April 16, 1935. A. E. BUHRKE ET AL 1,997,853

GOLF CLUB

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Fig. 1.

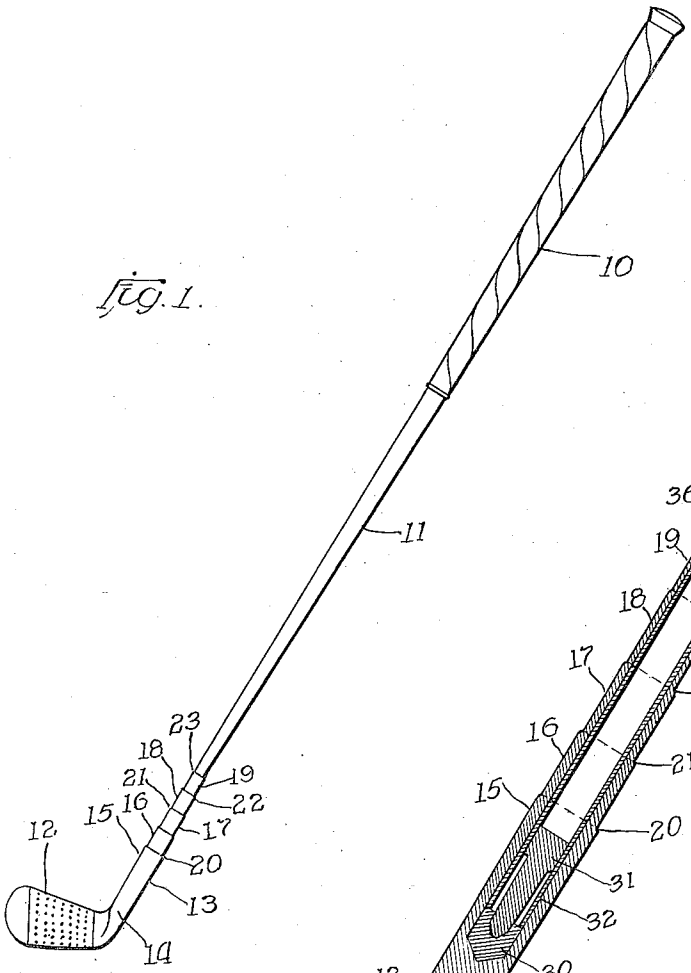


Fig. 2.

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GOLF CLUB

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8 Claims. (Cl. 273—80)

The invention relates to golf clubs and more particularly of the type commonly referred to as "irons" or metallic headed clubs as distinguished from clubs which commonly have heads of wood or other fibrous materials.

It is the primary object of our invention to provide a golf club with a metallic head having a metallic shank extending therefrom and provided with a suitable hosel or socket opening to receive the co-operating end of a handle shaft of a flexible character, preferably of resilient metal whereby to provide an improved joint connection between the shank and handle shaft in order that the club may present a finished appearance, proper balance and improved means for cushioning vibrations ordinarily imparted from the head of the club through the shank through and along the handle shaft to the part of the same which is adapted to be provided with a grip portion to be embraced by the hands of the player.

It is a further object of the invention to provide an improved construction comprising an integral metallic club head and shank adapted to receive, support and cushion the ordinary club shaft attached thereto.

A further object of the invention is to provide as an article of manufacture an improved metallic golf club head provided with a striking or blade portion and an integral shank portion socketed to receive a handle shaft, the shank being provided with improved means for giving balance to the club and damping vibrations tending to be imparted from the club head to the shaft when in play.

Other objects of the invention will appear from the following specification directed to the preferred embodiment of our invention as depicted in the drawing, the novel features thereof being set forth in the appended claims.

In the said drawing,—

Fig. 1 is an elevational view of a golf club with a metallic head constructed in accordance with the principles of our invention.

Fig. 2 is a fragmentary view of an integral headed shank constructed as in Fig. 1 and showing the same attached to a tubular tapered metallic shaft of the general type of shaft shown in Fig. 1, the shaft, however, being provided with an ornamental and protective covering sheath preferably of a suitable flexible elastic plastic material in combination with an ornamental ferrule between the shaft cover or sheath around the shaft adjacent the upper extremity of the improved shank extension, the view showing the shaft fragment and the contiguous parts of the club head shank in section to disclose details of construction.

Referring to the drawing, we show a golf club shaft of metal and it may be of seamless tubular form and tapered as illustrated from the grip portion 10 on said shaft 11 downwardly toward the end thereof to which the club head is designed to be attached. While the tapered tubular metallic shaft of the seamless type is illustrated by us in the present embodiment of the invention, it will be apparent that our improved club head and shank construction may be used in a combination of any desired form of flexible shaft, whether made of solid material or of tubular form and whether of tapered form or of cylindrical form or of a plurality of short integrally joined stepped sections or integrally joined substantially cylindrical tube sections in the portion thereof disposed between the handle of the club and the end thereof attached to the club head and specially formed socket shank thereof, since golf club shafts of the various constructions referred to as well as other forms are now commonly used. In iron headed clubs and especially iron headed clubs when provided with metallic shafts as distinguished from iron headed clubs as previously provided with outwardly and upwardly enlarged tapered integral metal shanks and belled handle shafts adjacent the shank of the head there is a marked tendency for vibration to be imparted from the head to the shaft through the connection in the shank, and we have discovered that regardless of the construction of the flexible metallic shaft we are able to cushion the driving shock imparted to the club head and transmitted by the club head through the head shank of ordinary construction to the shaft by considerably elongating the integral metallic shank of the club head and stepping down the shank above the point of securement of the shaft in the shaft socket of the shank or hosel, the stepping down or tapering being by series of gradations or offsets as shown in the drawing. For example, in the drawing the reference character 12 designates a conventional form of metallic head blade or striking portion, provided with an integral neck and shank portion 13, the shank in the ordinary construction being of a taper form so that it enlarges outwardly or upwardly from the intersecting or neck portion 14, thus providing excess metal in the shank or hosel portion for club-balancing purposes, the part of greatest diameter thereof being indicated by the reference character 15, at which point the shank ordinarily terminates where it is

bored to form a hosel opening in the socket to receive the shaft. But we form the neck and shank of the club head so that it has an integral extension of about double the ordinary or conventional form of tapered shank, and this is accomplished by a plurality of integrally joined stepped cylindrical portions that will preferably although not necessarily be of approximately equal length and which decrease progressively both in outside diameter and in wall thickness toward the upper end of the elongated shaft, these portions in the drawing being designated respectively by the reference characters **16** to **19**, inclusive, **16** being a portion adjoining the normally upper end and enlarged portion **15** of the shank **13**, and the respective cylindrical portions **16** to **19** inclusive being stepped downwardly or progressively reduced both in diameter and wall thickness in the manner shown most clearly in Fig. 2, forming a series of peripheral shoulders **20** to **23**, inclusive. We have discovered that when the shank is greatly elongated and the elongated portion is divided up into a series of substantially cylindrical sections stepped down in diameter so as to decrease the wall thickness of the elongated added sections or, portions progressively and upwardly of the shank similar to sections **16** to **19** inclusive, the peripheral shoulders **20** to **23** inclusive have the effect of damping or absorbing vibrations imparted to the club head in striking the ball, due to the inability of the shank when thus constructed to transmit vibrations of a mechanical nature and high frequency from the head into the shaft, with the result that when the club head and the shank with its elongated and stepped down portions is constructed in the improved manner herein shown and described the club has substantially the feel of the prior wood-handled club in which excessive vibration or ringing in the handle was of quite frequent occurrence and at the same time, our improved step-down construction in the hereindescribed integral extension on the shank of the club head surrounding the shaft provides an improved symmetrical connection or joint between shank and shaft, permitting the use of sufficient metal in the club shank to give the club desired balance while maintaining symmetrical and pleasing lines in the design of an iron headed metallic shafted club which has been hitherto the cause of much experiment and labor without finding a satisfactory solution to the problem on the part of golf club artisans prior to our invention.

The invention as embodied in the improved and integral metallic headed shank shown in both Figs. 1 and 2, may be employed to advantage with a metallic shaft provided with suitable plating or other metallic finish as illustrated in Fig. 1, under which condition a tubular longitudinally extended socket opening for the shaft **11** will be formed in the stepped cylindrical portions **16** to **19** inclusive and extended downwardly in the usual manner into the shank portion **13**, where the same may be locked in any desired manner as by means of an ordinary transverse key or pin. We prefer, however, to utilize a locking device of the form shown in our co-pending application for patent Serial No. 614,346, filed May 31, 1932, to which reference may be had for the details thereof since the specific form of shaft locking or keying device forms no part of the present invention, it sufficing to say that **30** designates a socketed member introduced into the bore of the shank prior to the insertion of the shaft **11**, after which when a shaft is employed of taper form the locking key **31** may be introduced on the inside walls of the shaft and forced to the bottom of the socket opening, where the locking key will expand the slotted portion **32** of the part **30**, wedging the shaft tightly in the socket opening of the shank so that it may not be shifted therein nor withdrawn without failure of the joint.

In Fig. 2 a hollow tubular tapered shaft is shown of the same form as the shaft **11** of Fig. 1, but provided with a suitable covering or sheath which may be enameled, plastic or other decorative material, and between the sheath or covering of the shaft **35** and the upper terminus of the stepped downwardly reinforcing cylindrical portions **16** to **19**, inclusive, we preferably insert an ornamental band or ferrule **36** for finishing purposes, although the same obviously may be dispensed with and the effect of the same when used may be enhanced for decorative purposes by giving the same a covering different from or contrasting with the color of the sheathing or covering material on the shaft.

It will be seen from the foregoing description of our invention that we have provided a symmetrical construction and joining between the shaft and shank of an iron headed golf club, producing a joint that will cushion the shaft of the club against vibrations which would ordinarily be imparted to the shaft by blows upon the club head, and that we have provided an ornamental and symmetrical design of club head and elongated shank, permitting of the addition of such quantities of excess material as may be desired in the shank of the club head for balancing purposes without destroying the beauty and symmetry of the club design adjacent the joint of the head and shaft.

We claim:

1. A golf club comprising an integral head and shank formed of metal, the shank portion thereof being elongated to substantially twice the normal length and provided adjacent the outer portion thereof with a plurality of integral, axially aligned, integrally joined, substantially cylindrical short tube sections of stepped down or progressively less and less tube thicknesses and outer diameters away from the head end of the shank, there being a longitudinal bore extending through said integrally joined, substantially cylindrical short tube sections and extending into the inner normal shank portion of the club head, and a handle shaft secured in the normal shank portion of said longitudinal bore.

2. A golf club comprising an integral head and shank formed of metal, the shank portion thereof being elongated to substantially twice the normal length and provided adjacent its normal central and its outer extremity therefrom with a plurality of integral, axially aligned, integrally joined, substantially cylindrical short tube sections of stepped down or progressively less and less tube thicknesses and external diameters away from the head end of the shank, there being a longitudinal bore extending through said integrally joined, substantially cylindrical short tube sections and into the inner shank portion of normal length of the club head, and a tubular metallic handle shaft secured metal to metal in the normal shank portion of said longitudinal bore.

3. A golf club comprising an integral head and shank formed of metal, the shank portion thereof being elongated to substantially twice the length of the shank of a normal golf club head and being tapered so as to enlarge outwardly from the intersection of the head and shank portion

toward the intermediate part of the shank, and a plurality of integrally joined, axially aligned, substantially cylindrical short tube sections of stepped down or progressively less and less tube thicknesses and external diameters away from the thickened intermediate part of the shank, there being a longitudinal bore extending through said integrally joined, substantially cylindrical short tube sections and into the aforesaid downwardly tapered portion of the shank of the club head, and a tubular metallic handle shaft secured in the inner shank portion of normal shank length in said longitudinal bore within the downwardly tapered portion of the shank and being surrounded metal to metal by the stepped down sections on the shank whereby to dampen vibrations imparted to the head through the shank to the handle shaft.

4. A golf club comprising an integral head and shank formed of metal, the shank portion thereof being elongated and provided adjacent the outer portion of its extremity with a plurality of not less than four axially aligned, integrally joined, substantially cylindrical short tube sections of stepped down or progressively less and less tube thicknesses and external diameters away from the head end of the shank, there being a tapered, longitudinal bore extending through said integrally joined, substantially short tube sections and into the shank of the club head, the said bore tapering toward the said club head, and a tapered, hollow, tubular, metallic shaft secured metal to metal in the inner shank portion of normal shank length within said tapered longitudinal bore, the smaller end of said tapered metallic handle shaft being inserted in the bore whereby to surround and support the said shaft at its weakest point adjacent its joining with the club head by said cylindrical short tube sections of decreasing diameters away from the head end of the shank and for damping vibrations tending to be imparted from the club head to the said hollow, tubular, metallic handle shaft.

5. A golf club comprising an integral metal head and shank, the shank having its outer end formed with a plurality of external stepped down shoulders progressively decreasing the wall thickness thereof.

6. A golf club having an internal metal head and shank, the shank being approximately twice the normal shank length and the outer half of the shank being progressively decreased in size by a stepped down shouldered structure terminating at the outer end in a thin wall for engaging a golf club shaft.

7. A golf club comprising an integral head and shank, the shank being of approximately twice the normal length and having its outer half decreased progressively by stepped down shoulders to an outer thin portion, a shaft fitting tightly within the shank and secured at its end only in the regular hosel portion and contacting with the portion of decreasing size at a distance from its attachment in the head.

8. A golf club comprising an integral metal head and shank, the shank being substantially twice the normal shank length and increasing in size from both ends of the shank to an intermediate portion, the portion decreasing in size from the central portion to the outer end thereof being formed with a number of stepped down shoulders forming a thin outer edge, a hollow metal shaft fitting tightly in the shank and secured at its end in the normal shank portion which decreases in size to the head of the club, the outer progressively thinned portion being free from attachment with the shaft but fitting it tightly and spacing this point of engagement with the shaft at a considerable distance from the end of the shaft where it is attached in the head.

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