March 10, 1925. 1,529,305

T. L. GATKE

GOLF CLUB

Filed June 5, 1924

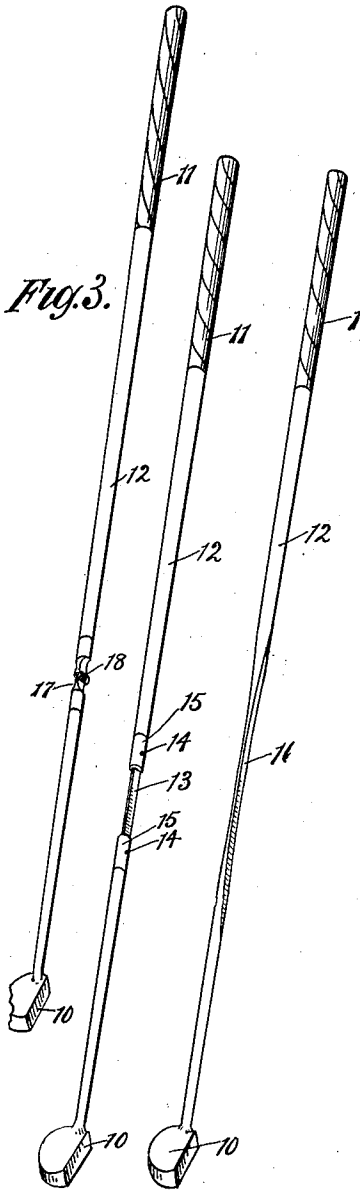


Fig. 3.

Fig. 1.

Fig. 2.

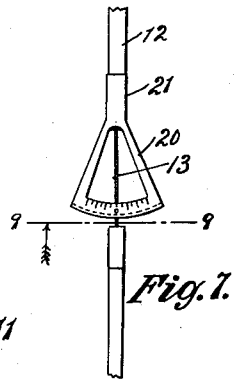


Fig. 7.

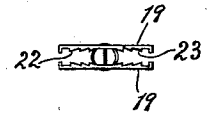


Fig. 9.

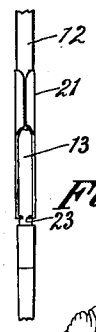


Fig. 8.



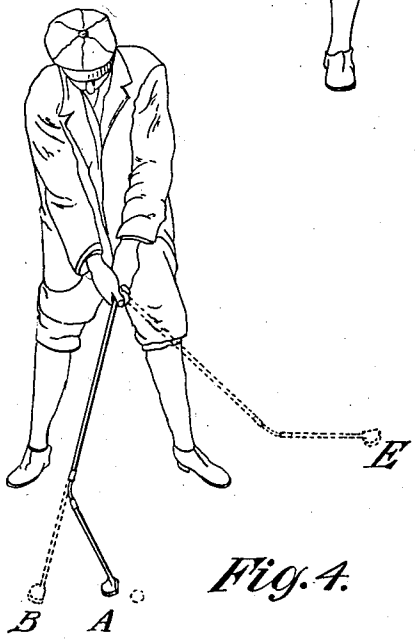


Fig. 4.

Fig. 5.

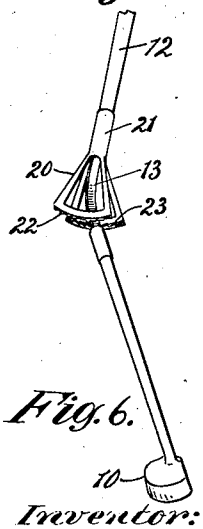


Fig. 6.

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Patented Mar. 10, 1925. 1,529,305

UNITED STATES PATENT OFFICE.

THOMAS L. GATKE, OF CHICAGO, ILLINOIS.

GOLF CLUB.

Application filed June 5, 1924. Serial No. 717,915.

To all whom it may concern:

Be it known that I, THOMAS L. GATKE, a citizen of the United States, and resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Golf Clubs, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

This invention relates to golf, and has for its principal object to promote the perfection of the player's stroke by showing errors or imperfections as they occur in the different parts thereof.

Further objects and advantages of the invention will become apparent as the disclosure proceeds, and the description is read in connection with the accompanying drawing illustrating selected embodiments of the invention, in which—

Figs. 1, 2 and 3 are perspective views of different forms embodying the invention;

Figs. 4 and 5 are views of a player and a club, illustrating how errors in the stroke are shown in the use of the club;

Fig. 6 is a perspective view illustrating how the extent of the error may be indicated and the effect may be preserved to permit the player to see for himself; and

Figs. 7, 8 and 9 are detail views illustrating a ratchet mechanism by which the result shown in Fig. 6 may be accomplished.

Referring to the drawings it will be seen that the club includes a head 10, and a grip 11, which may be of the usual or any suitable form or construction. The shaft 12 connecting the head at the grip may be, to a greater or less extent, also of the usual or any preferred form or construction. However, it differs from the ordinary shaft in being sufficiently flexible in the plane of the stroke to bend under an improper movement, while retaining sufficient rigidity in a plane transverse to the stroke to support the head in proper relation to the grip.

This is accomplished in the form shown in Fig. 1, by replacing an intermediate portion of the shaft with a spring 13, here shown as a flat strip with its shortest dimension lying in the plane of the stroke and its width lying transverse to that plane. The ends of the spring may be inserted in suitable slots in the adjacent end portions of the shaft, and secured in place by pins or rivets 14 passing through the ferrules 15, which enclose the end portions of the shaft.

Springs of this form can be made with a great variety of degrees of flexibility, so that in this respect a club may be varied quite widely to meet the requirements of particular cases and the preferences of individuals, while at the same time the springs will be sufficiently rigid transverse to the stroke to prevent the head from drooping, and also sufficiently resistant to torsional strains to prevent twisting.

Similar results may be obtained by reducing the intermediate portion 16 of the shaft, as shown in Fig. 2, to produce a thin section that may be readily flexed in the plane of the stroke, but will resist flexure transverse to that plane and also torsion.

An intermediate portion of the shaft may also be replaced by a spring hinge 17, with its pivotal axis 18 arranged transverse to the plane of the stroke so as to readily permit flexure in that plane and resist flexure transverse to that plane and torsion, as in the other cases.

These forms will serve to indicate the nature of the invention and the variety of ways in which it may be embodied to accomplish the objects set forth.

In some cases it will be found desirable to provide means for indicating the amount of flexure that takes place in the shaft, or to hold the shaft in its flexed condition, as shown in Fig. 6. This may be accomplished as illustrated in Figs. 7, 8 and 9, by providing the upper portion of the shaft, that is, the portion above the point where the flexure is allowed, with a segment, or the like, along which the spring or the lower portion of a shaft may move, and trace a record of the flexure that may be preserved in the form of a mark, or by engagement of ratchet teeth, or the like, to prevent straightening of the club until a study of the error is completed. There is a segment 19 at each side of the shaft, having converging arms 20 terminating in a shank 21 lying along the end portion of the upper section of the shaft and secured thereto in any suitable manner. The inner faces of the segments are equipped with ratchet teeth 22, 23, on opposite sides of the middle, which teeth face in opposite directions, as best shown in Fig. 9. For such an arrangement it is obvious that upon flexure of the club the spring 13, or other portion of the shaft, moves freely over the adjacent faces of the segments under the flexing force, but will be prevented from

assuming its normal position by engagement with the ratchet teeth, thus preserving the club in substantially the form it assumes and thereby indicating the extent of the player's error.

If desired, the inside teeth of the two sets may be spaced sufficiently to permit flexure within small limits without locking engagement with the ratchets. The arrangement illustrated in Fig. 9 allows reasonable latitude in this respect.

Figs. 4 and 5 illustrate the indicated errors occurring in different parts of the stroke with a driver. In the back or upward swing the club should begin to gain speed when the swing is about half made, or not much before that, and should gradually increase until the top of the stroke. Too much speed at the beginning of the back swing, or a jerk at any point, spoils the stroke and renders an effective drive greatly improbable. In Fig. 4 position A illustrates the flexure of the club that may be caused by starting too fast, or by a jerk, in the early part of the back swing; that is, when the head of the club would, with the ordinary shaft, be at B, regardless of the correctness or incorrectness of form, the head will actually trail behind in some such position as A when the club made according to this invention is being used. Thus, not only is the error indicated at the part of the stroke where it occurs, but the extent of the error is also shown, thereby enabling the player to determine the proper correction both as to place and amount.

The back swing should blend into the forward swing at the turning point with hardly an appreciable pause, but there must be no jerk. Fig. 5 shows how such an error is indicated, the dotted position C illustrating where the head of the club would be following a jerk when the ordinary shaft is used, and the solid position D illustrating where the head might be with a club made according to this invention.

The club would gradually gain in speed from the moment of the turn until it is in contact with the ball, and after the impact the club head should follow the ball straight in the line of the flag as far as the arms will let it go, after which the club swings out at the other side of the shoulder from which the down swing began. A faulty follow-through is indicated by the dotted position E in Fig. 4. The entire movement should be perfectly smooth and rhythmical, and this can only be had by eliminating even slight jerks or double swings.

A club made according to this invention will indicate each and every such error and hence will facilitate their detection, which is the first and most difficult step in correcting them.

Use has been made of specific description and illustration in order to disclose the invention, but it is intended that nothing contained herein shall unnecessarily limit the following claims, or require a construction thereof that would permit the substance of the invention to be used without infringement.

I claim as my invention—

1. In a golf club, a shaft equipped at one end with a grip and at the other end with a head, said shaft being sufficiently flexible in the plane of the stroke to bend under an improper movement and sufficiently rigid in a plane at right angles to the stroke to support the head in proper relation to the grip, and means to indicate the flexure of the shaft.

2. In a golf club, a shaft equipped at one end with a grip and at the other end with a head, said shaft being sufficiently flexible in the plane of the stroke to bend under an improper movement and sufficiently rigid in a plane at right angles to the stroke to support the head in proper relation to the grip, and means to restrain the straightening of the shaft after it has been flexed.

3. In a golf club, a shaft equipped at one end with a grip and at the other end with a head, said shaft being sufficiently flexible in the plane of the stroke to bend under an improper movement and sufficiently rigid in a plane at right angles to the stroke to support the head in proper relation to the grip, and ratchet means to hold the shaft flexed.

THOMAS L. GATKE.