Aug. 12, 1924. 1,504,326

J. J. CULLINAN

GOLF CLUB

Filed April 17, 1922

Fig. 1.

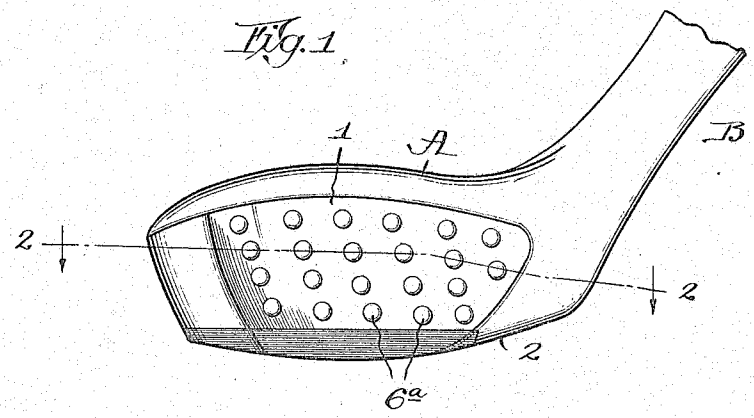
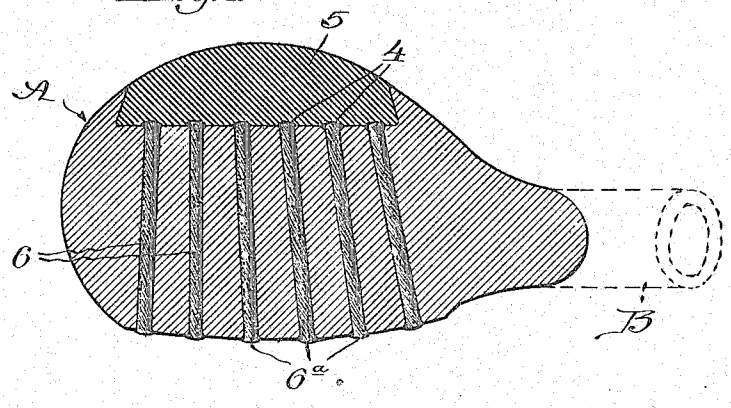


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN J. CULLINAN, OF CHICAGO, ILLINOIS.

GOLF CLUB.

Application filed April 17, 1922. Serial No. 554,327.

To all whom it may concern:

Be it known that I, JOHN J. CULLINAN, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Golf Clubs, of which the following is a specification.

This invention relates to improvements in golf clubs, and more particularly to a new and novel construction for the heads of clubs commonly termed the wood clubs, such as the "driver" and the "brassie."

The object of the invention is to introduce certain improved features in construction of a golf club head which involves a process of impregnating the head with gut, whereby added strength, resiliency as well as other desirable qualities are embodied in the structure.

In the drawings is illustrated the head of a "driver" which is secured to the end of a shaft,

Fig. 1, being a view in front elevation of the head, and

Fig. 2 being a view in horizontal section taken on line 2—2 of Figure 1.

In the usual type of wood club or driver, the head is fashioned from a solid piece of selected and seasoned wood, forming a body portion A, which lies flatwise in contact with the ground, and an upwardly extending oblique neck B, having a socket into which fits the club shaft.

The body portion A is faced vertically at the front side and forms the face 1, and receives the impact with the ball. The bottom surface or sole (2) is substantially flat, and contacts with the ground. The intersection of the face and sole, ordinarily termed the "toe" is preferably faced with a thin layer or strip 3 of hard rubber fiber or like material, inset into the sole. The rear portion of the club head is usually of reduced thickness or vertical dimension, and in order to give the increased weight to the head, a portion of the wood is removed by hollowing out the back face of the head and filling the cavity 4 thus made, with lead 5. The mass of lead is applied in various ways, although without exception is positioned in alignment with the face 1, so that its weight is concentrated directly behind the ball at the instant of impact, as will be hereinafter pointed out. A common practise is to pour molten lead into the cavity formed in the rear face of the head.

Various refinements have been indulged in by club manufacturers, in treating the face of the club head in order to improve the resiliency at the point of contact. Examples of such treatment are the insertion or insetting of blocks of ivory or fiber into the face, or several cylindric plugs of the same material. While these expedients accomplish the purpose intended, they do not withstand long and hard usage, and deteriorate prematurely. Nor does this treatment add to the strength of the club head as a whole, inasmuch the surface only, is altered and not the body of the head.

The present invention contemplates all of the advantages claimed for the methods heretofore indicated, and in addition certain other advantages as will be presently disclosed.

The club head is shaped with respect to the grain of the wood, the same extending generally parallel to the face of the club and transversely to the direction of impact. The first step in treating the head to obtain the improved construction a series of holes are drilled or bored, through the head at right angles to the face 1, preferably arranged in parallel rows extending longitudinally, the holes being spaced apart transversely or vertically at about the same distance giving the staggered arrangement shown in Figure 1.

The particular number or arrangement of holes, is not essential, other than that it is intended that the face shall be treated throughout its entire area. These holes, which extending rearwardly at right angles to the face, preferably converge toward the cavity 4, at the rear of the head and preferably open at their rear ends in said cavity. In practise the boring of the holes is completed before the lead is poured into said cavity, and for the reason which will be obvious.

Into the bores are inserted strands or short lengths of stout gut 6, of say, $\frac{3}{32}''$ to $\frac{1}{8}''$ in diameter, and of substantially the same size as the holes. Before inserting the strands, they are preferably dipped into hot glue. with the result that the moisture and the heat of the glue, as well as the adhesive qualities thereof, cause the strands to swell, and to otherwise become firmly lodged within the holes of the face of the club. The strands are trimmed substantially flush, preparatory to a treatment that may

be described as searing, that is, applying a hot iron to the ends of the strands, or otherwise burning them momentarily. The effect of the searing is to expand the ends of the strands, forming enlarged heads 6^a, which sink into the surrounding wood and act in the same manner as a rivet head.

As a result the entire face of the club head is studded with the slightly rounded surfaces of the heads thus providing a roughened surface usually obtained by grooving the face.

The rear ends of the strands are likewise trimmed so that a very short end projects into the cavity. After the insertion of the gut strands, the molten lead is poured into the cavity. The contact of the hot lead with the ends of the strands has the same effect as the searing process, in that the ends of the strands are expanded and form heads 6^b at the rear ends thereof. Thus each strand is firmly anchored in the wood, not only throughout its length but at their ends, by the heads which are formed at each end. Thus the strands of gut are permanently embedded in the wood, and to such an extent that the wood may be said to be thoroughly impregnated by the gut.

Furthermore, the strands of the gut extend transversely to or crosswise of the grain of the wood. Thus each individual strand securely binds together the fibers through which it passes. It follows therefore, that the several strands, act to unite the entire fibrous structure into a strong and unitary mass, which will effectively resist breakage or splitting.

Obviously, the aggregate mass of gut concentrated behind the face of the head, produces a body of resilient substance calculated to increase the resiliency of the head, and especially that portion immediately behind the point of area of impact. In short a club head of this character combines all of the desirable features of increased strength and resiliency, decreased cost of manufacture, and superior playing qualities.

The method of treatment may vary with different styles and designs of club head, and therefore it is understood that the invention is not to be limited to the exact disclosure herein made.

I claim as my invention:

1. A golf club or the like comprising a head of fibrous material, having a substantially flat striking face, and a strand of gut extending into said head substantially at right angles to the face thereof, the outer end of said strand having a heat enlarged head substantially flush with said face.

2. A golf club or the like comprising a head of fibrous material having a striking face and a strand of gut extending through said head, and provided with heat enlarged heads at the ends thereof and flush with the surface of the club head.

3. A golf club or the like comprising a head of fibrous material having a substantially flat striking face and perforations therethrough substantially at right angles to said face and strands of gut secured in said perforations and their ends terminating flush with the surface of the club head in heat enlarged heads.

4. A golf club, comprising a head having a face on one side thereof, a weighted mass embedded in a cavity formed in the other side, and a plurality of strands of gut extending through said head from said face to cavity, the ends of said gut terminating in enlarged heads at the surface of said face, and a corresponding surface of said cavity.

5. A golf club, comprising a head, having a plurality of holes bored therethrough from the front face to a cavity in the rear face thereof, a plurality of strands of stout gut inserted in said holes, the forward ends of said strands being seared to form heads substantially flush with said face, and the rear ends similarly enlarged by the contact with the molten lead with which said cavity is subsequently filled.

In witness whereof, I hereunto subscribe my name this 13th day of April A. D. 1922.

JOHN J. CULLINAN.