Sept. 28, 1926.

1,601,033

G. W. MATTERN

HANDLE GRIP SHOCK ABSORBER

Filed March 29, 1926

Fig. 3

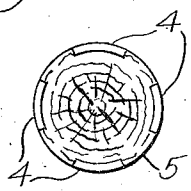


Fig. 4

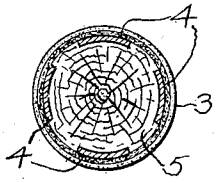
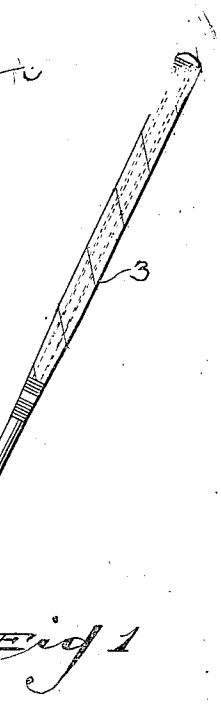


Fig. 2

Fig. 1



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Patented Sept. 28, 1926. 1,601,033

UNITED STATES PATENT OFFICE.

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HANDLE-GRIP SHOCK ABSORBER.

Application filed March 29, 1926. Serial No. 98,218.

My invention relates to golf clubs, and more particularly to clubs provided with metallic handle shafts.

The purpose of the invention is to afford to such metallic handle shafts employed as substitutes for the customary wooden shafts, the peculiar characteristics, reaction and "feel" inherent in the natural wood shafts.

Golf club shafts of tapered metallic tubing are at the present time more or less extensively used as substitutes for the natural wood shafts heretofore formed from seasoned hickory. Such metallic tubular shafts possess certain desirable characteristics, being non-breakable, and being substantially unaffected by climatic, temperature and humidity conditions. While such metallic tubular shafts possess a reasonable degree of flexibility or bending moment, they are to a very great degree if not entirely unresponsive to torsional strains. In this, they differ very materially from the natural wooden shafts, which yield to a twisting or torsional movement at the moment of impact, thus tending to absorb the shock and also the reaction gives to the ball an impetus and action in flight not attained by the usual steel shaft. One of the most objectionable characteristics of the metallic shaft is that of transmitting to the player's hands excessive vibration, by which reaction upon the nerves frequently causes numbness, or in the absence of numbness, effects a very disagreeable sensation. This tendency to conduct excessive vibrations, together with the unresponsiveness of the metallic shaft to torsional strain subjects the player's wrists to abnormal stresses or strains, which induces undue fatigue. It has been found that after extended periods of play with an unresponsive metallic shaft, the player's wrist joints have been injured to such extent as to necessitate medical attention. Moreover, the rigidity of such metallic shaft, not only spoils the player's stroke, but it induces an inharmonious action of the club as a whole, destroys the "balance" of the club, and eliminates the characteristic "feel" which the skilled player has learned to expect and prefers to experience, and which to a great extent determines the quality of his playing.

Experience has demonstrated that notwithstanding the inherent good features and desirable characteristics to be found in a tubular metallic golf club shaft, that the inherent objectionable characteristics including the lack of responsiveness to torsional strain, and the transmission of excessive vibrations and shock to the hands and wrists of the player, are bringing the all-metal shaft into disrepute.

In the present instance, the desirable characteristics of the tubular metallic golf club shaft are retained, and the undesirable features overcome, by longitudinally slitting the hand grip portion of the shaft to form a series of separate strips or fingers, and expanding such split portions of the shaft by inserting therein a tapered core of wood or other comparatively soft resilient material, about which the integral fingers or strips extend in spaced relation, such surrounding spaced fingers or strips being interlocked or embedded within the inserted core. The shaft is thus rendered amply responsive to torsional strain, and capable of absorbing or dampening excessive vibration.

While the preferred construction is that of a tapered tubular metallic shaft, the grip portion of which is slit and expanded by the insertion of a soft wood core of balsa wood, light pine, bass wood or the like, it will be understood that the shaft may be of other material than metal, for instance, fiber or composition, and the tapered insert or core may likewise be of material other than wood as for example, a rubber insert or one of fabric.

In the accompanying drawing wherein is shown the preferred, but obviously, not necessarily the only form of embodiment of the invention, Fig. 1 is a general view of a golf club in which the present invention has been embodied. Fig. 2 is an enlarged detail view of the expanded portion of the golf shaft, showing the tapered insert therein. Fig. 3 is an end view showing the insert and the spaced fingers or strips disposed thereabout. Fig. 4 is a cross sectional view of the handle end of the shaft.

Like parts are indicated by similar characters of reference throughout the several views.

In the accompanying drawings, 1 is the golf club head, 2 the handle shaft and 3 the hand grip portion. For purpose of illustration, a club of the driver or brassie type is shown. It is to be understood, however, that the invention is equally applicable to clubs of other types. The golf club head

1 is of wood or metal according to the character and purpose of the club. The handle shaft 2 is of tubular form and preferably tapered, although some players may prefer a straight cylindrical shaft. The larger end of the tapered handle shaft 2, which forms the hand grip portion is longitudinally slitted at spaced intervals to form a succession of longitudinally disposed parallel fingers or strips 4—4, which are free at their outer ends, but interconnected with the main body of the shaft at their inner ends. While the drawing shows the tubular stem, as longitudinally split to form four of such fingers or strips, a greater or less number may be provided. Driven longitudinally within the split portion of the tapered shaft is a tapered insert or core 5. The lower or smaller end of this insert or core substantially corresponds in diameter with the interior bore of the tubular shaft beyond the limit of the split portion, while the opposite or larger end of the tapered core 5 is of somewhat greater diameter than the original interior diameter of the tubular shaft. The insert or core 5 is preferably of light, soft wood, such as soft pine, balsa wood, bass wood or the like. However, other materials may be used, such as rubber or composition, or in lieu of a preformed insert or core, the split portions of the tubular shaft may be packed with suitable packing material, such as cotton waste or the like. The core or insert being of greater diameter than the original bore of the tubular shaft, the slit portion of the shaft is expanded, thus separating the fingers or strips 4—4 into spaced relation about the insert core 5, which they enclose as a calyx.

Although not essential, it is preferred that the fingers or strips 4—4 be embedded in the periphery of the core or insert 5, by being compressed thereinto, thereby forming an interlocking engagement with the core or insert against relative rotary movement. Such embedment is effected by subjecting this strip portion of the handle shaft to rolling action under pressure. Such embedment is shown in Fig. 3. The hand grip portion is then wrapped with tape or the like to retain the fingers 4 in their spaced relation about the insert core 5, and the usual hand grip cover is applied, as shown at 3, Fig. 1. This wrapping or cover of the hand grip portion is preferably extended to enclose the full length of the slitted portion of the shaft, although it is to be understood that the shaft may be slit to a point beyond the hand grip cover or padded portion, in case increased degree of resiliency or yielding effect to torsional strain is desired.

Not only will the composite handle shaft thus provided imitate with great similarity the inherent characteristics of a natural wood handle shaft, and be responsive to torsional strain or stress, and will absorb excessive vibrations, thus protecting the hands and wrist of the player, but it will also obviate breakage of the club head to which a golf club fitted with the usual form of rigid metallic shaft is subject. The resistance of the usual form of metallic shaft to torsional stress subjects the head to torsional strain and many clubs are broken by the neck or hosel being fractured or split, due to the unresponsiveness of the shaft to the impact with the ball.

From the above description it will be apparent that there is thus provided a device of the character described possessing the particular features of advantage before enumerated as desirable, but which obviously is susceptible of modification in its form, proportions, detail construction and arrangement of parts without departing from the principle involved or sacrificing any of its advantages.

While in order to comply with the statute, the invention has been described in language more or less specific as to structural features, it is to be understood that the invention is not limited to the specific details shown, but that the means and construction herein disclosed comprises the preferred form of several modes of putting the invention into effect and the invention is, therefore, claimed in any of its forms or modifications within the legitimate and valid scope of the appended claims.

Having thus described my invention, I claim:—

1. A tubular steel shaft for golf clubs, the handle grip portion of which is longitudinally split and spread to form a series of spaced fingers, and a tapered insert driven into said split end of the tubular shaft about which the spaced fingers extend.

2. A golf club having a tubular metallic shaft, the handle grip portion of the shaft being longitudinally split into a plurality of elongated fingers, a core of wood enclosed within the split portion of the tubular metallic shaft, and an external handle grip wrapping enclosing the elongated fingers and enclosed wooden core.

3. A golf club having a tubular metallic shaft, the handle grip portion of the shaft being longitudinally split into a plurality of elongated fingers, a core of resilient material enclosed within the series of resilient fingers, and an enclosure means binding the fingers in close relationship with the core.

4. A golf club having a tubular metallic shaft, the handle grip portion of the shaft being longitudinally split into a plurality of elongated fingers, a core of resilient material inserted within the series of fingers, and means for causing the core to be gripped by said fingers.

5. A golf club having a tubular metallic shaft, the handle grip portion of the shaft being longitudinally split into a plurality of elongated fingers, and a tapered core of greater diameter than the original internal diameter of the split portion of said tubular shaft driven therein and spreading said fingers outwardly, and a grip cover enclosing the spread fingers and the enclosed core.

6. A golf club having a tubular metallic shaft, the handle grip portion of the shaft being longitudinally split into a plurality of elongated fingers, said elongated fingers being flexed outwardly in radial directions to form an enlarged handle portion and a body of filling material inserted within the series of fingers and maintaining the fingers in their outwardly flexed positions.

In testimony whereof, I have hereunto set my hand this 15th day of March A. D. 1926.

GEORGE W. MATTERN.