Aug. 18, 1936.

W. D. HART

GOLF SHAPT BALANCER

Filed June 4, 1934

INVENTOR
WALTER D. HART

BY

ATTORNEY
GOLF SHAFT BALANCER

Walter D. Hart, Los Angeles, Calif.

Application June 4, 1934, Serial No. 728,899

5 Claims. (Cl. 273—80)

My invention relates to golf clubs and is more particularly a balancing device whereby a golf club may be balanced to adjust the feel and list of the club.

In the type of club having a wooden shaft it is a simple matter to change the balance of the club by thinning the shaft at desired points by the use of sand paper or similar material, but, in the modern golf club with a steel shaft, such procedure cannot be followed, in view of the fact that the walls of the shaft are extremely thin and thinning down of the walls would result in an undesirable weakness of the shaft.

My invention, in its broadest aspect embraces, first, a balancer or weight means placed within the hollow shaft in proper position within the shaft so as to balance the shaft longitudinally and secondarily the feature of fixing the hang or list of the head of the club in normal position.

While my invention is applicable to all hollow shaft golf clubs, I find it particularly desirable for putters, as such clubs are substantially stiff as compared to the other clubs of a set, and after the purchase of a putter the golfer has no way in which he can change the "feel" of the club to meet his individual preference. Further with respect to the use of my invention, and particularly with reference to putters, the importance of being able to change the "feel" of the club in the hands of the player becomes evident in view of the fact that the use of the putter is greatly in excess of any other club in the set.

Referring to the drawing which is for illustrative purposes only.

Fig. 1 is a side elevation of a golf club partly in section showing one form of my invention mounted therein.

Fig. 2 is an enlarged sectional view on line 2—2 of Fig. 1.

Fig. 3 is a sectional view showing the upper end of a golf club having another form of my invention mounted therein.

Fig. 4 is a sectional view on line 4—4 of Fig. 3.

Fig. 5 is a sectional view of a portion of a golf shaft showing another form of my invention mounted therein.

Fig. 6 is a sectional view of a portion of a golf shaft showing another form of my invention mounted therein.

Fig. 7 is a sectional view on line 7—7 of Fig. 6.

Fig. 8 is a sectional view of a part of a golf shaft showing another form of my invention mounted therein; and

Fig. 9 is a sectional view on line 9—9 of Fig. 8.

Referring more particularly to the drawing, in

Fig. 1, 11 designates a golf club shaft having a head 12 secured thereto by means of a rivet shown in dotted lines at 13. The upper end of the shaft as shown in Fig. 1 is cylindrical in form as compared with the tapered lower end of the shaft, except that such portion in the form shown is flattened on one side as shown at 16 to engage a co-acting flat face 17 on a weight member 18, slidably mounted in the shaft.

The weight member 18 is moved into desired position in the shaft by means of a threaded stem 19 mounted to freely rotate in a plug 20 fitted into the flared upper end of the shaft, a knurled head 21, being secured in any suitable manner to the upper end of the stem above the plug 20. A 15 screw cap 22 is provided to inclose the head 21, such screw cap being threaded on a band 23 secured around the upper end of the shaft. 24 designates a wrapping which forms the grip portion of the club; 25 designates a plug fitted into the upper end of the tapered portion of the shaft in such a position as to prevent downward movement of the weight member beyond the lower end of the threaded stem.

In assembling a club as shown in Fig. 1, the 25 shaft is extended into the upper end of the head and the club loosely held by its upper end. Should the head of the club list to either right or left due to unequal distribution of weight in head or shaft the shaft is turned in the head 30 and, due to the fact that one side of the shaft is flat, the club may be radially balanced with the face of the head in normal position. After this operation the shaft is drilled and the pin 13 inserted to secure the shaft to the head.

It will be readily apparent from the above description that the weight member 18 may be moved longitudinally so that the "feel" may be varied to meet the want of the individual using the club.

In the form of my invention shown in Figs. 3 and 4 the shaft 11 is tapered throughout its length. 30 designates a tapered plug which is driven into the shaft until it is firmly seated in the shaft. 31 designates a stem having its lower end threaded into the plug 30. Mounted on the stem 31 are upper and lower yieldable washers 32 and 33 which engage the inner walls of the shaft for the purpose of preventing chattering of the device in the shaft. Mounted on the shaft between the washers 32 and 33 is a weight member 34 having a spirally extending flat surface 35, the weight member 34 being secured in desired radial position on the stem 31 by means of a set screw 36. The weight member 34...
and washers above described may be moved to different positions longitudinally of the shaft and secured in a desired position by means of collars 37 secured to the stem by means of set screws 38.

5 In this form of my invention it will be recognized that the weight member may be adjusted to its proper radial position by means of a head 40 on the upper end of the stem 31. 41 designates a cap fitted over the upper end of the shaft to close the opening therein.

In the form of my invention shown in Fig. 5 the weight member 42 is threaded at its lower end into a tapered plug 43, the upper end of the weight member being in threaded engagement with an upper tapered plug 44 which is provided with a slot 45 to receive a screw driver by means of which the weight member may be turned and threaded into the lower plug 43. After the weight member is threaded into the plug 43 a continued turning movement may be accomplished to give the club the right balance before the plug 43 is driven into fixed place in the shaft. This device may be removed from the club by unthreading the weight member from the lower plug and the insertion of a proper tool in the threaded lower plug. The upper plug 44 is also provided with a similar slot indicated at 46.

In the form of my invention shown in Figs. 6 and 7, the weight member consists of a wooden tapered plug 50 having a metallic strip 51 set into the plug and extending longitudinally of the plug. The plug is provided with a slot 52 by means of which the plug may be turned in the shaft and when in a desired position it is understood that the plug is forced into a fixed position in the shaft.

In the form of my invention shown in Figs. 8 and 9, the weight member consists of a tapered plug 55, preferably formed of metal and having a series of flat faces in one side thereof indicated at 56, such faces being separated by means of ribs 57. In this form of plug the plug may be turned to desired position by inserting a screw driver in a slot 58 in the top of the plug and when in proper position the plug driven into tight engagement with the shaft in any suitable manner. In this form of plug the desired weight can be placed in the plug by cutting off the plug at any one of the slots 56.

In all forms of my invention except that shown in Figs. 1 to 2 it is to be understood that the plug or weight member may be rotated to bring the club head at proper list and that with respect to the forms shown in Figs. 1 to 4 the weight member may be moved longitudinally to vary the “feel” of the club and that with respect to the forms shown in Figs. 5 to 9 the position of the weight member longitudinally in the club is governed by the diameter of the plugs used it being understood that plugs of different diameters are furnished for such purpose. In the forms of weight members shown in Figs. 3 to 9 inclusive the weight members are unbalanced due to the unequal distribution of weight material in the members, and due to such characteristics by turning such weight members in the shaft the radial distribution of weight may be governed to compensate for unequal distribution of weight in the club.

I claim as my invention:

1. In combination with a golf club having a hollow tapered shaft: a tapered plug fitted into said hollow shaft; and an elongated weight member threaded into the top of said plug.

2. In combination with a golf club having a hollow tapered shaft: a tapered plug fitted into said hollow shaft; and an elongated weight member threaded into the top of said plug, said weight member being formed so that its mass is unsymmetrically distributed with respect to its axis for a substantial portion of its length.

3. In combination with a golf club having a hollow tapered shaft: a tapered plug fitted into said hollow shaft; an elongated stem member threaded into the top of said plug; and a tapered cap threaded onto the top of said stem and engaging the interior of said shaft.

4. In combination with a golf club having a hollow tapered shaft: a tapered plug fitted into said hollow shaft; an elongated stem member being formed so that its mass is unsymmetrically distributed with respect to its axis throughout a substantial portion of its length.

5. In combination with a golf club having a hollow tapered shaft: a tapered plug fitted into said hollow shaft; an elongated stem member threaded into the top of said plug; and a tapered cap threaded onto the top of said stem and engaging the interior of said shaft, said stem member being formed so that its mass is unsymmetrically distributed with respect to its axis throughout a substantial portion of its length, the top of said cap and said stem member each being notched for the reception of an adjusting tool.

WALTER D. HART.