June 12, 1956 A. N. CLARK 2,750,194

GOLF CLUB HEAD WITH WEIGHT ADJUSTMENT

Filed Jan. 24, 1955

Fig. 1

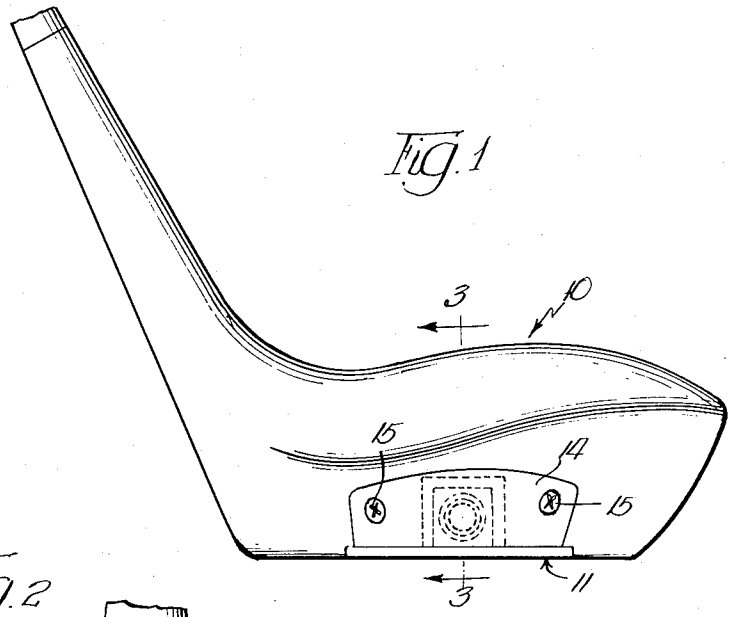


Fig. 2

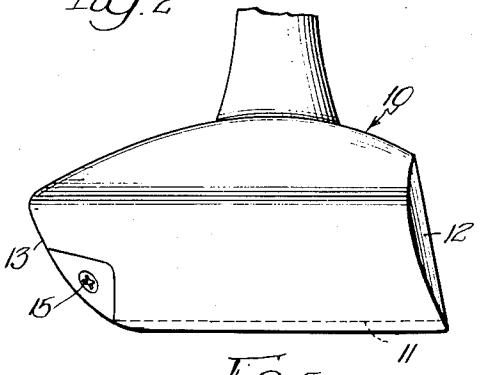


Fig. 3

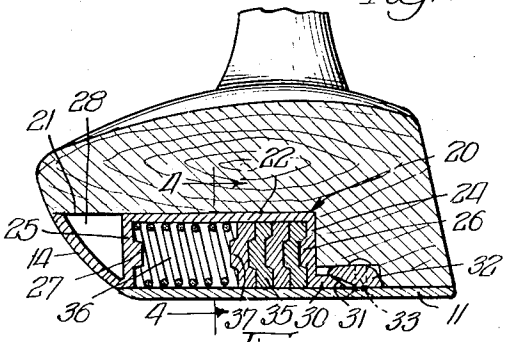


Fig. 5

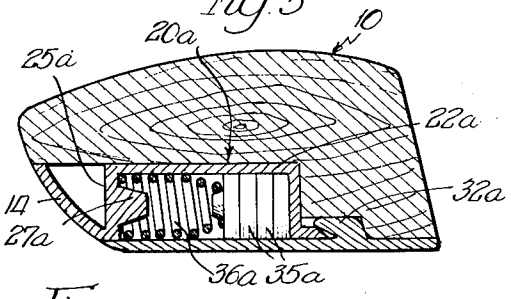


Fig. 4

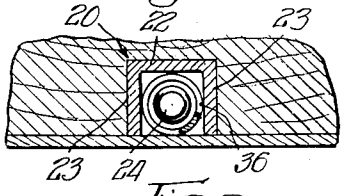


Fig. 6

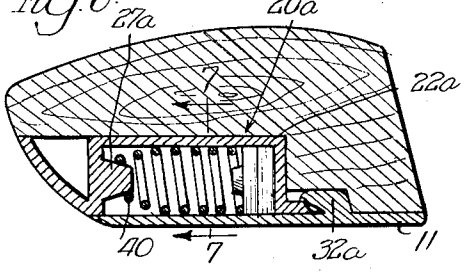
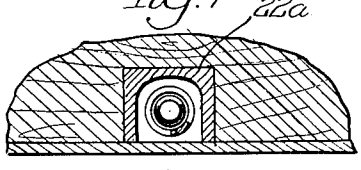


Fig. 7



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GOLF CLUB HEAD WITH WEIGHT ADJUSTMENT

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7 Claims. (Cl. 273—171)

This invention pertains generally to golf clubs and particularly to a new and improved construction for wooden club heads embodying means for adjusting the weight and balance thereof.

From early times in the game of golf, it has been the practice of club makers to add or subtract weights to the heads of wooden golf clubs to accommodate individual tastes and playing habits of the users. Generally the manufacturer attempts to produce a standard or normal weight for the particular wood in question and usually provides individual weight adjustment by boring a hole or holes in the head and filling the same with lead plugs, etc. There are serious objections to this practice, chiefly due to the difficulty and inconvenience of adjusting the club weights to meet individual needs. Each set of clubs is usually factory customized and the addition of lead plugs in the head of the club is accomplished by tapping the plugs into bore holes. The tapped plugs have a tendency to work loose after a time and become lost in use.

The present invention is intended primarily to present a new and improved means for adding or subtracting weights to the head of a golf club, particularly the "wood" clubs, which makes it possible for the individual to regulate the weight and balance of his golf clubs himself or to have them adjusted in his local "pro-shop" to meet his own particular needs and desires. Means are provided in the improved weight adjustment system of this invention to prevent the rattling or loss of weights and the entire means is embodied in a unique housing arrangement within the club head which eliminates any unsightliness or detraction from the fine workmanship normally attending the manufacture of this class of playing instrument.

The main object of this invention is to provide a new and improved weight adjustment means for golf clubs and particularly the "wood" clubs.

Another object of this invention is to provide a new and improved means for conveniently changing and adjusting the weight distribution and balance of a wooden golf club head to meet the needs of the individual user.

A still further object of this invention is to provide a new, improved and simplified means for adjusting the weight and balance of a golf club and particularly the "woods" in such a manner that each player may easily custom fit and weight his own golf clubs.

The above and further objects, features and advantages of this invention will be apparent to those skilled in the art from the following detailed description and specification of its embodiments set forth in the accompanying drawings.

In the drawings:

Figure 1 is a side elevational view of a typical "wood" golf club head embodying the features of my invention;

Figure 2 is a front end elevational view looking at the club head illustrated in Figure 1;

Figure 3 is a cross-sectional view taken substantially

along line 3—3 of Figure 1 for showing the assembly of the improved weight adjustment means of this invention;

Figure 4 is a partial cross-sectional view taken substantially at line 4—4 of Figure 3;

Figure 5 is a longitudinal cross-sectional view, similar to Figure 3, showing a modified form of adjustment housing and assembly combining the concepts of this invention;

Figure 6 is a longitudinal cross-sectional showing of the device in Figure 5, illustrating the alternate positioning of the spring and weight system therein; and

Figure 7 is a partial cross-sectional view taken substantially at line 7—7 of Figure 6 to illustrate the cross-sectional configuration and formation of the modified construction shown in Figures 5 and 6.

Turning now to the drawings it will be recognized best from Figures 1 and 2 that a wooden golf club head 10 is fitted with the usual sole plate 11 which lays along the bottom face of the club head and extends substantially from a hitting or forward face 12 thereof to its rearward face or heel 13. A heel plate 14, suitably contoured to meet the configuration of rear face 13 is fitted and formed for reception in a recess formed in the rear face 13. Screw means 15, or the like, are employed to attach the heel plate 14 in position and similar screw members, not illustrated, are employed to attach the sole plate 11 to the head of the golf club in the usual manner.

In external appearance the elements described so far do not differ materially from corresponding elements presently employed in golf club heads of this class. The distinction of this invention, however, is best illustrated in Figures 3 and 4 of the drawings in which the heel plate 14 is shown as cast or formed integrally with a tray member 20 which is insertable in a blind cut-out or hollow 21 of substantially rectangular configuration formed in the head member 10. In particular, the tray member 20 comprises an upper wall 22, a pair of parallel side walls 23, 23 (see Figure 4) and a pair of end walls 24 and 25 which are respectively provided with locating lugs 26 and 27. It will be understood that the several walls of the tray member are interjoined and preferably cast or formed integrally with the heel plate 14. A pair of web walls 28, 28 extend from the one end wall 25 as continuations of the side walls 23 to join the heel plate 14 with the tray; such web walls being substantially triangular in shape as best seen in Figure 3. The forward end wall 24, in addition to having the lug 26, is also provided with a lip 30 projecting in an opposite direction from lug 26. This lip has a forward edge which is suitably formed at an angle to form an inclined plane or wedge face 31. This face 31 is received underneath an overhanging inclined portion of a wedge lug 32 which may be cast integrally with the sole plate 11 or fixed thereto as by a rivet member 33, as shown, or by welding or other suitable connective means.

It will be recognized that when the heel plate 14 and attached tray member 20 are inserted in opening 21 formed in the club head, the extending lip 30 with inclined wedge face 31 engages the underface of the overhanging wedge lug 32 to securely hold the tray in place. Note that the incline of face 31 doesn't match the undercut of lug 32; thus endwise interference of lip 30 with lug 32 is prevented when screws 15 are tightened. The locating and holding function of the lug and the lip just described is especially designed to cooperate with the employment of the holding screws 15, or the like, so that the tray means will be rigidly locked in the club head in its final assembly.

In Figure 3 it will be seen that the locating lugs 26 and 27 on the two end wall portions 24 and 25 are

designed especially to coaxially locate substantially square weight members **35** and a spring member **36**. Particularly, one or more weights **35** may be employed and inserted in the interior of the tray member **20**; such weights each being formed with an extending lug portion **37** and a hollow correspondingly located and designed to mate with the lug portion **37** of an adjacent weight so that the same may interlock with each other. The weight **35** placed adjacent the wall **24** will, of course, lock and locate coaxially with the extending locating lug **26** formed on such wall. A compression coil spring **36** is employed between the weights **35** and the second end wall **25**; this spring locating itself on the lug **37** of the first weight and projection **27** of end wall **25**. The spring, of course, serves to keep the weights in place and prevent their rattling. It will be recognized that variations in the weight of the club head may be easily accomplished by the removal or addition of the individual weights **35** to fit the particular needs of the player.

In Figures 5, 6 and 7 I have illustrated a modified form of tray member **20*a*** which features certain improvements as will now be described.

The head member **10** of Figure 5 is equipped with the modified tray member **20*a*** as mentioned hereinabove. Such tray member is substantially the same as tray **20** heretofore described except that the end wall **25*a*** thereof is equipped with an enlarged and elongated locating stud **27*a*** which acts as a centering guide and keeper for one end of a conical coil spring **36*a***. It will also be seen from Figure 7 that the upper wall **22*a*** is formed dome-like on its interior face which mates with the matchingly shaped weights **35*a***. In regard to spring **36*a*** it will be noted that the same tapers endwise so that the coils at one end thereof are smaller than they are at the other end. This configuration for spring **36*a*** has been found satisfactory and especially desirable in certain instances, as for example, that illustrated in Figure 6 wherein two of the four weights **35*a*** shown in Figure 5 have been removed. Normally, spring **36*a*** is disposed with the coils at its larger end over projection **27*a***, as seen in Figure 5. With the removal of two of the weights it will be appreciated that the compression of spring **36*a*** is considerably decreased. This being the case, reversal of the spring, as shown in Figure 6, allows the smaller end portion **40** thereof to remain spaced from the end wall of the tray when such is engaged with the enlarged conical stud or guide **27*a***. This effectively provides sufficient compression of the spring to accommodate the removal of the two weights. This function and feature is not possible with the cylindrical spring and construction illustrated in the device of Figures 3 and 4.

It will also be noted that in the construction set forth in Figures 5, 6 and 7, the locking lug **32*a*** is formed integrally with the sole plate **11** as opposed to the riveted construction seen in Figure 3 and described in conjunction with tray **20**.

From the above it will be understood that I have set forth the structural aspects of a new and improved adjustable weight system construction for the head of a "wood" golf club which permits ready and easy variation in the weight distribution and mass of the head to meet the desires and playing habits of individual players. Due to the extreme simplicity of the construction it is obvious that even the most amateurish mechanic may remove the holding screws **15**, so that either the tray element **20** or **20*a***, as the case may be, with attached back plate **14** may be removed from the interior of the club head and the desired number of weights removed or added as desired.

While I have illustrated and described the improvements as applied to two variations of the same basic invention, it is obvious that numerous other changes, modifications and substitutions of equivalent materials and constructions may be employed in carrying out the intentions and purposes of this invention, without necessarily departing from its spirit and scope. As a consequence, it is not my intention that I be limited to the particular form and features of the device disclosed and described hereinabove except as may appear in the following appended claims.

I claim:

1. Means for regulating the weight of a golf club having a wooden head, comprising, a sole plate fastened to the underface of said head, a blind chamber opening inwardly from the rearward face of said head and extending toward the front face thereof, said sole plate closing over the bottom side of said chamber, a heel plate enclosing the open end of said chamber, a tray member connected at one end to said heel plate and inserted axially into said chamber, plural weight members carried in said tray member adjacent one end thereof, means removably interlocking said weight members, and spring means located between said weight members and the other end of said tray for resiliently biasing said weights tightly against one another.

2. Means for regulating the weight of a golf club having a wooden head, comprising, a sole plate mounted across the lower face of said head, a blind chamber formed inwardly of the rearward face of said head and extending partially therethrough, said sole plate closing the bottom side of said chamber, a tray member insertable into said chamber, means interlocking said tray member with said sole plate, plural weight members carried within said tray, compressible spring means biasing said weight members into tight engagement with one another and toward one end of said tray, and a heel plate fastened to the other end of said tray and arranged to cover over the open end of said chamber; said weights within said tray being selectively removable to vary the over-all weight and mass distribution of said head.

3. In a golf club having a wooden head, a sole plate extending across the lower face of said head, a chamber formed in said head closed at one side by said sole plate and opening outwardly of the rear face of said head, a tray element having an open bottom wall insertable into said chamber, means interlocking said tray and sole plate, compressive spring means mounted axially with said tray, weight members removably held in said tray between one end of said spring means and the one end of said tray, a plate means fastened to the other end of said tray for closing the open end of said chamber, and means attaching said plate means to said head thereby to tightly hold said tray in said chamber.

4. In a golf club having a wooden head, a chamber formed inwardly of the rearward face of said head and opening outwardly of the bottom face thereof, a sole plate extending across the bottom face of said head and closing over the bottom side of said chamber, a tray element registeringly insertable endwise into said chamber, a heel plate attached to one end of said tray for closing over the open end of said chamber, plural removable weight means carried within said tray, means interlocking said several weight means, spring means within said tray for biasing said weight means into tight adjacency and toward one end of said tray, and means interlocking said tray with said sole plate.

5. The combination as set forth in claim 4, including opposed axial projections on the inside faces of said tray's end walls, such projections coaxially aligning and holding said weights and spring means.

6. Means for regulating the weight of a golf club having a wooden head, comprising, a sole plate fastened to the underface of said head, a blind chamber opening inwardly from the rearward face of said head, said sole plate closing over the bottom side of said chamber, a heel plate enclosing the open end of said chamber, a tray member connected to said heel plate for insertion axially into said chamber, plural weight members carried in said tray member, means interlocking said weight mem-

bers, and means for removably holding said weight members within said tray.

7. A wooden head for a golf club bearing a sole plate on its under face, a blind chamber opening inwardly from the rearward face of said head, a tray means insertable in said chamber, plate means located at one end of said tray means for enclosing the open end of said chamber when said tray is inserted therein, removable adjustment weight means carried within said tray, a pair of projection means formed on the inside end walls of said tray, one of said projection means being used to locate said weights, and a conical coil spring means disposed between said weights and the other of said projection means to hold said weights in place, said other projection means serving normally to center the larger end coil of said spring means in an engaged position with one of said tray's end walls,

the reversal of said spring means to bring the smaller end coil thereof into engagement with said other projection means serving to hold said smaller coil spaced from said one end wall thereby compressing said spring means sufficiently to accommodate removal of one or more of said weights without appreciably lessening the compressive hold of said spring means on the weights remaining in said tray.

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