

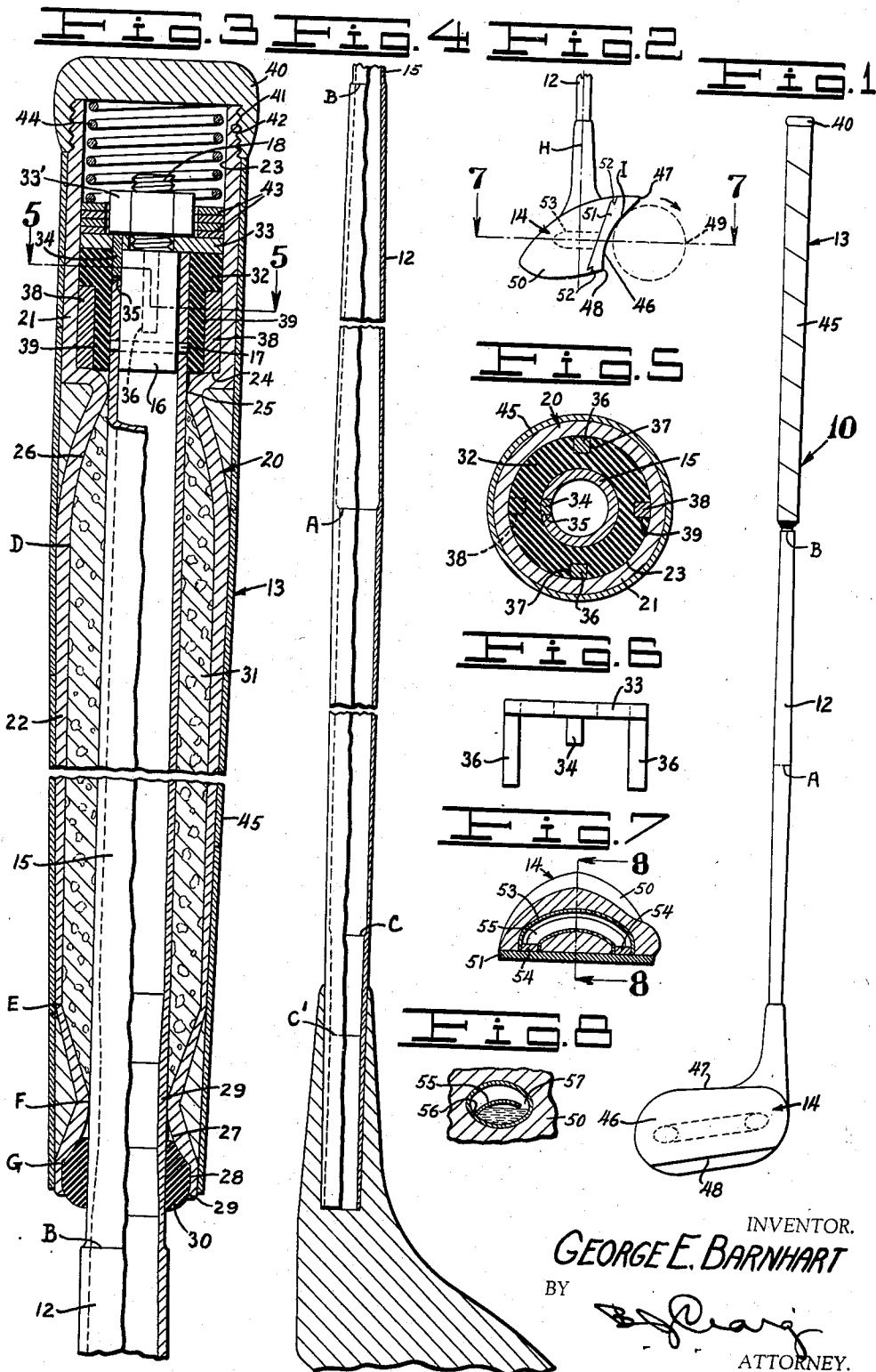
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GOLF CLUB

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GOLF CLUB

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This invention relates to improvements in golf clubs.

The general object of the invention is to provide a golf club having a novel shaft and head.

Another object of the invention is to provide a novel shaft for a golf club.

A further object of the invention is to provide a novel golf club shaft and gripping portion or handle wherein the whip of the shaft is controlled within the gripping portion.

A still further object of the invention is to provide a novel head for golf clubs.

A still further object of the invention is to provide a shaft for a golf club which progressively decreases in weight and then increases in weight between the club and the head.

Other objects and the advantages of the invention will be apparent from the following description taken in connection with the accompanying drawing wherein:

Fig. 1 is an elevation of a golf club embodying the features of my invention looking at the face of the club head;

Fig. 2 is a fragmentary elevation similar to Fig. 1 looking toward the end of the club head;

Fig. 3 is an enlarged central longitudinal section through the gripping portion or handle of the golf club;

Fig. 4 is an enlarged fragmentary elevation of my improved golf club shaft with portions broken away;

Fig. 5 is a section taken on line 5—5 of Fig. 3;

Fig. 6 is a side elevation of a washer used in the handle assembly;

Fig. 7 is a section taken on line 7—7 of Fig. 1; and,

Fig. 8 is an enlarged fragmentary section taken on line 8—8 of Fig. 7.

Referring to the drawing by reference characters I have indicated a golf club embodying my features of my invention generally at 10. As shown the golf club 10 includes a shaft 12 having thereon at one end a gripping portion or handle 13 and at the opposite end a head member 14.

The shaft 12 is annular in cross section and is preferably made of steel. From a point A intermediate the handle 13 and the head 14 the shaft converges downward to its lower end and converges upward to a point B adjacent the lower end of the handle 13. The walls of the lower portion of the shaft are thick at A and decrease in thickness downward to a point C below which is an untapered portion which terminates at C' below which the walls decrease in thickness to-

wards the lower end of the shaft. As clearly shown in Fig. 4 the point C' is within the club head to provide greater strength to the shaft where it enters the club head. The walls of the upper portion of the shaft are thin at A and from the point A upward the shaft walls increase in thickness to the point B. From the point B the shaft includes a portion 15 the outer wall of which is preferably truly cylindrical. The construction is such that the tubular shaft has a section which progressively increases in weight between the grip and the head and also has a section which progressively decreases in weight between the grip and the head. In general the walls of the shaft portion 15 are thin at the point B 15 and increase in thickness to the upper end of the portion 15.

Adjacent the upper end of the portion 15 a plug member 16 is positioned in the shaft and secured thereto by a pin 17. The plug 16 includes a reduced threaded stem 18 which extends beyond the end of the shaft.

Surrounding the portion 15 of the shaft I provide a metal sleeve which is indicated generally at 20. The head portion 21 includes a recess 23 which opens through the upper end thereof and terminates in a bottom shoulder 24. Adjacent the shoulder 24 the inner surface of the sleeve curves inward and downward as at 25 to merge into the shank portion 22.

The portion 15 of the shaft extends into the recess 23 a predetermined distance and the curved portion 25 of the sleeve 20 engages the outer surface of the shaft portion 15. From the curved portion 25 the inner surface of the shank 22 curves downwardly and outwardly as at 26 to a point D from which it converges downwardly to a point E. From the point E the inner surface of the shank converges at a more acute angle to a point F where it curves outwardly as at 27 to a point G and then extends downward a predetermined distance as at 28 and terminates in an inwardly flared portion 29. At the point F the inner surface of the sleeve engages the outer surface of the shaft portion 15.

The outer surface of the walls of the sleeve 20 approximately follows the contour of the inner surface. At the point E the wall of the sleeve 20 is thin and increases in thickness to the curved portion 25. From the point E downward to the point F the sleeve walls decrease in thickness.

Adjacent the point F of the sleeve the walls of the shaft portion 15 preferably include a thickened section 29 to reinforce the walls of the portion 15 where they are engaged by the sleeve 20.

The curved portion 27 and the straight portion 28 of the sleeve form an open bottomed recess surrounding the shaft portion in which a rubber washer 30 is positioned.

The space between the outer surface of the shaft portion 15 and the inner surface of the sleeve 20 between the curved portion 25 and the point F of the sleeve may be unoccupied or a very resilient filler material 31 such as sponge rubber may be positioned therein as shown.

Positioned in the recess 23 of the sleeve 20 between the shoulder 27 thereof and the upper end of the shaft portion 15, I provide a rubber collar 32.

Surrounding the threaded stem 18 I provide a metal washer 33 which is firmly clamped in the end of the shaft portion 15 by a nut 33' positioned on the threaded stem 18.

The washer 33 includes an inner depending key member 34 which is positioned in a slot 35 provided in the shaft portion 15. The washer 33 further includes adjacent its outer periphery a pair of depending finger members 36 which are positioned in suitable recesses 37 provided in the rubber collar 32.

Within the sleeve recess 23 I provide a pair of opposed finger members 38 which are secured to the sleeve by welding or brazing them thereto. These finger members 38 extend from the shoulder 24 upward a predetermined distance and inward a part of the distance between the shaft portion 15 and the sleeve walls. The sleeve fingers 38 are positioned in suitable recesses 39 provided in the rubber collar 32. The recesses 39 are positioned between the recesses 37. For closing the end of the sleeve recess 23 I provide a cap member 40 which is internally threaded as at 41 to engage an externally threaded portion 42 provided on the sleeve 20 adjacent the upper end thereof.

Within the sleeve recess 23 surrounding the nut 33' I provide a plurality of thin metal washers 43 which rest on the washer 33. Also positioned in the sleeve recess 23 I provide a coiled spring 44 one end of which engages the upper one of the washers 43 and the opposite end engages the cap member 40.

The tension of the spring 44 against the washers 43 and the washer 33 exert a downward pressure on the shaft against the resiliency of the rubber collar 32. Surrounding the sleeve 20 between the upper threaded portion 42 and the lower end thereof I provide a standard leather wrapping 45 which may be cemented to the sleeve.

When a standard golf club is swung to hit a ball the whip of the club shaft occurs between the club head and the handle portion but with my improved golf club 10 the whip occurs within the handle portion 13. This is due to the fact that the shaft 12 is strengthened intermediate the club head 14 and the handle portion by enlarging it at the point A and by having the handle portion engaging the shaft only at two spaced points 25 and F thereby leaving a great length of free shaft within the handle portion. When the golf club 10 is swung to hit a ball the whip of the shaft 12 occurs within the length of the reduced portion 15 thereof between the point F of the sleeve where it engages the shaft portion 15 adjacent its lower end and the curved portion 25 of the sleeve where it engages the shaft portion 15 adjacent its upper end.

The torque exerted on the shaft of a golf club by the head when swinging the club and when the head strikes a ball is normally transferred to the

handle portion and thence absorbed by the hands of the operator thereby causing additional strain on the operator but with my improved golf club 10 this torque is partly absorbed.

When a torque strain is put on the shaft 12 it is transferred to the washer 33 which thereupon tends to turn and turn the fingers 36 thereof with it against the resiliency of the rubber collar which is prevented from turning by the sleeve fingers 38 thus the material of the collar is compressed between the washer fingers 36 and the sleeve fingers 38.

By removing one or more of the washers 43 the pressure of the spring 44 on the rubber collar 32 is lessened thereby lessening the density of the collar material whereupon the washer fingers 36 can compress the collar material with less effort. When additional washers 43 are added the pressure of the spring 44 on the rubber collar 32 is increased thereby increasing the density of the collar material whereupon the washer fingers 36 must exert a greater effort to compress the collar material.

Although my shaft may be used with any desired type of striking head in Figs. 1 and 2 the club head 14 is shown as a putter provided with a novel striking face which is indicated generally at 46. As shown the upper edge 47 of the striking face 46 is in advance of the lower edge 48. That is, the upper edge 47 is spaced further from the center line H of the shaft than is the lower edge 48. The portion of the striking face 46 between the upper edge 47 and the lower edge 48 thereof may be a straight line but I prefer to make it concave as shown.

The height of the striking face 46 in relation to a golf ball indicated at 49 is such that the point of contact I between the ball and the striking face is above the center of the ball. Thus when the striking face 46 contacts the ball it impels it away therefrom with an over rolling action in the direction of travel of the ball which holds the ball onto the green in its forward travel.

In Fig. 2, I have shown the club head 14 as including a wood body portion 50 having a face portion 51 thereon which is made of resilient material such as rubber or fibre. The face portion 51 is cemented to the body 50 and adjacent the upper and lower sides of the head the body 50 and the face portion 51 are co-actingly dovetailed as at 52.

Within the body portion 50 of the club head 14 I provide a curved metal tube 53. The tube 53 is shown as positioned approximately intermediate the height of the head with the ends of the tube adjacent the face portion 51 (see Fig. 7). The ends of the tube are closed as by plugs 54 which may be brazed or otherwise secured to the tube to form a fluid tight seal. Within the tube 53 and intermediate the height thereof I provide a fin 55 which extends from the plug 54 at one end of the tube to the plug at the other end. In cross section the fin 55 is preferably arcuate with one edge secured to the tube by brazing or otherwise securing it thereto to form a fluid tight seal as at 56 in Fig. 8. The opposite edge of the fin 55 is spaced a predetermined distance from the inner face of the tube walls as indicated at 57. The space between the fin 55 and the lower portion 70 of the tube is partially filled with mercury as indicated at 58 in Fig. 8.

In use when the club head moves forward the mercury moves into contact with the trailing wall of the tube 53 until the ball is struck at which 75

time the mercury will move forward relative to the club head. If the outer edge of the head is leading in the swing the mercury when it moves forward will strike the inner plug 54 thus tending to correct the position of the club head. If the inner face of the club head is leading the mercury will strike the outer plug 54. It must be seen that the mercury will protect the swing and cause the club head to strike a blow with the face at right angles to the swing of the club.

From the foregoing description it will be apparent that I have provided a novel golf club which is simple in construction and highly efficient in use.

15 Having thus described my invention, I claim:

1. A golf club shaft comprising a hollow metal body and including a grip portion at one end and a head portion at the other end, an intermediate portion comprising one part of increasing diameter with the small end secured to the grip portion and a second part of decreasing diameter continuous with the first part, the larger end of the first part being connected to the larger end of the second part, the wall thickness being abruptly increased in the second part at the line of its juncture with the first part, said line of juncture being substantially midway between the head and grip portions.

2. A golf club shaft having a hollow metal body including a grip portion at one end and a head portion at the other end, an intermediate portion secured to said grip portion, said intermedi-

ate portion including two tapering parts, one of said parts increasing in external diameter away from the grip portion and having its wall thickness decreasing away from the grip portion and the other part having its external diameter decreasing away from the grip portion and its wall thickness decreasing away from said grip portion, said tapering parts being united at their line of greatest diameter, there being an abrupt increase in wall thickness in the second part at the line of its juncture with the first part.

3. The construction as set forth in claim 2, in which the grip portion is cylindrical.

4. The construction as set forth in claim 2 in which the line of juncture of the first and second parts of the intermediate portion is located substantially midway between the head and grip portions.

5. A golf club shaft comprising a hollow metal body and including a grip portion at one end and a head portion at the other end, an intermediate portion comprising one part of increasing diameter with the small end secured to the grip portion and a second part of decreasing diameter continuous with the first part, the larger end of the first part being connected to the larger end of the second part, the wall thickness being abruptly increased in one of said parts at the line of its juncture with the other part, said line of juncture being substantially midway between the head and grip portions.

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