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Zitko

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[54] **GOLF CLUB**

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[52] **U.S. Cl.** ..... **273/80 C;** 273/81.3; 273/164; 273/167 G

[51] **Int. Cl.** **A63b 53/00**

[58] **Field of Search** ..... 273/77 R, 81 R, 163 R, 273/164, 167–174, 81.3, 80 R, 80 C, 80.1–80.8; D34/5 GC, 5 GH

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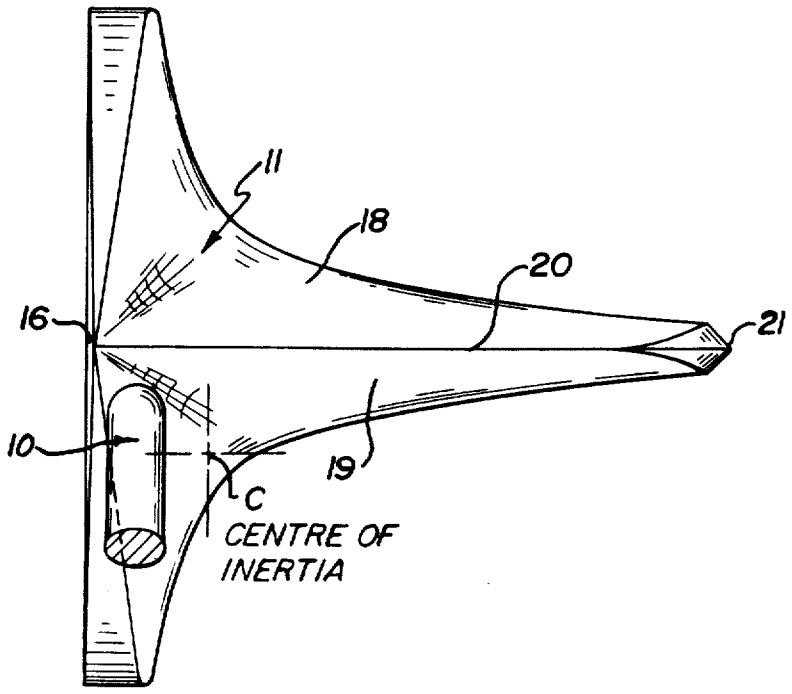
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[57] **ABSTRACT**

A golf club of the kind adapted to be played from the sides of the body rather than through the legs, i.e., of the kind which is swung in a plane inclined to the vertical, having a shaft with an elongated hand grip at one end and a club head with a generally planar ball striking surface at the other end, in which the hand grip axis lies in a plane normal to the striking surface and including the center of inertia of the club.

9 Claims, 3 Drawing Figures



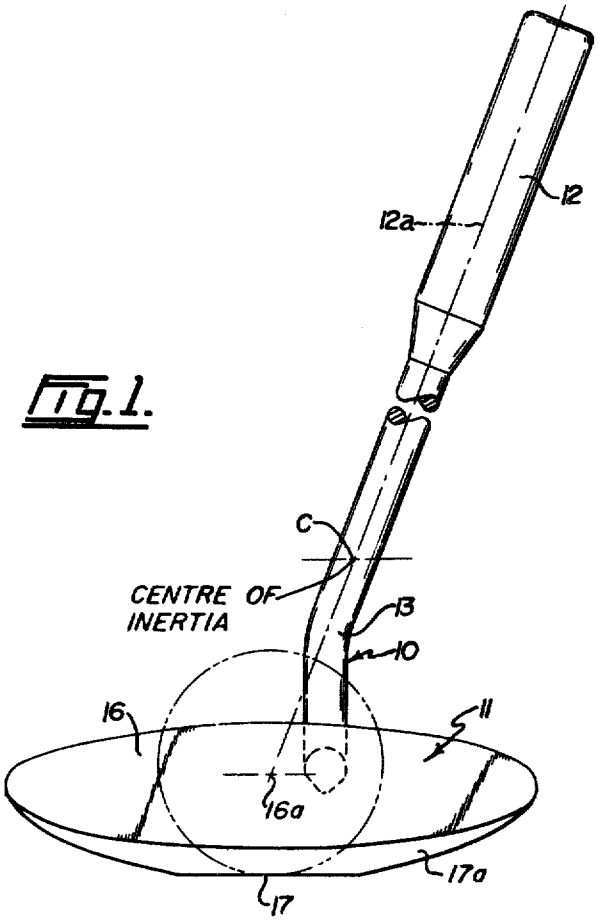


Fig. 1.

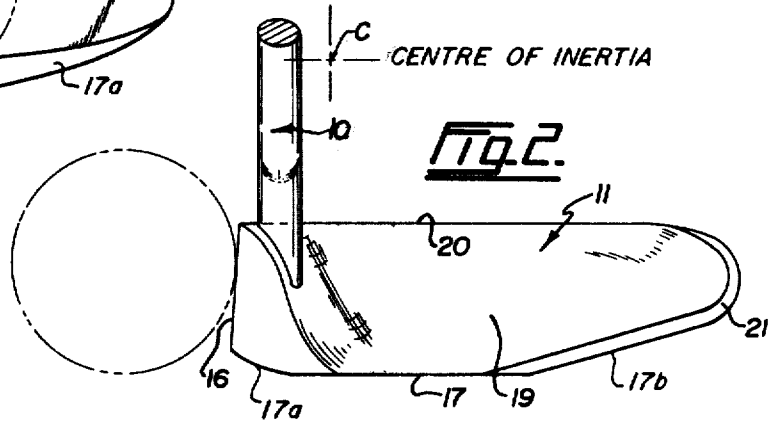


Fig. 2.

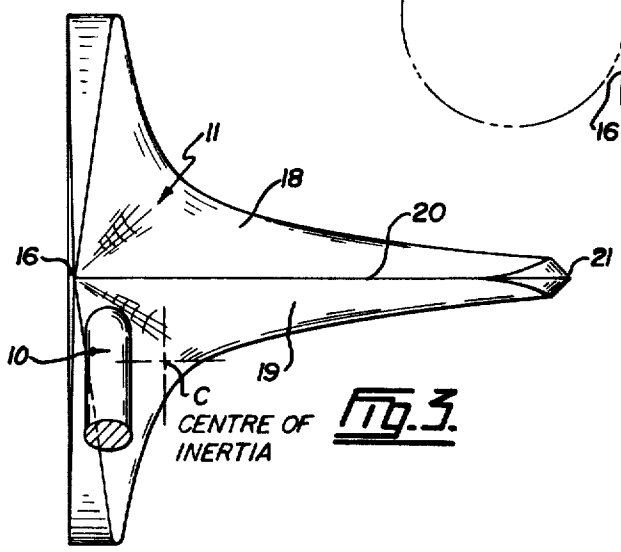


Fig. 3.

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GOLF CLUB

BACKGROUND OF THE INVENTION

This invention is concerned with golf clubs, particularly, but not necessarily exclusively, with putters. It is exclusively concerned with the type of club which is intended to be played in the conventional fashion rather than in the croquet mallet fashion through the legs. In other words, it is concerned with a club of the kind which is swung in a plane inclined to the vertical. The common golf club with a hand grip, a shaft and a head has the head projecting outwardly and downwardly from the shaft and has its center of inertia laterally offset from the axis of the hand grip, i.e. from the axial center line of the hand grip. This offset produces a force tending to twist the clubhead about that axis as the club is accelerated during the swing and consequently it is only by resisting this tendency or by taking it into account that a player can cause the head to strike the ball in the attitude which is intended.

SUMMARY OF THE INVENTION

It has been discovered that by eliminating this tendency to twist a very much improved reliability in accuracy can be obtained. To overcome the tendency it is proposed according to this invention that the axis of the hand grip should, during a proper swing, generate a plane which includes the center of inertia (center of percussion) of the club.

In a particular embodiment it is proposed that the hand grip axis lie in a plane including the point on the ball striking surface of the club head at which a ball is intended to be struck and the center of inertia of the club and that plane should be normal to the ball striking surface.

Preferably the hand grip axis passes through the club head and desirably it passes through the ball striking surface.

It is desirable to have the club head extended rearwardly from the ball striking surface and to mark that extension with a sighting line. The sighting line can be formed between two inclined surfaces meeting at a ridge which would constitute the sighting line.

It will be appreciated that in many instances the hand grip and the shaft can be coaxial but it may be convenient to crank the shaft to offset the hand grip axis from that of the shaft to suit a particular players' needs and give an unobscured view of the ball striking surface and the ball.

Alternatively, a hand grip can be utilized with its axis misaligned with the shaft axis to the degree that maintains alignment with the centre of inertia without cranking the shaft.

BRIEF DESCRIPTION OF THE DRAWINGS

An embodiment of the invention is illustrated in the accompanying drawings in which,

FIG. 1 is a front view of a putter according to this invention,

FIG. 2 is a side view of the putter of FIG. 1, and

FIG. 3 is a plan view of the putter of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In the drawings the lower part of the shaft of the club is indicated by numeral **10** and the head by numeral **11**. The hand grip **12** has its axial center line **12a** coincidental with the major part of the shaft as shown in the drawings but the lower end of the shaft is cranked as at **13**. By cranking the shaft in this manner the player is afforded a substantially unobscured view of the club head and ball whilst the axial center line of the hand grip is, as described hereinafter, in a plane including the center of inertia of the club. It will be appreciated that were a straight shaft aligned with the center of inertia and passed through the ball striking surface of the club head the player's view would be slightly obscured and whilst this is not considered to be a major drawback as far as the use of the club is concerned to some players it can tend to be a problem.

The club head has a generally planar ball striking surface **16** of which the center point **16*a*** is the point intended to strike the ball.

The club has a rearwardly extending portion **17** which constitutes a flat sole serving as a rest during the address of the ball. The club head tapers upwardly from the flat sole to the ball striking surface **16** as can be seen at **17a** particularly in FIG. **2** to provide a skid to reduce the effect of any high spots on the ground immediately behind the ball. At the rear end **21** of the club head, i.e., that end most remote from the surface **16**, the head tapers upwardly and rearwardly as can be seen at **17b** in FIG. **2** particularly. The upward inclination of the rear end **21** of the club head gives clearance for the follow through of the swing.

The view of the club head presented to the player is of two inclined surfaces **18** and **19** which come together at a ridge **20** which is the center line of the club head. This ridge **20** provides a sighting line which aids the player in aiming.

The center of inertia of the club will lie in some position displaced from the center of gravity of the club as that marked C in the drawings. The center line **12*a*** of the hand grip lies in a plane normal to striking surface **16** and passing through said center of inertia, and in this embodiment said plane also passes through a line normal to the surface **16** and passing through the center point **16*a*** of that surface.

It will be appreciated that by arranging the hand grip axis to lie in the plane including the center of inertia of the club and the intended line of travel of the ball there will be no tendency for the club head to pivot about that axis as it is swung as would be the case where the handgrip is in line with the center of gravity of the club head or club.

It is appreciated that it will in some circumstances be difficult to determine where the center of inertia lies but a relatively simple test which can be used during manufacture is to mount the club with the hand grip clamped to a rotatable bearing which is in turn pivotally mounted so that the swing of the club through a vertical plane can be reproduced. If the hand grip axis is not in the plane of the center of inertia then there will be a tendency for the club to rotate about the hand grip axis within the bearing. This rotation can be observed fairly readily by noticing the deflection of a beam of light directed on to a mirror secured to the ball striking surface of the club. If there is a deviation from this alignment then corrections can be made by cranking the shaft of the club.

I claim:

1. A golf club of the kind which is swung in a plane inclined to the vertical, comprising a shaft, an elongated hand grip on one end of the shaft, a club head on

the opposite end of the shaft and having a wide substantially planar ball striking surface, said shaft being inclined relative to the head when the latter is in a normal ball-striking position, said club having a center of inertia when swung through a ballstriking stroke, and said hand grip having an axis lying in a plane normal to the striking surface and including said center of inertia.

2. A golf club as claimed in claim 1, in which the hand grip axis passes through the club head.

3. A golf club as claimed in claim 1, in which the club head has an extension rearwardly away from the ball striking face and a sighting line formed on that extension.

4. A golf club as claimed in claim 1, in which the club head has a rearward extension including two inclined surfaces meeting in a ridge to form a sighting line.

5. A golf club as claimed in claim 1 in which said opposite end of the shaft is cranked downwardly from said shaft to the club head.

6. A golf club as claimed in claim 1 in which said striking surface of the club head is wider than the height of said surface.

7. A golf club as claimed in claim 6 in which said club head is formed with a flat bottom sole, said head tapering upwardly and forwardly from the sole to the striking surface and tapering upwardly and rearwardly from said sole.

8. A golf club as claimed in claim 6 in which the club head has an extension rearwardly away from the ball striking face and a sighting line formed on said extension.

9. A golf club of the kind which is swung in a plane inclined to the vertical, comprising a shaft, an elongated hand grip on one end of the shaft, a club head on the opposite end of the shaft and having a wide substantially planar ball striking surface and a point on the striking surface at which a ball is intended to be struck, said shaft being inclined relative to the head when the latter is in a normal ball-striking position, said club having a center of inertia when swung through a ball-striking stroke, and said hand grip having an axis lying in a plane normal to the striking surface and including said center of inertia.

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