Sept. 21, 1926. 1,600,390

H. G. BARRETT ET AL

SHAFT FOR GOLF CLUBS AND THE LIKE

Filed Feb. 9, 1925 2 Sheets-Sheet 1

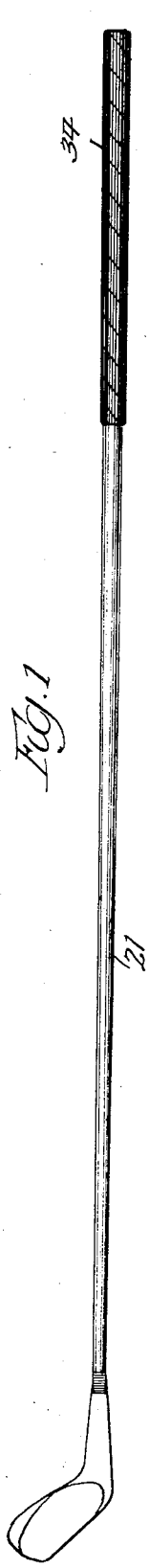


Fig. 1

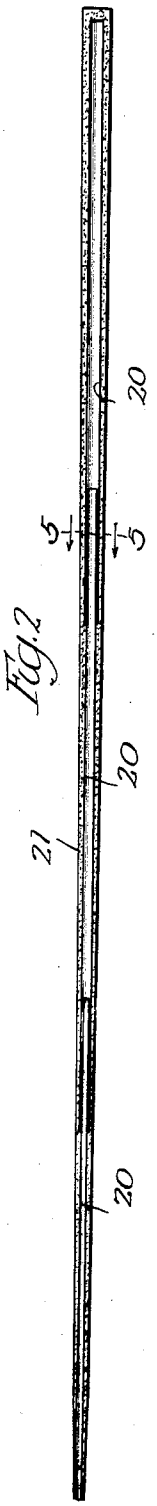


Fig. 2

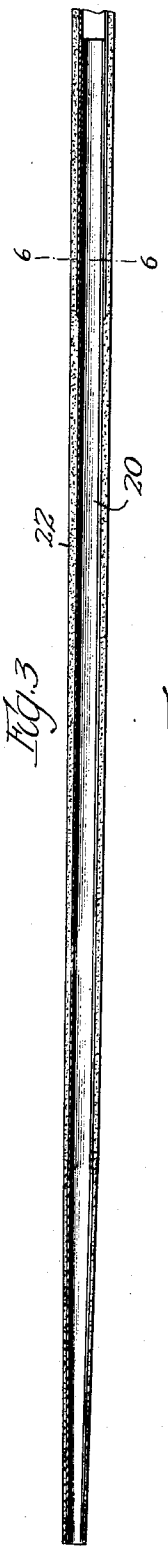


Fig. 3

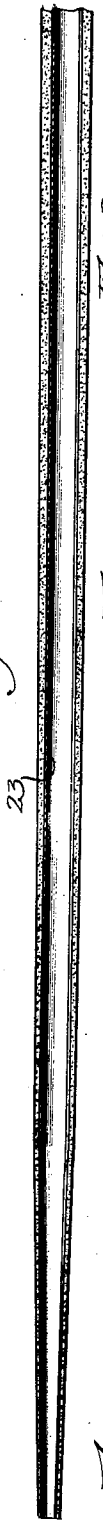


Fig. 4

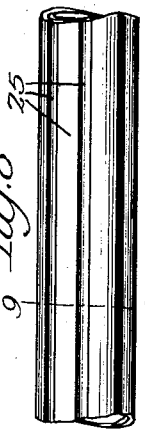


Fig. 8

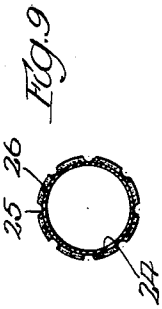


Fig. 9

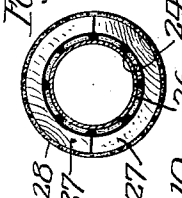


Fig. 7



Fig. 10

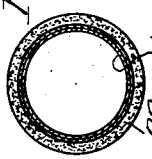


Fig. 6

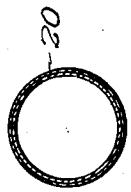


Fig. 5

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SHAFT FOR GOLF CLUBS AND THE LIKE

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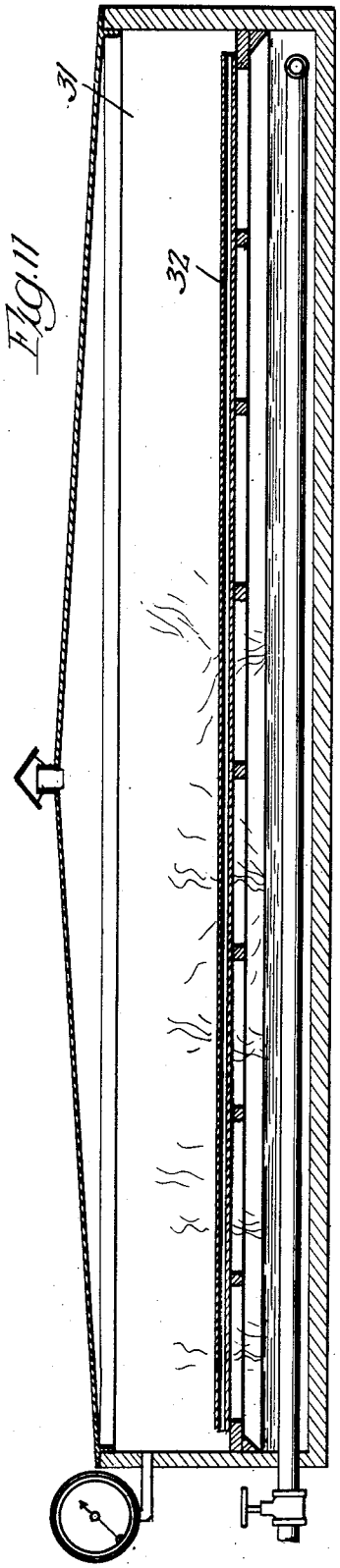


Fig. 11

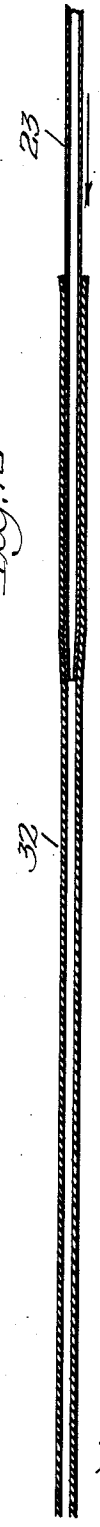


Fig. 12



Fig. 14

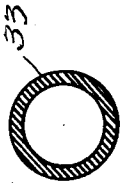


Fig. 13



Fig. 16

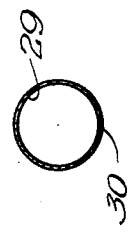


Fig. 15

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Patented Sept. 21, 1926. 1,600,390

UNITED STATES PATENT OFFICE.

HAROLD G. BARRETT, OF WILMETTE, AND HOWARD G. BARTLING, OF CHICAGO, ILLINOIS, ASSIGNORS TO BARBARITE CORPORATION, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

SHAFT FOR GOLF CLUBS AND THE LIKE.

Application filed February 9, 1925. Serial No. 7,817.

This invention relates to improvements in shafts, particularly adapted though not necessarily limited in its use for golf clubs and one of the objects of the invention is to provide an improved covering for the shaft which will enable low grade material to be employed in the manufacture thereof and which may also be employed as a cover for hollow metallic shafts.

When such a cover is used the shaft will not only be strengthened and reinforced, but the required flexibility of the shaft will not be interfered with and at the same time the shaft will be of the desired or required weight and rigidity.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in substantially the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and as shown in the accompanying drawings illustrating the invention and in which drawings,

Figure 1, is an elevation of a golf club constructed in accordance with the principles of this invention.

Figure 2, is a longitudinal sectional view showing a hollow shaft constructed of telescoping sections.

Figure 3, is a longitudinal sectional view of a shaft having a hollow core of a uniform diameter.

Figure 4, is a longitudinal sectional view of a shaft having a hollow core of a varying diameter.

Figure 5, is a sectional view on line 5—5 Figure 2.

Figure 6, is a sectional view on line 6—6 Figure 3.

Figure 7, is a transverse sectional view of another form of the invention.

Figure 8, is a side elevation of a portion of a hollow core having a coating fused thereon and longitudinally grooved.

Figure 9, is a sectional view taken on line 9—9 Figure 8.

Figure 10, is a side elevation of Figure 9.

Figure 11, is a sectional view of an apparatus by means of the use of which this invention may be carried into operation.

Figure 12, is a sectional view showing the manner of placing the casing or covering over the shaft.

Figure 13, is a transverse sectional view of the casing.

Figure 14, is a transverse view of the finished article.

Figure 15, is a transverse sectional view of a metal core.

Figure 16, is a transverse sectional view of a shaft having a solid wood core.

While this invention has been shown and will be particularly described in connection with a golf club shaft, it is to be understood that the term shaft as employed throughout the specification and claims is not to be construed as a term of limitation and as being adapted for that purpose alone, but is to be construed broadly as being applicable to any form of flexible shaft, staff, handle, or for any other similar or like purpose, and particularly to shafts subjected to impacts thereupon in directions transverse to the length of the shaft.

Heretofore hollow shafts for golf clubs have been constructed of highly tempered metal such as steel, and while shafts of this construction have been found highly satisfactory, they are breakable and do not have the proper or desired "feel" when gripped in the hands.

Furthermore, as these shafts are subjected to the elements they become corroded or rusty which is objectionable as they present an unsightly appearance and especially when the shafts have been allowed to remain in stock for any length of time.

This results in a loss to the dealer as the price of the shaft depreciates for that reason. The rust and corrosion cannot be covered by painting the shaft as the paint will not stick and it will chip or peel off.

It is one of the objects of the present invention to provide for such shafts, a cover or casing having tensile strength and which will not only reinforce the shaft or core, but possesses considerable flexibility so as not to impair the flexibility of the shaft and at the same time permit the finished product to possess the desired weight and balance.

Furthermore, as the core will be housed or completely encased in a protecting casing it is impossible for the core or shaft to

corrode or rust and the core will at all times be completely concealed. This is due to the fact that the casing of the present invention will exclude all moisture.

In carrying this invention into practice a tubular casing of any suitable nonmetallic material may be employed which is adapted to become soft and pliable when subjected to predetermined degrees of heat, thereby adapting the same to be placed upon or sleeved over the shaft, and to be fashioned to conform to the contour of the shaft, the properties of the material from which the casing is constructed being such that as the casing becomes cool it will shrink about the shaft or core upon which it is placed, and will grip the same and will become hard, but will be sufficiently flexible so that the flexibility of the metallic core will not be impaired.

A suitable material which has been found to be efficient for this purpose is pyroxyline, but it is to be understood that it is not desired to be limited to this particular product as any other material having the properties and characteristics herein recited may be employed.

A similar casing may be employed or placed over a shaft constructed of low grade wood either solid or tubular, enabling the use of material which has heretofore been practically worthless or at least unfit for use in shafts.

In the form of the invention shown in Figure 2, the core of the shaft is formed from a series of tubular metallic sections 20 of varying diameters, the proximate ends of adjacent sections telescoping into each other, and over the shaft thus formed is placed a casing or cover 21 constructed of nonmetallic material, such as pyroxyline or similar material which has been subjected to the necessary degree of heat to cause the material therein to become soft to adapt the same to be sleeved over the core and which casing will shrink about the core and become hard when cooled.

The article is then finished by being subjected to a cutting or sanding operation.

In Figure 3, the tubular core or shell 22 is of an integral construction having a varying diameter throughout its length.

In Figures 4, 7, and 9, the tubular core or shell 24 is provided with a coating or covering 25 of any suitable material such as enamel or the like and is secured to the core preferably by fusing, and the coating is provided with longitudinally arranged grooves 26. A wood casing preferably comprising sections 27 is arranged about the core or shell and secured in position preferably by means of suitable glue.

About the article thus formed a casing 28, of the non-metallic material which has been previously subjected to heat to render the same pliable, is placed, and then allowed to cool or may be subjected to the action of a cooling medium, to cause the casing to shrink about the article and become hard, but possessing and retaining sufficient flexibility so as not to impair the flexibility of the core or shell.

The metallic shell or core may be seamless, or if desired the shell or core 29 may be split as at 30 to permit of a certain torsional flexibility or twist not present with a seamless or continuous tubular core.

In Figure 11, there is shown a form of apparatus 31 in which the casing 32 is placed to be subjected to the necessary temperature to render the same soft to adapt it to be sleeved over the tube or hollow core 33 as shown in Figure 12.

With this invention the casing or covering may be applied to a solid shaft of wood as well as to a hollow shaft of metal or wood, which is subjected to lateral impacts in directions transverse to the length of the shaft and which casing or covering while constituting a reinforcing element in the construction of the finished shaft, will not impair the necessary flexibility of the shaft.

Furthermore, the casing of the present invention may be manufactured as a complete article and supplied to the manufacturers of golf clubs, or golf club shafts, as all that is then necessary is to telescope the core and the casing without impairing the effectiveness of the golf club shaft. In shafts such as in wood shafts in which the torsion and flexibility are usually too great, such torsion and flex may be reduced by telescoping the casing of the present invention over the core or shaft, the amount of reduction being controlled by the degree of thickness of the casing. This casing also imparts a finish to the shaft without necessitating additional operations on the part of the manufacturer.

If desired a suitable gripping portion 34 may be applied to one end of the shaft to furnish a hand hold and which portion may be formed in any desired or suitable manner.

While the preferred forms of the invention have been herein described and shown, it is to be understood that various changes may be made in the details of construction and in the combination and arrangement of the several parts, within the scope of the claims, without departing from the spirit of this invention.

What is claimed as new is:

1. A flexible golf club shaft embodying a hollow core, and a tubular non-metallic casing or covering sleeved over and shrunk upon said core and extending the entire length of that part of the core which is between the grip and head of the club.

2. A shaft for golf clubs embodying a flexible core, and a flexible tubular casing constructed of pyroxyline sleeved over and

shrunk upon the core, said casing extending for the full length of the part of the core between the head and grip of the club.

3. A shaft embodying a hollow flexible core, and a tubular casing or covering constructed of pyroxyline sleeved over and shrunk upon the core.

4. A shaft comprising a core embodying a plurality of telescoping flexible elements, and a casing of non-metallic material telescoped upon and shrunk about the core, said casing extending for the entire length of the core.

5. A shaft embodying a flexible core comprising a plurality of telescoped elements, and a casing of non-metallic material telescoped upon and shrunk about the core, the innermost element of the core being tubular.

6. A shaft embodying a flexible core comprising a plurality of telescoped elements, and a casing of non-metallic material telescoped upon and shrunk about the core, the innermost element of the core being tubular and constructed of comparatively thin metal.

7. A flexible golf club shaft embodying a tapered core, and a separate tapered tubular casing of non-metallic hard and flexible material of a length coextensive with the length of the part of the core which is disposed between the grip and head of the club, and into which casing the core is telescoped to closely fit therein.

8. A flexible golf club shaft embodying a tapered hollow metallic core and a separate tapered casing of non-metallic hard and flexible material of a length coextensive with the length of the part of the core which is disposed between the grip and head of the club, and into which casing the core is telescoped to fit closely therein.

9. As an article of manufacture an extended and continuously tapered tubular casing of non-metallic hard and flexible material of a diameter to closely fit upon a golf club shaft and to have contact with the shaft throughout the entire length of the casing.

10. As an article of manufacture an extended normally and continuously tapered tubular casing of pyroxyline of a diameter to closely fit upon a golf club shaft and to have contact with the shaft throughout the entire length of the casing.

In testimony whereof we have signed our names to this specification, on this 5th day of February, A. D. 1925.

HAROLD G. BARRETT.
HOWARD G. BARTLING.