

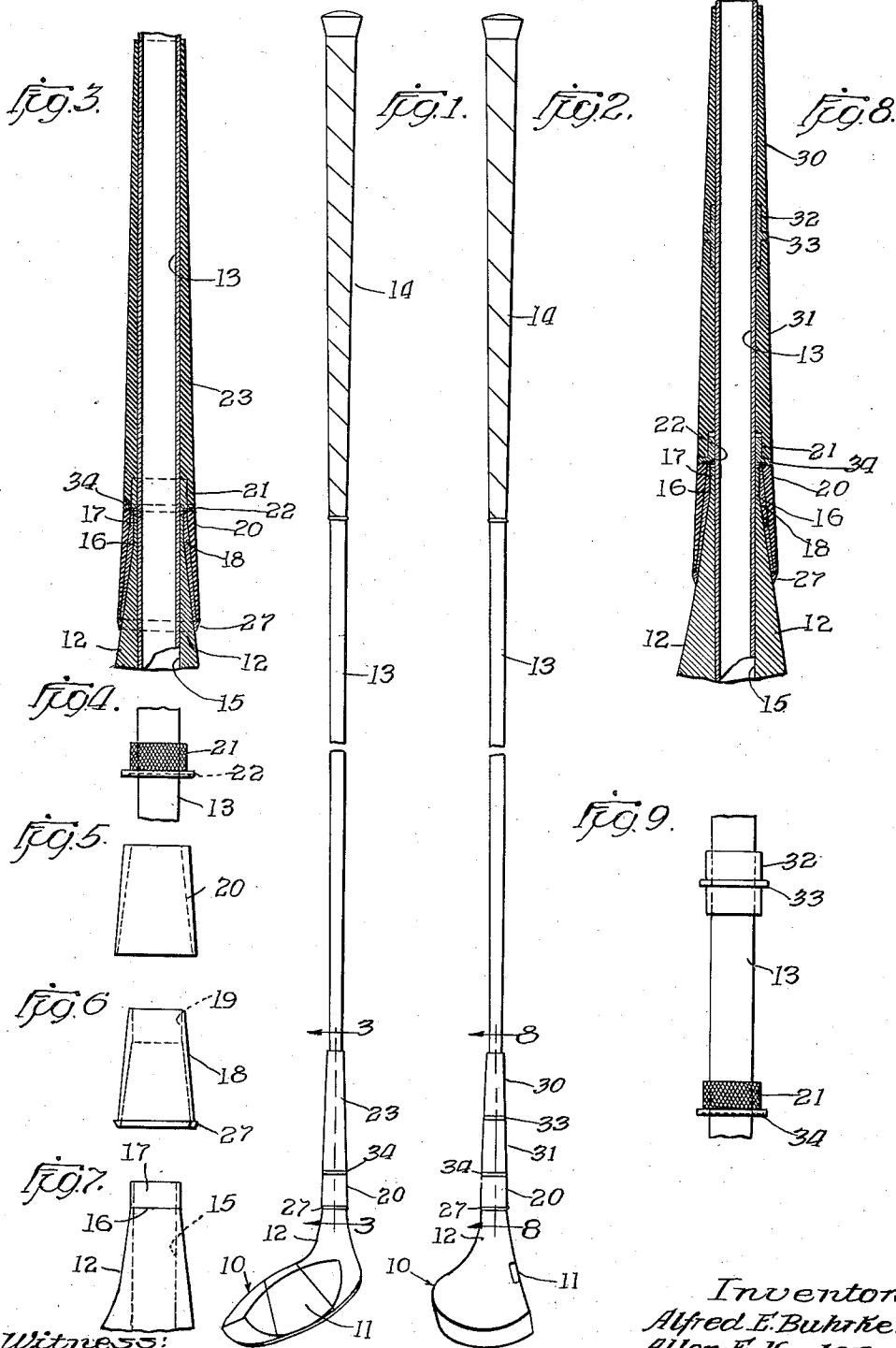
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GOLF CLUB

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GOLF CLUB

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The invention relates to a new and improved construction of golf clubs and particularly to the construction of a golf club of the type commonly referred to as a "wood" or "wood club", that is, having a wood head or a head made of wood or analogous fibrous material having an integral shank or neck to which is attached the usual club shaft such club being commonly called a driver, brassie or spoon. In the present embodiment of the invention the wood club head is shown attached to a flexible metallic shaft handle formed at its attaching extremity of a generally cylindrical shape that may be tapered according to common construction of tubular, tapered metallic shape, commonly used at the present time for shafting of wooden-headed clubs, in order that the shaft may present its maximum degree of flexibility toward the lower or club attaching extremity of the shaft. While the shaft in the present embodiment is shown of cylindrical form it should be understood that the invention may be applied to a golf club having a shaft of a plurality of sides, as, for example, instead of being precisely circular in cross-section it may be formed of many sides, as hexagonal or octagonal form in cross-section.

It is the primary object of our invention to provide an improved form of attaching joint between the shaft and the shank of a wood-headed club.

A further object of our invention is to provide an improved construction of joint for securing and connecting the shaft of a wood-headed club to the neck or shaft of its club head in such manner as to dispense with the common use of a whipped or wrapped joint and to secure the maximum strength of joint at the initial point of union between the shaft and the neck or shaft of a club head, whereby to prevent failure or loosening of the joint while in use after assembly and particularly to prevent splitting of the shank or neck of a wood club head.

It is a further object of the invention to provide an improved connection between a flexible metallic shaft of general cylindrical form including shafts having a plurality of regularly formed sides as hexagonal or octagonal shafts in cross-section and which connection will permit of a degree of flexibility in the tubular shaft adjacent to the connection without tending to split the upper end of the neck or shank of the club head within or adjacent to the joint whereby to avoid failure of the joint and splitting and consequent damage to the club head and its shank.

A further object of the invention in a wood-

headed and flexible shafted club of the described character is to provide an improved form of connecting joint between the club head and the shaft but which will permit of a degree of flexing and torsional distortion in the flexible shaft adjacent the joint without injury to the material in the neck or shank of the wood club head.

It is a further object of the invention to provide an improved connection of a substantially pleasing and ornate character, obviating the appearance of the ordinary wrapped or whipped joint between the shaft and shank of the golf club head.

Other objects of the invention will appear from the following description, which is directed to the preferred embodiment of the invention and hereinafter described with reference to the drawing, which forms a part of the specification, the features of novelty being set forth in the appended claims.

In the said drawing:

Fig. 1 is a side elevational view of a club head and its attached shaft embodying the invention, and Fig. 2 is a similar view taken at right angles to the view shown in Fig. 1, parts of the shafts intermediate the respective handle grips and club heads in each of said views being broken away, and the form of the invention in Fig. 2 being slightly modified over the form of Fig. 1 with respect to the construction of the elongated ferrule around the shaft above the joint proper.

Fig. 3 is an enlarged fragmentary longitudinal sectional view taken on line 3—3 of Fig. 1 looking in the direction indicated by the arrows, disclosing the details of construction of our improved head and shaft connection.

Figs. 4 to 7, inclusive, are side elevational views of detached parts of our improved joint between the club head and shaft further illustrative of the details of construction thereof.

Fig. 8 is a broken enlarged longitudinal sectional view similar to Fig. 3 setting forth in detail the construction of a slightly modified form in Fig. 2, the view being taken on the broken line 8—8 of Fig. 2, looking in the direction of the arrows.

Fig. 9 is a fragmentary detached view of a portion of the downwardly tapered shaft of Fig. 8 with the spaced apart shaft and ferrules shown in attached position thereon.

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

The reference character 10 designates generally the head of a golf club of the type and char-

acter heretofore referred to to which the invention is applied, 11 being the striking face thereof and 12 (Figs. 1, 2, 3, 7 and 8) being the neck or shank portion tapered for the attachment of the shaft 13 shown in the drawing of a hollow or tubular tapered metallic form, the upper extremity of the shaft to which is secured the usual handle grip 14 being the end of the shaft having a larger diameter while the taper in the embodiment shown extends more or less uniformly from the handle grip portion 14 to the lower extremity or terminus of the shaft where it is seated and attached in the club head.

Heretofore in the construction of the shanks and necks of the wood type of club heads it has been customary to taper the neck or shank 12 upwardly with a more or less uniform taper towards its upper terminus, thus producing substantially a knifelike or featheredge at the upper extremity of the neck or shank portion of the club head when said neck or shank is bored with a central longitudinal bore as designated at 15 (Figs. 3, 7 and 8) to receive the lower and usual tapered extremity of the shaft 13. We have found by experiment and practice that where the upper extremity of the neck or shank of a wood club head is reduced to a knifelike or featheredge that it is exceedingly difficult to reinforce by any form of wrapping, whipping or protecting ferrules such upper extremity of the neck or shank of the wood club head so as to prevent splitting which has a marked tendency to start when such joint is covered and closed by wrapping or whipping or by the use of ferrules, in the knifelike or featheredge extremity of the neck or shank on account of such flexing or movements as inevitably take place in the normal use of the club in striking an object as a golf ball, the common result being that splits or cracks in the knifelike or featheredge extremity of the neck or shank of the club head will start within the normally covered confines of the joint, and because of the ordinary tapered construction of the neck or shank of the club and will extend downwardly into the thicker portions of the neck or shank and ultimately extend in some cases even to the head itself, often resulting in such splitting and damage to the neck and head of the club as to loosen the head and impair the efficiency of the same and to shorten or terminate the period of its useful life.

In the formation of our improved joint we terminate the tapered portion 12 a substantial distance below the upper terminus of the neck or shank as designated at 16 (Figs. 3, 7 and 8), and thence upwardly to the upper terminus of the neck or shank the material is given a cylindrical form as designated at 17, so that when the shaft bore 15 in the neck or shank and into the clubhead is made the part 17 will be of cylindrical or non-tapered form and will also be of substantial thickness as illustrated in the drawing to present a substantial amount of material in the shank or neck for the seating of a protective ferrule therearound to serve as a firm support not only for the cylindrical portion 17 but for the tapered upper extremity of the neck or shank of the club head. Such a ferrule we prefer to be made of a light, tough, firm metal as, for example, aluminum, as designated by the reference character 18 (Figs. 3, 6 and 8), and will be bored at its upper extremity to take a close or drive fit, as indicated at 19, around the cylindrical neck extension 17, fitting thereover when inserted with a close or drive fit over the neck of the shank substantially as far down as the

termination 16 of the cylindrical part 17 and being thence flared outwardly and downwardly to fit closely around the tapered portion of the neck 12 of the club head, terminating preferably at its lower extremity with a somewhat thinned lower edge or skirted to conform closely around the tapered material of the neck of the club head. For ornamental purposes we prefer to keep the metallic ferrule 18 thin enough that it may take an ornamental covering or sleeve 20 (Fig. 5) of pyroxylin or celluloid or analogous ornamental material. As, for example, the ferrule 18 may be covered with a relatively thin coating of enamel, under which conditions it could be made to conform with the cooperating parts of the joint and the aluminum or other material of which it is made would accordingly be made thicker than illustrated in the drawing if it be merely covered with an enameled coating instead of the pyroxylin of the ferrule herein shown and described. The aforesaid lower extremity of the ferrule 18 is designated by the reference character 27, the upper extremity of the lower portion 27 being thickened to correspond with the thickness of the pyroxylin coating 20. On the shaft 13 we fixedly secure a metallic ferrule 21, the function of which is to swivelly contact with and bear upon the upper extremity of the metallic club neck ferrule 18. To accomplish this the pyroxylin cover 20 of the metallic ferrule 18 will be slightly shorter than its seat portion on the part 18 so that a portion of the upper extremity of ferrule 18 will be normally uncovered by the covering 20 and the shaft ferrule or ring 21 will preferably have a peripheral recess next the shaft opening as indicated at 22, which when the parts are assembled in the manner illustrated in Fig. 3, will cause the ferrule 18 to seat in position metal to metal for swivelly terminating in the lower extremity of the ferrule 21. The attachment of the ferrule 21 which will preferably be of firm metal as aluminum will be preferably made to the shaft by shrinking the same thereon due to the preferred downwardly tapering portion of said shaft. The outer periphery of the body of the ferrule 21 will preferably be corrugated to furnish a connective seat for the lower extremity of a joint closure ferrule 23, which may be formed of pyroxylin or celluloid of any well known character and caused to extend upwardly for some distance along the shaft for ornamental and joint strengthening and finishing purposes. The pyroxylin ferrule 23 like the metallic ferrule 21 will be fixed to the shaft by reason of the drive fit form when the tapered shaft is forced downwardly into the ferrule 23 and its metallic cooperating and locking part 21 in the joint assembly as hereinafter described.

In assembling the conical type of hollow tube metallic shaft herein shown and described the club head and neck are prepared and bored and the ferrule 18 will be placed with a close or drive fit upon the upper extremity of the neck 12 of the club head with the cylindrical bore of the ferrule 18 corresponding with the cylindrical portion 17 of the club head shank and with the skirted portion of the ferrule 18 tapering and enlarging downwardly and outwardly in firm wedging position around the tapered shank 12 of the club head in the manner illustrated more clearly in Fig. 3. When the ferrule 18 is in its normal position on shank parts 12 and 17 as shown the pyroxylin ferrule 23 will be placed upon the shaft 13 and forced upwardly therealong by means of the cooperating

metallic swivel ferrule 21 until the ferrule 21 has substantially reached a seating position on the shaft, which will leave a portion of the lower tapered extremity of the shaft 13 protruding below the ferrule 21 and ready to be inserted in the bore 15 in the neck or shank of the club head. The parts may be brought into firm assembled relation by tapping or driving upon the upper extremity of the shaft 13, which will cause the shaft to further enter the bore of the club-head with a wedging, binding action until all looseness in the joint is taken up, after which the shaft 13 may be secured in fixed non-rotative relation in the bore in the club head by any of the ordinary expedients employed for this purpose such as the boring of registering holes through the shaft and club head and the passing of screws or metallic locking pins therein, such shaft-locking means not being herein shown and described since the same forms no part of the present invention.

In the modified form of the invention shown in Figs. 2, 8 and 9 we illustrate a construction by which a joint finishing ferrule of the character of the ferrule 23 shown in Figs. 1 and 3, may be more firmly and substantially anchored to the shaft and a modified ornamental appearance secured. The ferrule is divided into two or more sections, as designated by the reference characters 30-31, 31 being the thicker section at the joint end of the ferrule constructed precisely in accordance with the lower end of the before described ferrule 23 and being secured in the same manner to the knurled ferrule 21. 32 is a metallic ferrule that may be secured with a drive fit upon shaft 13 in the same manner as the shaft ferrule 21, and the ferrule 32 will preferably be provided with an intermediate peripheral flange 33 and will be adapted to take the abutting ends of the ferrule sections 30-31, the adjacent co-operating ends of these sections being undercut or enlarged to fit over the body portion of the connector ferrule 32, thus exposing the enlarged peripheral flange portion 33 between the sections 30-31 for ornamental purposes, in the same manner as the enlarged peripheral flange 34 at the lower end of the ferrule 21 (Figs. 1, 2, 3 and 8) is provided to secure an ornamental effect between the before described ferrules 20 and 23. There is an advantage in the use of the plurality of shaft ferrules 21 and 32 because of the double anchoring effect to the extended ferrule sections 30-31. Obviously also the effect of the plurality of ferrules 21 and 32 may be further enhanced by elongating the total length of the shaft ferrule and providing more than one intermediate anchoring ferrule of the character of the ferrules 21, 32 respectively.

In forming a mechanical connection or joint at the upper tapered end of the neck or shank of a wood-head club and its shaft one of the difficult problems involved is to avoid the provision of joints of a character that may open in use and so cause gaps between abutting or contacting parts likely to throw undue strain upon the shaft in the joint connection. Our improved construction as described in the embodiment shown in Figs. 1 to 7, inclusive, is illustrative of the improved form of joint that has been found pleasing in ornamental effect and to provide a joint that will permit of a certain amount of torsion and flexing of the shaft in relation to the neck and shank of a club without opening up the joint due to any tendency of the parts of the connection to slide longitudinally of the shaft, while the

modified sectional ferrule of Figs. 2, 8 and 9 provides additionally an improved and ornate means of securing an elongated ferrule in joint combination upon the lower extremity of the golf club shaft. Furthermore, the improved joint provides a flexible and skirted connection between the shaft and the club head, which makes unnecessary the use of any wrapping or whipping material and provides an ornate joint in which the necessary strength for providing a permanent and efficient joint connection is not dependent upon elastic or more or less flexible materials such as thread wrapping and whipping or pyroxylin or other flexible and more or less elastic materials heretofore utilized in securing and bracing of the joint, the connecting elements as provided being of firm and strong metals while capable of ornamentation if desired, by plastic or other ornate coverings, thus providing a durable and efficient as well as a flexible joint that will not detract from the normal torsibility of the flexible club shaft adjacent its point of connection with the club head since relative rotation is permitted between the metallic sleeves 18 and 21 affixed respectively to the neck of the club head and to the shaft when torsion takes place in the lower reduced and weaker end of the shaft adjacent the club head whenever the club head strikes the ball or other object in play.

In order that the invention might be understood, the details of the preferred embodiment thereof have been set forth with particularity, but it is not desired to be limited to such details except as specified in the claims, since it will be apparent that persons skilled in the art may resort to various modifications in the structure shown and described without departing from the purpose and spirit of our invention.

We claim:

1. The combination in a golf club of the wood head type of a club head provided with an integral, elongated neck or shank, there being a shaft bore extending through said neck or shank and into the club head, a metallic shaft adapted to be seated in said shaft bore, means for locking said shaft to the body portion of the club head to prevent withdrawal therefrom and rotation in relation thereto, the neck or shank of the club head being tapered from the head portion thereof toward the outer extremity of said neck or shank and adjacent the end thereof being provided with an integral short, substantially cylindrical portion, a metallic ferrule having an interior tapering bore with an outer and upper substantially cylindrical portion whereby said metallic ferrule is adapted to closely surround the end of said tapered and said cylindrical portions of the neck or shank with a part thereof extending peripherally around and slightly above the upper cylindrical extremity of the shank, a second metallic ferrule secured to the metallic shaft and being provided with a peripheral upwardly recessed seat adapted to engage the said upper peripheral extremity of the first metallic ferrule when the said shaft with its attached metallic ferrule is inserted in the bore of the shank of the club head, and an upwardly tapered sleeve of proxylon fixed upon the said shaft above the said second metallic ferrule on the shaft and in supporting abutting engagement therewith, the abutting surfaces of said sleeve and the said second metallic ferrule on the shaft being of substantial extent radially and the abutting portions of the aforesaid metallic ferrules mounted upon and secured to the shaft and to the

shank of the club head respectively being adapted to have a swivelling function to permit torsional movement of the shaft in relation to the club head within the adjacent portion of the neck or shank and above the location of its said locking securement to the club head.

2. The combination in a golf club of the wood head type of a club head provided with an integral, elongated neck or shank, there being a shaft bore extending through said neck or shank and into the club head, a metallic shaft adapted to be seated in said shaft bore, means for locking said shaft to the body portion of the club head to prevent withdrawal therefrom and rotation in relation thereto, the neck or shank of the club head being tapered from the head portion thereof toward the outer extremity of said neck or shank and the end thereof being provided with an integral short, substantially cylindrical portion, a metallic ferrule having an interior tapering bore with an outer and upper substantially cylindrical portion whereby said metallic ferrule is adapted to closely surround the end of said tapered and said cylindrical portions of the neck or shank with a part thereof extending peripherally around and slightly above the upper cylindrical extremity of the shank, and a metallic ferrule secured to the metallic shaft and being provided with a peripheral upwardly recessed seat adapted to swivelly engage the said upper peripheral extremity of the metallic ferrule when the said shaft with its attached metallic ferrule is inserted in the bore of the shank of the club head.

3. The combination in a golf club of the wood head type of a club head provided with an integral elongated neck or shank which tapers from the intersection of said neck or shank with the body of the club head, there being a shaft bore extending through said neck or shank and into the club head, a shaft adapted to be seated in said shaft bore, means for locking said shaft to the body portion of the club head to prevent withdrawal therefrom and rotation of the shaft in relation thereto, an integral relatively short substantially cylindrical extension on the outer extremity of the neck or shank surrounding the outer terminus of the said shaft bore, a metallic ferrule having an interior tapering bore with an outer and upper substantially cylindrical portion whereby said metallic ferrule is adapted to closely surround and grip the end of the tapered and the cylindrical portions of the shank, and a metallic ferrule secured to the metallic shaft in position thereon to form a seat adapted to abut metal to metal and swivelly engage the said upper peripheral extremities of the first said metallic ferrule around the neck or shank of the club head when the lower extremity of the said shaft carrying the said attached metallic ferrule is inserted, seated and locked in the bore of the shank of the club head.

4. The combination in a golf club of the wood head type of a club head provided with an integral, elongated neck or shank tapering from the head portion and being provided at its outer extremity with an integral substantially cylindrical portion, there being a shaft bore extending through said neck or shank and into the body of the club head, a metallic shaft adapted to be seated in said shaft bore, means for locking said shaft to the body portion of the club head to prevent withdrawal therefrom and rotation in relation to the head portion thereof, the neck or shank of the club head being tapered from the

intersection thereof with the head toward the outer extremity of said neck or shank, the outer end thereof being provided with an integral relatively short substantially cylindrical portion, a metallic ferrule having an interior tapering bore substantially corresponding with the tapering outer surface of the neck or shank and terminating in an outer and upper relatively short substantially cylindrical portion whereby said metallic ferrule is adapted to closely surround and correspond with the said tapered and cylindrical portions of the neck or shank to form a substantially drive fit with a part thereof extending peripherally around and slightly above the upper periphery of the neck or shank, and a metallic ferrule secured to the metallic shaft and being provided with a downwardly opening peripherally recessed seat adapted to relatively engage metal to metal the upper peripheral extremities of the metallic ferrule which is provided with the aforesaid interior tapering bore when the said shaft with the aforesaid ferrule carried thereby is inserted and locked in the bore of the club head.

5. The combination in a golf club of the wood head type of a club head provided with an integral, elongated neck or shank, there being a downwardly tapering shaft bore extending through said neck or shank and into the club head, a downwardly tapering, tubular metallic shaft adapted to be seated in said shaft bore, means for locking said shaft to the body portion of the club head to prevent withdrawal therefrom and rotation in relation thereto, the neck or shank of the club head being tapered from the intersection thereof toward the outer extremity of said neck or shank and the end thereof being provided with an integral short, substantially cylindrical portion, a metallic ferrule having an interior tapering bore with an outer and upper substantially cylindrical portion whereby said metallic ferrule is adapted to closely surround the said tapered and cylindrical portions of the neck or shank with a part thereof extending peripherally around and slightly above the upper cylindrical extremity of the shank, and a second metallic ferrule secured to the metallic shaft and being provided with a peripheral upwardly recessed seat adapted to engage metal to metal the said upper peripheral extremity of the first metallic ferrule when the said shaft with its attached metallic ferrule is inserted in the bore of the shank of the club head whereby to permit torsional rotation of the shaft in the shank bore in relation to the said portion thereof locked to the body portion of the club head.

6. The combination in a golf club of the wood head type of a club head provided with an integral, elongated neck or shank, there being a shaft bore extending through said neck or shank and into the club head, a metallic shaft adapted to be seated in said shaft bore, means for locking said shaft to the body portion of the club head to prevent withdrawal therefrom and rotation in relation thereto, the neck or shank of the club head being tapered from the intersection thereof toward the outer extremity of said neck or shank and the end thereof being provided with an integral, short, substantially cylindrical portion, a metallic ferrule having an interior tapering bore with an outer and upper substantially cylindrical portion whereby said metallic ferrule is adapted to closely surround the said tapered and cylindrical portions of the neck or shank with a part thereof extending peripherally around and

slightly above the upper cylindrical extremity of the shank, a second metallic ferrule secured to the metallic shaft and being provided with a peripheral upwardly recessed seat adapted to engage the said upper peripheral extremity of the first metallic ferrule when the said shaft with its attached metallic ferrule is inserted in the bore of the shank of the club head, a pyroxylin sleeve having a drive fit on said shaft with its lower end in spaced relation to the lower end of the shaft and in supporting abutting relation to the aforesaid second metallic ferrule on the shaft, and means to prevent longitudinal or endwise movement of the said pyroxylin ferrule in a direction along said shaft away from the end thereof attached to the head comprising a third metallic ferrule which is in abutting relation with said pyroxylin ferrule and affixed to said shaft.

7. The combination in a golf club of the wood head type of a club head provided with an integral elongated neck or shank terminating in an outer and relatively short, substantially cylindrical portion, there being a tapered shaft bore extending through said neck or shank including the said cylindrical portion thereof and into the club head, a downwardly tapering tubular metallic shaft adapted to be seated in said shaft bore, means for locking said shaft to the body portion of the club head to prevent withdrawal therefrom and to prevent rotation of the shaft in relation to the striking portion of the club head, the neck or shank of the club head being tapered from the intersection thereof toward the outer extremity of the said neck or shank and merging with the aforesaid end thereof comprising the integral, short, substantially cylindrical portion, a metallic ferrule having an interior tapering bore terminating at one end with an outer and upper substantially cylindrical portion for closely surrounding the said tapered and cylindrical portions of the neck and shank with a drive fit and projecting thereabove, a metallic ferrule secured to the said metallic shaft in spaced relation from the lower and head engaging end of the shaft and being adapted to engage the upper extremity of the metallic ferrule seated around the neck or shank when the said parts are assembled with the said shaft secured in the bore within the striking part of the club head.

8. The combination in a golf club of the wood head type of a club head provided with an integral elongated neck or shank, there being a shaft bore extending through said neck or shank and into the club head, a tubular, tapered, metallic shaft adapted to be seated in said shaft bore, means for locking said shaft within the body portion of the club head, the said neck or shank being tapered from the intersection thereof toward the outer extremity thereof and terminating in an integral, substantially cylindrical portion surrounding the outer terminus of the aforesaid shaft bore, a metallic ferrule having an interior tapering bore for surrounding the tapered portion of the shank and an outer and upper, substantially cylindrical portion for engaging the said cylindrical portion of the club neck or shank whereby said metallic ferrule is adapted to closely surround the said tapered and cylindrical portions of the neck or shank when the parts are in assembled relation, a metallic ferrule secured to the shaft and being adapted to provide a seat for engaging metal to metal the upper peripheral extremity of the first said metallic ferrule, a tapered pyroxylin sleeve secured to the shaft above the aforesaid metallic ferrule on said shaft and in

abutting relation thereto, the said pyroxylin sleeve being tapered upwardly from the club head, and a second metallic ferrule affixed to the shaft in abutting relation to the upper extremity of the said tapered pyroxylin sleeve.

9. The combination in a golf club of the wood head type of a club head provided with an integral elongated neck or shank, there being a shaft bore extending through said neck or shank and into the club head, a tubular, tapered, metallic shaft adapted to be seated in said shaft bore, means for locking said shaft within the body portion of the club head, the said neck or shank being tapered from the intersection thereof toward the outer extremity thereof and terminating in an integral, substantially cylindrical portion surrounding the outer terminus of the aforesaid shaft bore, a metallic ferrule having an interior tapering bore for surrounding the tapered portion of the shank and an outer and upper, substantially cylindrical portion for engaging the said cylindrical portion of the club neck or shank whereby said metallic ferrule is adapted to closely surround the said tapered and cylindrical portions of the neck or shank when the parts are in assembled relation, a metallic ferrule secured to the shaft and being adapted to provide a seat for engaging metal to metal the upper peripheral extremity of the first said ferrule, a tapered pyroxylin sleeve secured to the shaft above the aforesaid metallic ferrule on said shaft and abutting said ferrule, the said pyroxylin sleeve being tapered upwardly from the club head, a second metallic ferrule affixed to the shaft in abutting relation to the upper extremity of the said tapered pyroxylin sleeve, and tapered pyroxylin finishing sleeves shrunk in position around the said shaft and around the said sleeve which is mounted upon the neck or shank of the club whereby to visually elongate and complete the ornamental appearance of the joint thus formed between the shaft and the neck or shank of the club head.

10. A golf club having a head with a tapered neck terminating in a cylindrical portion, a protective metal ferrule fitting tightly on this end of the neck and projecting slightly beyond the cylindrical portion, a shaft extending into the neck and secured in the head at a distance therefrom such that there may be a twisting movement between the shaft and neck, and a metal ferrule secured to the shaft and abutting the end of the first ferrule to provide a metal to metal slidable contact to permit said twisting movement.

11. A golf club having a wood head with a tapered neck terminating in a cylindrical portion, a metal shaft extending through the neck and secured in the head at a distance from the neck, a metal ferrule secured to the neck and extending over the tapered and cylindrical portions to strengthen and protect them and terminating beyond the cylindrical portion, and an abutment ferrule secured to the shaft and having an undercut recess in its contact face engaged by the end of the other metal ferrule secured to the neck providing a metal to metal swiveling contact joint.

12. In a golf club, a swiveling joint between the neck of the head and the shaft, the neck having a tapered portion terminating in a cylindrical extremity, a metal ferrule secured to the neck having a bore with tapered and cylindrical portions filling the neck and an outer tapered surface, a second ferrule secured to the

shaft and abutting the end of the head ferrule, and separate pyroxylin sleeves secured to each of the ferrules and free from engagement with each other but together forming a substantially continuous outer surface tapering from the shaft to the tapered portion of the head.

13. In a golf club, a head having a tapered neck with a cylindrical extremity, a shaft extending therein and secured at a distance from said extremity, a protective metal ferrule having a tapered and cylindrical bore fitting tightly on the neck and extending beyond the extremity thereof, a pyroxylin sleeve on the outside of the ferrule but extending short of the extremity thereof, a metal ferrule fixedly secured to the shaft and having an extending flange, the end face abutting the extending end of the ferrule secured to the head, and a pyroxylin shell secured to the ferrule on the shaft, the sleeve and shell being flush with the outer flange of the shaft ferrule, and together forming a smooth tapered outer surface with a twisting metal to metal joint therein.

14. In a golf club, a wood head, a metal shaft

secured therein, a tapered neck having a cylindrical extremity of material thickness through which the shaft extends, and a strengthening torsional joint between the end of the neck and the shaft comprising a metal ferrule secured to the shaft, a metal ferrule fitting the tapered and cylindrical end of the neck and extending beyond it to abut the shaft ferrule, and pyroxylin sleeves secured to the shaft and to the head ferrule together forming a substantially continuous tapered outer surface and separated by the shaft ferrule.

15. In a golf club, a wood head having a tapered neck with a cylindrical end, a metal shaft extending in said neck and secured at a distance therefrom in said head, an abutting metal ferrule secured to the shaft, and a head ferrule fitting the tapered and cylindrical end of the neck and projecting beyond the neck in contact with the shaft ferrule to provide a torsional metal to metal contact joint between the shaft and the neck end of the head.

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