United States Patent [19]

Mills

[11] **3,759,517**

[45] **Sept. 18, 1973**

[54] **HOSEL-LESS WOOD TYPE GOLF CLUB**

[76] Inventor: **Truett P. Mills,** 1700 Second Ave., Tuscaloosa, Ala. 35401

[22] Filed: **Sept. 23, 1970**

[21] Appl. No.: **74,656**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 832,994, June 13, 1969, Pat. No. 3,640,534.

[52] **U.S. Cl.**.....**273/80.7,** 273/80.2, 273/167 K, 273/174

[51] **Int. Cl.**.....**A63b 53/02**

[58] **Field of Search**.....273/77 R, 80.2–80.8, 273/167–174

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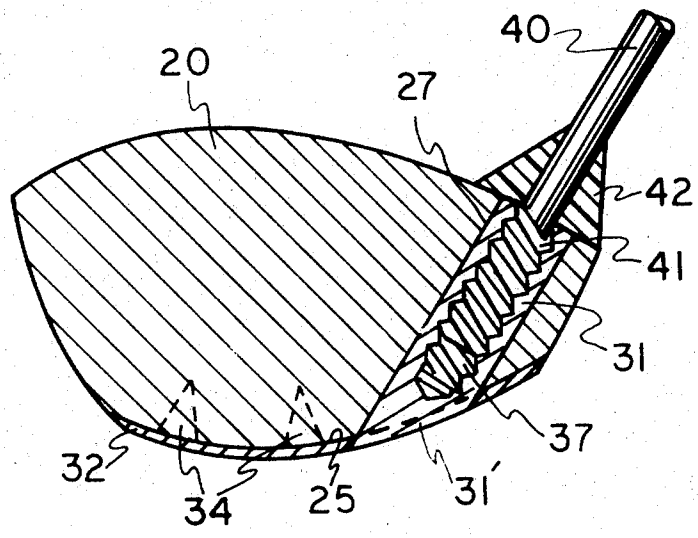
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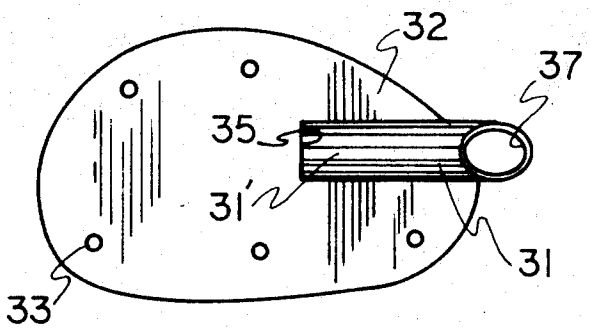
Primary Examiner—Richard C. Pinkham
Assistant Examiner—Richard J. Apley
Attorney—Wellington M. Manning, Jr.

[57] **ABSTRACT**

A wood type golf club having a club head with a frontal striking surface, toe and heel portions, a bottom surface, and a top surface, the club head having a shaft receiving opening in the top surface at said heel portion and said top surface being a continuation of the general contour of the club head from the toe to the heel portions. The club head is provided on its bottom surface with a sole plate which is associated with a shaft retainer that is received in the shaft receiving opening in the club head. A shaft is received in the shaft retainer and secured therein.

10 Claims, 13 Drawing Figures





PRIOR ART

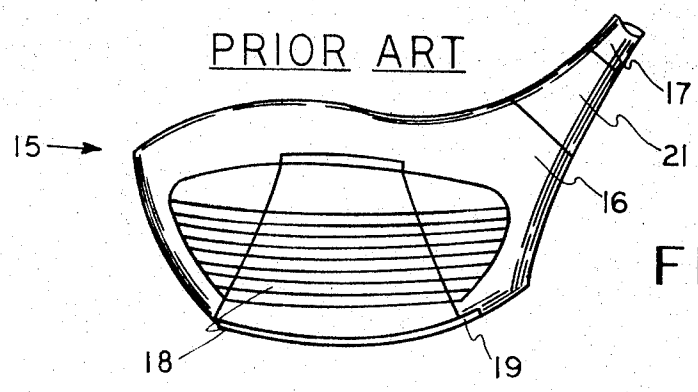


FIG. 1

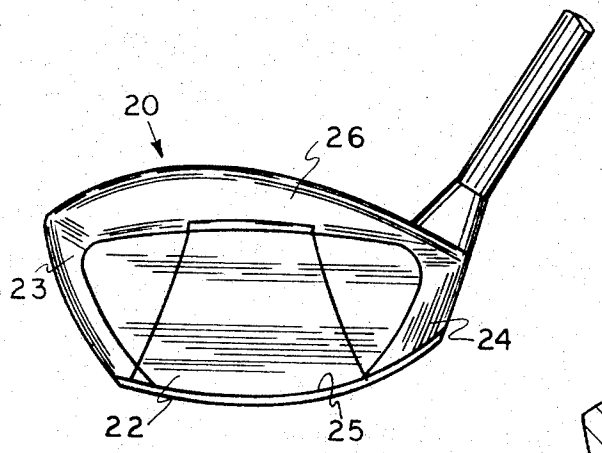


FIG. 2

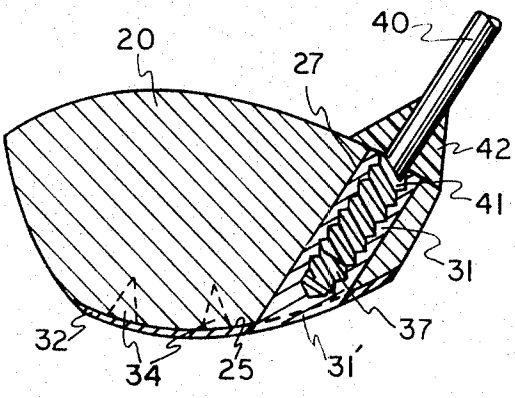


FIG. 3

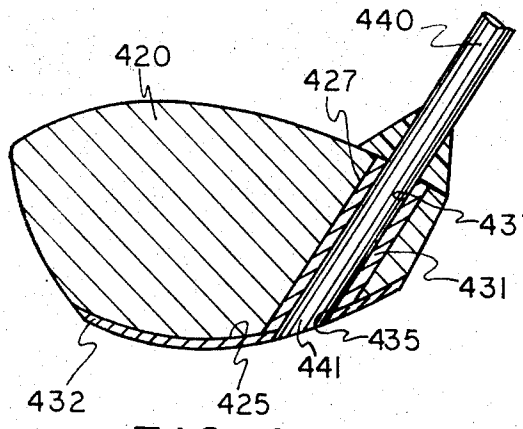


FIG. 4

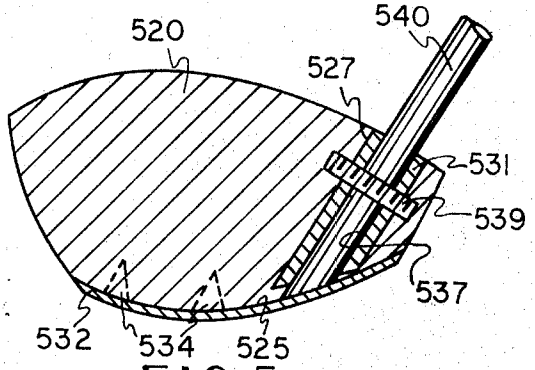


FIG. 5

INVENTOR.
TRUETT P. MILLS
BY
ATTORNEY

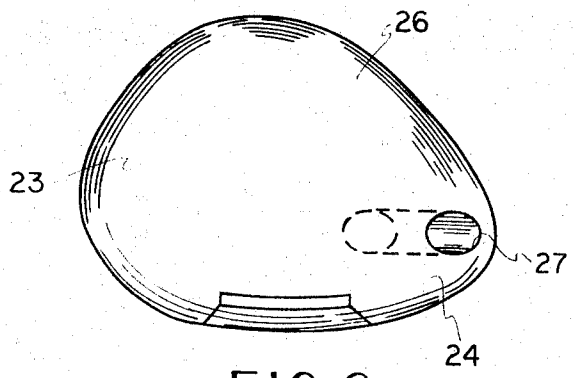


FIG. 6

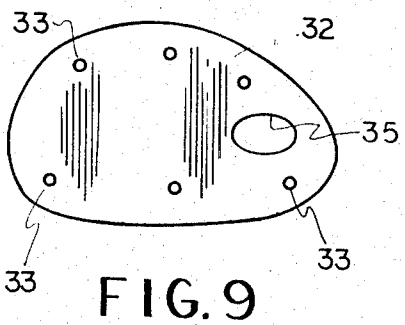


FIG. 9

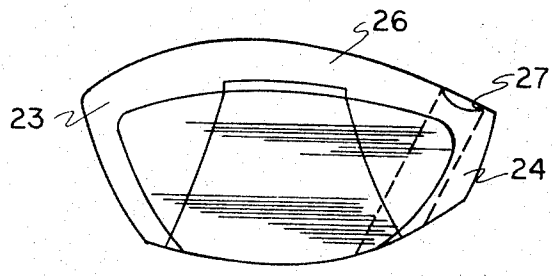


FIG. 7

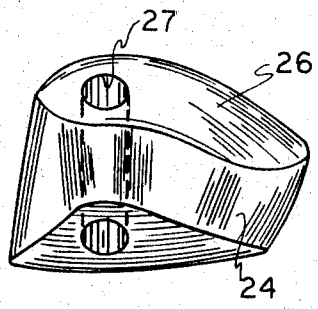


FIG. 8

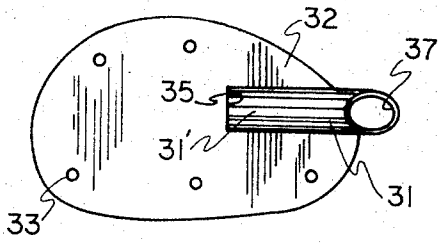


FIG. 10

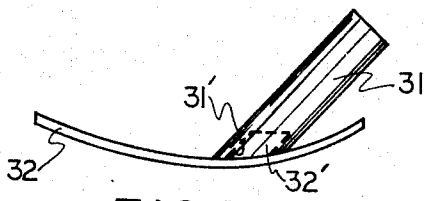


FIG. 11

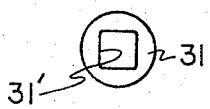


FIG. 12

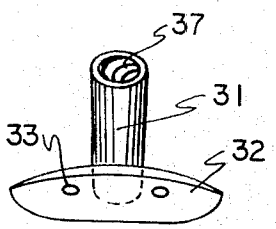


FIG. 13

INVENTOR.
TRUETT P. MILLS
BY
Wellington M. Manning, Jr.
ATTORNEY

HOSEL-LESS WOOD TYPE GOLF CLUB

CROSS-REFERENCE TO RELATED APPLICATION

The present application is a continuation-in-part of an application filed on June 13, 1969, entitled Hosel-Less Wooden Golf Club With Shaft Retainer And Sole Plate, Serial No. 832,944 and now Pat. No. 3,640,534.

BACKGROUND OF THE INVENTION

Golf club design and manufacturing techniques have continued to improve throughout the years from the old wooden clubs employing a wood head and a wood shaft secured thereto to today's solid or laminated club head with a light metal alloy shaft or the like secured thereto. These clubs have been continually improved to provide more durable clubs, while aerodynamics has been given great consideration in club head design to improve efficiency of the clubs. Moreover, clubs are now custom made for the individual to provide proper weight, shaft flexibility, shaft length, and the like.

Other than a streamlined design, however, club head design has not progressed materially. Instead, club head design has been accepted as a standard, and developmental efforts have been directed to materials of construction. As set forth in the above referred to parent application, there is tremendous advantage to be had in removing the hosel area from the wood-type golf clubs. The term wood-type golf club does not necessarily refer to materials of construction, but to a type of golf club having an enlarged club head as opposed to a blade-type club head as is found in golf irons and putters.

The hosel area of the club head is that area on the club head that extends upwardly therefrom at the heel and, in some manner, receives the shaft. Removal of the hosel area has resulted in improvement in several areas. First, a substantial reduction is realized in the amount of wood or other material required to produce the club head. Secondly, the process for manipulating the raw materials during the manufacture of the club head is both shortened and simplified. Thirdly, removal of the hosel area from the club head greatly lessens the tendency of the club to develop torque during swinging, the result of which reduces the tendency of the club to twist out of the desired path of travel. Hence, the chances for the golfer to improve his game are greatly enhanced. Further, removal of the hosel area has directly attributed to improvement of the efficiency, i.e. distance obtained by the golf club during use. A further very important advantage is the fact that by removal of the hosel area from the club head, club head design and club assembly techniques may now expand to horizons heretofore unknown.

The parent application, in addition to teaching the hosel-less club head, discloses a sole plate and shaft retainer as are taught herein. The parent application, however, teaches the shaft retainer to be integral with or secured to the inner face of the sole plate while the instant application teaches an association therebetween.

The present invention thus extends beyond the original invention to provide a wood-type golf club having a club head with improved aerodynamic properties, all of the advantages discussed above with respect to the golf club disclosed and claimed in the parent application and different assembly techniques. It has now been determined that it is not necessary to secure the shaft retainer to the inner face of the sole plate. Instead, various and sundry arrangements may be employed wherein the shaft retainer is associated with the sole plate.

The prior art is replete with various and sundry inventions directed to the manufacture of golf clubs and more specifically to wood-type golf clubs. The prior art is, however, deficient in teaching or suggesting either in a single patent or a combination of patents, the golf club of the present invention. Exemplary of the prior art are U.S. Pat. Nos. to Lard, 1,249,127; Braid et al., 713,845, Oquist, 2,686,056; Root, 1,994,149; Lamb, 1,897,264; Slazenger, 682,960; Gallagher, 2,041,676, and Tyler, 1,574,213. All of the aforementioned patents are pertinent to golf club construction. Each of these patents either alone or in combination with each other is, however, deficient in teaching the golf club according to the present invention.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a wood-type golf club having a club head with the hosel area removed and in which the shaft is attached to the club head by a shaft retainer-sole plate arrangement.

A further object of the present invention is to provide a wood-type golf club having a club head to which a shaft is secured at a heel portion within a shaft retainer where the shaft retainer is associated with a sole plate.

Still further, another object of the present invention is to provide a wood-type golf club which develops substantially less torque than conventional golf clubs.

Still further, another object of the present invention is to provide a golf club which permits a vast expansion in the area of club head design and improves the manufacturing process for the club head.

Generally speaking, the wood-type golf club of the present invention comprises a club head having a frontal striking surface, toe and heel portions, a bottom surface, and a top surface, said club head further defining a shaft receiving opening on said top surface at said heel portion, said top surface being a continuation of the general contour of the club head from said toe to said heel portions; a sole plate secured to said bottom surface; a shaft retainer associated with said sole plate and being received in said shaft receiving opening, and a shaft received in said shaft receiving opening and secured therein.

More specifically, the present invention is directed to a golf club having a club head that has no upward projection or neck in which a shaft is normally received. The club head instead receives a shaft retainer in the heel portion thereof with the shaft retainer being operatively associated with a sole plate secured to the bottom surface of the club head. The shaft retainer is not integrally secured to the sole plate by welding, brasing, or the like, but is merely associated with the sole plate in some fashion.

One preferred means of association between the shaft retainer and the sole plate is to provide a sole plate having an opening therein in which a mating section of the shaft or shaft retainer resides so as to preclude rotation thereof. As such, the opening in the sole plate generally is non-circular and preferably is

square, triangular, oval, or the like. In fact, the opening could be of any shape. If a circular opening is provided, then though the connection will provide additional solidarity to the shaft-club head connection, the shaft or shaft retainer should additionally be pinned or otherwise secured within the shaft retainer receiving opening against rotation. Hence, when the lower end of the shaft or shaft retainer is received within a non-circular shaped opening in the sole plate, the shaft will be precluded from rotation with respect to the sole plate in the event the shaft, once secured within the shaft retainer is twisted.

Many methods are available for securing the shaft retainer within the club head and for securing the shaft within the shaft retainer. For example, suitable adhesives such as epoxies may be employed alone or in conjunction with pins or screws. Threaded connection may also be employed and is preferred for securement between the shaft and the shaft retainer. In other words, any suitable means may be employed that will securely unite the various members of the club.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a front elevational view of a conventional golf club employing a club head having a normal hosel and a sole plate affixed to the bottom of the club.

FIG. **2** is a front elevational view of a portion of a golf club according to the teachings of the present invention.

FIG. **3** is a sectional view of a golf club produced according to the teachings of the present invention.

FIG. **4** is a sectional view of a portion of a golf club showing a further embodiment of the present invention.

FIG. **5** is a sectional view of a portion of a golf club showing another embodiment of the present invention.

FIG. **6** is a top plan view of a club head having no hosel according to the teachings of the present invention.

FIG. **7** is a front elevational view of a club head having no hosel according to the teachings of the present invention.

FIG. **8** is an end elevational view of a club head having no hosel according to the teachings of the present invention.

FIG. **9** is a top plan view of a sole plate according to the teachings of the present invention.

FIG. **10** is a top plan view of a sole plate having a shaft retainer associated therewith according to the teachings of the present invention.

FIG. **11** is a side elevational view of a sole plate having a shaft retainer associated therewith according to a further embodiment of the present invention.

FIG. **12** is a top view of a golf club shaft according to one embodiment of the present invention.

FIG. **13** is a rear elevational view of a sole plate having a four way roll and having a shaft retainer associated therewith.

DESCRIPTION OF THE SPECIFIC EMBODIMENTS

Referring to FIG. **1**, there is shown a conventional wood-type golf club as shown in the prior art, generally indicated as **15**. This conventional golf club has a hosel **16** that has been formed thereon to receive a shaft **17**. Additionally, a frontal striking area **18** and a sole plate **19** are also shown. In the conventional sense, the sole plate **19** serves no purpose other than reducing wear on the bottom surface of the club head. A hole must be drilled into the hosel **16** of the conventional club head **15** into which the shaft **17** is inserted. The connection therefore is between the wooden club head **15** and metal shaft **17** which can be split, broken or worn in the hosel area which has only a thin shell of wood therearound. Such wear and tear accounts for some 95 percent of the damage that occurs to golf clubs. Further, a plastic sleeve or ferrule **21** generally overlies the hosel and conforms to the taper of the hosel or provides a continuation of the taper of the hosel. Sleeve **21**, in some cases, is, however, replaced with a thread wrapping.

FIG. **2** comparatively illustrates a golf club produced according to the present invention to that of the prior art as shown in FIG. **1**. The golf club of the present invention is provided with a club head generally indicated as **20** that has no pre-formed hosel area. Instead, club head **20** is provided with a frontal striking surface **22**, a toe portion **23**, a heel portion **24**, a bottom surface **25** and a top surface **26**. As can best be seen in FIGS. **6**, **7** and **8**, the club head according to the present invention has a shaft opening **27** in the top surface **26**. Note, however, that the top surface does not turn upwardly to form a hosel, but is a continuation of the general contour of the club head from the toe portion **23** to the heel portion **24**.

Removal of the hosel or neck area of the club head **20** thus substantially reduces the amount of wood or other desired material that is required to produce the club head. Moreover, historically, golf club manufacturers have been limited in design and manufacturing techniques by the hosel or neck. Now, however, club head design may expand into horizons heretofore unknown. For example, a symmetrical club head may be manufactured which would permit use of the club head for the manufacture of a right hand or left hand club. The shaft receiving opening would just be drilled on the opposite side of the club head for a left hand club.

A preferred embodiment of the present invention is shown in FIG. **3**. The club head **20** is provided with a shaft receiving opening **27** extending therethrough at an angle. A sole plate **32**, as may best be seen in FIG. **9**, has a plurality of fastening member openings **33** therein and a shaft retainer receiving opening **35** therein. Sole plate **32** is secured to the bottom surface **25** of club head **20** by a plurality of fastening members **34** such as screws which are received in openings **33**. A shaft retainer **31** is received in opening **27** of club head **20** and is secured therein in any suitable manner such as by adhesives. Shaft retainer **31** is shown to have internal threads **37** extending therealong. For a right hand club, left hand threads **37** should be employed and for a left hand club, right hand threads **37** should be employed.

Sole plate **32** has a receiving opening **35** as set forth above. Opening **35** preferably has a non-circular shape. Likewise, the bottom cross section **31'** of shaft retainer **31** should have a non-circular or other shape that matches and snugly fits opening **35**. A tight fit between the shaft retainer **31** and opening **35** of sole plate **32** or shaft **40** (as described hereinafter) and opening **35** is preferred. Hence, when shaft retainer **31** is in place, the

bottom 31' thereof will reside within and mate with opening 35 of sole plate 32. As such, when sole plate 32 is secured to the bottom surface 25 of club head 20, relative rotation between shaft retainer 31 and club head 20 is precluded. While any shape is suitable, a circular shape is not as suitable for opening 35 and bottom 31' of shaft retainer 31, as are an oval, triangular or rectangular shape which are preferred. A shaft 40 is received within shaft retainer 31 as shown in FIG. 3. Shaft 40 is shown to have threads 41 along the lower end thereof. Threads 41 of shaft 40 are received by threads 37 of shaft retainer 31 so as to secure shaft 40 to club head 20. As mentioned above, however, any suitable means may be employed to secure shaft 40 to club head 20. To finish the golf club, a metal or plastic ferrule, washer or the like 42 may be placed over shaft 40 and secured to club head 20 around shaft receiving opening 27.

A further embodiment of the present invention is illustrated in FIG. 4. A club head 420 is shown having a shaft receiving opening 427 therein, and a sole plate 432 secured to the bottom surface 425 thereof. The receiving opening 435 in sole plate 432 receives a like shaped end 441 of a shaft 440 instead of a shaft retainer 431. Opening 435 in sole plate 432 and lower end 441 of shaft 440 may be any shape as discussed above, but are preferably non-circular in shape as to prevent relative rotation between shaft 440 and club head 420. Hence, shaft retainer 431 merely abuts sole plate 432 and is not secured thereto, though it is not necessary for shaft retainer 431 to even abut sole plate 432. Shaft retainer 431 is shown to have a smooth inner surface 437 while shaft 440 is likewise smooth along its length. Hence, shaft 440 may be secured within shaft retainer 431 by adhesive, pins or the like.

FIG. 5 shows still a further embodiment of the present invention. Club head 520 is shown to have a shaft receiving opening 527 therein. A sole plate 532 is shown secured to the bottom surface 525 of club head 520 by a plurality of screws 534. A shaft retainer 531 is received within opening 527 of club head 520 and suitably secured therein. Shaft retainer 531 is shown to have a smooth inner surface 537 in which a shaft 540 resides. Shaft 540 is secured within shaft retainer 531 and club head 520 by a countersunk pin or screw 539. Screw 539 is headless and after being countersunk, the remaining space therebehind is filled in with a suitable filler to smooth the surface of the club head. In FIG. 5, shaft 540 is illustrated as passing through retainer 531 and abutting sole plate 532. There may, however, be no connection between sole plate 532 and shaft 540 or retainer 531. As such, sole plate 532 prevents club head 520 from splitting in the event of shock thereto.

As may be seen in FIGS. 11 and 12, the sole plate 32 may have a projection 32' extending upwardly therefrom. Projection 32' is of a shape that mates with a like shaped inner surface 31' of shaft retainer 31 to prevent relative rotation therebetween. Further sole plate 32 may have any shape or roll according to the desired shape wanted for the bottom of the club head. It is, however, an advantage for the woods, especially the fairway woods, to employ a sole plate having a four-way roll as shown in FIG. 13.

Removal of the hosel or neck area from the club head also removes weight from the heel portion of the club head. Hence, weight may now be better distributed behind the hitting area of the club head to improve the balance of the club. Further, the golf clubs produced according to the teachings of the present invention will also be much easier to repair in the event of damage thereto than the presently available clubs.

Having described the present invention in detail, it is obvious that one skilled in the art will be able to make modifications and adaptations thereto without departing from the scope of the invention. Accordingly, the scope of the present invention should be governed by the claims appended hereto.

What is claimed is:

1. A wood type golf club comprising:
   a. a club head having a frontal striking surface, toe and heel portions, a bottom surface and a top surface, said club head defining a shaft receiving opening on said top surface at said heel portion, said top surface having a generally convex contour from said toe to said heel portions;
   b. a sole plate secured to said bottom surface, said sole plate having a shaft retainer receiving opening of a predetermined shape therein;
   c. a shaft retainer received in said shaft receiving opening and being secured therein, said shaft retainer having a bottom cross section of a predetermined shape received in said shaft retainer receiving opening in said sole plate, said shaft retainer being secured against rotation thereat by cooperation between said predetermined shapes of said bottom cross section and said opening; and
   d. a shaft received in said shaft retainer and secured therein.

2. A wood type golf club as defined in claim 1 wherein said predetermined shapes are oval.

3. A wood type golf club as defined in claim 1 wherein said predetermined shapes are rectangular.

4. A wood type golf club as defined in claim 1 wherein the sole plate entirely covers the bottom surface of the club head.

5. A wood type golf club as defined in claim 1 wherein the shaft retainer is internally threaded along at least a major portion of its length and the lower end of the shaft is externally threaded for threaded securement within said shaft retainer.

6. A wood type golf club as defined in claim 1 wherein said shaft is pinned to said shaft retainer and said club head.

7. A wood type golf club as defined in claim 1 wherein said shaft is adhesively secured within said shaft retainer.

8. A wood type golf club as defined in claim 1 comprising further:
   e. a ferrule received around said shaft and secured to said shaft and said top surface of said club head.

9. A wood type golf club as defined in claim 1 wherein said sole plate covers the entire bottom surface of the club head, said predetermined shapes are oval, and said shaft is threadedly secured within the shaft retainer.

10. A wood type golf club as defined in claim 1 wherein the sole plate covers the entire bottom surface of the club head, said predetermined shapes are oval and said shaft is adhesively secured within the shaft retainer.

* * * * *