(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 326 733**
A2

(12) EUROPEAN PATENT APPLICATION

(21) Application number: 88302211.3

(51) Int. Cl.[4]: A63B 53/00 , A63B 53/14

(22) Date of filing: 14.03.88

(30) Priority: 13.01.88 US 143810

(43) Date of publication of application:
09.08.89 Bulletin 89/32

(84) Designated Contracting States:
AT BE CH DE ES FR GB GR IT LI LU NL SE

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(54) Golf club and method of use thereof.

(57) An improved golf club is provided having a tubular shaft, a tubular grip at one end of the shaft and a club head at the other end. The grip is a cylinder of substantially uniform diameter, the diameter being equal to or greater than twice the diameter of the shaft. The grip is of sufficient length so as to allow the user to grasp the grip with both hands without overlapping. A set of golf clubs of the present invention has its club heads lying at a uniform angle of between 60-65° relative to the shaft so as to improve squaring of the club head relative to the ball when swinging. The total weight of the club is approximately 10% greater than ordinary golf clubs. The invention further includes a novel grip and method of use of the aforesaid club.

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GOLF CLUB AND METHOD OF USE THEREOF

The present invention relates generally to golf club construction and, more particularly, to a novel golf club grip, and a method of gripping and using the golf clubs in a complete set.

A review of the prior art in the field of golf and golf equipment reveals a multitude of golf club designs constructed for the purpose of improving the power, accuracy and consistency of the golfer in striking a golf ball. Several factors are incorporated into the design of the golf club in order to achieve this result.

An aspect of golf club construction is the design of the grip. A wide variety of grips have been developed in the past in order to perfect the user's grip of the club. Grips of most golf clubs are generally tapered in order to allow the wrists to be broken or turned to the inside following impact of the club head with the ball.

U.S. Patent Nos. 3,118,086; 3,376,038; 3,574,349; and, 4,272,077 describe putters having relatively large, substantially continuous diameter tubular grips, where breaking of the wrists is not required. However, the use of such grips on irons and woods is taught away from by the prior art. For example, the book The Search For The Perfect Swing, by Alastair Cochran and John Stobbs, Page 213, reports that a large grip will slice a ball an average of 35 yards.

The publication entitled 40 Common Errors In Golf, by Arthur Shay, demonstrates at Page 8 that common methods of gripping a golf club, including the ten finger grip, the Varden grip, and the interlocking grip. All of these grips require the club to be gripped principally by the fingers rather than in the palm of the hand. In point of fact, the article indicates that most of the grip woes in golf can be traced to the palm of the hand.

An additional aspect of the golf club construction is the lie of the club head relative to the shaft angle. Customary construction of woods is to add 1 degree in lie for each 1/2 inch added to standard length of the shaft. Thus, for flat lies, the range is 53-57° for woods 1 through 9. For standard lies, the range is 55-59° for woods 1 through 9. For upright lies, the range is 57-61° for woods 1 through 9. For irons, the customary range is 53-61° for the 1-iron through sandwedge for a flat lie.. Fifty-five degrees to 63° is customary for the 1-iron through sandwedge for a standard lie and 57-65° is standard for an upright lie for irons 1 through sandwedge.

Customary length of golf club shafts is 43 inches for the 1-wood to 39 inches for a 9-wood, and 39-1/2 inches for a 1-iron up to 35-1/2 inches for a sandwedge.

In terms of grip size, the prior art indicates that customary grip size is not larger than 0.96 inch as measured two inches from the top of the grip. The diameter of the grip is gradually decreased as the grip moves toward the head end of the club. Typical measurements are 0.5 to 0.7 inch in diameter.

Another measurement of the physical parameters of a golf club is swing weight and total weight. The swing weight of a club is simply a measurement of a golf club's weight distribution, that is, the weight relationship of grip, shaft and head. The swing weight is determined by the total weight of the club and the club's center of gravity. The total weight is multiplied by the distance from a point P 12 inches from the top of the grip to the center of gravity. No commercially available club has a swing weight greater than 256 oz. inches. Current commercial clubs have a total weight ranging from 12 to 17 oz.

Despite the wide variety of designs shown in the prior art, most golfers are unable to achieve uniform swing characteristics due to their inability to consistently break their wrists at the proper time and in the proper way during their swing. In addition, due to the differences in lie, club length and flex of the individual golf clubs in a golf set, it is extremely difficult for most golfers to consistently impact the club head squarely against the golf ball and uniformly drive the ball in a straight line.

Accordingly, it is an object of the present invention to provide a novel and improved golf club design which results in consistently reproducible club swing dynamics, planarity of swing, and club face squaring. This will improve consistency of swing and thus facilitating enjoyment of the game of golf by those who do not have the luxury of practicing the game with sufficient repetitiveness so as to perfect their golfing skills.

It is an additional object of the present invention to provide a novel and improved method of gripping a golf club and swinging a golf club so that an improved consistency of swing, increase in power and accuracy is provided.

According to the present invention, a golf club includes a substantially tubular shaft having a substantially tubular grip attached to one end and a club head attached at the other end of the shaft. The grip has a generally constant diameter equal to or greater than twice the diameter of the shaft.

The grip is of sufficient length so that the user may grasp the grip with both hands without overlapping the hands. The grip preferably has an enlarged diameter of approximately 1.0 to 1.5 +/- 0.2 inches, and has a length of approximately 12 +/- 0.5 inches. As a result of this grip, control of the golf club by the rear

arm of the golfer is enhanced. Consequently, in swinging the club, rotation of the club head is substantially eliminated prior to impact with the ball so that the club is swung consistently through a single common plane, thereby resulting in consistently reproducible club swing dynamics.

According to one aspect of the invention, the club head preferably lies at an angle of about 60° for woods and about 65° for irons relative to the shaft. As a result, squaring of the club head relative to the golf ball at impact is facilitated, and the planarity of swing is the same for all irons.

The swing weight of the novel club is decreased when compared to conventional clubs so as to increase the impact force between the golf club and the golf ball when swinging the golf club. Similarly, the total weight of the golf club is increased when compared to conventional clubs.

The invention further includes a method of using the golf clubs of this invention. The upper portion of the grip is placed in the palm of the user's left hand, for a right-handed golfer, with the axis of the golf club being substantially parallel to the axis of the forearm of the user's left arm. The butt end of the grip is positioned proximate the wrist of the user's left hand. The left hand is closed around the grip with the thumb of the left hand lying substantially along the length of the grip, preferably slightly to one side.

The lower portion of the grip is placed in the palm of the user's right hand with the axis of the golf club being substantially parallel to the forearm of the user's right arm. The left hand and right hand are slightly separated on the grip. The right hand is closed around the grip with the thumb of the right hand of the user lying substantially along the length of the grip and the thumb of the left hand fully exposed, i.e., no overlap of the hands.

The club is swung backwards along a plane until the golf club is cocked. The club is then swung forwardly along the same plane with the right arm controlling the swing, the grip being effective to square the club head at impact relative to the golf ball and, as a result, improved reproducability of swing dynamics is provided.

An additional step in the present method of swinging a golf club is teeing the golf ball 1 to 6 inches rearwardly of the center of the arc of the golf club during swinging. This swing effects substantially square intersection between the golf club head and the golf ball so as to facilitate straight flight of the golf ball and maximization of distance.

These and other advantages of the present invention will become apparent from the drawings and detailed description contained herein.

FIG. 1 of the drawings is a front view of an improved golf club of the present invention;

FIGS. 2, 3 and 4 of the drawings are front views of prior art golf clubs;

FIG. 5 is a front view, partially broken away, of a golfer resting the golf club of FIG. 1 in the palm of his left hand;

FIG. 6 of the drawings is a front view, partially broken away, of a golfer gripping the golf club of FIG. 1 in his left hand;

FIG. 7 is a front view, partially broken away, of a golfer holding the golf club of FIG. 1 with his left hand and placing his right palm on the grip;

FIG. 8 of the drawings is a front view of a golfer gripping the golf club of FIG. 1 with both the left and right hands in the novel grip of the present invention;

FIG. 9 of the drawings is a rear view, partially broken away, of a golfer holding a prior art golf club in his fingers;

FIG. 10 of the drawings is a rear view, partially broken away, of a golfer closing his left hand on the grip of a prior art golf club so that his fingers grasp the grip;

FIG. 11 is a front view, partially broken away, of a golfer gripping a prior art golf club with his left hand and placing the lower portion of the grip in the fingers of his right hand;

FIG. 12 of the drawings is a front view, partially broken away, of a golfer gripping a prior art golf club with his left and right hands;

FIG. 13 is a front view of the club head showing the deflection of the shaft during swinging;

FIG. 14 shows the equipment used for determining the swing weight of a club; and,

FIG. 15 is a view of the wrist action when swinging a conventional club.

While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail a preferred embodiment of the invention with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the broad aspect of the invention to embodiment illustrated.

As shown in FIG. 1 of the drawings, a golf club 10 has a substantially tubular shaft 12 with a substantially tubular grip 14 attached at one end 16 and a club head 18 at the other end 20 of the shaft. The grip 14 comprises a substantially cylindrical tubular member having a substantially uniform diameter

equal to or greater than twice the diameter of the tubular shaft 12. The grip 14 is of sufficient length, preferably 12 inches, plus or minus one-half inch, so as to allow the user to grasp the grip 14 with both hands without overlapping the hands, as shown in FIGS. 5-8. As a result, grip 14 reduces the rotation of the club head relative to the ball when swinging the golf club 10, thereby improving the reproducability of swing. It should be noted that the present invention represents not merely single golf club 10 but an entire set (not shown). The number of clubs in the set is the same as conventional designs, but the aforesaid features described above are incorporated into each club.

The design of the golf clubs 10 of the present invention is based on a straight thrust with the dominant side (right side for right-handed people/left side for left-handed people).

As shown in FIG. 1, the club head 18 lies at an angle of between 60-65° (angle A) relative to shaft 12 so as to facilitate squaring of the club head 18 relative to the ball when striking it. As indicated in the attached Tables 1 and 2, conventional club design requires a different lie for each wood and iron. The lie is also based upon the club length. In the present invention, the lie of the club head 18 relative to the shaft 12 is uniform so that each club is swung substantially through the same arc and from the same position relative to the ball, which results in consistently reproducible club swing dynamics.

In a preferred embodiment, the woods have a lie of 60° relative to the shaft. Similarly, in a preferred embodiment, the irons have a lie of 65° relative to the shaft. In conventional golf clubs, as shown in FIG. 13, the lie is altered because the clubs flatten 1-2° when swinging, depending on the length of the club. In addition, current conventional design requires the shaft angle to change by approximately 1° per club due to the shaft flex created by the hand/body position and the swing path created by the relationship of the hands to the body.

TABLE 1

Custom Fitting Table — Wood Club Lies

	Men's			Ladies'			Present Invention
Woods	[1] Flat Lies	[1] Standard Lies	[1] Upright Lies	[2] Flat Lies	[2] Standard Lies	[2] Upright Lies	
1	53°	55°	57°	51°	53°	55°	60°
2	53½°	55½°	57½°	51½°	53½°	55½°	60°
3	54°	56°	58°	52°	54°	56°	60°
4	54½°	56½°	58½°	52½°	54½°	56½°	60°
5	55°	57°	59°	53°	55°	57°	60°
6	55½°	57½°	59½°	53½°	55½°	57½°	60°
7	56°	58°	60°	54°	56°	58°	60°
8	56½°	58½°	60½°	54½°	56½°	58½°	60°
9	57°	59°	61°	55°	57°	59°	60°

TABLE 2

Custom Fitting Table-Iron Club Lies							
Irons	Men's			Ladies'			Present Invention
	[1]Flat Lies	[1]Standard Lies	[1]Upright Lies	[2]Flat Lies	[2]Standard Lies	[2]Upright Lies	
1	53°	55°	57°	-	-	-	65°
2	54°	56°	58°	52°	54°	56°	65°
3	55°	57°	59°	53°	55°	57°	65°
4	56°	58°	60°	54°	56°	58°	65°
5	57°	59°	61°	55°	57°	59°	65°
6	58°	60°	62°	56°	58°	60°	65°
7	59°	61°	63°	57°	59°	61°	65°
8	60°	62°	64°	58°	60°	62°	65°
9	61°	63°	65°	59°	61°	63°	65°
PW	61°	63°	65°	59°	61°	63°	65°
SW	61°	63°	65°	59°	61°	63°	65°

Swing weight of a golf club is a measure of the relationship between total weight and the center of gravity of the club. As shown in FIG. 14, swing weight of a golf club is measured by the total weight times the distance from a point P 12 inches from the top of the grip to the center of gravity of the club. As shown in Table 3, swing weight may vary for various types of materials and for the flex of the shaft. Commercially-available regular clubs have a swing weight between C7 + D6 as defined by a longitudinal scale. The clubs of the present invention range from B5 to C5. Similarly, conventional clubs have a total weight ranging from 12 to 17 oz. Clubs of the present invention have a total weight ranging from 13.5 to 20 oz. In addition, with the grip of the present invention, the dominant side can control a heavier weight and produce greater force with greater club head speed.

TABLE 3

CUSTOM FITTING TABLE - COMPARING TOTAL WEIGHT, SHAFT MATERIAL, SHAFT FLEX AND SWINGWEIGHT						
Driver Total Weight Range in Ounces by Shaft Material and Type						
Shaft Flex and Swingweight Range	4 3/8 oz. Standard Carbon Steel	4 3/16 oz. Standard Unitized Steel	3 7/8 oz. Lightweight Steel	3 7/8 oz. Ltweight Unitized Steel	2/78-3 3/4 oz. Shaft Very Lightweight Steel	2 1/4 - 3 1/4 oz. Shaft Graphite and Titanium
L-Ladies C6 to C8	12-1/8 to 12-1/2	12 to 12-3/8	11-7/8 to 12-1/4	11-7/8 to 12-1/4	11-3/8 to 11-3/4	11-1/8 to 11-1/2
A-Flexible C9 to D1	12-3/8 to 12-3/4	12-1/4 to 12-5/8	12-1/8 to 12-1/2	12-1/8 to 12-1/2	11-5/8 to 12	11-3/8 to 11-3/4
R-Medium D1 to D3	12-7/8 to 13-1/4	12-3/4 to 13-1/8	12-5/8 to 13	12-5/8 to 13	11-7/8 to 12-1/4	11-5/8 to 12
S-Stiff D2 to D4	13-1/8 to 13-1/2	13 to 13-3/8	12-7/8 to 13-1/4	12-7/8 to 13-1/4	12-1/8 to 12-1/2	11-7/8 to 12-1/4
X-Extra Stiff D4 to D6	13-3/8 to 13-3/4	13-3/4 to 13-5/8	13-1/8 to 13-1/2	13-1/8 to 13-1/2	12-3/8 to 12-3/4	12-1/8 to 12-1/2

In conventional clubs, as shown in FIGS. 2 and 3, the loft or angle of the club face 24 relative to the ball may be weak lofted, standard lofted or strong lofted. Weak lofted club faces provide a high trajectory, less distance and less roll. Strong loft clubs provide lower trajectory, more distance, more roll and less backspin. In the golf clubs 10 of the present invention, all of the clubs are strong lofted. As shown in Tables 4 and 5, conventional lofts range from 10-33°. In the present invention, the clubs are lofted from 9-1/2-34°.

TABLE 4

Custom Fitting Table - Wood Club Lofts						
Woods	Present Invention Men's			Present Invention Ladies'		
	Strong Lofts	Standard Lofts	Weak Lofts	Strong Lofts	Standard Lofts	Weak Lofts
1	9.5°	11°	12°	9.5-10°	12°	13°
2	12°	13°	14°	13°	14°	15°
3	15°	16°	17°	15°	17°	18°
4	18°	19°	20°	19°	20°	21°
5	21°	22°	23°	22°	23°	24°
6	24°	25°	26°	25°	26°	27°
7	27°	28°	29°	28°	29°	30°
8	30°	31°	32°	31°	32°	33°
9	33°	34°	35°	34°	35°	36°

TABLE 5

Custom Fitting Table - Iron Club Lofts							
Irons	Present Invention Men's				Ladies'		
	Strong Lofts	Standard Lofts	Weak Lofts	Traditional Standard	Standard Lofts	Weak Lofts	Traditional Standard
1	16°	17°	18°	17°	-	-	-
2	18°	20°	22°	20°	21°	22°	21°
3	22°	24°	26°	23°	25°	26°	24°
4	26°	28°	30°	26°	29°	30°	27°
5	30°	32°	34°	30°	33°	34°	31°
6	34°	36°	38°	34°	37°	38°	35°
7	38°	40°	42°	38°	41°	42°	39°
8	42°	44°	46°	42°	45°	46°	43°
9	46°	48°	50°	46°	49°	50°	47°
PW	50°	52°	54°	50°	53°	54°	51°
SW	54°	56°	58°	56°	57°	58°	56°

Grip size is an important distinction in the golf clubs 10 of the present invention as compared to prior art clubs. In conventional golf club design, the grip size is never larger than 0.96 inch measure 2 inches from the top of the grip. In conventional clubs, the diameter of the grip is gradually decreased from the grip end of the club to the head end of the club 18. Typical measurements are 0.5 to 0.7 inch in diameter at the inner end of the grip.

The grip 14 of the present invention is preferably between 1.0 and 1.5 inches in diameter, plus or minus 0.2 inch, at the right palm placement. The grip 12 is substantially round, being the same diameter throughout its length and is approximately 12 inches in length, plus or minus 0.5 inch. The grip is designed to be placed in the palm of the hands of the user, as shown in FIGS. 5-8. This is contrary to conventional golf club grips which are designed to be gripped with the fingers to allow the hands of the user to cross-over immediately prior to impact, as shown in FIG. 15 of the drawings.

As shown in FIGS. 9-12, a conventional golf grip, such as the Varden grip, requires the user to place

the grip along the intersection between the fingers and the palm and to overlap the thumbs (FIGS. 9-12). In the grip of the present invention, as shown in FIGS. 5-8, the upper portion 26 of the grip 14 is placed in the palm of the user's left hand. The axis X of the golf club 10 is substantially parallel to the axis Y of the forearm of the user's left arm. The butt end 28 of the grip 14 is positioned proximate the wrist of the user's left hand. The left hand of the user is closed around the grip 14 with the thumb of the left hand of the user lying substantially along the length of the grip 14, as seen in FIG. 6.

The lower portion 30 of the grip 14 is placed in the palm of the user's right hand. The axis X of the golf club is substantially parallel to the axis Z of the forearm of the user's right arm with the left hand and the right hand of the user slightly separated on the grip 14. The user's right hand is closed around the grip 14 with the thumb of the right hand of the user laying substantially along the length of the grip 14 and the thumb of the left hand not covered by the fingers of the right hand.

The golf club 10 is swung backwards along a single common plane until the golf club 10 is cocked. The golf club 10 is then swung forwardly along the same plane. Because of the grip shown in FIG. 8, the right hand of the user controls the swing resulting in club head squaring at impact relative to the ball. Since the wrists will not break prior to impact and the lie is more vertical than conventional club heads, the swing is more easily reproduced. It should also be noted that although the aforesaid grip is described for purposes of right-handed golfers, the position of the hands may be reversed equally well for left-handed golfers.

Thus, the swing of the golf club 10 is substantially different than conventional golf swings. As shown in FIG. 15, in a conventional golf swing the wrists must be broken (turned) immediately prior to impact with the ball and the wrists must be rolled over towards the user as the club 10 is swung. In the present invention, the wrists are not broken until substantially after the ball has left the club head 18.

Accordingly, the golf ball is teed 1-6 inches rearwardly of the center of the arc of the golf club 10 when addressing the ball. However, because of the dominance of the right side of the user in swinging the golf club 10, a substantially square intersection between club head 18 and the ball occurs and the ball follows a straight flight path down the fairway, which provides maximum distance.

The conventional golf swing may be divided into twelve phases. The first phase comprises the preliminary address of the ball. The second phase comprises impact fix. The third phase comprises adjusted address; i.e., wig-wag of the club. The fourth phase comprises start-up, that is, starting the club backwards. The fifth phase comprises the back stroke as the club is lifted rearwardly, and the sixth phase comprises the top of the backswing. The seventh phase of the swing is the start down. The eighth phase is the downstroke. The ninth phase is the release where the wrists are broken or rolled relative to each other. The tenth phase is impact, where the wrists already have started to roll. The eleventh phase of the swing is the follow-through, and the final phase is the head has advanced beyond the head of the user.

The golf clubs of the present invention and method of use of these clubs, therefore, substantially eliminates the rolling of the wrists of the golfer prior to impact with the ball, thereby eliminating a substantial variation in club head position relative to the ball. In addition, the enlarged grip of the clubs of the present invention further fix the position of the wrists and the club head at impact.

As a result of the aforesaid improvements in club design and method of use of the novel club design of the present invention, an improved method of playing golf is provided which allows novices and golfers without multiple practice rounds per week to improve their golf scores substantially.

While the specific embodiments have been illustrated and described, numerous modifications come to mind without significantly departing from the spirit of the invention and the scope of protection is only limited by the scope of the accompanying Claims.

Claims

1. A golf club comprising a substantially tubular shaft having a substantially tubular grip attached at one end and a club head at the other end, said grip comprising a substantially cylindrical tubular member having a substantially uniform diameter equal to or greater than twice the diameter of said tubular shaft, and of sufficient length for the user to grasp said grip with both hands without overlapping of the hands so as to reduce rotation of said club head when swinging said golf club, thereby improving reproducability of swing.

2. The golf club of Claim 1, wherein said club head lies at an angle of between 60-65° relative to said shaft so as to facilitate squaring of said club head relative to the golf ball when swinging said golf club and thereby improving reproducability of swing dynamics.

3. The golf club of Claim 1, wherein the swing weight of said golf club is about B5 to about C5 as to increase the impact force between said golf club and the golf ball when swinging said golf club.

4. The golf club of Claim 1, wherein the total weight of said golf club comprises between 13.5 and 20 oz. so as to increase the impact force between said golf club and the golf ball when swinging said golf club.

5. The golf club of Claim 1, wherein said club head is strong lofted so as to facilitate improved driving distance of a golf ball when struck by said club.

6. A golf club grip comprising a substantially tubular member having a substantially uniform diameter of about 1.0 to about 1.5 inches and a length of approximately 12 inches, said grip being effective to enhance control of a golf club by the rearward arm of the golfer.

7. An improved set of golf clubs, each of said golf clubs comprising a shaft having a substantially tubular grip at one end and a club head at an opposite end, each of said club heads further having a substantially identical lie of from 60° to 65° relative to said shaft so as to facilitate reproducability of swing from golf club to golf club.

8. The improved set of golf clubs of Claim 7, wherein each of said golf clubs range from 13.5 to 20 oz. in total weight.

9. The improved set of golf clubs of Claim 7, wherein said golf clubs are from B5 to C5 in swing weight so that increased club head impact force equals or exceeds impact force produced by conventional golf clubs.

10. The improved set of golf clubs as defined in Claim 7, wherein each of said grips has a uniform diameter throughout its length, said uniform diameter being about twice the diameter of the associated shaft.

FIG.1

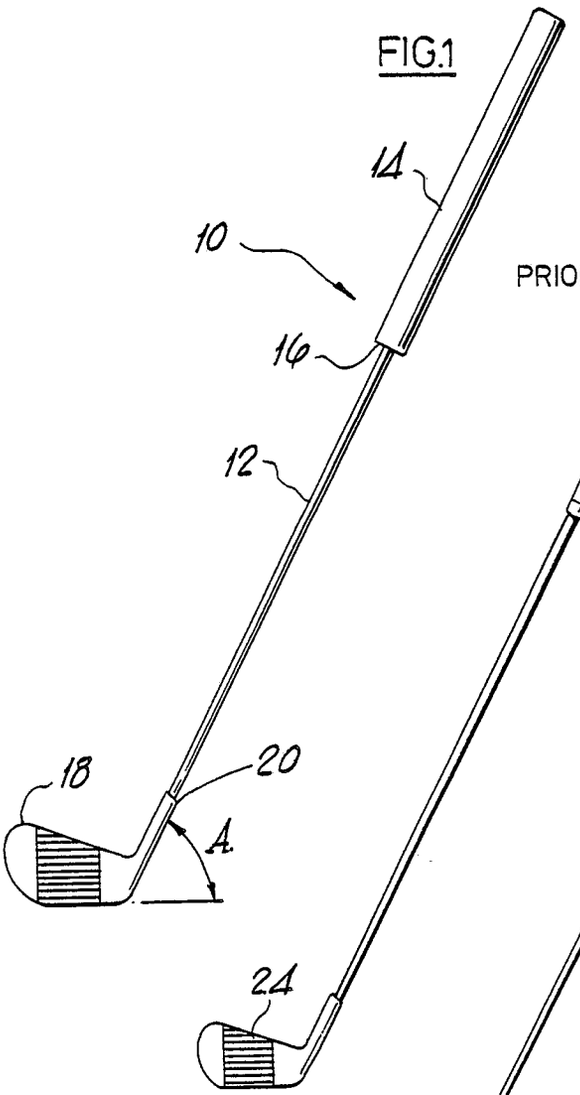


FIG.2
PRIOR ART

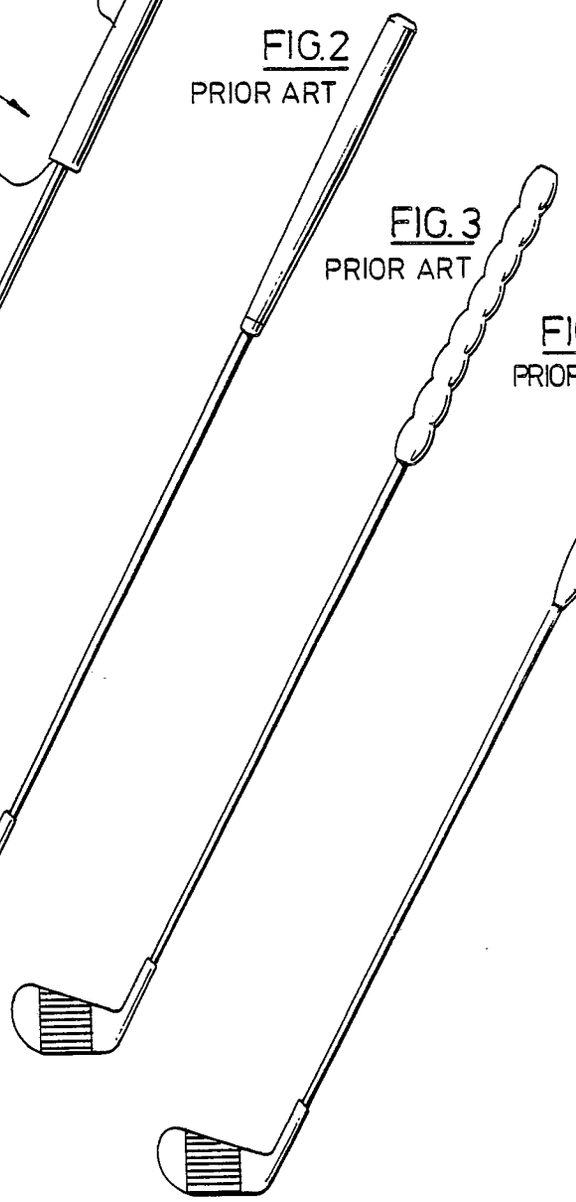


FIG.3
PRIOR ART

FIG.4
PRIOR ART

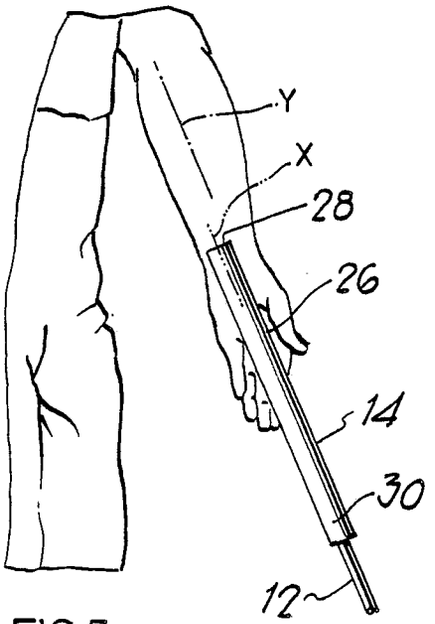


FIG.5

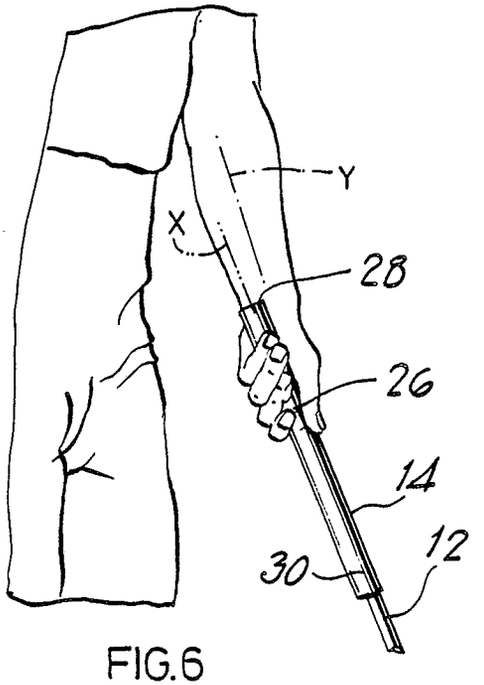


FIG.6

FIG.7

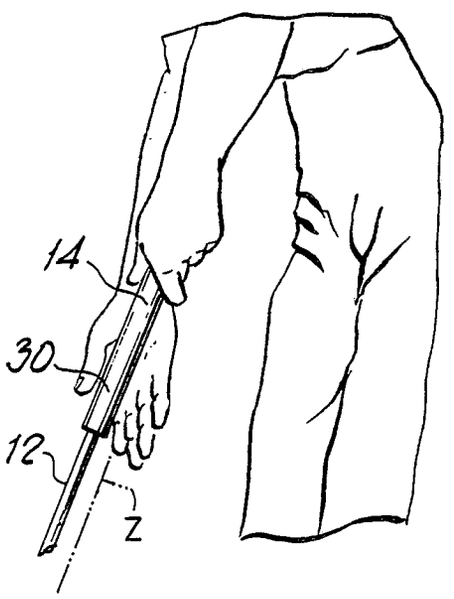
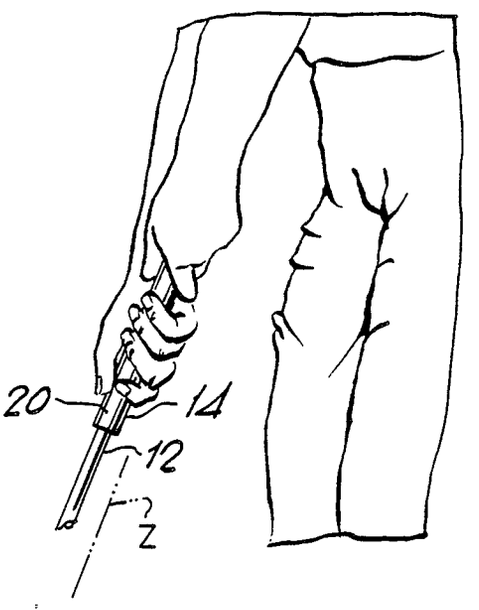


FIG.8



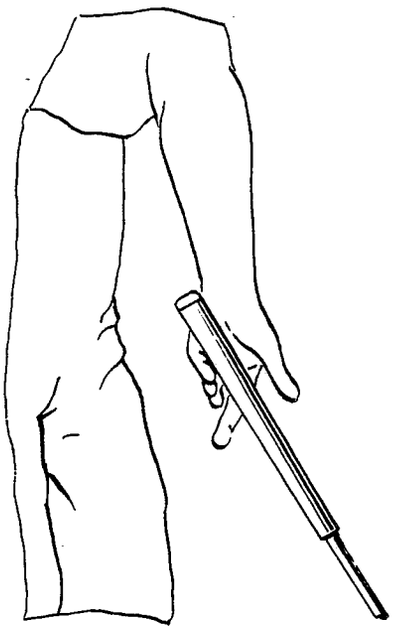


FIG.9
PRIOR ART

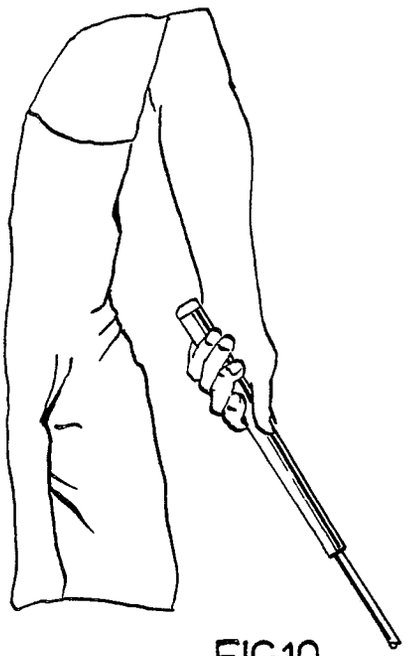


FIG.10
PRIOR ART

FIG.11
PRIOR ART

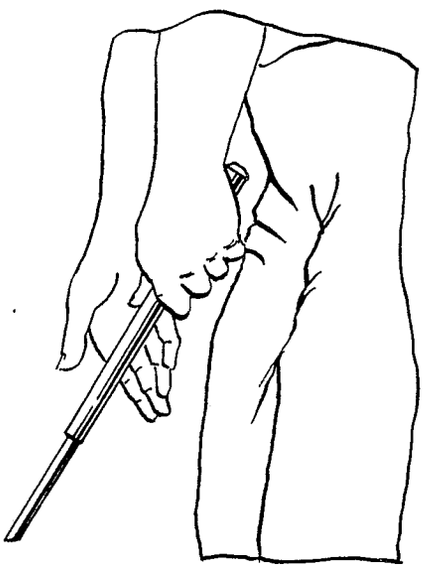
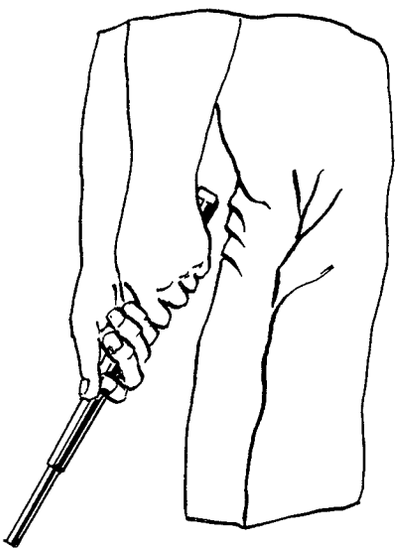


FIG.12
PRIOR ART



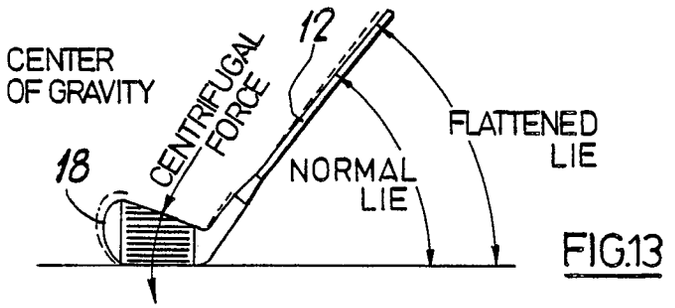


FIG.13

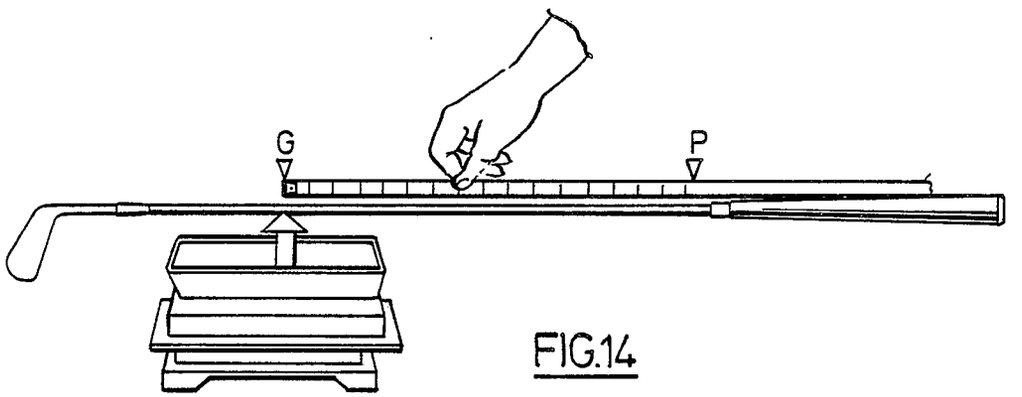


FIG.14

FIG.15