

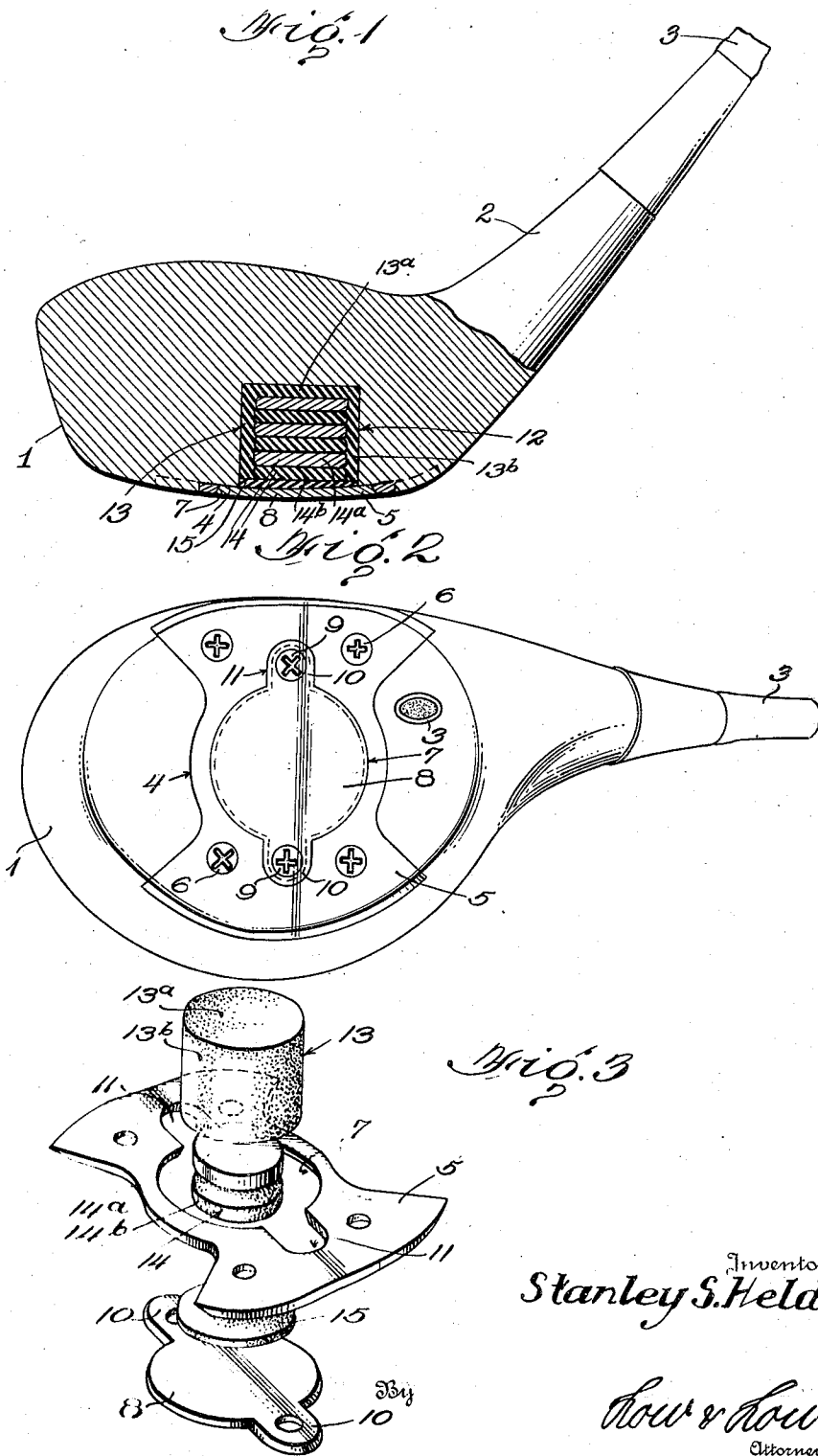
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ADJUSTABLE WEIGHTING DEVICE FOR GOLF CLUB HEADS

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## ADJUSTABLE WEIGHTING DEVICE FOR GOLF CLUB HEADS

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The invention relates to golf clubs and relates more particularly to an adjustable weighting device for golf club heads, whereby proper balance of the head in respect to the shaft may be accurately determined and varied to the end that proper balance of the entire club may be conveniently effected and maintained at all times with a minimum of effort.

A principal object of the invention is to provide an adjustable weighting device for golf clubs, preferably wood golf club heads, wherein a compact removable assembly is provided and which is adaptable for incorporation into golf clubs of known and preferred manufacture without altering the structural character of the club in any material or essential respect.

A still further object of the invention is to provide an adjustable weighting device of the character described wherein the weight may be varied as desired quickly with a minimum of effort.

A further object of the invention is to provide a method of varying the weight of the golf club head in a manner so that expansion or contraction of the wood will not result in the weight working loose or becoming displaced. This is obtained by providing in the material of the club head a cup member of live rubber closely fitted therein, said cup member being designed to respond to and compensate for any shrinking or swelling of the club head. This insures against any overheating of the club head as might result in an instance where molten lead is poured into slots or holes of the head to change the weight balance.

The various predetermined weight disks of different materials contemplated by the invention may be experimented with until the desired combination is provided which produces the proper balance best suited for the individual player. These objects may be accomplished with simple ordinary tools readily accessible at any golf shop or to any player.

It is customary in manufacturing wood-head golf clubs, i. e. drivers, brassies, spoons and cleeks, to provide correct balance in a golf club by adding to the wooden head, either in a slot in the rear portion of the head or in a hole bored in the bottom portion of the head, lead or other substance that has a greater specific gravity than the wood it replaces. This has among others, two disadvantages: (1) since the wood and the insert of lead do not expand and contract equally, the lead portion frequently works loose as a result of the alternate expansion and contraction of the

wood portion through it becoming wet and drying out; (2) frequently it is desirable to increase or decrease the weight of the head, to provide a different balance or feel, and under present methods this is only accomplished by gouging out lead or by adding more lead, a method which involves tedious and unnecessary labor and which accomplishes its purpose only by the trial and error method.

The objects of the invention are readily accomplished by this adjustable weighting device which involves first inserting a cup of live rubber or other compressible material in a hole bored in the bottom of a golf club head and directly beneath the sole plate, said cup fitting snugly against and having a frictional engagement with the wood of the golf club head. The said cup of live rubber is designed to be filled or packed with any desired number of interchangeable and removable discs of lead or other substances that are perceptibly heavier than the wood, and with discs of rubber or other compressible substance that is perceptibly lighter than lead. Thus the weight of the club head can be changed within reasonable limits by an increase or decrease of the number of lead-weight discs placed in the cup, said lead weights to be of the same weight, for purposes of illustration, say one-eighth of an ounce each.

Thus by increasing or decreasing the number of lead-weights and increasing or decreasing the number of rubber discs, or "blanks", the golf club head weight can be increased or decreased an eighth of an ounce or more, simply by increasing or decreasing the number of lead weights.

By means of the invention the weight combinations may be removed and changed, as desired, to the end that a golf club with a different weight and with a different balance or feel may be obtained quickly and easily.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawing, discloses a preferred embodiment thereof.

In said drawing,

Fig. 1 is a view in vertical section, partly in elevation, of a wooden golf club head embodying the instant invention.

Fig. 2 is a bottom plan view of the club head.

Fig. 3 is an exploded perspective view of the removable and interchangeable adjustable weighting devices removed from the club head

and illustrated in disassembled position and relation.

Referring to the drawing, 1 indicates the golf club head having a hosel 2 to which the inner end of a shaft 3 may be secured in any preferred manner. The lower or bottom face of the club head is cut away as indicated at 4 for the reception of the usual sole plate indicated at 5 and which is secured to the bottom of the club head by means of screws 6 so as to lie flush with the lower surface of the head. The sole plate is centrally apertured as at 7 to receive a removable cover plate 8 adapted to be secured to the club head by means of screws 9 or other fastening devices which in the embodiment illustrated extend through diametrically opposed elongated portions 10 of the plate which portions nest within correspondingly cut away oppositely extended and disposed portions 11 of the sole plate recess 7. This arrangement insures against relative rotation of the cover and sole plates.

The lower face of the club head is further provided with a substantially central vertical recess 12 and which in the embodiment illustrated is of circular configuration. The recess 12 is designed to receive a cup member 13 constructed of live rubber having an inner end wall 13a and integral side walls 13b, the resilience of which insures a tight frictional fit of the cup member within the recess 12. The cup member is designed and adapted to receive a plurality of disk members indicated at 14 and which disk members may be constructed of any desired material suitable for imparting additional weight to the club head. As illustrated said disk members 14 may be constructed of lead or rubber, the lead disks being indicated at 14a and the rubber disks being indicated by the reference character 14b. These disk members are shaped so as to frictionally fit within and against the resilient walls of the rubber cup member 13. The disk members are illustrated in Fig. 1 as alternately composed of lead and rubber for imparting the desired additional weight to balance the head in respect to the weight of the club shaft so as to impart the proper weight distribution of the club as an entirety.

It will be noted that the disk members are interchangeable and since the rubber is of relatively light weight, any desired weight increments may be imparted to the club head by varying the relation of the metal or lead disk members to the rubber disk members. For example, if the cup member 13 is entirely filled with lead disks 14a a maximum weight will be present in the head. Conversely, a complete assembly of rubber disk members 14b would provide a light weight increment which might be further reduced by decreasing the number of rubber disks within the cup member. Since the invention contemplates a comparatively tight frictional fit between the disk members and the walls of the resilient cup member, any desired number of disks may be inserted in the cup, it not being necessary to completely fill the cup with the disks. Furthermore the resiliency of the side wall of the cup member permits convenient removal of the disks when desired, for example by means of a flat implement, such as a screw driver or the like.

Due to the relation in weight between the lead and rubber disk members, it is usually possible to provide the proper and desired weight increment in the head by filling the cup with disk members of lead and rubber respectively.

An outer disk or cap member is shown at 15

also preferably composed of soft rubber and is of a diameter greater than the disk members 14 to permit the same to overlie the outer walls of the cup after the latter has been filled with the desired number of disks members, as best seen in Fig. 1.

After the disks are manually inserted in the cup member to provide the desired weight increment, the resilient rubber cap 15 is placed over the cup after which the cover plate 8 is fitted into the sole plate and secured in place by means of the screw elements 9 which engage the hard wood of the club head to maintain the assembly.

When it is desired to adjust the weight increment by substituting one disk for another or by removing or adding to the number of disks in the cup, it is merely necessary to remove the cover plate 8 without disturbing the sole plate 5 which remains in secured position as illustrated. The removal of the cover plate 8 permits the removal of the resilient rubber cap 15 through the central aperture 7 of the sole plate 5, in order to obtain access to the interior of the live rubber cup member 13 for removing or replacing the disk members in a convenient manner.

While a cylindrical cup member of live rubber has been illustrated in the drawing, it will be understood that the invention may be practiced if desired by forming said cup member of other configuration, it merely being necessary to vary the shape of the removable disk members so that the latter may be frictionally inserted within to engage the walls of the cup member.

While lead and rubber have been illustrated and described as constituting the material of the removable disk members 14, the invention further contemplates constructing these disk elements which provide the weight increments, of any other desired or preferred metallic or non-metallic materials.

From the foregoing, it will be noted that the applicant is well aware that adjustable weighting devices for golf club heads are known and have been made the subject of patent protection. However, so far as is known the present invention is the first which contemplates as a material feature of such device, a resilient cup member of live rubber, or of other compressible and resilient material, which will frictionally hold the removable and interchangeable weight disks in place, and which will also compensate for the alternate expansion and contraction of the wood golf club head under temperature influence.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

What is claimed is:

1. An adjustable weighting device for golf club heads, comprising a cup member of live rubber incorporated in and secured to the material of said head and opening into a wall thereof, and a removable disk member frictionally engaging the inner wall of said cup member to provide a weight increment to determine and vary the balance of the club head in respect to the club shaft.

2. An adjustable weighting device for wood golf club heads, comprising a cup member of live rubber incorporated and frictionally engaging a recess in said head, the open end of said cup mem-

ber opening into a wall of the club head, and a plurality of removable disk members frictionally engaging the inner wall of said cup member to provide a weight increment to determine and vary the balance of the club head in respect to the club shaft.

3. An adjustable weighting device for wood golf club heads, comprising a cup member of live rubber incorporated in and frictionally engaging a recess in said head, and a plurality of removable and interchangeable disk members composed of lead and rubber frictionally engaging the inner wall of said cup member to provide a weight increment to determine and vary the weight and balance of the club head in respect to the club shaft, and an outer disk member for closing the open end of said cup member and adapted to be securely clamped in position thereon.

4. An adjustable weighting device for a golf club head having a sole plate, comprising a cup member of live rubber incorporated and secured within a recess in the sole of said head, a plurality of removable disk members frictionally engaging the inner wall of said cup member to provide a weight increment to determine and vary the balance of the club head in respect to the club shaft, a removable cover plate incorporated in said sole plate for closing the outer end of said cup member, and means for removably securing said cover plate in position.

5. A golf club head having an aperture in a wall thereof and opening into said wall, a resilient cup member of live rubber housed within said aperture, and a plurality of removable disk members insertable in and frictionally engaging the inner walls of said cup member to retain said disk members in position and to provide an adjustable weighting device whereby to determine and vary the balance of the club head in respect to the golf club shaft.

6. A wood golf club head having an aperture in the bottom wall thereof and opening into said wall, a resilient cup member of live rubber housed within said aperture, and a plurality of interchangeable and removable disk members of metal and rubber insertable in and frictionally engaging the inner walls of said cup member to removably retain said disk members in position and to provide an adjustable weighting device whereby to determine and vary the balance of the club head in respect to the golf club shaft and to the golf club as an entirety.

7. A wood golf club head having a sole plate on its bottom face, an aperture in said head and opening into an aperture in said sole plate, a resilient cup member of live rubber housed within said aperture and frictionally engaging the walls thereof, a plurality of interchangeable and removable disk members of metal and rubber insertable in and frictionally engaging the inner walls of said cup member to removably retain said disk members in position and to provide an

adjustable weighting device whereby to determine and vary the balance of the club head in respect to the golf club shaft.

8. A wood golf club head having an apertured sole plate on its bottom surface, an aperture in said golf club opening into the aperture of said sole plate, a resilient cup member of live rubber housed within said aperture and frictionally engaging the walls thereof, a plurality of interchangeable and removable disk members insertable in and frictionally engaging the inner walls of said cup member to provide an adjustable weighting device whereby to determine or vary the balance of the club head in respect to the golf club shaft, a removable cover plate insertable in the aperture of said sole plate, and means for removably securing said cover plate to said golf club head to clamp said inserted disk members in assembled position.

9. A wood golf club head having an apertured sole plate on its bottom surface, an aperture in said golf club opening into the aperture of said sole plate, a resilient cup member of live rubber housed within said aperture and frictionally engaging the walls thereof, a plurality of interchangeable and removable disk members composed of metal and rubber insertable in and frictionally engaging the inner walls of said cup member to provide an adjustable weighting device whereby to determine or vary the balance of the club head in respect to the golf club shaft, an outer flexible disk member for closing the open end of said cup member, a removable cover plate insertable in the aperture of said sole plate, and means for removably securing said cover plate to said golf club head to clamp said inserted disk members and outer flexible disk member in assembled position.

10. A wood golf club head having a sole plate on its bottom surface provided with a non-circular aperture, a recess in the material of said club head opening into said sole plate aperture, a resilient cup member of live rubber housed within said recess and frictionally engaging the walls thereof to maintain said cup member in position, a plurality of interchangeable and removable disk members composed of lead and rubber insertable in and frictionally engaging the inner walls of said resilient cup member to provide an adjustable weighting device to determine at will and vary the balance of the club head in respect to the shaft and to the golf club as an entirety, a removable cover plate of non-circular configuration conforming to the aperture of said sole plate, said cover plate being insertable into said sole plate aperture and maintained against movement relative to said sole plate by reason of its non-circular configuration, and means for removably securing said cover plate to said golf club head to clamp said inserted disk members and cup member in assembled position.

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