

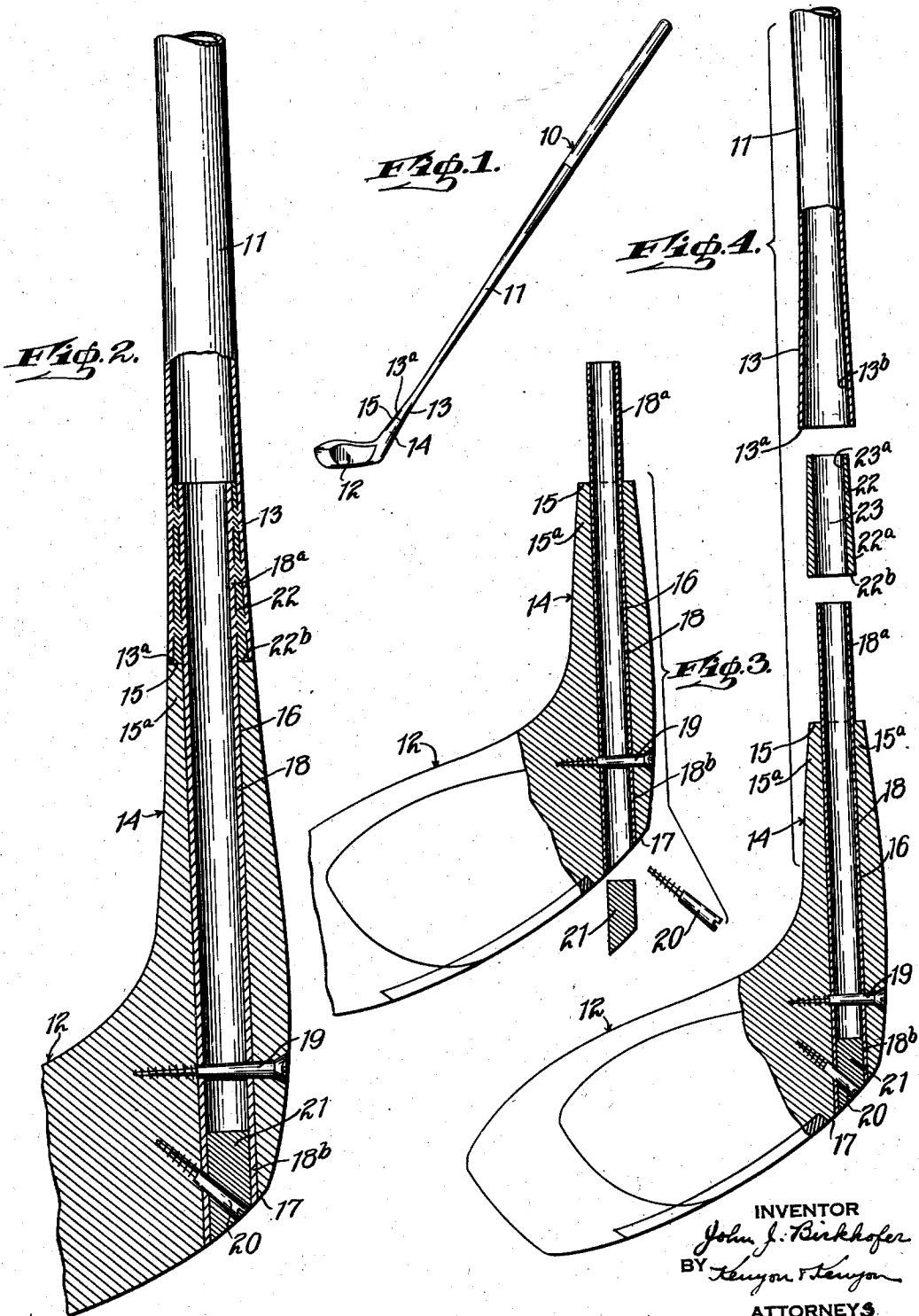
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JOINT FOR GOLF CLUBS AND THE LIKE

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JOINT FOR GOLF CLUBS AND THE LIKE

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The present invention relates to joint structure and more particularly to means for and a method of joining two part implements such as golf clubs or the like having a wooden part and a metal part which must be joined securely.

In golf clubs or other similar sports implements embodying a wooden head member carried by a shaft handle or the like of a different material such as metal, the problem of securely joining the head member to the metal member is of prevailing importance. The joint effected must be secure to prevent separation of parts during use with consequent danger to players and spectators. The joint must be simple, effective and capable of being made quickly on a mass production basis. The joint must be slightly without sacrifice of strength and efficiency. Sightliness of the joint is a cardinal necessity for successful merchandizing because the purchasers of sporting goods react most favorably to goods having a trim graceful appearance. The use of the means and method herein described result in a joint which in no way detracts from the appearance of the implement. It is an object of the present invention to provide a method and means for obtaining a joint meeting the foregoing requirements.

Moreover, especially in golf clubs, splitting of the wooden head at the neck caused by flexing of the shaft handle is a frequent occurrence. It is necessary to eliminate such danger. The joint of this invention is designed especially to allow thickening of the neck at the joint. This lessens chances of splitting for any reasons and eliminates chances of splits caused by flexing. The strong joint provided by this invention throws the shock caused by striking the ball well up into the metal shaft handle and relieves strain on the wooden head.

Another advantage of the joint of this invention is that it allows the manufacturer to full finish both heads and shafts thereby giving better service to the consumer.

A further advantage of this invention is that repair work is greatly facilitated since replacement shafts or club heads can be fully finished and ready for substitution and quick application to a damaged club.

To the accomplishment of the foregoing and such other objects as may hereinafter appear, this invention consists in the method, construction and arrangement of parts hereinafter described and then sought to be defined in the appended claims, reference being had to the accompanying drawing forming a part hereof and which shows, merely for the purposes of illustra-

tive disclosure, a preferred embodiment of the invention, it being expressly understood, however, that various changes may be made in practice within the scope of the claims without digressing from the inventive idea.

In the accompanying drawing, in which similar reference characters denote corresponding parts:

Fig. 1 is a side elevation of a golf club embodying my invention;

Fig. 2 is an enlarged fragmentary vertical section of the golf club shown in Fig. 1 illustrating in detail the joint structure serving to unite the head and shaft;

Fig. 3 is a fragmentary vertical sectional view of the golf club head and other parts illustrating a procedural step in effecting the joint; and

Fig. 4 is a fragmentary vertical sectional view of the head, shaft and other parts of the joint illustrating a further procedural step in effecting the joint of this invention.

Referring to the drawing, 10 denotes generally a golf club having a metal shaft 11 and a wooden head 12 attached thereto.

The shaft 11 may be solid or tubular. A flared socket 13 is provided at the lower end of the shaft. This socket, in the embodiment shown, is integral with the shaft and in sectional elevation, has the frusto-conical shape shown in Figs. 1, 2 and 4.

The head 12 is adapted to be attached to the said shaft 11. To this end, the hosel 14 thereof has tapered form with its smallest diameter at its upper or neck end 15. The outer diameter of the neck end 15 is substantially equal to the outer diameter of the lower end 13a of the socket 13.

A bore 16 extends through the entire hosel 14 and terminates at the sole 17 of the head. This bore has a diameter so admeasured as to provide walls 15a of substantial thickness at the neck end 15 of the hosel, the thickness thereof being sufficient to provide a firm neck 15 and to eliminate any danger of splitting of the hosel during use of the club.

In assembling this head 12 with the shaft 11, a member 18 which may be of metal or other suitable material is provided. This member may be either tubular or solid and has an external diameter so admeasured as to fit snugly within the bore 16 of the head. It is adapted to be driven or otherwise mounted into place within said bore 16 and is so admeasured in length that it extends the full length of said bore and upwardly at a portion 18a for a substantial distance beyond the neck end 15. This member 18 is suitably secured

in its position and may, for example, be so secured by the set screw 19 screwed into it from the head and by the set screw 20 extending through a wall thereof into the head 12 from a plug 21 suitably driven into the bottom 18b of the tube. Other means of securing the tube in its mounted position both against longitudinal displacement and rotation may be employed.

An adapter 22 is provided. This adapter is preferably of brass or other suitable metal. It comprises a tubular member having a bore 23 admeasured to receive the portion 13a of the member 18. Externally, at 22a, this adapter has a configuration complementary to that of the interior 13b of the socket 13 on the shaft 11 and it is so admeasured as to fit within said socket. This adapter 22 is fused, welded, soldered or otherwise suitably secured on the protruding portion 13a of member 18 with its end 22b abutting the neck end 15 of the hosel. The shaft socket 13 is mounted on the adapter 22 with its end 13a abutting the neck 15 of the hosel 14 and soldered, welded or otherwise suitably attached to the said adapter.

In assembling the head equipped with a member 18 to the shaft 11, the portion 13a of the member 18 may be dipped or otherwise coated with flux and a molten uniting metal, such as solder which adheres to its surface applied thereto. Similarly, the inner surface 23a of the adapter 22 may be dipped into or coated with flux and then with molten uniting metal. While the uniting metal on both parts is in molten condition the adapter is driven or forced onto the extending portion 13a until the edge 22b abuts the neck end 15 of the hosel. The parts may then be cooled, or while still hot, flux and molten uniting metal may be applied to the external surface 22a of said adapter 22 and to the inner surface 13b of the socket 13. While the metal both on the adapter and on the socket surface is in molten condition, the socket 13 is forced or driven onto the adapter until the edge 13a of the socket abuts the neck edge 15. The joined parts may then be suitably cooled. The joint resulting is very strong and will not come apart during play. The external appearance of the joint is one of smooth continuity of line between its parts, i. e., between the head 12 and shaft 11. It is to be noted that the thick walls 15a of the hosel neck at 15 will lessen or eliminate chance of splitting caused by flexing of the shaft. Likewise, the strong joint tends to throw the shock of striking the ball up into the shaft 11 relieving the strain on the head 13. Both the head and the shaft may be full finished by the manufacturer thereby permitting him to give better service. Also, repair work on golf clubs is greatly accelerated and facilitated since the manufacturer can keep in stock replacement shafts, heads and adapters, it being necessary only to remove the defective part at the joint and replace it by the corresponding stock part.

It is to be understood that the means and method of joining a wooden and a metal part herein described with respect to a golf club are equally applicable to other types of devices such as tennis rackets, ski-poles, pans, pots and other devices wherever it is necessary to join a non-metallic part to a metal part or, in fact, wherever it is necessary to join two parts together.

It is to be understood further that when metallic bonding of the adapter 22 both to the member 18 and to the socket 13 is contemplated, these parts may be of metal to which bonding

metal will adhere or of any other material, each provided on their joining surfaces with a lining to which bonding metal will adhere.

Various other modifications are contemplated within the scope of the claims. There is no intention of limitation, therefore, to the exact details shown and described.

What is claimed is:

1. In a device having two separate parts one of which is of metal and the other of which is of wood adapted to be joined together, means for so joining said parts comprising a socket on said metallic part, the wooden of said parts having a bore extending through its entire length, a metallic member secured in said bore against rotation and displacement, said member extending through the entire length of said bore and having a portion extending outwardly of said second part, and a metallic adapter having both an outward configuration complementary to that of the inside of said socket and a bore shaped and admeasured to receive and fit snugly entirely over said extending portion of said member, said adapter being permanently united by bonding material to said socket and to said extending portion with said socket and said adapter both abutting said wooden part.

2. In a device as per claim 1, in which said adapter is metallically bonded both to said socket and to said outwardly extending portion of said member.

3. In a device as per claim 1, in which said socket, member and adapter are provided with surfaces to which bonding metal will adhere and in which said adapter is bonded both in said socket and to said outwardly extending portion of said member by bonding metal.

4. In a device of the character described having a metal part and a wooden part, means for uniting said parts comprising a flared socket on said metal part, said wooden part having a hosel portion whose outer end has substantially the same dimensions as those of the outer end of said socket, said wooden part also having a bore extending centrally through the length of said hosel and through to the face of said wooden part opposite said hosel, a metallic member admeasured to fit snugly in said bore, extending through its entire length and having a portion extending outwardly of said hosel, plug and screw means for securing said member against rotational and longitudinal displacement in said bore, a metallic adapter having an internal bore to receive and snugly fit entirely over said extending portion of said member mounted on said extending portion and abutting said end of said hosel, said adapter being tapered outwardly to a shape complementary to that of the inside of said socket and adapted to fit therein, said adapter being metallically bonded to said extending portion and to said socket and said socket end abutting said hosel end to form a smooth continuation thereof in the united relationship of said two parts and said union serving to throw shock caused by striking a ball or the like well up into the metal part and to relieve strain on the wooden part.

5. In a golf club having a metal shaft and a wooden head, means for uniting said shaft and head comprising a flared socket on said shaft, said head having a hosel portion whose outer end has substantially the same outer dimensions as those of the outer end of said socket, said head also having a longitudinal bore extending centrally through the length of said hosel and through to the bottom of said head, a tubular

metallic member admeasured to fit snugly in said bore extending to the bottom of said head so as to relieve strain imparted to said head through said head and reduce concentration of shock in the said hosel and having a portion extending 5 outwardly of said hosel, means for securing said member to said head against longitudinal and rotational displacement, and a metallic adapter having an external shape complementary to the

inside wall of said socket metalically united both to said wall and to said tubular metallic member and fitting snugly entirely over the latter, said adapter and said outer end of said socket abutting said outer end of said hosel, and said socket thereby forming a smooth continuation of said hosel in the united relationship of said head and said shaft.

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