Dec. 17, 1968 J. H. PFAU 3,416,797

GOLF CLUB WOODS

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FIG. 2.

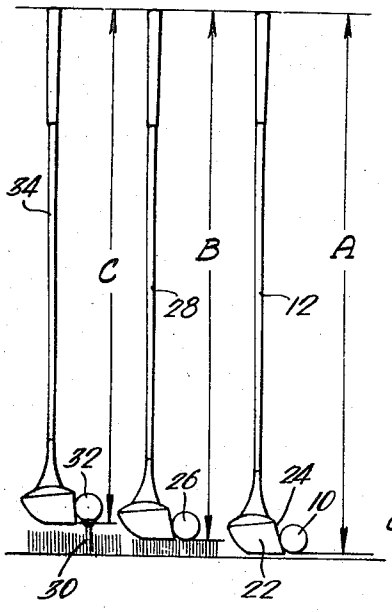



FIG. 1.

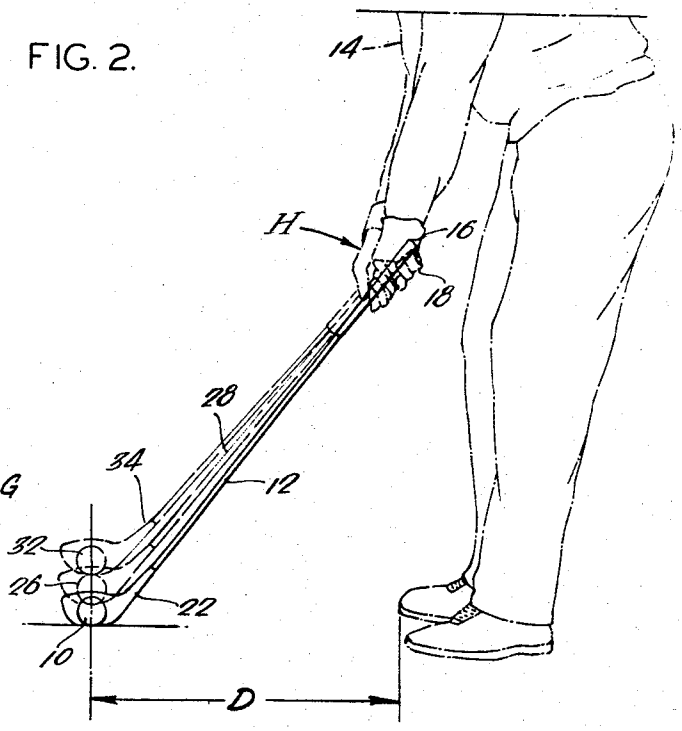
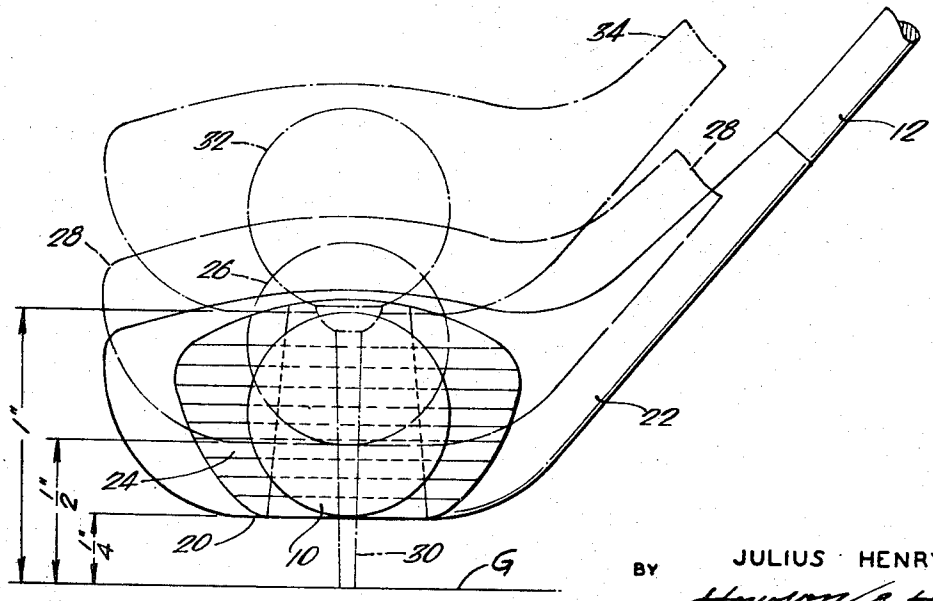



FIG. 3.




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# GOLF CLUB WOODS

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## ABSTRACT OF THE DISCLOSURE

A set of golf club woods wherein the length of each club is correlated with the loft angle of the club to permit a uniform address of a ball regardless of the lie of the ball, the length of the clubs increasing with increasing loft angle.

The present invention relates generally to golf clubs and more particularly to a set of golf club woods having a novel length relationship which permits a uniform address and a uniform "grooved" swing for all wood club shots.

Most golf clubs are manufactured and sold in matched sets consisting usually of three, four and sometimes five wood headed clubs known as "woods" and eight metal headed clubs known as "irons." The club faces vary in angle and the club shafts vary in length, the angles and lengths being correlated progressively, the shorter clubs having the more lofted face angles. Thus, for relatively short shots, a club having a highly lofted face and a relatively short shaft is used, the short shaft providing increased accuracy with reduced power. For longer shots, a less lofted, longer club is used, the longer shaft providing increased leverage and consequently a longer shot.

The above relationships hold true for woods as well as irons, the driver conventionally having a longer shaft to provide the most power, the #2 wood having a somewhat shorter shaft, the #3 wood being even shorter and so forth. Wood shots, however, are essentially distance shots and are generally executed with a full swing, in contrast to the irons which, except for the low numbered irons, are swung with an abbreviated swing and are primarily employed for accurate, short length shots.

In view of the fact that wood shots with rare exception do involve a full power swing, it is a primary object of the present invention to provide a matched set of woods, each club of which is so relatively dimensioned in length as to permit a uniform address and hence a uniform "grooved" swing regardless of the different circumstances under which the respective clubs are used.

A more specific object of the invention is to provide a matched set of woods, each club of which is so relatively dimensioned in length as to permit a golfer to address the ball with his feet the same distance from the ball and his hands in the same position with respect to his feet whether the ball is being driven from a tee, stroked from a good fairway lie with a #2 wood, or hit from a poor fairway lie with a #3, #4 or #5 wood.

Another object of the invention is to provide a matched set of golf club woods which will, because of the relative club length relationships, provide a familiar feel to each club and thus lend increased confidence to the golfer.

Additional objects and advantages of the invention will be more readily apparent from the following detailed description thereof when taken together with the accompanying drawings in which:

FIG. 1 is a front elevational view which shows in broken lines a golfer's position with respect to a ball at address and illustrates the manner in which a uniform foot and hand position may be maintained with a driver, #2 or #3 wood made in accordance with the present invention despite the typically different heights of the ball from the ground when stroked with these different wood clubs;



FIG. 2 is a side elevational view showing the relative lengths of the driver, the #2 and the #3 woods of a typical set of woods in accordance with the invention; and

FIG. 3 is a greatly enlarged front elavational view similar to the club head portion of FIG. 1 showing the relative heights of the ball from the grass root top level and the position of the corresponding club heads, the #3 wood and ball being shown in solid lines, the #2 wood and ball in dash lines, and the driver, ball, and tee in dot and dash lines.

The present invention is based on the premise that for a consistent, uniform swing, the distance from the ball to the golfer's feet, labeled D in FIG. 1 of the drawings, should be the same for each wood club shot, and further, that the hand position H should be constant with respect to the feet for each wood club shot. If these two conditions are satisfied, the resulting uniform address encourages a uniform, "grooved" swing with each of the woods despite the variety of ball lies encountered.

As may be seen in the three views of the drawings, a golf ball **10** in a typical fairway lie is nestled down in the grass (not shown) with the ball resting approximately one-quarter of an inch above the grass root top level G. With such a lie, the ball would be stroked with a #3, #4 or #5 wood designated **12** in the drawings depending on the distance desired, the driver and #2 wood being unsuited for such a lie due to their low loft angles. The length A of the #3, #4 and #5 woods according to the invention should be the same and is chosen to provide the desired address in terms of the relative positions of the ball, feet and hands. As shown in FIG. 1 wherein the golfer **14** is illustrated addressing the ball **10** with the #3, #4 or #5 wood **12** at the desired distance D from the ball and with the desired hand position H, with the correct length A of the club **12** the end **16** of the club handle extends just beyond the fingers of the golfer's innermost hand **18**. The bottom **20** of the club head **22** as shown in FIG. 3 should then be level wth the lowermost point of the ball to insure a proper impact of the club face **24** with the ball.

Occasionally the ball will come to rest on the fairway on top of the grass as illustrated at **26** and may suitably be stroked with the #2 wood **28** if a maximum distance shot is required. In such circumstances, the ball will, on the average, lie about ½ inch above the grass root top level G, and to compensate for this, in view of the inclined disposition of the club at address, the #2 wood must be of a length B which is about $\frac{3}{16}$ of an inch shorter than the #3, #4 or #5 wood length A to maintain the uniform distance D between the golfer's feet and the ball as well as the hand position H.

Since the driver is used almost exclusively for tee shots, the ball for driving is elevated on a tee **30** to a position **32** which, on the average, is about one inch above the grass root top level G. To permit the desired address, the driver **34** must have a length C about $\frac{3}{8}$ of an inch shorter than the #2 wood and about $\frac{9}{16}$ of an inch shorter than the #3, #4 and #5 woods, thus permitting the same horizontal distance D between the feet and the ball, and the same hand position H. FIG. 1 illustrates the constant hand position H and distance D which are possible with a set of woods matched in accordance with the present invention with various heights of the ball above the grass root top level. (The several ball positions shown in FIG. 1 are unrealistically spaced to provide clarity of illustration.)

The set of woods with the above-described novel length relationships is of course weighted and balanced in ac-

cordance with well known methods so that each club will have the same swing weight. To achieve this, the driver would be the heaviest club of the set, the #2 wood slightly lighter, and so forth.

While a set of woods conventionally includes the #1 (driver), #2, #3 and #4 woods, in some instances other matched sets may include for example the #1, #3 and #4 woods, or the #1, #2½, and #3½ woods. Some sets may include a #5 wood. The concepts set forth above are equally adaptable to said sets to provide a uniform address position for each wood shot.

Although the present invention relates specifically to the length relationships of a set of woods which will permit a uniform address of the ball in each instance, it can be understood that a more uniform, "grooved" golf swing will be a natural result of the invention.

Manifestly, changes in details of the invention can be effected by those skilled in the art without departing from the spirit and scope of the invention as defined in and limited solely by the appended claims.

I claim:

**1.** A set of golf club woods comprising a driver, a #2 wood, and a #3 wood, wherein said driver is shorter than said #2 wood and wherein said #2 wood is shorter than said #3 wood, said relative club lengths being chosen to permit a uniform address of the ball with each wood characterized by the same relative position of the hands and feet of the golfer and the same horizontal distance between the ball and the feet of the golfer, the respective club lengths compensating for the teed height of the ball when hit with the driver, the raised fairway lie of the ball when hit with the #2 wood, and the buried fairway lie of the ball when hit with the #3 wood.

**2.** A set of golf club woods comprising a driver, a #2 wood, and a #3 wood wherein said #2 wood is shorter in length by a first decrement than said #3 wood and wherein said driver is shorter in length by a second decrement than said #2 wood, said first decrement being of a length sufficient to compensate for the raised position of the ball in a good fairway lie as contrasted with a buried fairway lie, and said second decrement being sufficient to compensate for the elevated, teed position of the ball as contrasted with a good fairway lie, whereby a uniform address of the ball characterized by the same relative position of the hands and feet of the golfer and the same horizontal distance between the ball and the feet of the golfer may be effected regardless of the lie of the ball.

**3.** A set of golf club woods as claimed in claim **2** wherein said first decrement is approximately three sixteenths of an inch, and wherein said second decrement is approximately three eighths of an inch.

**4.** A set of golf club woods comprising first, second and third woods, the loft angle of said second wood being greater than that of said first wood, and the loft angle of said third wood being greater than that of said second wood, said third wood being longer than said second wood by an amount sufficient to compensate for a buried fairway lie of the ball as contrasted with a good fairway lie, and said second wood being longer than said first wood by an amount sufficient to compensate for a good fairway lie as contrasted with the elevated, teed position of the ball, the length of each club being correlated with the club loft angle whereby a uniform address of a ball characterized by the same relative position of the hands and feet of the golfer and the same horizontal distance between the ball and the feet of the golfer may be effected regardless of the ball lie encountered.



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