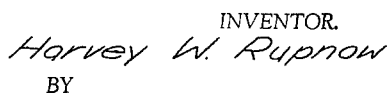


H. W. RUPNOW

GOLF CLUB INCLUDING A ROTATABLE AND PIVOTABLE HEAD

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2 Sheets-Sheet 1



Hilly Sherman, Meroni, Gross & Simpson
ATTORNEYS

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GOLF CLUB INCLUDING A ROTATABLE AND PIVOTABLE HEAD

Harvey W. Rupnow, Chicago, Ill., assignor to South Chicago Machine Works, Inc., Chicago, Ill., a corporation of Illinois

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5 Claims. (Cl. 273—79)

This invention relates to a golf club capable of performing all of the functions of irons, woods and putters. More specifically this invention relates to a golf club with an adjustable handle and an adjustable head that are easily set to perform the functions of a heretofore required bag full of golf clubs.

According to this invention there is provided a golf club with an extensible shaft and a multi-faced head that is both rotatably and tiltably adjustable on the end of the shaft. Thus the shaft has a main portion telescoped into a hand grip portion at selective distances to control the length of the shaft. A simple clamp secures the two shaft portions together in fixed relation and indicia can be provided to designate the shaft length. The head carrying end of the shaft is secured in the socket of a tongue member which has a bifurcated stud pivoted thereon. This stud is equipped with a wedge tapered end straddling the tongue. The stud seats in the bore of the club head which has a wedge taper on the end thereof for wedge engagement with the head of the stud. A weight is seated in the end face of the club head and receives a bolt therethrough that is threaded into the stud. When the bolt is tightened the club head is wedge locked on the stud and the stud in turn is clamped fixedly on the tongue of the socket member. In this manner, by the simple tightening and loosening of a single bolt having a head accessible from the end face or toe of the club head, the club head can be rotated to present one of its plural faces in ball striking position and at the same time can be tilted relative to the shaft for varying the angle between the shaft and striking face. In a preferred embodiment the tightening and loosening of the shaft clamp and the head bolt are accomplished by an Allen head wrench so that the player need only carry a single club and a small Allen head wrench to play a complete game of golf while having the benefit of all of the heretofore necessary irons, woods and putters.

In a preferred embodiment the club head has a substantially triangular cross sectional shape providing a base portion serving as a putting face and as a wood club face, a longer side portion providing an iron face, and an opposed face with a guide line thereon to designate the center of the putting face. The club head thus has two striking faces and a plain top face with one of the striking faces serving both as a putter and a wood club while the longer striking face serves as an iron club face. Of course since the head is rotatable on the stud and since the stud is pivoted on the tongue of the socket member affixed to the shaft a multiplicity of angles for the striking face are available as well as a multiplicity of angle positions of the club head relative to the shaft.

In a preferred embodiment indicia are provided to designate the angles of the striking face in terms of conventional wood clubs and irons while the relative angles between the club head and the club shaft are designated in a similar manner.

It is thus an object of this invention to provide a sturdy readily adjustable single golf club to perform the functions of a multiplicity of clubs including woods, irons and putters.

A further object of this invention is to provide an adjustable golf club with a multi-face head which is rotatable and tiltably adjusted relative to a shaft.

A still further object of the invention is to provide an adjustable golf club with an extensible shaft and a multi-face adjustable head wherein all adjustments are controlled by a single easily manipulated tool.

A still further object of the invention is to provide an adjustable golf club with a head that is wedge locked relative to a shaft in a number of selected positions of varying impact face angles and shaft angles.

A specific object of the invention is to provide an adjustable golf club head with a wedge lock control regulating the shaft angle as well as the impact face angle.

Other and further objects of this invention will become apparent to those skilled in this art from the following detailed description of the annexed sheets of drawings which, by way of a preferred example only illustrate one embodiment of the invention.

On the drawings:

FIGURE 1 is a side elevational view of the adjustable golf club of this invention.

FIGURE 2 is a cross sectional view along the line II—II of FIG. 1 on a larger scale.

FIGURE 3 is a fragmentary view of the adjustable shaft of the club of FIG. 1 with the grip portion of the shaft in cross section.

FIGURE 4 is a longitudinal fragmentary view of the head end portion of the club of FIG. 1 taken generally along the line IV—IV of FIG. 1.

FIGURE 5 is a view similar to FIG. 4 but illustrating the club head in another position.

FIGURE 6 is a front face elevational view of the club head in the position of FIG. 4.

FIGURE 7 is a view similar to FIG. 6 but showing the club head in the position of FIG. 5.

FIGURE 8 is a longitudinal cross sectional view along the line VIII—VIII of FIG. 9, with parts in elevation.

FIGURE 9 is an end elevational view of the toe end of the club head taken along the line IX—IX of FIG. 7.

FIGURE 10 is an exploded side elevational view, with parts in longitudinal cross section, of the components of the club head and mounting mechanism.

FIGURE 11 is a plan view of the club head with the putting guide face on top.

As shown on the drawings:

In FIG. 1, the reference numeral 10 designates generally the golf club of this invention. The club 10 is composed of a main tubular metal shaft portion 11, a grip shaft portion 12, a clamp 13 securing the portions 11 and 12 in adjusted telescoped relation, a socket member 14 on the head carrying end of the shaft 11 and a multi-faced club head 15 carried by the socket portion 14. The main shaft portion 11 has the conventional shaft taper from the grip portion to the socket portion but, as shown in FIG. 3, the large end of the tapered shaft merges into a true cylindrical end portion 11a telescoped into a cylindrical tube 16 of the grip 12. The tube 16 is covered with the conventional grip wrapping 17 and has a closure plug or head 18 closing the end thereof. The wrapping 17 terminates at 17a which is inwardly from the open end of the tube 16 and the uncovered end portion 16a of the tube 16 is provided with a longitudinal slot 19. As shown in FIG. 2 the uncovered slotted end of the tube end 16a of the tube 16 is surrounded by the clamp 13. This clamp is of a conventional split type with an Allen head bolt 20 effective to contract the clamp and thereby contract the tube portion 16a tightly on the underlying telescoped cylindrical portion 11a of the shaft 11.

As shown in FIG. 3, the shaft portion 11a has marking indicia 21 thereon adapted to be aligned with the end edge of the tube portion 16a for indicating the shaft lengths for various irons. Additional indicia 22 are provided near the end extremity of the shaft portion 11a to also

be aligned with the end edge of the tube portion 16a to designate the correct shaft lengths for wood clubs.

From the above description it will be understood that the shaft 11 of the club 10 is adjusted relative to the grip portion 12 to provide shafts of different lengths corresponding with the length desired for the various iron and wood clubs. It should also be understood that the user may select any desired position intermediate any of the indicia designated positions to suit his personal convenience. Further, any desired length can be obtained for putting purposes.

The sprocket member 14 includes a tapered ferrule 14a receiving the small end of the shaft 11 in fixed relation therein as by press fitting or the like. The socket has a flat tongue end 14b extending from the large end of the ferrule portion 14a at an obtuse angle. The tongue 14b has relatively broad opposed flat faces 23 and a transverse hole 24 therethrough.

A bifurcated clamping stud 25 (FIGS. 8 and 10) has a slot 26 at one end thereof receiving the tongue 16b therein. Fingers 27 on the opposite sides of the slot 26 have flat inner faces 27a slidably engaging the faces 23 of the tongue 14b. The outer surfaces 27b of these fingers 27 are frusto conical and taper from a large diameter end to a straight cylindrical main body portion 27c. This main body portion has a narrow slot 28 extending partially therethrough from the central base portion of the wider tongue receiving slot 26. This narrow slot 28 facilitates contraction of the bifurcated end of the stud. The fingers 27 have aligned transverse holes 29 therethrough. A pivot pin 30 extends through the holes 29 and 24 to pivotally mount the stud 25 on the tongue.

As shown in FIG. 8 the cylindrical portion 27c of the stud 25 is tapped inwardly from the end thereof to provide a threaded bore 31.

The club head 15, as best shown in FIG. 10, has a cylindrical bore 32 terminating at the heel of the head in a frusto conical end portion 32a and at the opposite portion in a reduced diameter bore 32b mating with a larger diameter cylindrical recess 32c in the toe end face of the head.

As shown in FIG. 8 the bore 32 freely receives the cylindrical portion 27c of the stud 25 and the tapered bore portion 32a engages the frusto conical faces 27b of the fingers 27. A cylindrical plug 33 is seated in the bore 32c and has a hole 34 therethrough with a countersunk end portion 34a. A bolt 35 has a shank 35a fitted freely through the hole 34 and the bore 32b and is threaded in the tapped hole 31 of the stud. The bolt 35 has an Allen head 35b bottomed in the countersunk portion 34a of the plug 33.

The plug 33 is preferably composed of heavy material such as steel or lead to provide a weight in the toe end of the club head and the plug weight can be selected as desired by the individual user of the golf club.

As pointed out above the club head 15 is of generally triangular shape to provide a plurality of impact or striking faces. Thus the head has a relatively narrow side 36 adapted to provide a putter face and a wood club face. The head also has wider face 37 providing an iron club impact face. The third face 38 is a plain face as shown in FIG. 11 and is normally on the top for the wood and putter positions of the head. This face 38 may have a putting guide line 38a formed therein.

The club head 15 also has a flat toe face 39 and an opposite flat heel face 40 with the toe face 39 receiving the weight plug 33 and the heel face 40 providing the terminal end for the frusto conical bore portion 32a.

As shown in FIGS. 4 and 5 the heel face 40 has two sets of indicia thereon, the first set identified by the reference numeral 41 and including the numbers 1, 3, 5, 7 and 9 to designate irons while the second set of indicia identified by the reference numeral 42 is numbered 2 and

4 to designate the wood clubs. A reference mark 43 is provided on the end face of a stud finger 27.

It will be noted from FIG. 4 that when one of the indicia 41 is aligned with the reference mark 43 the iron face 37 of the club head 15 will be in playing position. It will also be noted from FIG. 5 that when one of the indicia 42 is aligned with the reference mark 43 the putting and wood face 36 is in playing position. With the face 36 in playing position the plain face 38 is the top of the head whereas, as shown in FIG. 4 when the iron face 37 is in playing position this plain face 38 is at the bottom of the head.

As shown in FIGS. 6 and 7 the angle of inclination of the shaft 11 relative to the club head 15 is adjustable. In the position of FIG. 6 a reference line 44 on the socket member 14 is substantially parallel with the heel end face 40 of the head 15 and with the end faces of the stud fingers 27. In contrast, as shown in FIG. 7, this reference line 44 is angularly displaced relative to these end faces. Therefore in the position of FIG. 6 the shaft 11 is at a more obtuse angle to the club head 15 than in the position of FIG. 7. This angular adjustment of the club head and shaft accommodates the various desired angular positions for the iron clubs, the wood clubs and the putter. In the position of FIG. 6 the iron face 37 is in operative position and a wide angle is provided between the shaft and club head. In the position of FIG. 7 the putter face 37 is in playing position and the shaft 11 is almost in right angular relationship to the club head 15. If desired several indicia lines 44 can be provided and marked with suitable indicia to be placed in parallel relationship with the end face 40 of the club head thereby designating the desired positions for the various iron, wood or putter usages of the club.

It will of course be appreciated that when the bolt 35 is loosened, the head 15 is free to rotate and slide on the stud 25 thereby accommodating movement of the club head to the desired playing position. Then when the head is set at the desired position relative to the shaft a tightening of the bolt 35 will simultaneously lock the head against rotation and against tilting relative to the stud. This simultaneous dual locking is obtained by drawing the stud 25 into the bore 32 so that the frusto conical fingers 27 of the stud will be wedge locked in the tapered bore 32a and simultaneously will be squeezed against the flat faces 23 of the tongue. Thus a single tightening of the bolt 35 will simultaneously lock the club head against rotation and against tilting relative to the shaft. Likewise a simple tightening of the clamp bolt 20 will lock the shaft sections in fixed telescoped relation. Both the bolts 20 and 35 have the same size Allen wrench receiving head so that a single inexpensive Allen head wrench is the only tool necessary to adjust the club.

From the above descriptions it will be understood that the invention provides a universal golf club suitable for replacing all of the heretofore required irons, woods and putters. The single universal club of this invention has an adjustable shaft length, a multiple impact face club head with a plurality of positions for each face and an angulation adjustment for varying the angle of the shaft and club head for the different usages of the club. It will be further understood that the club has marking indicia thereon to guide the user in positioning the club head and the grip end of the shaft. However, it should also be understood that the user may select any desired positions without reference to these indicia and thereby provide himself with a personalized golf club to meet all conditions of play.

I claim as my invention:

1. A universal golf club comprising a shaft, a socket on the shaft having a tongue projecting therefrom at an angle, a bifurcated stud pivoted on the tongue, a club head rotatably mounted on the stud, and means for tightening the stud to the club head and to the tongue for securing the head in selected fixed position relative

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to the shaft, and said head having a plurality of striking faces accommodating putting, iron and wood shots, and said pivot connection between the stud and tongue enabling the angle between the head and shaft to be varied.

2. A universal golf club which comprises a main shaft, a socket secured on the head end of the main shaft having a flat faced tongue projecting at an angle therefrom, a stud having a bifurcated end straddling said tongue, a pivot pin connecting the bifurcated end of the stud with the tongue whereby the tongue can swing through an arc relative to the stud, a multiple face golf club head, said head having a longitudinal bore with a wedging counterbore embracing the bifurcated end of the stud and effective to clamp the stud on the tongue, a weight inserted in said bore, bolt means extending through said weight and threaded into said stud for simultaneously clamping the head to the stud and the stud to the tongue, said weight being replaceable to control the weight of the head, and said pivot pin connection between the tongue and stud enabling the angle between the club head and shaft to be varied.

3. A multiple purpose golf club comprising a main shaft, a socket member receiving one end of the main shaft in fixed relation and having a laterally projecting tongue on the end thereof, a stud having a bifurcated end straddling said tongue and pivotally mounted thereto, a club head having a longitudinal stud receiving bore with an end wedge counterbore, said stud being rotatably inserted in said bore with said bifurcated stud end being within said wedge counterbore, the stud having mating wedge faces on the bifurcated end thereof cooperative with the club head wedge counterbore effective to clamp the stud on the tongue and to lock the head against rotation on the stud when the stud is urged within the stud bore, adjusting means connected to the club head and stud to longitudinally move the club head relative to the stud to adjust the position of the club head, and said pivotal mounting of the stud on the tongue accommodating variation of the angle between the club head and shaft.

4. A multiple purpose golf club comprising a main shaft, a socket member receiving the club head end of the main shaft in fixed relation therewith and having a laterally projecting tongue on the end thereof, a stud having a frusto-conical bifurcated end straddling said tongue and pivotally mounted on said tongue, a club head having a longitudinally extending bore passing therethrough with one end of said bore being a frusto-conical counterbore, said stud being inserted in said bore with

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said bifurcated end facing said frusto-conical counterbore, said club head being rotatably mounted on said stud, said stud bifurcated end having mating wedge faces cooperative with the club head frusto-conical bore effective to clamp the stud on the tongue and to lock the head against rotation on the stud when the stud is urged towards the bore other end, adjustable means connected to the club head and stud to longitudinally move the club head relative to the stud, and said pivotal mounting of the stud on the tongue accommodating variation of the angle between the club head and shaft.

5. A multiple purpose golf club comprising a main shaft, a socket member receiving the club head end of the main shaft in fixed relation therewith and having a laterally projecting flat faced tongue on the end thereof, a stud having a frusto-conical bifurcated end straddling said tongue and pivotally mounted on said tongue, a multiple face club head having a longitudinally extending bore passing therethrough with one end of said bore being a frusto-conical counterbore, said stud being inserted in said bore with said bifurcated end facing said frusto-conical counterbore, said club head being rotatably mounted on said stud, a bolt threaded in the stud other end and through the other end of said bore, mating wedge faces on the bifurcated end of the stud and in the club head frusto-conical counterbore effective to clamp the stud on the tongue and to lock the head against rotation on the stud when the bolt threaded in the stud is tightened, and said pivotal mounting of the stud on the tongue accommodating variation of the angle between the club head and shaft.

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DELBERT B. LOWE, *Primary Examiner*.