

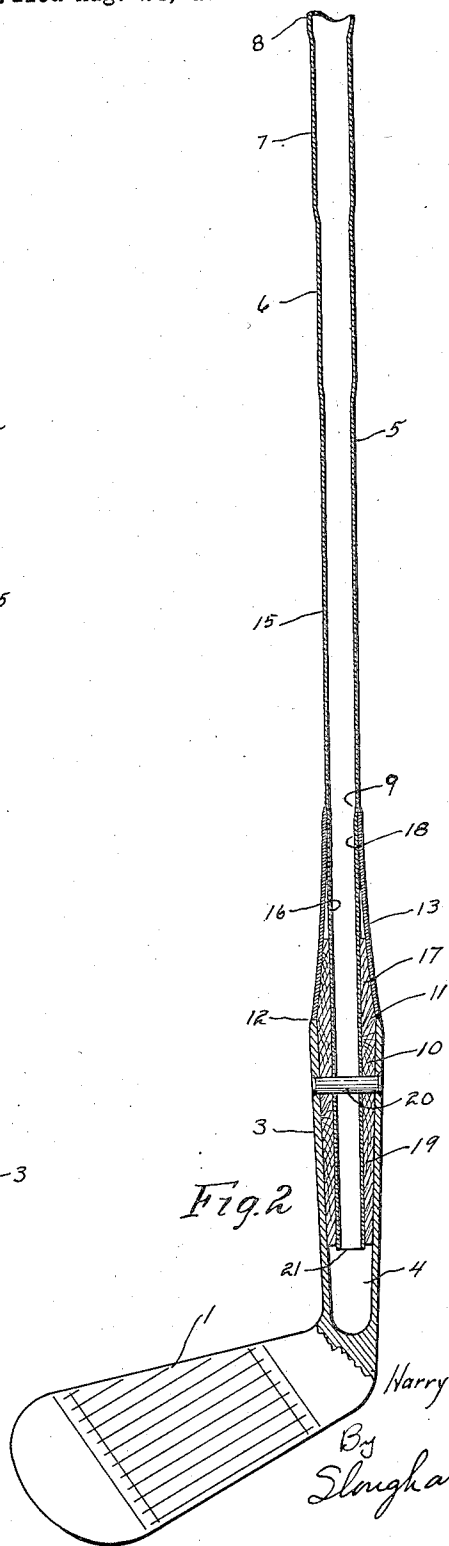
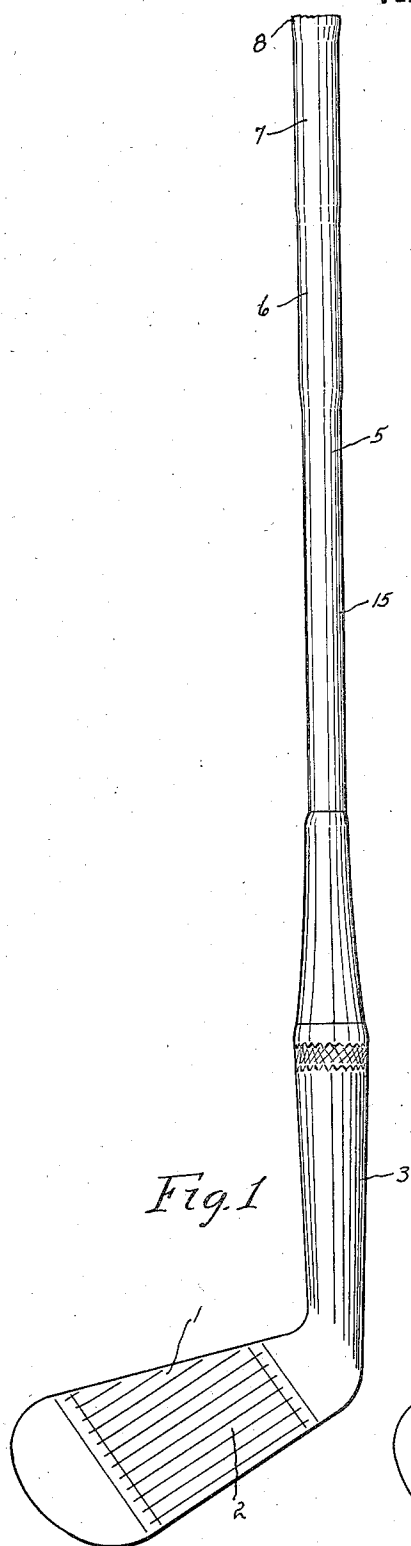
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GOLF CLUB

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GOLF CLUB

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11 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.

10 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 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:

35 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.

40 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 Referring now to both of the figures of drawing, the club 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".

50 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 draw-

ing as being ribbed, and an upstanding tubular portion 3 formed integrally therewith.

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.

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 tapered 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.

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 sections 6, 7 and 8 being preferably also of shorter length than the sections 15 and 16 located at the lower club head end of the shaft.

The section 15 being of greater length than the sections 6, 7 and 8 and of lesser diameter, provides a resilient snap action adjacent the head which is greater when a ball is struck than would be the case were all of the sections made shorter than are the sections 6 and 7. Also I preferably make the end section 16 of tapered form so that its lowermost end 21 is of lesser diameter than its uppermost portion 18; there being, however, a substantial and more or less abrupt increase in diameter proceeding from the portion 18 of the section 16 to the elongated preferably cylindrical section 15 disposed immediately above it, to provide a shoulder 9 between the sections 15 and 16.

40 A tubular bushing 10, which is tapered in both directions from an intermediate part 11, is forced into the tapered recess 4 of the club head hosel 3 to a predetermined depth sufficient to effect a very tight wedging fit between the bushing and the interior walls of the hosel.

55 The intermediate bushing portion 11 of greatest diameter is then preferably disposed immediately at the upper end 12 of the tubular walls of the hosel 3. The bore of the bushing is adapted to receive the section 16 of the shaft, forced therein; but prior to such forcing of the section 16 into the bore of the bushing 10, a tubular tapered metal ferrule 13 is telescoped onto the lower end 21 of the shaft section 16 until its

smaller end 14 engages the shoulder 9 joining the shaft sections 15 and 16, said shoulder preventing further telescoping of the ferrule upwardly on to the shaft.

5 The bushing 10 being of double tapered form, comprises an upper short tubular section 17 and a relatively long section 19 driven into the hosel. The shaft with the ferrule 13 carried thereon is forced into the bushing 10 preferably until the
10 ferrule 13 is snugly, longitudinally compressed between the shoulder 9 of the shaft and the circular edge 12 at the upper end of the tubular hosel.

The hosel bushing and shaft section 16 is then
15 transversely bored to admit a rivet pin 20 projected through the transverse bore, and headed over at both ends to prevent relative rotative and longitudinal movement between the secured parts, comprising the shaft, bushing and hosel.

20 The ferrule fitting so closely against the hosel end, then appears exteriorly as an upward tapered projection of the shaft, and provides such a merging of exterior surfaces of shaft and hosel as to give somewhat the same impression as would
25 be given were the shaft, ferrule and hosel all constructed in one piece, with slightly curved annular lines surrounding the joints between the named portions.

The ferrule is formed of resilient metal and
30 furnishes a slightly yieldable reenforcement for the lower reduced end of the shaft immediately adjacent the hosel, and as does also the bushing 10.

35 The bushing 10 may be made of various materials but I find that wood makes a very acceptable material for joining iron heads to steel tubular shafts.

40 Having thus described my invention in a particular embodiment, I am aware that numerous and extensive departures may be made from the embodiment herein illustrated and described but without departing from the principles of my invention.

I claim:

45 1. In a golf club, a shaft having a tapered tubular end, a club head provided with a tubular hosel to receive said shaft end, combination cushioning and reinforcing means for the shaft comprising a tubular bushing telescoped over the end
50 of the shaft, a portion of said bushing projecting into said hosel and the remaining portion projecting externally of said hosel, a reinforcing tapered metallic sleeve telescoped over the shaft end with its larger mouth end telescoped over the externally projecting portion of said bushing and secured by its smaller end to a portion of the outer surface of the shaft, spaced from said hosel.

55 2. In a golf club, a metal shaft, a club head of the metallic "irons" type having a shaft receiving tubular hosel, a tubular frusto-conical thimble adapted to be telescoped over said shaft with its smaller end in close fitting engagement with the outer walls thereof and its larger end in end abutting relation to the outer end of said
60 hosel for enclosing said shaft adjacent said hosel, said frusto-conical member providing an annular chamber about said shaft, and a separate tubular cushioning element telescopable over said shaft and projected by at least a portion within said
65 chamber cushioning said shaft against said frusto-conical member, and securing means for securing said shaft in fixed axial relation within said hosel, said securing means maintaining said thimble and said cushioning means in place relative to said shaft and said hosel end.
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3. In a golf club, the combination of a club head having a hosel with a socket, a steel shaft extending into said socket and having its end fixedly secured to said head, a tapered ferrule fixedly secured to said shaft at its small end and
5 having its large end disposed adjacent the end of said hosel to enclose said shaft at said hosel, and a resilient cushioning member confined between said ferrule and hosel and adapted to cushion movement of said shaft relative to said hosel.
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4. In a golf club, the combination of a club head having a hosel with a socket, a steel shaft extending into said socket and having its end fixedly secured to said head, a tapered ferrule fixedly secured to said shaft at its small end and
15 having its large end disposed adjacent the end of said hosel to enclose said shaft at said hosel, and a resilient cushioning member interposed between said hosel and shaft and between said hosel and ferrule.
20

5. In a golf club, the combination of a club head having a hosel with a socket, a steel shaft extending into said socket and having its end fixedly secured to said head, a tapered ferrule fixedly secured to said shaft at its small end and
25 having its large end disposed adjacent the end of said hosel to enclose said shaft at said hosel, said ferrule and hosel being spaced from said shaft at their juncture and a resilient cushioning member surrounding said shaft at said
30 juncture.

6. In a golf club, the combination of a club head having a hosel with a socket, a steel shaft extending into said socket and having its end fixedly secured to said head, a tapered ferrule
35 fixedly secured to said shaft at its small end and having its large end disposed adjacent the end of said hosel to enclose said shaft at said hosel, said ferrule and hosel being spaced from said shaft at their juncture and a resilient cushioning
40 member surrounding said shaft at their juncture, said ferrule and hosel having complementary universal joint formations at said juncture.

7. In a golf club, in combination a shaft having a reduced tubular head supporting end, a club
45 head provided with a tubular hosel to receive said shaft end, tubular bushing means telescoped over the end of the shaft, a portion of said bushing means projecting into said hosel and another portion projecting externally of said hosel, said
50 bushing means having outer surfaces of progressively increased diameter proceeding from both ends towards an intermediate portion, which is adapted for disposition substantially at the upper end of said hosel, a reinforcing tapered metallic
55 sleeve telescoped over that portion of the bushing means disposed externally of the hosel, said shaft being provided with a shoulder disposed in spaced relation to the upper end of said hosel, said sleeve engaging the shoulder by its smaller
60 end, and its larger end disposed contiguously to the hosel being of substantially the same diameter as the hosel, said shoulder adapted to prevent longitudinal displacement of the sleeve upwardly on the shaft.
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8. In a golf club, in combination a tubular metallic shaft, an enlarged hand grip supporting end and a reduced head supporting tapered end, a metallic club head provided with a tubular hosel integrally formed therewith having an interiorly
70 tapered bore, a tubular bushing of relatively shock absorbing material adapted to be tightly fitted within the bore of said hosel, a portion of said bushing projecting into said hosel, and the remaining portion projecting exteriorly of said
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hosel, said bushing having an outer surface of progressively reduced diameter proceeding towards both ends from an intermediate portion which is adapted for disposition substantially at the upper end of the hosel, the reduced end of the shaft being telescoped within the tubular bushing, and a tubular tapered sleeve telescoped onto the reduced end of the shaft fitting over the outer tapered surface of the bushing disposed exteriorly of the hosel, said shaft being provided with a shoulder disposed in spaced relation to the upper end of the hosel, said sleeve engaging the shoulder by its smaller end, and its larger end disposed contiguously to the hosel being of substantially the same diameter as the hosel, said shoulder adapted to prevent longitudinal displacement of the sleeve upwardly on the shaft.

9. In a golf club, in combination a tubular metallic shaft, an enlarged hand grip supporting end and a reduced head supporting tapered end, a metallic club head provided with a tubular hosel integrally formed therewith having an interiorly tapered bore, a tubular bushing of relatively shock absorbing material adapted to be tightly fitted within the bore of said hosel, a portion of said bushing projecting into said hosel, and the remaining portion projecting exteriorly of said hosel, said bushing having an outer surface of progressively reduced diameter proceeding towards both ends from an intermediate portion which is adapted for disposition substantially at the upper end of the hosel, the reduced end of the shaft being telescoped within the tubular bushing, and a tubular tapered sleeve telescoped onto the reduced end of the shaft fitting over the outer tapered surface of the bushing disposed exteriorly of the hosel, said shaft being provided with a shoulder disposed in spaced relation to the upper end of the hosel and more remote from the same than the upper end of that portion of the bushing projecting exteriorly of the hosel, the

sleeve engaging the shoulder by its smaller end and its larger end engaging the upper end of the hosel and being substantially of the same outside diameter as the upper end of the hosel, the sleeve being adapted to be clamped between the shoulder and the upper end of the hosel, and a rivet extending transversely through the hosel, bushing, and end of the shaft, to secure these parts in fixed relative relation.

10. In a golf club, in combination a shaft having a reduced tubular head supporting end, a club head provided with a tubular hosel to receive said shaft end, tubular bushing means telescoped over the end of the shaft, a portion of said bushing means projecting into said hosel and another portion projecting externally of said hosel, said bushing means having outer surfaces of progressively increased diameter proceeding from both ends towards an intermediate portion, which is adapted for disposition substantially at the upper end of said hosel, a reinforcing tapered metallic sleeve telescoped over that portion of the bushing means disposed externally of the hosel.

11. In a golf club, in combination a shaft having a reduced tubular head supporting end, a club head provided with a tubular hosel, means comprising a cushioning bushing adapted to tightly secure the reduced end of the shaft within the hosel, a tapered tubular sleeve telescoped onto the reduced end of said shaft, said shaft being provided with a shoulder disposed in spaced relation to the upper end of the hosel, said sleeve engaging the shoulder by its smaller end, and its larger end disposed in substantially abutting relationship to the end of the hosel, said larger end being of substantially the same diameter as the hosel, said shoulder adapted to prevent longitudinal displacement of the sleeve upwardly on the shaft.

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