April 12, 1932. P. F. APFEL 1,853,532

GOLF CLUB

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FIG. 1.

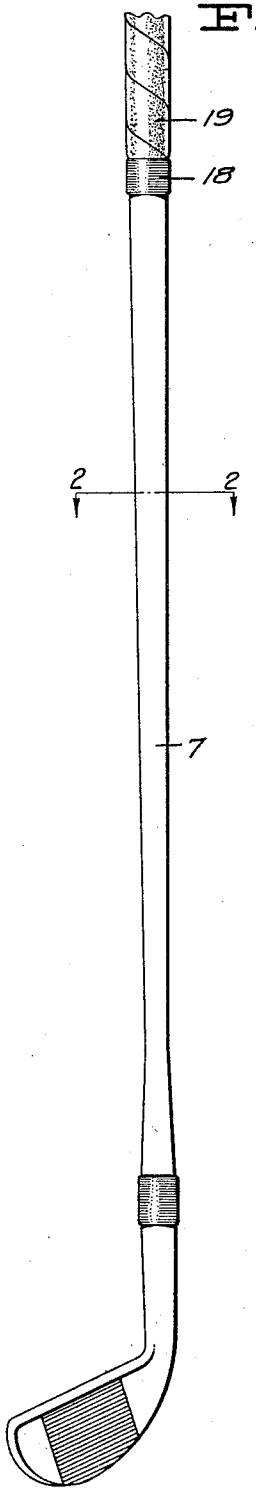

FIG. 2.

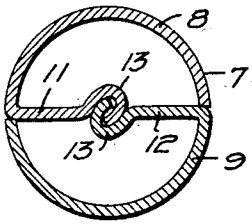

FIG. 3.

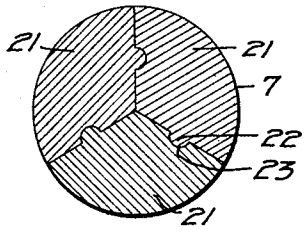

FIG. 4.

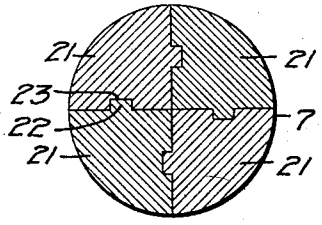

FIG. 5.

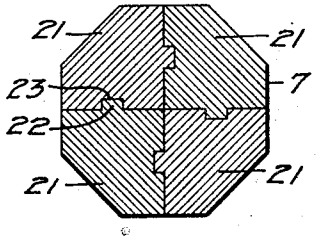

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FIG. 6.

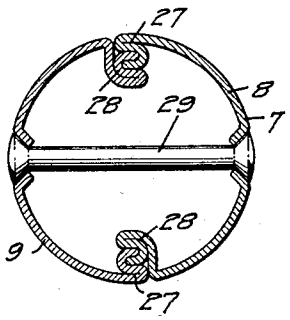


FIG. 8.

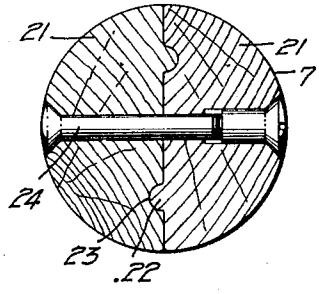
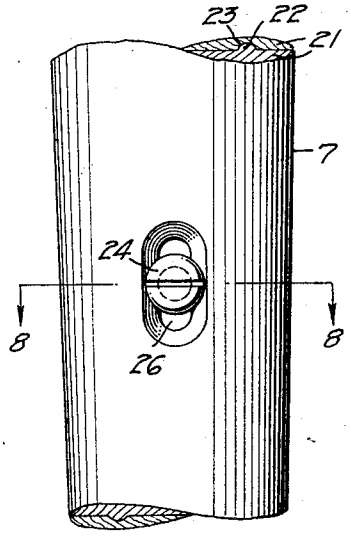


FIG. 7.



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UNITED STATES PATENT OFFICE

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GOLF CLUB

Application filed August 28, 1929. Serial No. 388,985.

My invention relates to the construction of shafts such as are utilized in golf clubs and the like.

It is known that in such articles as golf clubs the provision of a shaft having relatively great flexibility or "whip" is extremely desirable inasmuch as a greater distance is obtainable with a club having such a shaft. In methods of construction used heretofore the whip obtainable is limited because of the mechanical strength which has been found necessary, in a given size, for a reasonable durability of the shaft. It is therefore an object of my invention to provide a shaft in which the flexibility, the strength, and the durability are increased without increasing substantially either size or weight.

A further object of my invention is to provide a shaft so constructed that it will keep its shape and form without warping or buckling with change of weather conditions.

A further object of my invention is to provide a shaft construction of such a nature that the shaft is manufactured and assembled with a greater ease and economy than has been possible with shafts heretofore.

My invention possesses other advantageous features some of which with the foregoing will be set forth in the following description. It is to be understood that the invention as defined by the claims is to be accorded a range of equivalents consistent with the state of the prior art.

In the drawings:

Figure 1 is an elevational view of a golf club employing a shaft constructed in accordance with my invention.

Figure 2 is a section through the shaft illustrated in Fig. 1 along the lines 2—2 thereof.

Figures 3 to 5 inclusive, illustrate other shaft sections and methods of constructing a shaft in accordance with my invention.

Figure 6 is a cross section thru another form of shaft.

Figure 7 is a side elevation of a form of shaft which I employ.

Figure 8 is a cross section through the shaft illustrated in Fig. 7 along the line 8—8 thereof.

Briefly, my invention may be generally characterized as comprising the construction of a shaft of segmental portions, the portions being so formed as to provide interlocking surfaces which increase and impart certain desired features.

In that form of my invention which is particularly shown in Figs. 1 and 2, a head 6 is affixed to a shaft 7 in any convenient manner. As is shown in Fig. 2, the shaft is preferably formed of substantially identical portions 8 and 9. These portions I have conveniently formed of a suitable material such as metal.

It is to be noted, however, that the shaft 7 does not comprise merely a hollow tube or solid rod as has been utilized with shafts heretofore, but includes portions 8 and 9 which are provided with interlocking surfaces. Thus extensions 11 and 12 which are formed on the respective portions 8 and 9 are curved back upon the portions to provide what may be termed a diametral base to the portions. The extensions are provided with means for effecting an interlock between them. To effect this interlock conveniently, I form a substantially symmetrical eye 13 upon each of the extensions which are so adapted that they can be interengaged to lock the respective portions 8 and 9 together.

I have found that the flexibility and whip of the shaft is materially enhanced if the extensions 11 and 12 are positioned in such a manner with respect to the face 16 of the head 6 that they are substantially parallel thereto. This provides for an increased degree of flexibility since the respective sections can slide along each other to a certain extent while other movements than this as a transverse sliding movement are substantially prohibited.

The sections are conveniently maintained in position with respect to each other by the wrappings and grip portion usually provided upon the shaft. Thus the wrapping indicated at 17 near the head of the club serves to secure the sections together at this point while the wrappings 18 and the grip portion 19 secure the sections at the handle end of the club.

My invention is also useful in providing

wooden shafts for those clubs in which it is believed that wood is the most satisfactory material for the shaft. In this connection I have expediently formed the shaft of a plurality of sections 21. By providing a plurality of sections, I am enabled to effect a greater economy in the manufacture and assembly of the shaft, in that smaller portions of wood need be utilized to build up the shaft proper. This facilitates the selection of the wood so that only the best portion of a piece need be taken.

In accordance with my invention, each of the sections 21 is provided with a projection indicated at 22 which is adapted to be received in a substantially conforming recess 23 provided in the adjacent section. The shaft when the several sections have been glued together, is securely joined together not only by the adhesive used but by the interlocking of the several projections with the recesses. Further, by providing the interlock the assembly of the shaft from the several sections is facilitated.

I also prefer to form the shaft of the sections with the grains of the wood running in substantially different directions, and with the interlocking of the several sections together, a greater resistance is thus provided in the shaft for those changes which are occasioned upon weather or climatic variations.

In that form of my invention which is illustrated in Figures 6 to 8 inclusive the shaft 7 is assembled so that the movement of the component parts of the shaft is provided for. Thus in that form shown particularly in Figure 8 the shaft sections 21 are joined together conveniently as by a bolt 24 which extends thru an aperture 26. This aperture is of a width to receive the bolt and of a length sufficient to allow for a degree of sliding of the faces relative to each other. This aids also in assembling the shafts and in securing the sections together.

In that form shown in Figure 6 the metal portions 8 and 9 are provided with interengaging members 27 and 28 respectively. These are adapted to be engaged to provide a composite shaft structure which I have found is most useful and desirable where certain characteristics are desired as in the game of golf. The joining of the portions is conveniently done with a rivet 29 extending thru the aperture 26. When desired a bolt or other engaging means may be employed so that the shaft structure may be disassembled for repairs or replacement. In this connection such a feature as disassembly is advantageous since various shaft portions of different characteristics may be assembled to secure a shaft having a very definite behavior in use.

I claim:

1. A golf club including a head and comprising a shaft assembled with said head and formed of substantially complementary sections, each of said sections being formed with a projection adapted to be fitted into a recessed portion on another section to provide an interlock preventing relative transverse movement between the sections.

2. A golf club including a head and comprising a shaft joined to said head, said shaft being formed of substantially identical sections, and means on one of said sections for providing an interlock with another of the sections whereby the sections are substantially secured against relative transverse movement.

3. In a composite shaft, a first shaft section, a second shaft section substantially identical in form with said first section, and means on each of said sections for substantially locking said sections together against only relative transverse sliding movement.

4. In a composite shaft, a first section having a recess formed therein, and a second section substantially identical with said first section and having a projection thereon, said projection being formed to engage said recess to provide an interlock between said sections substantially to resist torsion and to prevent transverse sliding of one section on the second section.

5. In a golf club having a shaft, a first shaft section, a second shaft section, a projection formed upon said first section, the second section having a recess to receive said projection whereby relative transverse movement of the sections is prevented, and means for securing the shaft sections together to prevent only the relative transverse movement.

6. In a golf club having a shaft, a first shaft section, a second shaft section, and means for interlocking said sections together, said means extending substantially entirely throughout the length of said sections so that relative transverse movement of the sections is prevented while relative sliding movement substantially can occur.

7. In a golf club, a shaft consisting of a first shaft section, a second shaft section, said shaft sections each including a tongue and groove portion adapted to cooperate with a groove or tongue on another section to restrain the sections against relative transverse sliding movement, but permitting relative longitudinal sliding movement.

In testimony whereof, I have hereunto set my hand.

PHILIP F. APFEL.