April 19, 1932. H. C. LAGERBLADE 1,855,059

GOLF CLUB SHAFT

Filed Sept. 8, 1931

Fig. 1.

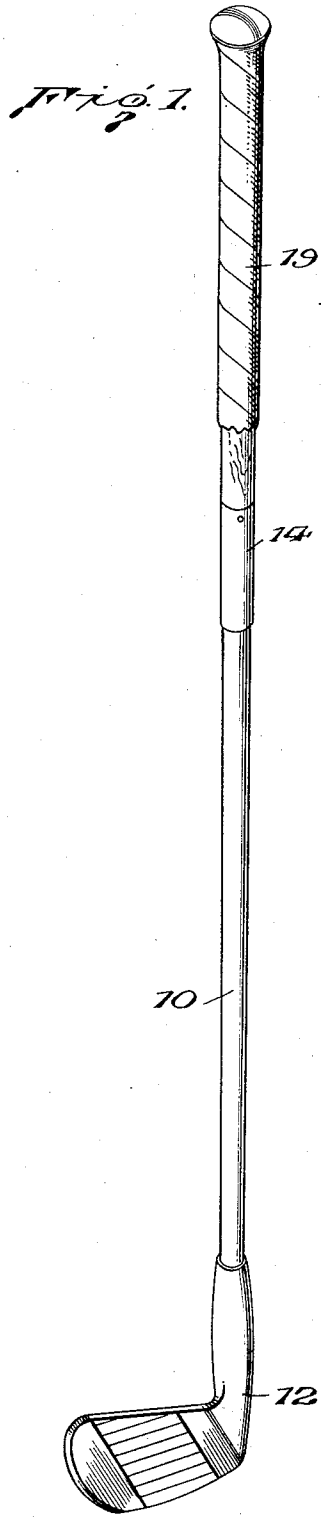


Fig. 2.

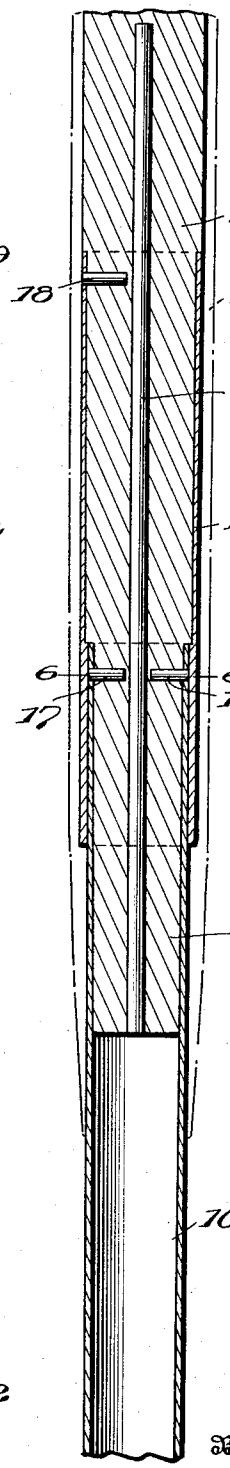


Fig. 3.

Fig. 4.

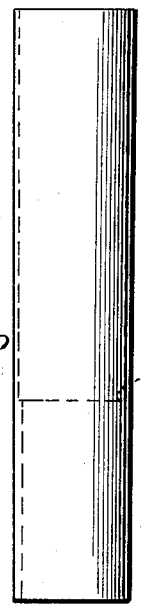


Fig. 5.

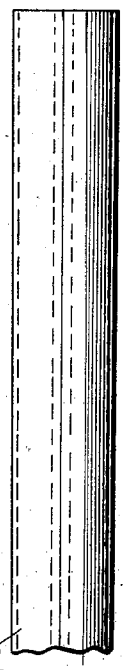
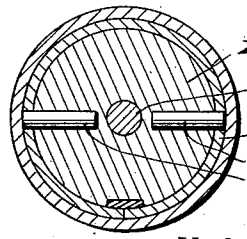


Fig. 6.



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UNITED STATES PATENT OFFICE

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GOLF CLUB SHAFT

Application filed September 8, 1931. Serial No. 561,747.

This invention relates to improvements in golf clubs and particularly to golf club shafts.

During the course of a year, manufacturers of tubular golf shafts will accumulate thousands of pieces of steel shafts that are perfectly good except that they are too short for use as a golf shaft. Heretofore all of this material has been scrapped. This scrap material quite frequently runs as high as twenty-five inches in length. This is due to the fact that very often there is a slight imperfection in the steel that will cause a break in the shaft toward the upper end while the lower end is perfectly good and of high quality. In order to eliminate this waste, the present invention contemplates a composite golf shaft in that the shaft is formed of tubular metallic material throughout a major portion of its length, while its handle section is of wood.

A further object is to provide a satisfactory mode of attaching the wooden handle to a tubular metallic shaft body.

A still further object is to reinforce the connection between the wooden handle and steel shaft proper.

With these and other objects in view the invention consists in certain details of construction and combinations and arrangements of parts all as will hereinafter be more fully described and the novel features thereof particularly pointed out in the appended claims.

In the accompanying drawings:

Figure 1 is an elevational view of a golf club constructed in accordance with the present invention;

Fig. 2 is a longitudinal sectional view through the wooden handle section and a portion of the tubular metallic section;

Fig. 3 is an elevational view of the handle section removed from the shaft;

Fig. 4 is an elevational view of the connecting sleeve;

Fig. 5 is an elevational view of the end of the tubular metallic shaft to which the handle is attached, and

Fig. 6 is a transverse sectional view on line 6—6 of Fig. 2.

As stated, the present invention seeks to render it possible to utilize sections of tubular metallic material which, under previous practices, would be too short for use in a golf club shaft. Generally stated, this is accomplished by having the major portion of the shaft formed of a tubular metalic member to which is attached a wooden handle section, the length of the two elements aggregating the desired club length. Not only does such an arrangement permit the use of otherwise scrap material but the provision of the wooden handle lends to the finished club "a feel", different from that of a club having a metallic handle portion. That is, many players do not like the feel of a steel shaft under the grip portion of the club, claiming that it is too hard while others claim that they receive a shock when hitting a ball with the club, due to the steel shaft. In a composite shaft such as now proposed the wooden handle section imparts to the shaft the desired feel, and, in addition, any shock such as complained of is also eliminated. This is believed to be due to the fact that the wooden handle section has certain torsioning properties.

In carrying out the invention the shaft is composed primarily of the tubular metallic section 10 that extends the major portion of the length of the shaft and a wooden handle section 11. Preferably, section 10 is a tapering cross-section, the wooden handle section being attached to its larger end and the club head 12 attached to its smaller end. The tubular metallic section 10 will vary in length in different clubs, depending upon the length of the scrap material being utilized or upon the length that is desired in the finished article.

It has been a difficult matter to provide a joint between a metallic section and a wooden section in a golf club that will have the desired strength to withstand the strains placed upon it when the club is in use. These difficulties are overcome in the present instance by having the wooden handle section 11 formed with a tenon 13, preferably tapered and wedged in the large end of the metallic section 10. Immediately beyond the larger end of the metallic section end the handle 11

is surrounded by a metallic sleeve 14 and this sleeve overlaps the larger end of the metallic section 10 of the shaft. This sleeve, and that portion of the handle which is engaged thereby are also preferably of tapering cross-section. To lend rigidity to the joint, sleeve 14 is provided on its interior with a shoulder 15 adapted to register with the end of the shaft section 10 when the parts are assembled and the handle section 11 is formed with a shoulder 16 that abuts against said shoulder 15 and the end of section 10.

To firmly attach the handle 11 to section 10 one or more cross pins 17 extend transversely through the handle and said section 10 and to secure the sleeve 14 to the handle other cross pins 18 are placed through the sleeve and project transversely through the handle. These several cross pins prevent relative rotation of the several elements. It is also preferred that the cross pins 17 be located near enough to the upper end of the section 10 as to be covered or concealed by that portion of the sleeve 14 that overlaps section 10. After assembly of the parts as described, the wooden handle section, the sleeve and a portion of section 10 are completely covered with the usual wrapping material 19 so that the finished article has the appearance of an all steel shaft. With the wooden handle 11 forming a driving fit in the section 10 and the shoulder 16 on said handle section abutting against the interior shoulder on sleeve 14 as well as against the upper end of shaft section 10, and with the cross pins firmly securing the several parts together, an extremely rigid connection is obtained. It has been found that such a connection will withstand all the strains placed upon it. In this way there is obtained a shaft where the material that has heretofore been scrapped is utilized, and, as pointed out, the resulting product will have the same feel to the player as an all wood shaft.

To further reinforce the connection a reinforce rod 20 may be provided, said rod extending longitudinally through the handle section 10. It is preferred that this rod extend from a point beyond the upper end of sleeve 14 to the extremity of the handle section within the metallic section 10 although it may terminate somewhat short of this point so far as its strengthening properties are concerned.

It is also desirable to protect the wood handle section against changes in weather conditions. For this reason a sealing compound may be applied to the wood handle before it is driven into the metallic section 10. There are numerous cements and sealing waxes which will accomplish this purpose. Preferably, the entire wood handle is weatherproof as far as possible, the connection heretofore described between the wooden section and metallic section might also be supplemented by the use of solder between the overlapping portions of sleeve 14 and section 10.

While the sleeve 14 has been shown and described as provided with a shoulder 15, it will be understood that this shoulder is not absolutely necessary and may be dispensed with, the sleeve having a plane uninterrupted tapering inner surface adapted to make a wedging fit on the handle and shaft proper.

What I claim is:

1. A golf club shaft comprising a tubular metallic section extending the major portion of the length of the shaft, a wooden handle section extending into said metallic section, a metal sleeve surrounding the point of junction of said sections, fastening elements extending through said metallic section and said sleeve into said handle section, and a reinforce element extending longitudinally through said handle section.

2. A golf club shaft comprising a tubular metallic section, a wooden handle section secured in said tubular section, a tubular metallic sleeve overlapping the point of junction of said sections, means securing said sleeve to the handle section, a shoulder on the interior of said sleeve, and a shoulder on said handle section abutting the end of the metallic section and the shoulder on the sleeve.

3. A golf club shaft comprising a tubular metallic section, a wooden handle section secured in said metallic section, a metallic sleeve secured to the exterior of the wooden section and overlapping the exterior of the metallic section, and a reinforce element extending through said wooden handle section from a point adjacent one end of the sleeve to a point adjacent the other end of said sleeve.

4. A golf club shaft comprising a tubular metallic section, a wooden handle section secured in said metallic section, a metallic sleeve secured to but covering only a minor portion of the length of said wooden handle section, said sleeve overlapping the end of said metallic shaft section, and a wrapping covering the wooden handle section and said sleeve.

5. A golf club shaft comprising a tubular metallic section, a wooden handle section secured in said metallic section, a metallic sleeve attached to said wooden handle section and extending over said metallic section, an interior shoulder on said sleeve, an exterior shoulder on said wooden section engaging against the end of the metallic section and the interior shoulder on said sleeve, a reinforce element extending longitudinally through the wooden section, and a wrapping material covering said wooden section and sleeve.

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