

E. KEMPSHALL.
GOLF CLUB.

(Application filed Apr. 8, 1902.)

(No Model.)

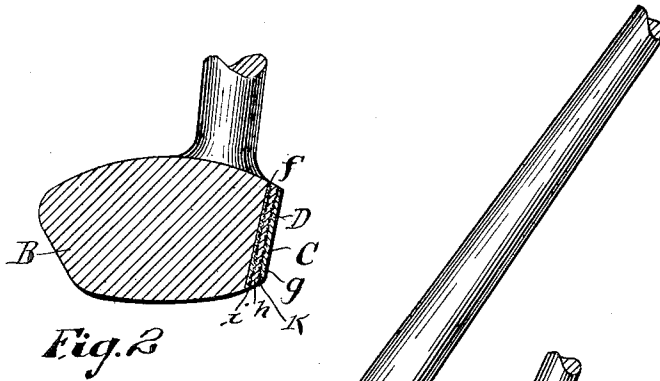


Fig. 2

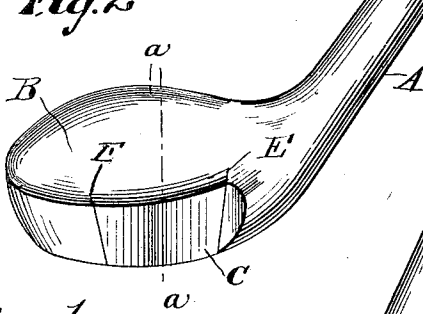


Fig. 1

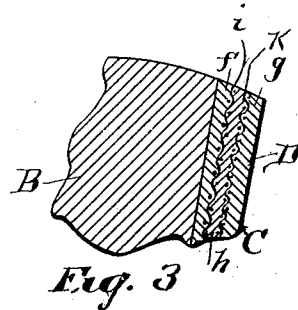


Fig. 3

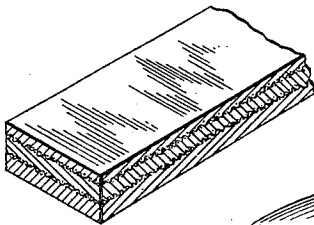


Fig. 5

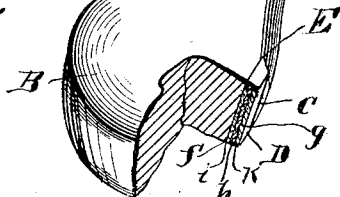


Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

ELEAZER KEMPSHALL, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE
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GOLF-CLUB.

SPECIFICATION forming part of Letters Patent No. 699,624, dated May 6, 1902.

Application filed April 8, 1902. Serial No. 101,886. (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-Clubs, of which the following is a specification.

This invention relates to clubs for use in golf and other games; and its object is to increase the efficiency and durability of the clubs.

I apprehend that the wooden heads of golf-clubs are not sufficiently elastic, and it is found in practice that the hard brambled shells of the balls pit and otherwise injure the wood. Moreover, owing to the comparative inelasticity of the wood, the shock of impact when striking a ball tends to weaken or shatter the handle of the club.

The chief aim of my improvement is to overcome these objections.

In the drawings forming part of this specification, Figure 1 is a perspective view of the lower end of a golf-club made according to my improvements. Fig. 2 is a section on the line *a a*, Fig. 1. Fig. 3 is an enlarged fragment showing particularly a cross-section of my improved facing for the head of the club. Fig. 4 is a perspective of a club whose head is partly broken away, and Fig. 5 is a view of the facing which I apply to the head of the club.

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

A designates the handle of the club, B the head, which is usually of wood, and C my improved facing, which may be dovetailed at E or otherwise secured to the head. In practice I make the facing of alternate layers of celluloid and fabric, preferably using three layers of celluloid, as *f*, *g*, and *h*, and two layers of fabric, as *i* and *k*. All of these layers I preferably compact together under great heat and pressure, maintaining the pressure until the material hardens before applying the same to the club. The fabric is preferably woven and of open mesh, so that the celluloid when softened by the heat is forced through the fabric and becomes keyed there-

on. The celluloid being very hard is not pitted or injured by the impact with the ball and being very elastic and backed by the heavy wooden head vastly improves the driving qualities of the club. I apprehend that the celluloid yields at the impact with the ball and recovers itself before the ball leaves the club, so that the speed of the ball is much greater than that of the club, or, in other words, the celluloid facing enables more energy to be delivered from the club to the ball. Owing to this yielding character, moreover, the danger of the weak handle or neck of the club being split or fractured is minimized. By combining with or embedding in the celluloid one or more plies of fabric the celluloid is toughened to a phenomenal degree, so that the roughest usage in the field does not produce a crack in the celluloid, as might be expected from the rather brittle nature of the material, and even if a crack should appear still the fabric holds the facing permanently together, and hence a crack in the facing cannot render the club useless. When desired, the facing may be scored or otherwise roughened to avoid slip between the same and the ball. Both the outer and inner layers of which my improved facing consists are preferably celluloid, although other relative arrangements of fabric and celluloid may be used. It is further noted that a club made in accordance with my improvements does not subject the ball to such harsh treatment as does a solid wooden or uncushioned head.

By the term "celluloid" I mean to include material of the pyroxylin class. Some other springy plastic material may be combined with one or more toughening layers of fabric and applied to the head of a club within the scope of my invention.

It is not essential always that the precise number or arrangement of layers of celluloid or fabric illustrated be employed.

Having described my invention, I claim—

1. A club having a head, and a facing upon said head consisting of celluloid and fabric.
2. A club having a head, and a facing upon said head consisting of plastic material and

fibrous material, the latter being embedded in the plastic material.

3. A club having a head, and a facing upon said head consisting of at least one layer of plastic material and at least one layer of open-mesh woven fabric embedded therein.

4. A club having a head, and a facing upon said head consisting of a plurality of layers of celluloid and at least one layer of fabric, the latter intervening between the celluloid layers.

5. A club having a head, and a facing upon said head consisting of a plurality of plies of celluloid and a plurality of plies of fabric, the latter alternating with the celluloid and being embedded therein.

6. A club having a head, and a facing upon said head consisting of a plurality of plies of celluloid and a plurality of alternating plies

of fabric; the inner and outer layers of said facing consisting of celluloid.

7. A club having a head, and a facing upon said head consisting of three layers of celluloid and two layers of fabric embedded therein and alternating therewith, the outer and inner layers of said facing consisting of celluloid.

8. A club having a head, and a facing upon said head consisting of open-mesh fabric embedded in celluloid.

9. A club having a head, and a facing dove-tailed into said head and consisting of celluloid in which fabric is embedded.

ELEAZER KEMPSHALL.

Witnesses:

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