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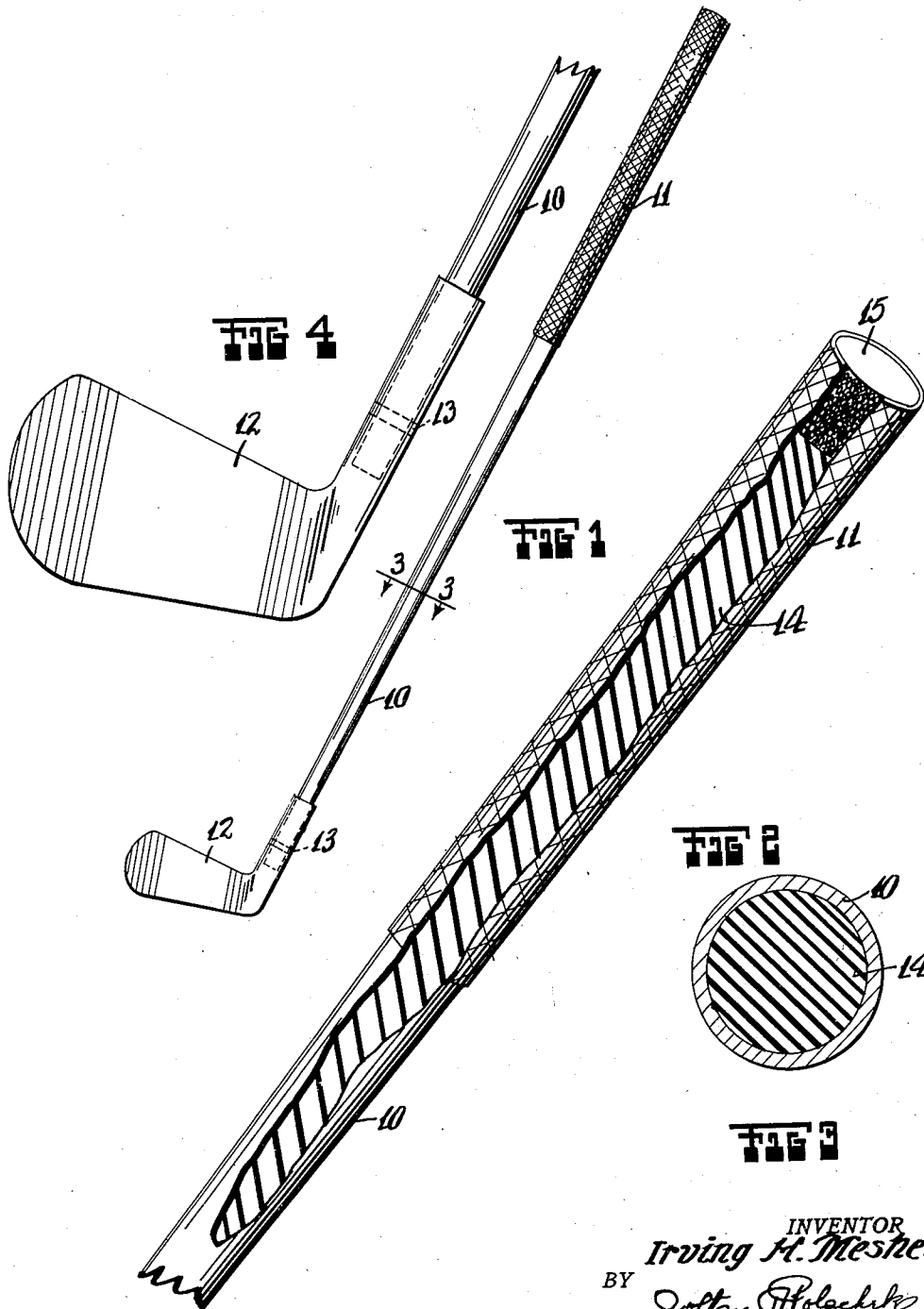
I. H. MESHEL

1,950,342

SHAFT FOR GOLF CLUBS

Filed March 3, 1931

2 Sheets-Sheet 1



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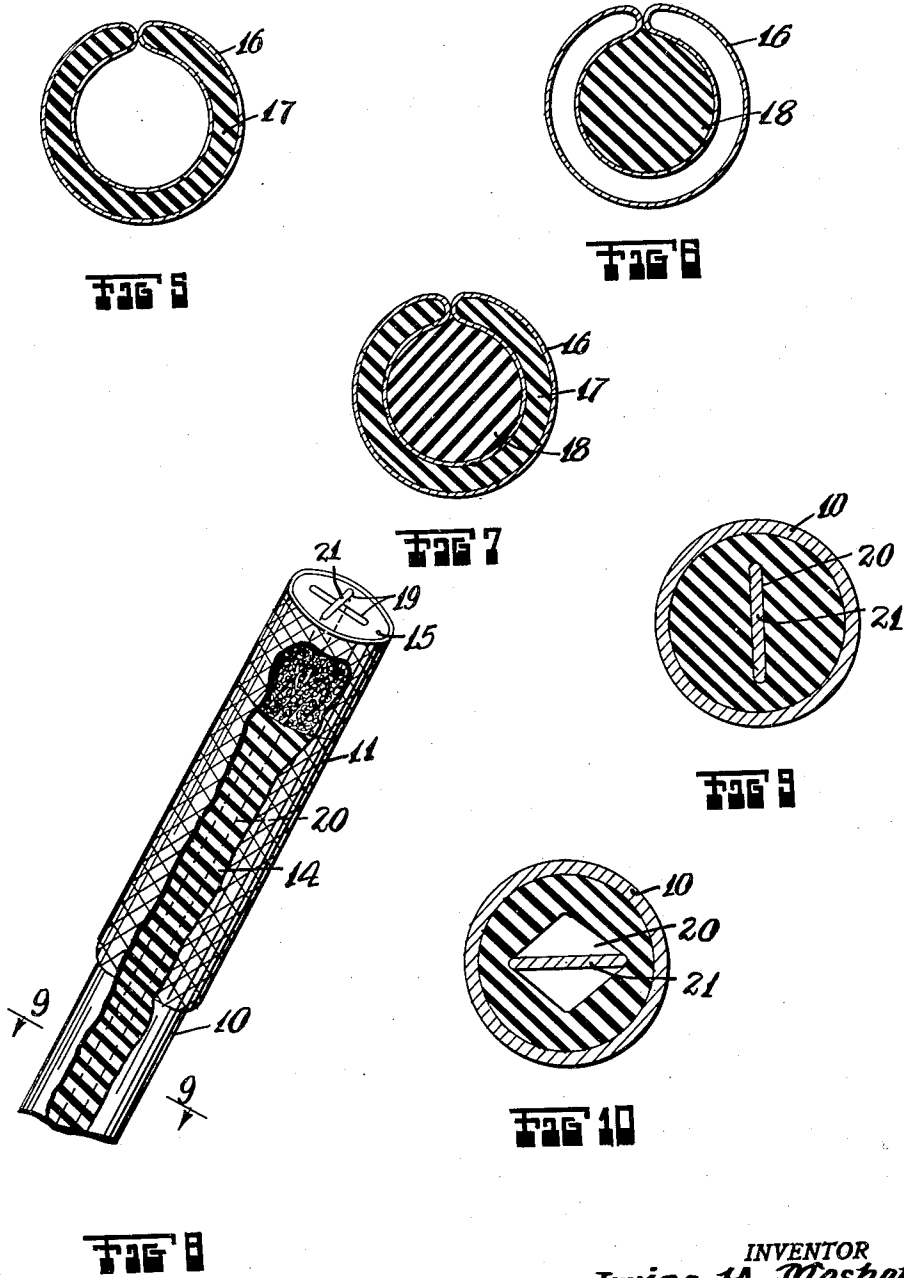
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2 Sheets-Sheet 2



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SHAFT FOR GOLF CLUBS

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5 Claims. (Cl. 273-80)

It is an object of this invention to construct a golf shaft which at most costs but slightly more than the ordinary "steel" shafting and which has the lasting qualities of "steel" and the good playing qualities of wood—in other words a "steel" shaft with a wood "feel".

A still further object of this invention is to construct a shaft for a golf club which is characterized by a hollow tubular metal "steel" shaft of usual design—with a core or sponge rubber.

As a still further object of this invention it is proposed to use the hollow shaft as the mold for the sponge rubber core. The core thereby is "cemented" or held firmly in place without further handling after molding. This method is recommended, although the core can be molded separately and later inserted and cemented in the hollow shaft.

A still further object of this invention is to construct the shaft with a double wall and to fill the rubber sponge core in between the double wall or inside within the inner wall, or at both places.

The invention furthermore proposes the provision of means for changing the resiliency and shock absorbing qualities of the rubber core.

A still further object of the invention is the construction of a shaft for golf clubs and the like which is of simple durable construction, dependable in use and efficient in action, and which can be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:—

Fig. 1 is a side elevational view of a golf club constructed according to this invention.

Fig. 2 is a fragmentary enlarged detailed perspective view of the top portion of the club shown in Fig. 1, a piece thereof being broken away to disclose the interior.

Fig. 3 is a horizontal sectional view taken on the line 3-3 of Fig. 1.

Fig. 4 is a fragmentary enlarged detailed view of the lower end of the club shown in Fig. 1.

Fig. 5 is a view similar to Fig. 3, but showing a modified club constructed according to the same invention.

Fig. 6 is another view similar to Fig. 3, but showing a still further modified form.

Fig. 7 is still another view similar to Fig. 3, but showing another modified form.

Fig. 8 is a fragmentary view similar to Fig. 2, but illustrating another embodiment of the invention.

Fig. 9 is a sectional view taken on the line 9-9 of Fig. 8.

Fig. 10 is a view similar to Fig. 9, but showing the strip within the rubber core turned at a 90° angle so as to change the resiliency of the core.

A golf club constructed according to this invention comprises a hollow metal shaft 10 or tubing covered at the top with a grip 11 or a leather wrapping. At the bottom an iron head 12 is shown attached upon the metal shaft or tubing by a rivet 13. When thus arranged the metal iron head is in intimate contact with the metal shaft or tubing. Vibrations which tend to be set up in the shaft when a golf ball is struck will be directly communicated from the iron head to the shaft in that they are in intimate contact. A core of sponge rubber 14 is disposed within the metal shaft or tubing and is depended upon to absorb the vibrations.

If one so desires, the iron head may be insulated from the shaft by suitable vibration absorbing material engaged around the bottom end of the shaft and disposed between the parts. A cap or a plug 15 is engaged within the free end of the tubing so as to close it. In Fig. 3 the sponge rubber core is very clearly shown within the wall of the tubing.

This invention eliminates the objectionable shock or vibration transmitting character of ordinary "steel" golf shafts. The golf club shaft according to this invention has the desirable qualities of "steel", being fundamentally of similar construction, and has in addition the "sweet feel" of wood shafting. The new golf club shaft eliminates objectionable shock or vibration and in addition does the following:

1. Strengthens the shaft against breaking.
2. Makes the whipping point further down on the shaft than the ordinary "steel" shaft—which is considered a desirable playing quality.
3. Gives the entire club a better or improved dynamic balance or swinging weight. This dynamic balance is effected by improved torsional qualities, specific gravity, etc., due to its inherent nature.

The hollow shaft can be used as a mold for the sponge rubber core, the core thereby being "cemented" or held firmly in place without further handling after molding. While this method of engaging the core within the shaft is preferred,

the core may be made separately and later inserted in the hollow shaft. The sponge rubber core acts as a vibration dampener and eliminates the objectionable shock of vibration when the ball is struck in play. The rubber sponge core combined with the tubular shafting serves to accomplish the strengthening of the shaft, the lowering of the whipping point, and the improving of the dynamic balance as before pointed out.

10 It is not the intention of this invention to limit it to the use of sponge rubber as the only shock insulator since other light fibrous material such as cork may be used, or a mixture of both cork and rubber—or alternate sections of both cork and rubber—or even other insulating fibre. All hollow “steel” shafts are provided with a plug similar to member 15 on the free end of the shaft—so that following the usual procedure of club construction—the insulation or “contents” of the shaft according to this invention are thereby sealed against deterioration by air, sunlight, moisture, etc.

Nor is it the intention of this invention that the insulation material must occupy the full length of the hollow metal tubing—but might fill the lower, upper or middle portions of the shaft. Nor is it the contention that the insulating material must solidly fit the cross section of the shaft but might be present as a layer or veneer on the inside of the tubular shafting.

In Figs. 5, 6 and 7 various modified constructions of the invention have been shown, in which its application to a double wall shaft is disclosed. Reference numeral 16 discloses a double wall tube with a core of sponge rubber 17 disposed between the walls. In Fig. 6 the double wall “steel” shafting 16 has been disclosed with a rubber core 18 disposed within the inner wall. In Fig. 7 a double wall tube 16 has been shown with the sponge rubber core 17 and 18 disposed both inside of the inner wall and between both walls.

A still further modified arrangement of the invention consists in the addition of means for changing the resiliency of the core so as to effect the “feel” or playing qualities of the shafting. According to this arrangement the plug 15 is formed with crossed slots 19. The core 14 is formed with an elongated opening 20 directly beneath one of the crossed slots and extending substantially the full length of the core. A metallic or wooden strip of material 21 is inserted in either one or the other of the crossed slots 19 to cause the core to be under one or another internal stress. As shown in Fig. 9, the strip 21 is in a position so as to snugly fit within the longitudinal opening 20. In Fig. 10 it is shown in the other position at right angles to the one shown in Fig. 9, where it serves to spread out and cause opening up of the opening 20 to change the internal stresses of the core.

I do not claim extraordinary (much longer) driving power when a golf club head is fitted with my new shaft—as compared with the ordinary “steel” shafting—but I do claim extra-

ordinary “comfort” and satisfaction due to freedom from all shock or vibration, therefore making for more efficient play or performance.

While I have shown and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:—

1. A shaft for golf clubs and the like, comprising metallic material in substantially tubular form, and material having shock absorbing properties above wood and in the range including sponge rubber and extending substantially the entire length of said metallic material and in intimate contact therewith.

2. A shaft for golf clubs and the like, comprising metallic material in substantially tubular form, and material having shock absorbing properties above wood and in the range including sponge rubber and extending substantially the entire length of said metallic material and in intimate contact therewith, said metallic material having a double wall, and said material with the shock absorbing properties being arranged in between the double wall.

3. A shaft for golf clubs and the like, comprising metallic material in substantially tubular form, and material having shock absorbing properties above wood and in the range including sponge rubber and extending substantially the entire length of said metallic material and in intimate contact therewith, said metallic material having a double wall, and said material with the shock absorbing qualities being arranged within the double wall and also in the center.

4. A shaft for golf clubs and the like, comprising metallic material in substantially tubular form, material having shock absorbing properties above wood and in the range including sponge rubber and extending substantially the entire length of said metallic material and in intimate contact therewith, and means for variably holding said material with the shock absorbing properties compressed under selective stress for varying the shock absorbing qualities thereof.

5. A shaft for golf clubs and the like, comprising metallic material in substantially tubular form, material having shock absorbing properties above wood and in the range including sponge rubber and extending substantially the entire length of said metallic material and in intimate contact therewith, and means for variably holding said material with the shock absorbing properties compressed under selective stress for varying the shock absorbing qualities thereof comprising a flat stick engageable in one of a pair of crossed slots formed in said material with the shock absorbing properties.

IRVING H. MESHEL.