

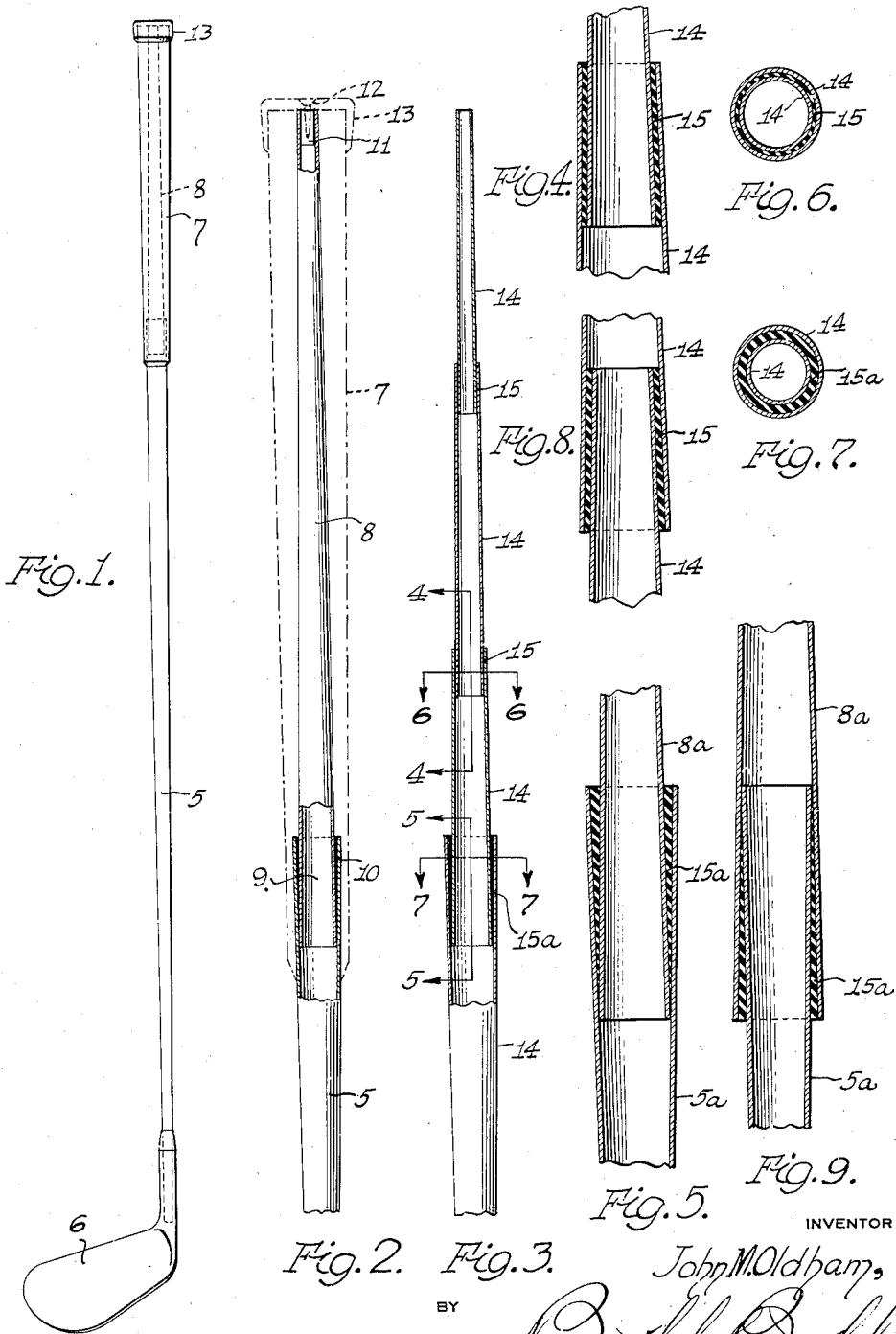
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GOLF CLUB SHAFT

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GOLF CLUB SHAFT

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This invention relates to golf clubs and more particularly to a shaft construction for such clubs. One of the objects of the present invention is the provision of a golf club shaft which will possess a maximum of flexibility, strength, and durability.

It is well known that when a golf ball is struck, it is compressed or flattened slightly due to its resiliency, which compression results in a comeback or kickback against the club head, and it is this action that promotes length of flight, rather than the force of the blow. With my improved golf club shaft, the desired flexibility is secured and at the same time, the club shaft possesses the necessary rigidity to permit the club to carry through and give maximum flight to the ball.

More specifically, the invention contemplates the employment of a golf club shaft which is decreased in diameter toward its opposite ends, so that the vibration imparted to the club incident to striking the ball, will be gradually dampened out by the form of its shaft rather than imparted to the hands of the user.

Another object of this invention is to provide a golf club shaft which is built up of a plurality of tubular sections whose ends are joined together with interposed tubular parts formed of rubber or other suitable yieldable material vulcanized in place and which permits of slight relative lateral movement of the sections, thereby absorbing or dampening out the vibrations or shock incident to hitting the ball.

With the above and other ends in view, the invention resides in the matters hereinafter set forth and more particularly pointed out in the appended claims, reference being had to the accompanying drawing in which:

Figure 1 is a side elevation of a golf club illustrative of an embodiment of the present invention;

Fig. 2 is an enlarged detail view, partly in elevation and partly in section of a club shaft, the hand grip at the upper end thereof being shown in dot and dash lines;

Fig. 3 is a modified embodiment of the invention, showing a shaft partly in section and partly in elevation;

Fig. 4 is an enlarged sectional detail substantially upon the line 4—4 of Fig. 3;

Fig. 5 is a similar section upon the line 5—5 of Fig. 3;

Fig. 6 is a transverse section upon line 6—6 of Fig. 3;

Fig. 7 is a similar section upon line 7—7 of Fig. 3;

Fig. 8 is a longitudinal sectional detail showing a further modification of the invention; and Fig. 9 is a similar sectional view of a further modification of the construction.

Referring to the invention in detail and particularly to Figs. 1 to 7, inclusive, a lower tubular metal section 5 gradually increasing in diameter from its lower end and carrying a conventional head 6 is provided. As shown particularly in Fig. 1 the lower section or shaft 5 extends for a distance into the lower end of and is inclosed by a suitable hand grip 7.

Housed within this hand grip 7 is an upper tubular section 8 which decreases in diameter toward its upper end and has its lower end 9 received within the upper end of the section 5. In order to provide flexibility or slight relative lateral movement of the two sections where they join each other, a tubular tapered cushioning sheath 10 is interposed between the outer surface of the lower end portion 9 of the section 8 and the inner surface of the upper end of the section 5. Preferably this cushioning element 10 is in the form of a rubber tube which is vulcanized directly to opposed surfaces of the adjacent ends of the two sections and thus firmly secures these sections together.

A plug 11 is received in the upper end of the section 8 and secured thereto by a suitable fastening 12, is the cap 13 of the hand grip 7.

As shown in Fig. 2 the upper section 8 is spaced throughout its length from the hand grip 7 so that none of the vibrations from the club head will be transmitted to the hand grip. Moreover, the vibrations set up by the impact of the club head against a ball, will travel longitudinally through the club shaft and be gradually dampened out at the smaller end of the upper section 8.

In the embodiment of the invention disclosed in Figs. 3 to 7, the same results are attained but the club shaft is built up of a plurality of telescopically engaged sections 14 of varying diameters. At the joints where the sections are telescopically joined, a tubular cushioning element 15 of rubber or other resilient material is interposed between the telescoped ends and being vulcanized thereto, secures the sections together against endwise displacement.

In the construction shown in Fig. 9 the lower or bottom section 5a projects into the lower end of the upper section 8a, the latter gradually decreasing in diameter from its lower end upwardly

and within the upwardly tapering space between these telescoped ends, is a tubular connecting member 15a which is similarly tapered in thickness to fit within and fill this space, being vulcanized to the tube ends to hold them against endwise separation.

With a golf club having a shaft such as described, the ball will be given maximum flight by reason of the flexibility of this shaft which permits the club head end of this shaft to yield away from the ball and then spring back against the ball so that the club head will be kept in constant contact with the ball and follow through, thereby producing maximum flight.

It will also be observed that the vibrations set up when the club head comes into contact with the ball, and travelling longitudinally through the sections, will be gradually dampened out by the tapered formation of the sections, and the yieldable members connecting their telescoped ends, instead of being transmitted to the hands of the player. In addition these yieldable connecting members between the sections which serve to join their telescoped ends, permit a slight relative lateral or yieldable movement between the sections which renders the club shaft extremely flexible, and yet sufficiently stiff to follow through after the ball. This flexibility is an aid to the feel of the club in the hands of the player and is of material assistance to him in acquiring a free rhythmical swing.

What I claim is:

1. A golf club shaft including a pair of sections having telescoping adjacent end portions with one of said portions tapered longitudinally and with the free end of one portion of a diameter to bear upon the surface of the other portion opposed thereto, to provide a longitudinally tapered space between said portions, and a member formed of resilient material within said space.

2. A golf club shaft including a pair of sections having telescoping adjacent end portions, the free end of one end portion bearing upon the other portion with a space between the remainder thereof and the said other portion, and a resilient filler member within said space to provide for lateral deflection of one section relative to the other about said bearing.

3. A golf club shaft including a pair of tubular members having telescoped adjacent end portions, said portions being tapered longitudinally with the free end of one portion bearing upon the opposed surface of the other portion and forming a longitudinally tapered space between said portions, and a sleeve of resilient material filling said space.

4. A golf club shaft including a pair of members having their adjacent ends telescoped, one within the other, said outer of said telescoped end portions being of increasing diameter toward the free end thereof and of an internal diameter inwardly from said free end equal to or less than the external diameter of the extreme inner end of the inner of said telescoped end portions, whereby the inner end of the inner portion bears upon the inner surface of the outer portion and a space of substantial width in cross section is provided between said inner portion at a distance from its free end and the free end of said outer portion; and a sleeve of resilient material within said space between said telescoped end portions.

5. A golf club shaft comprising members having their adjacent ends telescoped, one within the other, each of said portions being tapered longitudinally throughout its length, the lower of said members forming the main part of the shaft and tapering downwardly to the head on the lower end of said shaft, said upper member being tapered upwardly and forming the handle end portion of the shaft, said upper member being of an external diameter at its lower end to fit the internal diameter of the lower member inwardly from its upper end, with a space between said interengaged end portions of said members which space is tapered longitudinally, a filling of resilient material within said space, and a handle sleeved upon the upper member of the shaft and secured to the reduced upper end of said shaft member with the lower end of said handle enclosing said sleeve joint between said upper and lower shaft members.

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