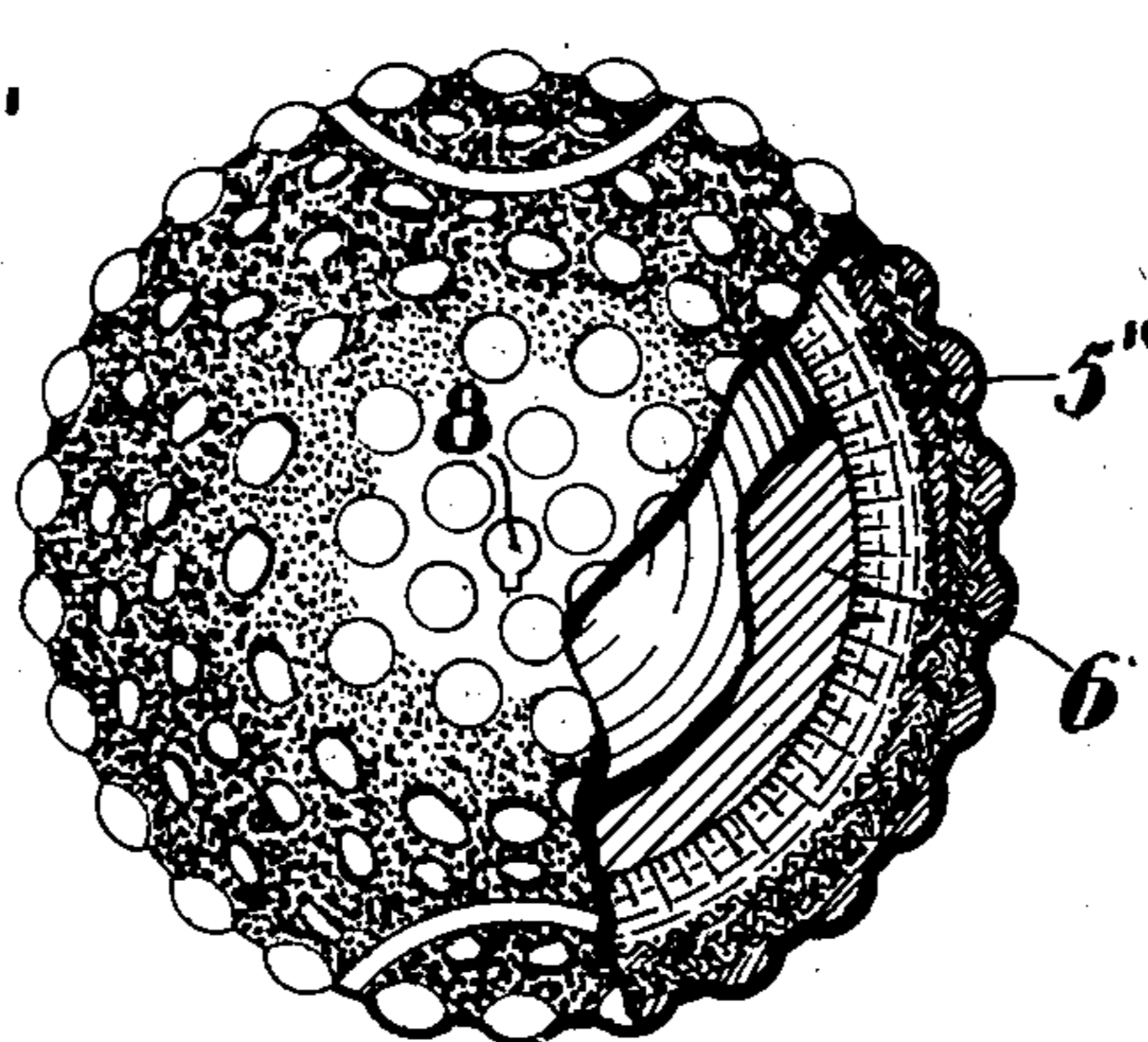


Fig. 8.

Witnesses:
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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. 701,765, dated June 3, 1902.

Application filed March 24, 1902. Serial No. 99,621. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS H. RICHARDS, a citizen of the United States, residing in 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, and especially to those used in the game of golf; and its object is to improve the structure and increase the durability of the ball.

In the drawings forming part of this specification, Figure 1 illustrates an unexpanded soft-rubber shell. Fig. 2 shows a compound layer of celluloid and fabric applied to said shell. Fig. 3 shows a fabric and celluloid layer applied to the Fig. 2 device. Fig. 4 shows the addition of still another layer of fabric and celluloid. Figs. 5 and 6 illustrate later stages in the production of the ball. Fig. 7 is an enlarged sectional fragment, illustrating the construction of the ball. Fig. 8 shows a ball completed and partly broken away.

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

In forming a core for the ball I employ a shell 1 of soft rubber, having a perforation 2 and a vent 2'. 3 designates the outer surface, and 4 the inner surface or cavity, of said shell. Upon said shell I apply a layer or shell 5, compounded of celluloid and fabric. Upon said layer I apply a second fabric-lined celluloid layer or shell 5'. Preferably I also use a third similarly-compounded layer 5''. Each layer of celluloid may be applied in a plastic condition and allowed to harden to an extent to be handled with safety, and the fabric-layers may be applied separately, if desired. The several layers may, however, be otherwise applied within the scope of my invention, and it is desirable that all of said layers should be loosely arranged. The ball thus assembled I inclose in a mold α , consisting of two parts α' and α'' , having a pair of hemispherical depressions b' , which together form a spherical cavity or chamber b . The mold is also provided above the spherical chamber with a cylindrical bore c , formed by opposing recesses c' , one in each of the halves of the mold, and in said bore works a piston e . In

a hole d , which is formed by recesses d' in the halves of the mold, is inserted a funnel f , having a flange f' . The half α'' of the mold is provided with a transverse perforation g , screw-threaded at h to receive a threaded plug j . The mold-halves may be provided with dowels k .

When the ball is placed in the mold, the funnel enters through the perforation 2 and communicates with the cavity 4 of the rubber shell. In the bore c is placed a suitable quantity of gutta-percha 6', which is rendered fluent by heat. By the piston e said gutta-percha is forced into the interior of the ball, as at Fig. 4, the displaced air escaping through the vents 2' and g , whereupon the plug j may be inserted, as at Fig. 6, and the piston forced farther down to cause the gutta-percha to expand the rubber and its several enveloping layers to the limits of the mold or chamber. A vent 7 may be provided for the escapement of air from the chamber. The rubber shell is materially increased in diameter and put into a state of tension, while the fabric and celluloid shells being rendered plastic by the heat are caused to conform to the shape of the chamber, which preferably is provided with pits illustrated, so as to form brambles or otherwise emboss the shell. The pressure is maintained upon the pistons e until the entire ball cools and hardens. The perforations 2 2' may be filled by a plug 8.

Variations may be resorted to within the scope of my present improvements.

Having described my invention, I claim—

1. A playing-ball comprising a shell compounded of fibrous material and celluloid, said shell being distended by a mobile mass of solid material injected thereinto.

2. In a playing-ball, a spherical shell consisting at least partially of fabric and celluloid and distended by plastic material injected thereinto.

3. In a playing-ball, a shell formed of a plurality of layers of celluloid and an intervening fabric layer; said shell being distended by a core of gutta-percha injected thereinto.

4. In a playing-ball, a shell having a plurality of layers of fabric and a plurality of layers of celluloid, and distended by a core of gutta-percha injected thereinto.

5. In a playing-ball, a shell formed of a plurality of layers of fabric compounded with plastic material and distended by a core of plastic material injected thereinto.
- 5 6. In a playing-ball, an embossed shell formed of fabric and celluloid and distended by a gutta-percha core injected thereinto; and a plug filling the injection-hole in the shell.
- 10 7. A playing-ball comprising an embossed shell of plastic material and fabric, said shell being distended by a core of plastic material injected thereinto.
- 15 8. A playing-ball comprising a shell of fabric and celluloid, said shell being distended by a mobile mass of solid matter injected thereinto; and a layer of soft rubber intervening between said shell and said injected material.
- 20 9. In a playing-ball, a spherical shell consisting at least partially of fibrous material and celluloid and distended by plastic material injected thereinto; and a layer of tensioned soft rubber intervening between said shell and said injected material.
- 25 10. In a playing-ball, a shell formed of layers of celluloid and layers of fabric; said shell being distended by a core of gutta-percha injected thereinto; and a layer of soft rubber intervening between said shell and said injected material.
- 30 11. In a playing-ball, a shell having a plurality of layers of fabric compounded with celluloid, and distended by a core of gutta-percha injected thereinto; and a layer of tensioned soft rubber intervening between said shell and said injected material.
- 35 12. In a playing-ball, a shell formed of a plurality of layers of plastic material and fabric, and distended by a core of plastic material injected thereinto; and a layer of soft rubber intervening between said shell and said injected material.
- 40 13. In a playing-ball, a shell distended by a mass of mobile material injected thereinto; said shell comprising layers of fabric and layers of fibrous material; and a layer of tensioned soft rubber intervening between said shell and said injected material.
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Witnesses:

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