GOLF CLUB HAVING A HANDLE WITH VIBRATION SENSING MEANS

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This invention relates to the general field of game apparatus or equipment and, more specifically, the instant invention pertains to golf clubs.

One of the primary objects of this invention is to provide a new and improved golf club which enables the user thereof to pre-calculate the length of his swing of the club and the necessary force to be exerted in order to obtain the optimum results during each stroke or shot.

Another object of this invention is to provide a new and improved golf club especially engineered to provide the user thereof with sensing means utilized in the pre-determination of the length of the swing of the golf club and the impact force necessary to carry a golf ball its maximum distance.

A further object of this invention is to provide a new and improved golf club with means for transmitting vibrations thereof occasioned by impact of the golf club head with a ball to the thumb or fingers of the user whereby the same may be sensed and utilized in the pre-calculation of the length of the swing of the golf club on the next succeeding shot and the power to be utilized in making the next shot or stroke.

It is a still further object of this invention to provide in a golf club of the putter type, vibratory means connected with the golf club head and extending through the handle for engagement by one or more of the fingers of the user to be sensed thereby, the vibrations being utilized by the user in pre-calculation of the length of the swing of the golf club on the next shot or stroke. It will be understood, of course, that this invention may be used in conjunction with golf clubs of types other than putters.

This invention has, and further contemplates the provision of a golf club of the type generally described supra, the golf club being inexpensive to manufacture and maintain, easily assembled, and which is durable in use.

Other and further objects and advantages of the instant invention will become apparent from a consideration of the following specification when read in conjunction with the annexed drawing, in which:

FIGURE 1 is a perspective view of a putter type golf club incorporating the instant invention;

FIGURE 2 is a fragmentary detail cross-sectional view, FIGURE 2 being taken substantially on the vertical plane of line 2--2 of FIGURE 1, looking in the direction of the arrows;

FIGURE 3 is an enlarged detail fragmentary cross-sectional view, FIGURE 3 being taken substantially on the vertical plane of line 3--3 of FIGURE 2, looking in the direction of the arrows;

FIGURE 4 is a fragmentary side elevational view of a second embodiment of this invention;

FIGURE 5 is a fragmentary detail cross-sectional view, FIGURE 5 being taken substantially on the vertical plane of line 5--5 of FIGURE 4, looking in the direction of the arrows;

FIGURE 6 is a fragmentary side elevational view of the handle portion of a golf club constructed in accordance with a third embodiment of this invention;

FIGURE 7 is a fragmentary detail cross-sectional view, FIGURE 7 being taken substantially on the vertical plane of line 7--7 of FIGURE 6, looking in the direction of the arrows;

FIGURE 8 is a detail cross-sectional view, FIGURE 8 being taken substantially on the horizontal plane of line 8--8 of FIGURE 7, looking in the direction of the arrows;

FIGURE 9 is a fragmentary, enlarged, detail cross-sectional view of the handle portion of a golf club constructed in accordance with a fourth embodiment of this invention;

FIGURE 10 illustrates an enlarged, fragmentary, detail cross-sectional view showing a still further means for anchoring one end of the vibratory device to the shank;

FIGURE 11 is an enlarged fragmentary detail cross-sectional view illustrating still another means for anchoring one end of the vibratory device to the shank; and

FIGURE 12 is an enlarged fragmentary detail cross-sectional view of the handle portion of the golf club.

Referring now more specifically to the drawing, reference numeral 10 designates, in general, a golf club constructed in accordance with the teachings of this invention. The club 10 includes a head 12 of conventional configuration, the head 12 being formed of steel or other desirable materials and being provided with an upwardly-projecting integrally-formed shank 14 at one end thereof. The head 12 is formed with a normally upright substantially plano ball-striking side 16, and the upper end thereof may be provided with ball-centering indicia 18 defined by the scribed lines 20, 22 or with other means, if so desired.

The upper end of the shank 14 (see FIGURE 3) is provided with a downwardly-opening socket 24 which receives, and has secured therein by conventional means, the lower end of an elongated, hollow, substantially cylindrical shaft 26 formed of steel or other desirable materials.

Reference numeral 28 (see FIGURE 2) denotes an elongated, downwardly-tapering, frusto-conical golf club handle having a central axially-extending passage 30 formed therein. The handle 28 may be constructed of any desirable substantially rigid material and, as is shown in FIGURE 2, the tapered lower end thereof is provided with a counterbore 32 that is in open communication and is coaxial with the passage 30. The counterbore 32 provides an internal shoulder 34 and is adapted to receive, and have secured therein the upper end portion of the shaft 26 with the outer end seating on the shoulder 34 which thus serves as abutment means to limit the distance the shaft 26 may be telescoped within the handle 28. The upper end of the handle 28 has a cylindrical closure cap 36 fixedly secured thereto sealing the passage 30 at the upper end thereof, and the lower end abuts an outwardly-flared shoulder 38 to seal the same.

Intermediate its ends, the handle 28 is provided with a cylindrical aperture 40 which extends transversely therethrough and is in open communication at its inner end with the passage 30. The outer end of the aperture 40 opens, as is shown in FIGURE 1, over or in the direction of the upper end of the golf club head 12. For reasons to be set forth below, the aperture 40 may be located in positions on the handle 28 other than that specifically stated, but it is essential for the operation of this invention that the aperture 40, or a similar opening, must be provided in the handle 28.

Figuratively embedded in the upper end of the shank 14 is one end of an elongated upright substantially cylindrical or tubular rod 42 which may be formed of metal, plastics, or other desirable material. The other end of the rod 42 extends substantially coaxially through the shaft 26 in spaced relation relative thereto and terminates in a radially or laterally-bent extension 44 that protrudes through the aperture 40 and which has its outer end preferably terminating in the plane of the outer surface of the handle 28.

In use, the club 10 is designed to afford the golfer a...
club to more effectively gauge the length of the putting stroke and the power behind the stroke to make an effective putting stroke leading to the sinking of the golf ball. A shaft 26A, which is parallel to the longitudinal axis thereof. With the upper end 50 of the handle 28A being parallel to the extension 44B and the strut 60. The discoidal members 62, 64 are provided, respectively, with radiatingly extending substantially parallel slots 46, which is also parallel to the aperture 40B.

Reference numeral 70 denotes an elongated substantially flat upright rectangular rib notched at its opposed ends to form the shoulder 72, 74, and extendings 76, 78. As shown in FIGURES 6, 7 and 8, the handle 28B is provided with a pair of discoidal members 62, 64 rigidly secured thereto and which substantially parallel to the longitudinal axis thereof. The discoidal members 62, 64 span an elongated substantially rectangular aperture 40B that extends parallel to the axis of the handle 28B and which faces the extension 44B and the strut 60. The discoidal members 62, 64 are provided, respectively, with radiatingly extending substantially parallel slots 46, which is also parallel to the aperture 40B.

As in seen in FIGURES 6, 7 and 8, the handle 28B is provided with a pair of discoidal members 62, 64 rigidly secured thereto and which substantially parallel to the longitudinal axis thereof. The discoidal members 62, 64 span an elongated substantially rectangular aperture 40B that extends parallel to the axis of the handle 28B and which faces the extension 44B and the strut 60. The discoidal members 62, 64 are provided, respectively, with radiatingly extending substantially parallel slots 46, which is also parallel to the aperture 40B.

The upper end of the shaft 26C is shown as extending for the full length of the club and terminates at its upper end in a cylindrical cap 80 having a centrally-located socket 82 formed therein that is closed by a cap end wall 84. The handle portion of the shaft 26C is wrapped with leather 86 or with some other suitable material which will offer the user a firm, non-slip type of grip. This is conventional construction and as is seen in FIGURE 9, the leather wrapping extends downwardly from immediately under the cap 80 to a ferrule 88 that may be secured or otherwise secured on the shaft 26C. The shaft 26C is formed with a transversely-extending opening 40C which is confronted by a similar opening 90 formed in the handle wrapping 86.

The upper end of an elongated vibratory rod 42C extends through the end wall 84 into the socket 82 and is provided to receive a tightening nut 92. The other end of the rod 42C may be anchored in a shank 14 in the manner indicated in FIGURE 3, or may be, optionally, anchored as shown in FIGURE 10 or 11.

In FIGURE 10, the lower end of the vibratory rod 42C is shown as terminating in a radial extension or hook 94 embedded in the upper end of the shank 14A of a golf club. The lower end of the shaft 26C is, of course, fixedly secured by conventional means within a socket 24A formed in the shank 14A.

With reference to FIGURE 11, the lower end of the shaft 26C is fixedly secured within the socket 24B at the
upper end of the shank 14B in which is embedded the lower end of the vibratory rod 42C. A pin 96 extends diametrically across the shank 14B adjacent the upper end thereof and through the lower end of the rod 42C to provide a secure anchor.

In using the devices illustrated in FIGURES 9 to 12, inclusive, it will be understood that by tightening the nut 92 tension on the rod 42C will increase to increase the sensitivity of the rod 42C to vibrations set up on impact of the golf club head upon impact with a ball.

The rod 42C is provided with a radial projection or extension 44C which extends through the openings 40C, 90 for engagement by the user's thumb for the purposes above described.

Having described and illustrated in detail several embodiments of this invention, it will be understood that the same are offered merely by way of example, and that the instant invention is to be limited only by the scope of the appended claims.

What is claimed is:

1. A golf club including a golf club head having a normally upright shank projecting therefrom and an elongated substantially hollow tubular shaft having an end thereof fixedly secured to said shank, a substantially hollow tubular handle having an end thereof fixedly secured to the other end thereof of said shaft, and an elongated rod having an end thereof fixedly secured to said shank and its opposed end extending through said handle in spaced relation relative thereto, said rod having a lateral extension extending through a side of said handle for engagement by a finger of the golfer grasping said handle.

2. A golf club including a golf club head, a substantially hollow normally upright tubular shaft having a pair of opposed ends, said shaft having an end thereof fixedly secured to said head, an elongated substantially tubular handle having an end thereof connected to the other end of said shaft, said handle being coaxial with said shaft and having an axially-extending passage formed therein, an elongated flexible rod having an end thereof fixedly secured to said head, the other end of said rod extending through said shaft in spaced relation relative thereto and projecting beyond the other end thereof and into said passage formed in said handle, said handle having an aperture formed in a side thereof, and said rod having a lateral extension disposed and terminating in said aperture.

3. A golf club comprising a golf club head having a pair of opposed ends, a shank having a pair of opposed ends, said shank having one of its ends fixedly secured to said head, an elongated substantially hollow tubular shaft having a pair of opposed ends, said shaft having one of its ends fixedly secured to the other end of said shank, an elongated substantially hollow cylindrical handle having an end thereof fixedly secured to the other end of said shaft, said handle having an aperture extending transversely through the sidewall thereof, an elongated rod having one of its ends fixedly secured to said shank, the other end thereof extending through said shaft and said handle.

5. A golf club comprising a golf club head having a pair of opposed ends, a shank having a pair of opposed ends with one end of said shank being fixedly secured to said head, an elongated substantially hollow tubular shaft having a pair of opposed ends, said shaft having one of its ends fixedly secured to the other end of said shank, an elongated substantially hollow cylindrical handle having an axially-extending passageway formed therein and having an end thereof fixedly secured to the other end of said shank, said handle having an aperture extending transversely through the sidewall thereof, an elongated substantially rigid flexible rod having a pair of opposed ends, said rod having one of its ends fixedly secured within said shank and the other end thereof projecting through said shaft in spaced relation relative thereto and projecting above the other end thereof into said handle in said passageway in spaced relation relative thereto, said rod at its said other end having a lateral projecting extending in and being contained in said aperture.

6. A golf club comprising a golf club head having a pair of opposed ends, a shank having a pair of opposed ends with one of said ends of said shank being fixedly secured to one of said ends of said head, said shank normally projecting upwardly therefrom, an elongated rod having one of its ends fixedly secured to the other end of said rod, an elongated substantially hollow tubular shaft having a pair of opposed ends, said shaft having one of its ends fixedly secured to the other end of said shank, an elongated substantially hollow cylindrical handle having an end thereof fixedly secured to the other end of said shaft, said handle having a passage extending axially therethrough and coaxially-aligned with said shaft, said handle having an aperture extending transversely therethrough and projecting beyond the other end thereof and into said passageway formed in said handle, said handle having an aperture formed in a side thereof, and said rod having a lateral extension disposed and terminating in said aperture.

7. A golf club comprising a golf club head having a pair of opposed ends, a shank having a pair of opposed ends with one of said ends fixedly secured to an end of said golf club head and normally projecting upwardly therefrom, an elongated rod having one of its ends fixedly secured to the other end of said shank, the other end thereof extending through said shaft and said handle, said handle having an axially-extending aperture formed therein, said rod having one of its ends fixedly secured to the other end of said shaft, said handle having an axially-extending passage formed therein, an elongated rod having an end thereof fixedly secured to said shank, said handle being substantially hollow and tubular in construction, an elongated substantially hollow handle having a substantially cylindrical configuration with an axially-extending passage formed therein, said handle having one of its ends fixedly secured to the other end of said shaft, said handle having an axially-extending aperture formed therein, an elongated rod having an end thereof fixedly secured to said other end of said shaft, said handle being substantially hollow and tubular in construction, an elongated substantially hollow handle having a substantially cylindrical configuration with an axially-extending passage formed therein, an elongated rod having one of its ends fixedly secured to said shank, said handle having an axially-extending passage formed therein, an elongated rod having an end thereof fixedly secured to said shank, the other end thereof extending through said shaft and said handle, said handle having an opening extending transversely therethrough, a cap disposed on the outer end of said handle portion, an elongated rod disposed within and extending axially of said shaft in spaced re-
lotion relative thereto, said rod having opposed ends connected with said cap and said shank, means connected with said rod to vary the tension thereon, and said rod having an extension thereof disposed intermediate its ends and extending through said opening to be sensed by the user's thumb.

9. A golf club including a golf club head having a normally upright shank projecting therefrom and an elongated substantially hollow tubular shaft having an end thereof fixedly secured to said shank and terminating at its other end in a substantially hollow tubular handle portion, said handle portion having an opening extending transversely therethrough, a cap disposed on the outer end of said handle portion, an elongated rod disposed within and extending axially of said shaft in spaced relation relative thereto, said rod having an extension thereon intermediate its ends extending through said opening to be sensed by the user's thumb.

10. A golf club including a golf club head having a normally upright shank projecting therefrom and an elongated substantially hollow tubular shaft having an end thereof fixedly secured to said shank and terminating at its other end in a substantially hollow tubular handle portion, said handle portion being provided with a transversely-extending opening, a cap disposed on the outer end of said handle portion, an elongated rod disposed within and extending axially of said shaft in spaced relation relative thereto, said rod having opposed ends with one of said ends being embedded within said shank, a pin extending diametrically across said shank and through said embedded end of said rod, the other end of said rod being connected with said cap, means connected with said rod to vary the tension thereon, and said rod having a radial extension thereon intermediate its ends projecting through said opening to be sensed by the user's finger.

11. A golf club including a golf club head having a normally upright shank projecting therefrom and an elongated substantially hollow tubular shaft having an end thereof fixedly secured to said shank and terminating at its other end in a substantially hollow tubular handle portion, said handle portion having an opening extending transversely therethrough, a cap disposed on the outer end of said handle portion, said cap having a centrally-located socket formed therein with a closure wall extending transversely across the inner end thereof, an elongated rod disposed within and extending axially of said shaft in spaced relation relative thereto, said rod having a radial extension at one end thereof embedded within said shank, the other end of said rod extending through said closure wall and into said socket, means on said other end of said rod cooperating with said closure wall to tension said rod, and said rod having a radial extension projecting therefrom through said opening to be sensed by the user's thumb.

12. A golf club including a golf club head having a normally upright shank projecting therefrom and an elongated substantially hollow tubular shaft having an end thereof fixedly secured to said shank and terminating at its other end in a substantially hollow tubular handle portion, said handle portion having a wrapping surrounding the same and said handle portion and said wrapping being provided with juxtaposed, confronting and aligned openings extending transversely therethrough, a cap disposed on the outer end of said handle portion, an elongated rod disposed within and extending axially of said shaft in spaced relation relative thereto, said rod having opposed ends connected with said cap and said shank, respectively, means connected with said rod to vary the tension thereon, and said rod having an extension projecting radially therefrom intermediate its ends and extending through said openings to be sensed by the user's thumb.

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