

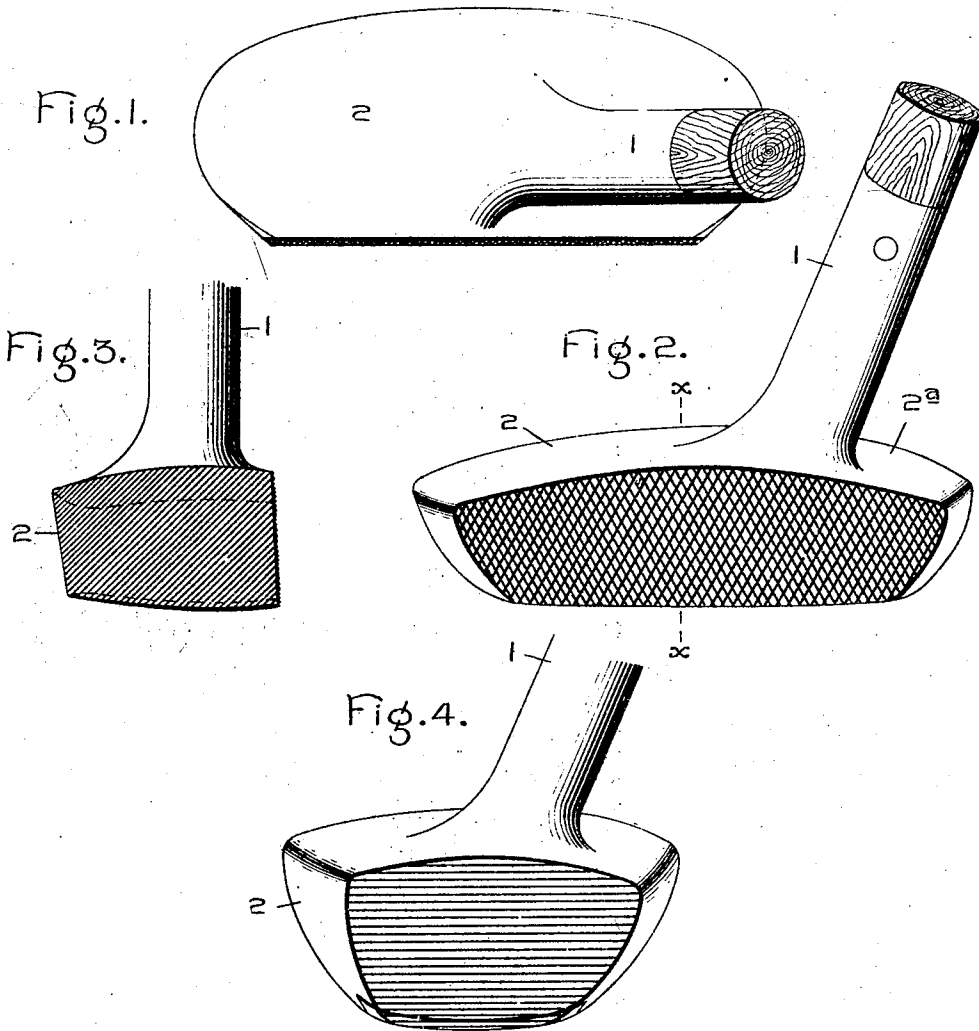
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PATENTED MAR. 24, 1903.

A. F. KNIGHT.
GOLF CLUB.

APPLICATION FILED AUG. 26, 1902.

NO MODEL.



Witnesses:

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UNITED STATES PATENT OFFICE.

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GOLF-CLUB.

SPECIFICATION forming part of Letters Patent No. 723,534, dated March 24, 1903.

Application filed August 26, 1902. Serial No. 121,113. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR F. KNIGHT, a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in Golf-Clubs, of which the following is a specification.

This invention relates to playing-clubs for the game of golf, the object being to provide a club in which the chance for error on the part of the player in driving, approaching, or putting is greatly reduced.

Golf-clubs as heretofore designed have been commonly made with the shaft of the head or part which delivers the impact-blow to the ball connected with said head at the extreme end of the same, so that a continuation of the rear line of the shank forms the heel of the club. This shape has probably a merely traditional origin from the fact that in the early times a bent root was used to make the club. I have discovered, however, that a club designed on scientific principles having a view to the symmetrical distribution of the mass with which the impact-blow is delivered admits of much greater accuracy in play. This results from a number of causes which tend to disconcert the accuracy of the player in the shape of tool ordinarily employed. The main body of the club-head being entirely forward of the shaft necessitates in the delivering of the blow a tense wrist to prevent swerving from the plane of impact during the preliminary motion and swinging of the club, and on engagement of the toe of the club with the ball there is a strong tendency for the heel of the club to swing forward, particularly in the case of a hard drive, which is accentuated by the torsional effect on the shaft at the moment of impact. All of these causes interfere with a true correspondence of delivery with respect to the player's aim. In a golf-club constructed according to my invention, however, the shaft is connected to the head of the club at a point well forward of the heel and preferably at a point within the range of three-quarters of an inch from the center of gravity of the head. The axial center of the shaft is also located at a point between the striking-face and the center of

mass. The point of intersection of the axial center of the shaft with the center of gravity of the head will vary more or less according to the relative character of the materials used in making the handle and head and according to the inclination of the handle with respect to the sole of the club. A distinctive feature consists in providing a long striking-face, by which accurate alinement of the stroke may be easily attained, and the connection with the shaft in such a way that the major portion of the club mass is behind the shaft-axis. This arrangement contributes not only to accurate alinement by the eye, but prevents tilting of the club-head while delivering the blow, as the point of application in the forward part of the head prevents any tendency toward unstable equilibrium while the blow is being made.

It is found by repeated trials on the part of skilled players that a club designed in accordance with my invention admits of much more accurate playing than the clubs ordinarily employed.

My invention therefore comprises a golf-club in which the center of the shaft is connected to the head forward of the center of mass in the direction of delivery of the blow and at a point between the heel and toe of the club-head.

It comprises also a head having a striking-face along its major axis, with the shaft connection at a point forward of the center of mass.

The novel features will be more particularly pointed out in the claims appended to this specification.

In the accompanying drawings, which illustrate the invention, Figure 1 shows a plan view, partly in section, of a putter involving my improvements. Fig. 2 shows a front elevation of the head and part of the shaft of such a club. Fig. 3 is a sectional view on a plane indicated by the line X X of Fig. 2, and Fig. 4 is a side elevation of the head and part of the shaft of a brassy or driver.

It will be seen that in all the types illustrated the shaft 1 is connected with the head 2 of the club at a point where the entire body of the shank is well forward of the position

commonly adopted with respect to the heel and nearer the striking-face than the back of the head. The heel 2^a projects well behind the rear line of the shaft. Inasmuch as the shaft inclines with respect to the sole of the club, thus necessitating a difference in position relatively to the true intersection of the axis with the center of gravity of the mass of the head, the exact point at which the shaft is located will vary. This will differ somewhat with the style of delivery of the player and with other factors which dominate his convenience in play; but in all cases the axis of the shaft intersects the head within a certain range of distance from the center of gravity of the head and between the striking-face and the center of the mass.

As seen in the putter shown in Fig. 2, the shaft has an inclination of about twenty-five degrees, and the axial line of the shaft intersects about three-eighths of an inch to the rear of the center of mass of the head, or closer to the heel and closer to the striking-face than the back of the head. As the shaft approaches a steeper angle it may be shifted forward. The position also will be altered somewhat by the distribution of weight in the head, as the center of mass does not coincide with the center of symmetry, owing to loading and shoeing and other causes resorted to to render the club effective.

The socket or shank of the club may of course be formed integral with the head or may be made and attached in any of the

familiar ways. In the type shown in the drawings the shank is made in one piece with the head and the handle is fastened by a pin. It may of course be connected by splicing and winding with twine or in any other usual manner.

The usual material may be employed in the manufacture of clubs involving my invention; but I prefer to employ a head made, as to the clubs which are commonly made of iron, of aluminium or alloys thereof—for example, the putter, cleek, mid-iron, &c. The handle may be made of selected hickory.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A golf-club having the axis of the shaft intersecting the head at a point between the heel and toe and between the striking-face and the center.

2. A golf-club head having a striking-face along its major axis and a shaft-socket intermediate the heel and toe and between the striking-face and the center of mass.

3. A golf-putter comprising an oblong head having a striking-face on the longer axis and a shaft mounted therein so that its axis lies between the heel and toe and between the striking-face and center of mass.

In witness whereof I have hereunto set my hand this 25th day of August, 1902.

ARTHUR F. KNIGHT.

Witnesses:

BENJAMIN B. HULL,
FRED RUSS.