

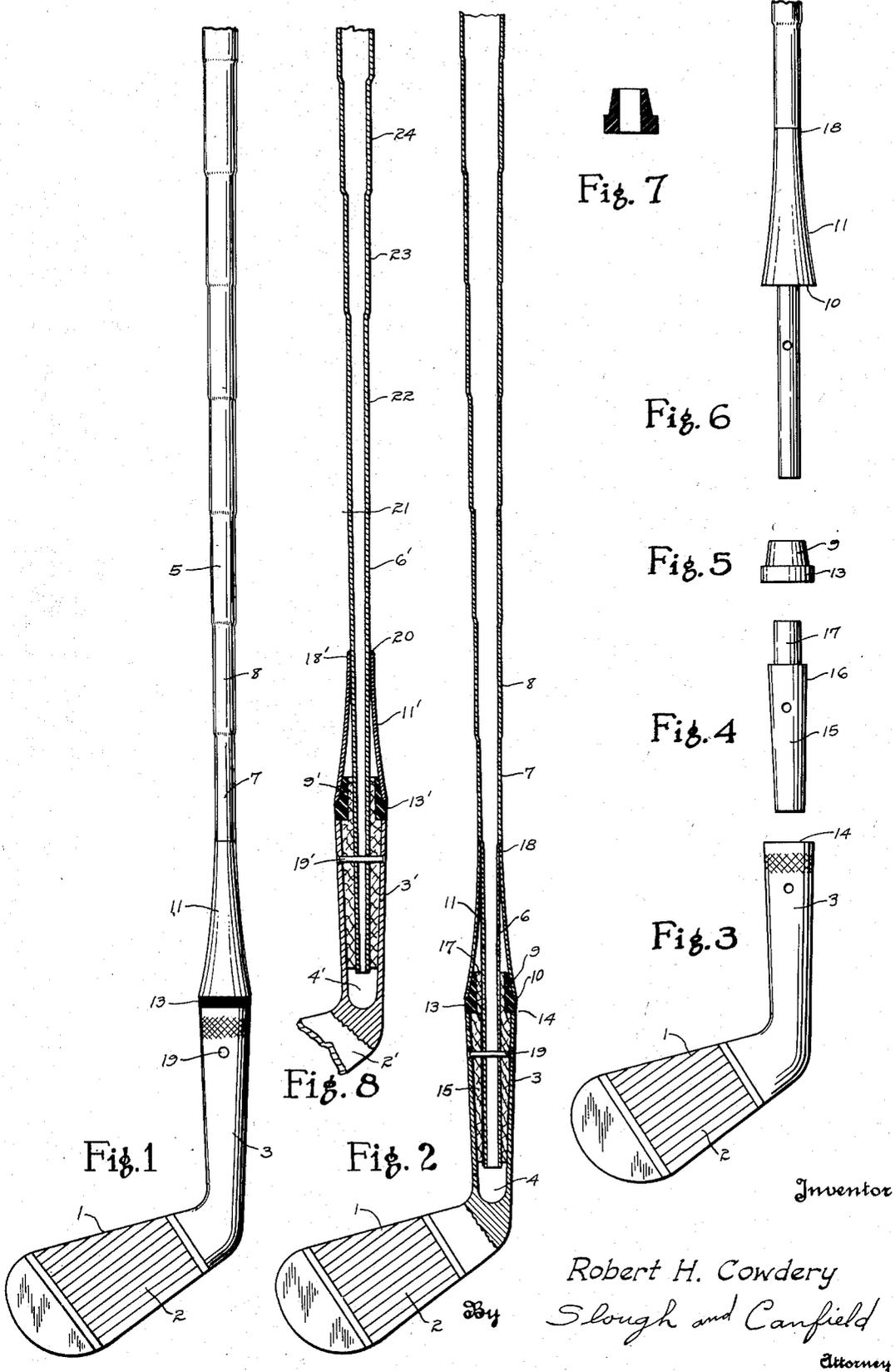
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GOLF CLUB

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# UNITED STATES PATENT OFFICE

1,983,069

## GOLF CLUB

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7 Claims. (Cl. 273-80)

My invention relates to golf clubs and relates particularly to improvements in the method of and means for joining golf club shafts to golf club heads.

5 An object of my invention is to provide a novel method by which a golf club head may be secured to a golf club shaft which may be metallic and tubular, whereby vibrations otherwise transmitted at the moment of impact of the head with a golf ball to the handle end of the shaft, may be considerably subdued.

Another object of my invention is to provide an improved method of securing golf club shafts to golf club heads.

15 Another object of my invention is to provide for a relatively inexpensive but highly efficient method of securing golf club heads on to the end of the shafts.

20 Another object of my invention is to provide for the attainment of any and/or all of the foregoing objects in a structure which may be particularly applicable to the securing of metallic heads to tubular metal shafts, and which will subdue the shock due to impact of the club head with a ball, and which would otherwise be undesirably transmitted to the handle of the shaft.

25 Another object of my invention is to provide a golf club which is an improvement over that shown in the co-pending application of Harry S. Stephens, Serial No. 388,069, filed August 24, 1929.

30 Other objects of my invention and the invention itself will become apparent by reference to the following description of an embodiment of my invention, reference therein being had to the accompanying drawing illustrating the said embodiment.

Referring to the drawing:

40 Fig. 1 is a side elevational view of the lower end portion of a golf club, metallic head, and the lower end of a metallic tubular shaft secured thereto being illustrated;

Fig. 2 is a view similar to that of Fig. 1 but with the shaft and the hosel portion of the head shown in longitudinal medial section;

45 Figs. 3, 4, 5, and 6 are side elevational views of the different parts of my improved golf shaft comprising the golf club head, a wood adapter element, a fibre check ring element and an end section of the golf shaft to be associated therewith respectively, Fig. 6 showing the end of the golf shaft, showing also a metallic sleeve telescoped thereover.

50 In Figs. 3 to 6, inclusive, the parts shown in the various figures are shown in the order of placement when the parts are secured together.

Fig. 7 is a longitudinal medial sectional view of the fibre check ring of Fig. 5;

Fig. 8 is a fragmentary view similar to that of Fig. 2, but of a modified form of device embodying my invention.

60 Referring first to Figs. 1 to 7 inclusive of the drawing in all of which like parts are designated by like reference characters, the plug head 1 illustrated is of the so-called "iron" type, which type includes such clubs as "driving-irons", "mid-irons", "mid-mashies", "mashie-irons", "mashies", "spade-mashies", "mashie-niblicks", "niblicks", and "putters".

70 Although my invention is not limited to use in connection with "irons", very advantageous results are secured in connection with such use, since the shock of impact imparted to the striking face of a golf club, is more violently transmitted in the case of such clubs than in the case of clubs having wood heads. Such irons comprise the lowermost striking portion 2, provided with a forward striking face shown in the drawing as being ribbed, and an upstanding tubular portion 3 formed integrally therewith, commonly termed the hosel.

80 The tubular portion 3 when employed in connection with wood shafts such as those made of hickory, has its interior recess tapered so that its diameter is less, proceeding toward the end of the recess shown at 4.

85 The golf club shaft 5 of the embodiment illustrated, is of tubular form and is preferably of that form illustrated and described in United States Letters Patent No. 1,670,530, dated May 22, 1928, to Robert H. Cowdery, and comprises preferably a plurality of integral cylindrical tempered steel sections, each of successively decreased diameter proceeding from the handle end of the shaft toward the club head supporting end, although my invention may be advantageously employed in connection with shafts of other types and other forms.

90 The shaft 5 may, therefore, be provided with a plurality of tubular sections 6, 7, 8, etc., each of successively larger diameters proceeding in the direction of the handle of the shaft, the section 6 which is of smallest diameter being preferably of greater length than the other sections nearest thereto, which are of progressively increased diameter.

105 In the drawing, the parts shown respectively in Figs. 3, 4, 5 and 6 are arranged in relative proper longitudinal alignment for assembly. These parts comprise first the club head including the hosel 3, the wood adapter 16, the an-

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nular fibre check ring, Fig. 5, and the tapered steel sleeve 11, shown as being telescoped onto the smaller end 6 of the handle shaft with its outwardly flaring larger end 10 projected toward the small end of the shaft. The small end of the sleeve 11 is shown as fitting the shaft section 6, snugly, so that some force is required to press the sleeve onto the shaft section 6.

The wood adapter 16 comprises an externally tapered tubular plug portion 15 adapted to be fitted tightly within the hosel recess and a cylindrical check ring receiving end 17, of relatively short length and of reduced diameter relative to the larger end of the plug 15 from which it projects.

The fibre check ring comprises an externally tapered tubular flange 9 adapted to fit quite snugly within the enlarged mouth end 10 of the tapered steel sleeve 11, and also a radial flange 13 of larger diameter than the tubular flange, and therefore providing a shoulder at its junction therewith. The steel sleeve 11 is of relatively thin, preferably seamless steel, and its outer surface is gradually increased in diameter from its small end 18 toward its enlarged end 10, preferably curvilinearly in the longitudinal direction of the sleeve.

In assembling the parts together, it is advisable to place a little glue on the engaging surfaces of the telescoped parts, including those of the adapter, and the check ring, so that when the glue is dry these parts will remain rigidly secured together.

In assembling the parts illustrated in Figs. 3 to 6, inclusive, it is well to observe the following procedure: The fibre check ring is first telescoped onto the cylindrical end 17 of the wood adapter, which it snugly fits and the wood adapter is then tapped with a hammer to force its tapered end 15 into the hosel recess until the shoulder marking the junction of the two relatively longitudinally disposed portions of the adapter is flush with the end 14 of the hosel. Glue being first applied to the outer surface of the end 6 of the handle shaft, such handle shaft end is then forced through the bore of the tubular adapter 16, which as described has been forced into the hosel recess.

Thereafter, a hole may be drilled through opposite walls of the hosel 3 and at the same time through the intervening wood adapter portion 15 and the end 6 of the handle shaft and a rivet pin 19 projected through the hole, this being suitably headed over on the two opposite exterior surfaces of the shaft in the usual manner. Such a pin is to prevent any tendency toward withdrawal of the shaft from the hosel.

In connection with the tapered tubular flange of the fibre check ring employed, this is made preferably shorter than the length of the cylindrical end portion 17 of the wood adapter, and preferably shields the inner surfaces of the sleeve 11 from contact with the outer cylindrical surface of the wood adapter portion 17.

Referring now to the embodiment of my invention shown in Fig. 8, I have preferably shown the club head including the associated parts as in the foregoing figures as applied to the lower tapered end of a tubular shaft having stepped sections 24, 23, 22 and 6' of progressively decreased diameter, the latter only being of tapered form, the others being of cylindrical form.

It is to be noted that the junction between the cylindrical section 22 and the tapered section 6' is without the necessity of a shoulder, the abut-

ting ends of the two sections being of the same diameter.

The parts 4', 3', 19', 13', 9' and 11' correspond to the similarly numbered parts of the foregoing figures.

Since the tubular shaft in the embodiment of Fig. 8 provides no shoulder for engagement by the smaller end of the tubular sleeve 11', displacement of the sleeve is in this embodiment preferably prevented by soldering as at 20, the soldering or brazing as illustrated at 20 being at the small end of the tapered sleeve and the outer shaft surface of the tapered shaft section 6'.

Having thus described my invention I am aware that departures may be made from the embodiment herein illustrated and described more or less extensive in character, but without departing from the spirit of my invention and within the scope of the appended claims.

I claim:

1. A golf club comprising a head having a hosel with a longitudinally extending shaft recess therein, an adapter of non-metallic, vibration absorbing material having an axial bore, projected partially within said recess, a shaft having a reduced end in snug fitting engagement within the adapter bore, a check ring telescoped over the externally disposed end of the adapter, formed with relatively longitudinally disposed tubular and flange portions, the flange portion being of larger diameter than the tubular portion, said tubular portion having an outer tapered surface, and a tapered metallic sleeve having an end portion of approximately cylindrical form snugly fitted over the outer surface of said shaft, and being progressively enlarged proceeding from said portion towards its other end, said other sleeve end telescoped over the tubular portion of said check ring.

2. In a golf club, a handle shaft therefor having a reduced head supporting tubular end, a head therefor having a tubular shaft receiving hosel, a tubular plug having a tapered outer surface fitted tightly within the tubular hosel, and terminating exteriorly thereof in a reduced outwardly projecting tubular extension, said extension having an outer surface of approximately cylindrical form, a tapered tubular metallic sleeve having its smaller end fitted snugly onto the smaller end of the shaft, and a short tubular bushing having an end flange and an axially projecting tubular portion telescoped over the said plug extension and secured tightly thereto, said tubular portion having an outer tapered surface of progressively reduced diameter towards its free end, the flange being of relatively greatest diameter, and having its outer surface in merging alignment with the contiguous outer surfaces of the hosel and said sleeve.

3. In a golf club, a shaft therefor having a reduced head supporting tubular end, a head therefor having a tubular shaft receiving hosel, a tubular plug having a tapered outer surface fitted tightly within the tubular hosel, and terminating exteriorly thereof in a reduced outwardly projecting tubular extension, said extension having an outer surface of approximately cylindrical form, a tapered tubular metallic sleeve having its smaller end fitted snugly onto the smaller end of the shaft, and a short tubular bushing having an end flange and an axially projecting tubular portion telescoped over the said plug extension and secured tightly thereto, said tubular portion having an outer tapered

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	surface of progressively reduced diameter to- wards its free end, the radial flange being of relatively greatest diameter, and having its outer surface in merging alignment with the contiguous 5 outer surfaces of the hosel and said sleeve, the smaller end of the sleeve engaging with a shoulder on the shaft to prevent longitudinal displace- ment of the sleeve on the shaft.	80
10	4. In a golf club, a handle shaft therefor, having a reduced head supporting tubular end, a head therefor having a tubular shaft receiving hosel, a tubular plug having a tapered outer surface fitted tightly within the hosel and ter- minating exteriorly thereof in a reduced out- 15 wardly projecting tubular extension, a tapered tubular metallic sleeve having a smaller end fitted snugly onto the smaller end of the shaft, and a short tubular bushing having an end flange and telescoped over the said plug extension, said 20 tubular bushing having an outer tapered sur- face of progressively reduced diameter toward the end opposite the flange, the flange being of relatively greater diameter, and the outer sur- 25 face of the flange merging with the contiguous outer surface of the hosel and said sleeve.	85
30	5. In a golf club, a handle shaft therefor, hav- ing a reduced head supporting tubular end, a head therefor having a tubular shaft receiving hosel, a tubular plug having a tapered outer surface fitted tightly within the hosel and terminat- ing exteriorly thereof in a reduce outwardly projecting tubular extension, a tapered tubular metallic sleeve having a smaller end fitted snugly 35 onto the smaller end of the shaft, and a short tubular bushing having an end flange and tele- scoped over the said plug extension, said tubular bushing having an outer tapered surface of pro- gressively reduced diameter toward the end op- posite the flange, the flange being of relatively	90
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	6. A golf club comprising a head having a hosel with a longitudinally extending shaft recess therein, a tubular adaptor closely fitted within said recessed hosel, a shaft telescoped within said adaptor, a tubular check ring having a tapered portion and an end flange portion, said flange portion being of larger diameter than said tapered portion, a tapered metallic sleeve tele- scoped over a portion of said shaft and having an end portion thereof telescoped over the tapered portion of said check ring, said check ring flange interposed between and contacting opposing an- nular edges of said hosel and said sleeve, and said check ring and said adaptor being inter- fitted together adjacent the mouth of said hosel.	135
	7. A golf club comprising a head having a hosel with a longitudinally extending shaft recess therein, a tubular adaptor closely fitted within said recessed hosel, a shaft telescoped within said adaptor, a tubular check ring having a tapered portion and an end flange portion, said flange portion being of larger diameter than said tapered portion, a tapered metallic sleeve tele- scoped over a portion of said shaft and having an end portion thereof telescoped over the tapered portion of said check ring, said check ring flange interposed between and contacting opposing annular edges of said hosel and said sleeve, said hosel, said adaptor and said shaft portions being rigidly held together, and said check ring and said adaptor being interfitted together adjacent the mouth of said hosel.	140
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