GOLF CLUB WITH A UNITIZED STRUCTURE

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ABSTRACT

Golf clubs (including putters and wedges) include: (a) a ball striking head and a shaft connecting member extending from the head; and (b) a shaft fixed to the shaft connecting member. The shaft may be fixed to the shaft connecting member without a hosel element and/or in such a manner that a smooth or substantially smooth exterior junction and/or overall handle member is provided. The connection may be made by welding, soldering, brazing, other fusing techniques, adhesives, mechanical connectors, or and the like.
GOLF CLUB WITH A UNITIZED STRUCTURE

FIELD OF THE INVENTION

[0001] The invention relates generally to golf clubs, including putters and iron type golf clubs (such as wedges). Golf clubs in accordance with at least some examples of the invention may be constructed without a hosel element and/or with a smooth transition between the shaft member and the club head at the junction between these members.

BACKGROUND

[0002] Golf is enjoyed by a wide variety of players—players of different genders and players of dramatically different ages and skill levels. Golf is somewhat unique in the sporting world in that such diverse collections of players can play together in golf events, even in direct competition with one another (e.g., using handicapped scoring, different tee boxes, in team formats, etc.), and still enjoy the golf outing or competition. These factors, together with increased availability of golf programming on television (e.g., golf tournaments, golf news, golf history, and/or other golf programming) and the rise of well known golf superstars, at least in part, have increased golf’s popularity in recent years both in the United States and across the world. The number of individuals participating in the game and the number of golf courses have increased steadily over recent years.

[0003] Golfers at all skill levels seek to improve their performance, lower their golf scores, and reach that next performance “level.” Manufacturers of all types of golf equipment have responded to these demands, and recently, the industry has witnessed dramatic changes and improvements in golf equipment. For example, a wide range of different golf ball models now are available, with some balls designed to complement specific swing speeds and/or other player characteristics or preferences, e.g., with some balls designed to fly farther and/or straighter, some designed to provide higher or flatter trajectories, some designed to provide more spin, control, and/or feel (particularly around the greens), etc. A host of swing aids and/or teaching aids also are available on the market that promise to help lower one’s golf scores.

[0004] Being the sole instruments that set golf balls in motion during play, golf clubs also have been the subject of much technological research and advancement in recent years. For example, the market has seen improvements in putter designs, golf club head designs, shafts, and grips in recent years. Additionally, other technological advancements have been made in an effort to better match the various elements and/or characteristics of the golf club and/or characteristics of a golf ball to a particular user’s swing features or characteristics (e.g., club fitting technology, ball launch angle measurement technology, ball spin rate characteristics, etc.).

[0005] Golfers tend to be sensitive to the “feel” of a golf club, particularly with respect to putters and wedges. The “feel” of a golf club comprises the combination of various component parts of the club and various features associated with the club that produce the sensory sensations experienced by the player when a ball is swung at and/or struck. Club “feel,” is a very personal characteristic in that a club that “feels” good to one user may have totally undesirable “feel” characteristics for another. Club weight, weight distribution, aerodynamics, swing speed, and the like all may affect the “feel” of the club as it swings and strikes a ball. “Feel” also has been found to be related to the visual appearance of the club and the sound produced when the club head strikes a ball to send the ball in motion.

[0006] While technological improvements to golf club designs have been made, because of the very personal nature of the swing and feels aspects of string a golf ball, no single golf club design is best suited for all players. New designs that change the look and feel of the club are welcomed by at least some players.

SUMMARY

[0007] The following presents a general summary of aspects of the invention in order to provide a basic understanding of at least some of its aspects. This summary is not intended as an extensive overview of the invention. It is not intended to identify key or critical elements of the invention or to delineate the scope of the invention. The following summary merely presents some concepts of the invention in a general form as a prelude to the more detailed description provided below.

[0008] Aspects of this invention relates to golf clubs, including putters and iron type golf clubs (such as wedges), that include: (a) a golf club head having a ball striking head and a shaft connecting member extending from the ball striking head; and (b) a shaft member fixed to the shaft connecting member. The shaft member may be fixed to the shaft connecting member in a hosel-free manner. Additionally or alternatively, an outer surface of the shaft member and an outer surface of the shaft connecting member may be sized, shaped, and fixed together such that the shaft member/haft connecting member junction (and the area surrounding it) is smooth or substantially smooth (e.g., with no abrupt changes in the outer dimensions, shapes, and/or sizes of the exterior of the shaft member and/or the shaft connecting member at the junction, a visually smooth, constant, and/or continuous appearance, etc.). As examples, the shaft connecting member may connect with the shaft member via welding (e.g., friction welding, spin welding, etc.), butt welding, soldering, brazing, adhesives, other fusing techniques, mechanical connections or connectors, and the like. In at least some examples, the cross sectional shapes and/or dimensions of the shaft connecting member and the shaft member (e.g., at least at their junction and/or the immediately surrounding areas) may be the same or substantially the same (e.g., within 5% of one another).

[0009] Club structures in accordance with at least some examples of the invention further may include a finish material, e.g., applied at least over a junction area where the shaft member is fixed to the shaft connecting member. Examples of suitable finish materials include: chrome coating materials, anodized coating materials, paints, other coatings, and the like. Finish materials of this type may be used to visually conceal the junction area, and in at least some instances, the finish material combined with the dimensions of the various parts may make it appear as if the shaft member and the shaft connecting member constitute a continuous or one-piece element at least in the junction area. In this manner, a visually appealing, less visually distracting surface may be provided as the club structure (e.g., as compared with traditional bonding shaft/club head joints, hosel-based junctions, etc.).
Additional aspects of this invention relate to methods for making golf clubs, e.g., of the various types described above. Such methods may include, for example: providing a golf club head (such as a putter head, an iron type club head (including a wedge head), etc.) including a ball striking head and a shaft connecting member extending from the ball striking head (e.g., by manufacturing or otherwise producing the golf club head, by purchasing or otherwise obtaining the golf club head from a manufacturer or other third party source, etc.); and (b) fixing a shaft member to the shaft connecting member, for example, in a hosel-free manner and/or in a manner in which an outer surface of the shaft member and an outer surface of the shaft connecting member are sized, shaped, and fixed together such that the shaft member/shaft connecting member junction is smooth or substantially smooth (e.g., with no abrupt changes in the outer dimensions, shapes, and/or sizes of the exterior of the shaft member and/or the shaft connecting member at least at the junction, having a visually smooth, constant, and/or continuous appearance, and/or etc.). In such example methods, appropriate sizing and shaping of the shaft member and the shaft connecting member, at least at the junction and/or the area around the junction, may take place, at least in part, after the two members have been fixed together. Methods in accordance with at least some examples of this invention further may include various fixing methods and finishing methods, including the more specific fixing methods and finishing methods described above.

BRIEF DESCRIPTION OF THE DRAWINGS

A more complete understanding of the present invention and certain advantages thereof may be acquired by referring to the following description in consideration with the accompanying drawings, in which like reference numbers indicate like features, and wherein:

FIG. 1 illustrates a conventional putter structure including a conventional hosel element arrangement for attaching the club shaft to the putter head;

FIG. 2 illustrates an iron type golf club structure including a conventional hosel element arrangement for attaching the club shaft to the club head;

FIG. 3 illustrates an example putter structure in accordance with this invention;

FIG. 4 illustrates an example iron type golf club structure in accordance with this invention;

FIGS. 5 through 7 illustrate examples of at least some process steps that may be used for producing golf clubs in accordance with at least some examples of this invention;

FIGS. 8A and 8B illustrate another example connection between a shaft member and a golf club head structure that may be used in accordance with at least some examples of this invention (FIG. 8A is a cross sectional view taken along line 8A-8A in FIG. 8B); and

FIG. 9 illustrates another example connection between a shaft member and a golf club head structure that may be used in accordance with at least some examples of this invention.

DETAILED DESCRIPTION

In the following description of various example embodiments of the invention, reference is made to the accompanying drawings, which form a part hereof, and in which are shown by way of illustration various example structures, systems, and steps in which aspects of the invention may be practiced. It is to be understood that other specific arrangements of parts, structures, example devices, systems, and steps may be utilized and structural and functional modifications may be made without departing from the scope of the present invention. Also, while the terms "top," "bottom," "front," "back," "side," and the like may be used in this specification to describe various example features and elements of the invention, these terms are used herein as a matter of convenience, e.g., based on the example orientations shown in the figures. Nothing in this specification should be construed as requiring a specific three dimensional orientation of structures in order to fall within the scope of this invention.

FIG. 1 illustrates an example of a conventional putter structure 100. As is conventional, the putter 100 includes a putter head 102 including a ball striking face 102a and a hosel element 104. The hosel element 104 is a socket type structure into which a free end 106a of a shaft element 106 is inserted. Typically, the shaft element 106 is fixed to the putter head 102 at the hosel element 104 via adhesive applied to the free end 106a of the shaft member 106 and/or to the interior walls of the hosel element 104 that engage the sides of the free end 106a of the shaft member 106.

As shown in FIG. 1, the hosel element 104 where the shaft 106 is bonded to the putter head 102 produces an enlarged junction area. This enlarged junction area can be distracting, at least for some players, e.g., when the player lines up to hit a putt or other shot. Moreover, the adhesive joint between the hosel element 104 and the shaft 106 can create an energy absorbing connection, which can cause an inconsistent feel when shots are made, e.g., depending on the force of the shot, swing speed, etc.

Putters are not the only golf clubs that include hosel elements and/or other connection joints that may be enlarged, distracting to the user, and/or contain an energy absorbing connection. FIG. 2 illustrates a conventional iron type golf club 200 (e.g., a wedge in this example), which includes an iron club head 202 having a ball striking face 202a and a hosel element 204. As with the structure shown in FIG. 1, a shaft element 206 is fixed to the club head 202 at the hosel element 204 via adhesive applied to the free end of the shaft member 206 and/or to the interior walls of the hosel element 204 that engage the sides of the free end of the shaft member 206. Again, this enlarged hosel element or overall junction area can be distracting to users when making a shot. Additionally, the adhesive joint between the hosel element 204 and the shaft member 206 can create an energy absorbing connection, which can cause an inconsistent feel when shots are made, e.g., depending on the force of the shot, swing speed, etc.

At least some example aspects of this invention relate to golf clubs and methods of making golf clubs that avoid the use of hosel elements and/or avoid producing other enlarged areas around the junction of the shaft member with the ball striking head. A general description of aspects of the invention followed by a more detailed description of specific examples of the invention follows.
A. GENERAL DESCRIPTION OF GOLF CLUBS
AND METHODS ACCORDING TO ASPECTS
OF THE INVENTION

[0024] In general, aspects of this invention relate to golf clubs, including, for example, putters and iron type golf clubs. Such clubs, according to at least some examples of the invention, may include: (a) a golf club head (such as a putter head, an iron type club head (including a wedge club head), etc.) having a ball striking head and a shaft connecting member extending from the ball striking head; and (b) a shaft member fixed to the shaft connecting member in a hosel-free manner. As examples, a free end of the shaft connecting member may connect with a free end of the shaft member in any suitable or desired manner, such as via welding (any type of welding procedure, e.g., friction welding, spin welding, fusion welding, pressure welding, cold-press welding, ultrasonic welding, etc.), butt-welding, soldering, brazing, other fusing techniques, adhesives, mechanical connectors, and the like. In at least some examples of the invention, the cross sectional shapes and/or dimensions of the shaft connecting member and the shaft member may be the same or substantially the same (e.g., within 5% of one another), at least in the area of their junction. Additionally or alternatively, if desired, the shaft member may be fixed to the shaft connecting member at a junction area, and an outer size and/or shape of the shaft connecting member at and/or near the junction area may be the same or substantially the same as an outer size and shape of the shaft member at and/or near the junction area (e.g., sized within 5% of one another, the same general shape, etc.).

[0025] Club structures according to other examples of this invention may include: (a) a golf club head (such as a putter head, an iron type club head (including a wedge head), etc.) having a ball striking head and a shaft connecting member extending from the ball striking head; and (b) a shaft member fixed to the shaft connecting member at a shaft member/shaft connecting member junction located exterior to the ball striking head. In such structures, an outer surface of the shaft member and an outer surface of the shaft connecting member may be sized, shaped, and fixed together such that the shaft member/shaft connecting member junction is smooth or substantially smooth (e.g., with no abrupt changes in the outer dimensions, shapes, and/or sizes of the exterior of the shaft member and/or the shaft connecting member at the junction, no distinct edges, ridges, or shoulders, etc.).

[0026] As more specific examples, a free end of the shaft connecting member may connect with a free end of the shaft member in any suitable or desired manner, such as via welding (any type of welding procedure, e.g., friction welding, spin welding, fusion welding, pressure welding, cold-press welding, ultrasonic welding, etc.), butt-welding, soldering, brazing, other fusing techniques, mechanical connectors, and the like. At least some example club structures in accordance with the invention (including the club structures described above) further may include a finish material, e.g., applied at least over a junction area where the shaft member is fixed to the shaft connecting member. Examples of suitable finish materials that may be used include: a chrome coating material, an anodized coating material, a paint coating material, an electroplated coating material, other coating materials, and the like. Finish materials of this type may be used to visually conceal the junction area, and in at least some instances, the finish material may make it appear as if the shaft member and the shaft connecting member constitute a continuous or one-piece element, at least in the junction area. This result may be used to provide a visually appealing, less visually distracting surface (e.g., as compared with traditional bonding shaft/club head joints, hosel-based junctions, etc.) and/or an overall club handle member having a visually smooth, constant, and/or continuous appearance.

[0027] Additional aspects of this invention relate to methods for making golf clubs. Such methods may include, for example: providing a golf club head (such as a putter head, an iron type club head (including a wedge head), etc.) including a ball string head and a shaft connecting member extending from the ball striking head (e.g., by manufacturing or otherwise producing the golf club head, by purchasing or otherwise obtaining the golf club head from a manufacturer or other third party source or supplier, etc.); and (b) fixing a shaft member to the shaft connecting member in a hosel-free manner.

[0028] As another example, methods in accordance with at least some examples of this invention may include: (a) providing a golf club head (such as a putter head, an iron type club head (including a wedge head), etc.) including a ball striking head and a shaft connecting member extending from the ball striking head (e.g., in the example manners described above); and (b) fixing a shaft member to the shaft connecting member at a shaft member/shaft connecting member junction located exterior to the ball striking head. In such example methods, an outer surface of the shaft member and an outer surface of the shaft connecting member may be sized, shaped, and fit together such that the shaft member/shaft connecting member junction is smooth or substantially smooth (e.g., with no abrupt changes in the outer dimensions, shapes, and/or sizes in the exterior of the shaft member and/or the shaft connecting member at least at the junction, having a visually smooth, constant, and/or continuous appearance, etc.). Appropriate sizing and shaping of the shaft member and/or the shaft connecting member may take place, at least in part, after the two members have been fixed together (at least at the junction and its surrounding areas).

[0029] The shaft member and the shaft connecting member in the above example methods may be fixed together in any suitable or desired manner, such as via welding (any type of welding procedure, e.g., friction welding, spin welding, fusion welding, pressure welding, cold-press welding, ultrasonic welding, etc.), butt-welding, soldering, brazing, other fusing techniques, adhesives, mechanical connectors, and the like. Methods in accordance with at least some examples of this invention further may include applying a finish material to the club shaft and/or shaft connecting member, e.g., at least over a junction area where the shaft member is fixed to the shaft connecting member. Examples of suitable finish application procedures that may be used include: a chrome coating procedure, an anodization coating procedure, a paint coating procedure, an electroplating procedure, other coating procedures and/or materials, and the like. Finish procedures of this type may be used to visually conceal the junction area, and in at least some instances, appropriate application of the finish may make it appear as if the shaft member and the shaft connecting member
constitute a continuous or one-piece element, at least in the junction area. The resulting club structure may have an overall handle member that is visually appealing, with a less visually distracting surface (e.g., compared with traditional bonding shaft/club head joints, hosel-based junctions, etc.).

[0030] Specific examples of the invention are described in more detail below. The reader should understand that these specific examples are set forth merely to illustrate examples of the invention, and they should not be construed as limiting the invention.

B. SPECIFIC EXAMPLES OF THE INVENTION

[0031] The various figures in this application illustrate examples of golf clubs, components thereof, and methods in accordance with examples of this invention. When the same reference number appears in more than one drawing, that reference number is used consistently in this specification and the drawings to refer to the same or similar parts throughout.

[0032] FIG. 3 illustrates an example putter structure 300 that includes and/or was produced by various aspects in accordance with this invention. The putter structure 300 includes a putter head 302 having a ball striking face 302a. A shaft connecting member 304 extends from the putter head 302. The shaft connecting member 304 may be formed in any desired manner without departing from the invention, including in conventional manners known and used in the art. For example, the shaft connecting member 304 may be mechanically attached to the putter head 302 (e.g., via threads, adhesives, a mechanical connector, etc.). As another example, the shaft connecting member 304 may be integrally formed as a unitary structure with the remainder of or at least some portion of the putter head 302, e.g., by casting, molding, forging, or the like. Additionally, while the shaft connecting member 304 is shown extending from the top surface of the putter head 302, those skilled in the art will understand that the shaft connecting member 304 may extend from any location on the putter head 302, and it may be sized, shaped, and extend in any desired manner or direction, without departing from the invention.

[0033] The putter head 302 and the shaft connecting member 304 may be produced from any desired materials without departing from the invention, including, for example, conventional materials known and used for putter heads in the art. Examples of such materials include: metals (e.g., aluminum, steel, copper, copper alloys, titanium, titanium alloys, etc.), polymers, mixtures of metals and/or polymers, composites, etc.

[0034] The putter structure 300 of this example further includes a shaft member 306 fixed to the shaft connecting member 304. As shown in FIG. 3 and as will be explained in more detail later in this specification, the shaft member 306 is connected with the shaft connecting member 304 in a hosel-free manner. In this example structure (and as shown in FIG. 3), the shaft member 306 is fixed to the shaft connecting member 304 at a shaft member/shaft connecting member junction 308 that is located exterior to the putter head 302. The outer dimension, size, and/or shape of the shaft member 306 in this example structure 300 are the same or substantially the same as the outer dimension, size, and/or shape of the shaft connecting member 304, at least at the shaft member/shaft connecting member junction 308. While this example putter structure 300 shows a slight bend or direction change of the overall handle member at the shaft member/shaft connecting member junction 308, those skilled in the art will recognize, of course, that any shaped overall handle member (e.g., combination of at least shaft member 306 and shaft connecting member 304) may be used without departing from the invention. For example, if desired, the shaft member/shaft connecting member junction 308 (and/or the overall handle member) could provide a straight appearance, a curved appearance, a more pronounced bend or corner appearance, a less pronounced bend or corner appearance, etc., without departing from this invention.

[0035] If desired, as further illustrated in the example structure of FIG. 3, at least the shaft member/shaft connecting member junction area 308 of the putter structure 300 may be treated such that the junction area is concealed from view in the final product. For example, in accordance with at least some examples of this invention, a finish material may be applied to the putter structure 300, e.g., at least over the junction area 308 where the shaft member 306 is fixed to the shaft connecting member 304, and this finish material may be used to conceal the junction area 308. In this manner, the shaft member 306 and the shaft connecting member 304 (e.g., the overall handle member) may appear as a continuous single element, at least in the junction area 308. Examples of suitable finish materials include a chrome coating material, an anodized coating material, paint, etc.

[0036] FIG. 4 illustrates an example iron type golf club structure 400 (e.g., a wedge or other iron club) that includes and/or was produced by various aspects in accordance with this invention. The golf club structure 400 includes a golf club head 402 having a ball striking face 402a. A shaft connecting member 404 extends from the golf club head 402 (e.g., at a heel area of the golf club head 402, in this example structure). The shaft connecting member 404 may be connected to the club head 402 and/or formed in any desired manner without departing from the invention. For example, the shaft connecting member 404 may be mechanically attached to the golf club head 402 (e.g., via threads, adhesives, a mechanical connector, etc.). As another example, shaft connecting member 404 may be integrally formed as a unitary structure with the remainder of or at least some portion of the golf club head 402, e.g., by casting, molding, forging, or the like. The golf club head 402 and the shaft connecting member 404 may be produced from any desired materials without departing from the invention, including, for example, from conventional materials known and used for golf club heads in the art, such as metals (e.g., aluminum, steel, copper, copper alloys, titanium, titanium alloys, etc.), polymers, mixtures of metals and/or polymers, composites, etc.

[0037] The golf club structure 400 of this example further includes a shaft member 406 fixed to the shaft connecting member 404. As shown in FIG. 4 and as will be explained in more detail later in this specification, the shaft member 406 is connected with the shaft connecting member 404 in a hosel-free manner. In this example structure (and as shown in FIG. 4), the shaft member 406 is fixed to the shaft connecting member 404 at a shaft member/shaft connecting member junction 408 that is located exterior to the golf club head 402. The outer dimension, size, and/or shape of the
shaft member 406 in this example structure 400 are the same or substantially the same as the outer dimension, size, and/or shape of the shaft connecting member 404, at least at the shaft member/shaft connecting member junction 408. As shown, the outer surface of the shaft member 406 and the outer surface of the shaft connecting member 404 may be sized, shaped, and fixed together such that the shaft member/shaft connecting member junction 408 is smooth or substantially smooth.

[0038] While this example golf club structure 400 shows a straight connection between the shaft member 406 and the shaft connecting member 404 at the shaft member/shaft connecting member junction 408, those skilled in the art will recognize, of course, that any shaped overall handle member may be used without departing from the invention. For example, if desired, the shaft member/shaft connecting member junction 408 could provide a curved appearance, a bent or corner appearance, etc., without departing from this invention.

[0039] If desired, as further illustrated in the example structure 400 of FIG. 4, at least the shaft member/shaft connecting member junction area of the club head structure 400 may be treated such that the junction area is concealed from view in the final product. For example, in accordance with at least some examples of this invention, a finish material may be applied to the club structure 400, e.g., at least over the junction area where the shaft member 406 is fixed to the shaft connecting member 404, and this finish material may be used to conceal the junction area 408. In this manner, the shaft member 406 and the shaft connecting member 404 may appear as a continuous single element at least in the junction area 408. Examples of suitable finish materials include a chrome coating material, an anodized coating material, paint, etc.

[0040] FIGS. 5 through 7 illustrate examples of at least some process steps that may be used for producing golf clubs in accordance with examples of this invention. While these figures illustrate production of a putter structure like that shown in FIG. 3, those skilled in the art will readily appreciate that the same or similar production techniques may be used in producing an iron type golf club structure, like that shown in FIG. 4, without departing from this invention.

[0041] FIG. 5 illustrates an early step in the example golf club production method, starting after the club head structure 500 has been prepared and/or otherwise made available. As shown in FIG. 5, the club head structure 500 includes a ball striking head 302 and a shaft connecting member 304 extending from the ball striking head 302. The club head structure 500 may be obtained and made available for use in methods according to the invention in any desired manner, e.g., by manufacturing it (e.g., using casting, molding, forging, or other suitable procedures), by obtaining it from a third party vendor, manufacturer, and/or other supplier, etc.

While the ball striking head 302 is shown in FIG. 5 as a blade type putter head, those skilled in the art will appreciate that any type of golf club head may be used in methods according to the invention, including, for example, mallet type putter heads, any other types of putter heads, iron type golf club heads, etc.

[0042] As one step in this example process for making the golf club, a shaft member 306 is fixed to the shaft connecting member 304 of the club head structure 500. In accordance with at least some examples of this invention, the shaft member 306 will be fixed to the shaft connecting member 304 in a hole-free manner. As some more specific examples, this fixing step may include connecting a free end 304a of the shaft connecting member 304 with a free end 306a of the shaft member 306. The two free ends may be fixed together in any suitable or desired manner without departing from the invention, for example, by welding (e.g., friction welding, spin welding, etc.), butt-welding, soldering, brazing, other fusing techniques, and/or by any other desired procedures. FIG. 5 illustrates the two free ends 304a and 306a of the shaft connecting member 304 and the shaft member 306, respectively, joined together via a butt-welding procedure. The resulting rough golf club structure is represented in FIG. 5 by reference number 520. Notably, as this stage in the example club head producing method, the butt-welding joint or junction 510 may have an enlarged head of weld connection material extending out from it. Any desired welding conditions may be used, including conventional conditions known and used for welding procedures.

[0043] Shaft members joined with shaft connecting members by welding (e.g., friction welding, spin welding, etc.), butt welding, brazing, soldering, other fusing techniques, threaded connections, and the like can be advantageous, in at least some examples, by eliminating the adhesive joint between these parts. In at least some instances, for at least some users, this fused or threaded joint can provide a more solid feeling joint and/or eliminate the energy absorbing adhesive connection, thereby creating a more solid and/or consistent feel for the club head during use.

[0044] As a next step in this example procedure, as shown in FIG. 6, the excess head of connection material at the junction 510 may be removed from the rough golf club structure 520. This may be accomplished in any suitable or desired manner, for example, by grinding, sanding, polishing, and/or other procedures known and used in the art. The resulting smoothed joint 532 provides the hole-free connection in this example golf club structure 530. Notably, at this time, the outer dimension, size, and/or shape of the shaft connecting member 304 at the junction area 532 is the same or substantially the same as the outer dimension, size, and/or of the shaft member 306 at the junction area 532. If desired, while not shown in the specific structure of FIG. 6, the overall shaft member 306 and shaft connecting member 304 may be designed, constructed, and/or connected together in such a manner that an outer surface of the shaft member 306 and an outer surface of the shaft connecting member 304 at their junction form a smooth or substantially smooth connection (e.g., a straight or smoothly curved junction), as opposed to the slightly bent, angled, and/or cornered connection shown in FIG. 6. Optionally, if desired, this step also may be used to shape the junction area 532 into a smoothed or curved appearance, as opposed to the bent or cornered appearance of FIG. 6, e.g., by grinding, sanding, polishing, etc., at the junction area 532.

[0045] FIG. 7 illustrates another example step in this example golf club production process. Specifically, FIG. 7 illustrates a step of applying a finish material at least over a junction area 532 where the shaft member 306 is fixed to the shaft connecting member 304. Of course, any type of finishing procedure may be used without departing from this invention, or alternatively, if desired, no additional finishing
steps are required. Examples of suitable finish application procedures that may be used, if any, include conventional golf club finishing procedures known and used in the art. More specific examples of finishing procedures that may be used include: a chrome coating procedure, an anodization coating procedure, a paint coating procedure, an electropolishing procedure, and the like. Finishing procedures of this type may be used to visually conceal the junction area, as shown in FIG. 7. Additionally, in at least some instances, as shown in FIG. 7, the finishing procedure may make it appear as if the shaft member 306 and the shaft connecting member 304 constitute a continuous or one-piece element, at least in the junction area. This may result in a visually appealing, less visually distracting surface (e.g., as compared with traditional bonding shaft/club head joints, hosel-based joints, etc.). Optionally, if desired, the finishing procedure may be used to change the appearance of the junction from a bent or cornered appearance to a more smoothed or curved appearance.

[0046] If desired, the shaft connecting member 304 may be fixed with the shaft member 306 in a wide variety of other ways without departing from this invention. For example, rather than butt-welding the free ends together, a side edge welding technique may be used, e.g., like that shown in FIGS. 8A and 8B. More specifically, as shown in the example of FIGS. 8A and 8B, the free ends 304a and 306a of the shaft connecting member 304 and the shaft member 306, respectively, may be provided with side edge surfaces that may be arranged to face one another, and a weld joint 800 (or other appropriate connection material, such as solder, brazing material, adhesives, or the like) may be provided to join the two members 304 and 306 together. Notably, in this illustrated example connection, the free end 304a of the shaft connecting member 304 and the free end 306a of the shaft member 306 fit together such that a constant or substantially constant outer dimension, size, and/or shape is provided through the junction area when the joined product is obtained (i.e., in this example, the outer dimension, size, and/or shape of the overall handle member at the junction area 800 across the free ends 304a and 306a is the same or substantially the same as the outer dimensions, sizes, and/or shapes of the shaft connecting member 304 and the shaft member 306 adjacent their respective free end areas, and a smooth or substantially smooth junction is obtained along the shaft length between these two members 304 and 306). If desired, finish materials like those described above may be applied, e.g., to visually conceal the junction 800.

[0047] Still other ways of connecting the shaft member 306 to the shaft connecting member 304 may be used in accordance with other examples of this invention. In at least some examples of these connections, an outer dimension, size, and/or shape of the shaft connecting member 304 at the junction area will be the same or substantially the same as an outer dimension, size, and/or of the shaft member 306 at the junction area when the final product is obtained. Therefore, in accordance with at least some of examples of this invention, the free ends 304a and 306a of the shaft connecting member 304 and the shaft member 306, respectively, may include threaded engagement elements or other mechanical connectors such that, when joined together, the outer dimension, size, and/or shape of the shaft connecting member 304 at the junction area is the same or substantially the same as the outer dimension, size, and/or of the shaft member 306 at the junction area. As still another example, as shown in FIG. 9, if desired, the free end 304a of the shaft connecting member 304 may include an open chamber that receives the free end 306a of the shaft member 306. Then, when the free end 306a of the shaft member 306 is fully inserted into the open end 304a of the shaft connecting member 304, the outer dimension, size, and/or shape of the shaft connecting member 304 at the junction area will be the same or substantially the same as the outer dimension, size, and/or of the shaft member 306 at the junction area. The ends 306a and 304a may be held together in any desired manner without departing from the invention, e.g., by adhesives, other fusing techniques, threads, or other mechanical connectors, etc.

[0048] As also shown in FIG. 9, when constructed in this manner, the outer surface of the shaft member 306 and the inner surface of the shaft connecting member 304 are sized, shaped, and fixed together such that the shaft member/shaft connecting member junction is smooth or substantially smooth. Of course, if desired, the open end may be provided in the shaft member 306 and the insert portion may be provided on the shaft connecting member 304 without departing from this invention. Also, if desired, a finish material as described above may be applied after the shaft connecting member 304 and the shaft member 306 are connected together, e.g., to visually conceal the junction.

CONCLUSION

[0049] Of course, many modifications to the golf club structures and/or methods for making the golf clubs may be used without departing from the invention. For example, with respect to the structures, grips, aiming indicia or markings, other indicia or markings, different types of putter heads, different types of club heads, various shaft curvatures and/or shapes, various shaft connecting member shapes, and/or other structural elements may be provided and/or modified in the structure without departing from the invention. With respect to the methods, additional production steps may be added, various described steps may be omitted, the steps may be changed and/or changed in order, and the like, without departing from the invention. Therefore, while the invention has been described with respect to specific examples including presently preferred modes of carrying out the invention, those skilled in the art will appreciate that there are numerous variations and permutations of the above described structures and methods. Thus, the spirit and scope of the invention should be construed broadly as set forth in the appended claims.

We claim:

1. A golf club, comprising:
   a golf club head including a ball striking head and a shaft connecting member extending from the ball striking head; and
   a shaft member fixed to the shaft connecting member in a hosel-free manner.

2. A golf club according to claim 1, wherein a first end of the shaft connecting member connects with a first end of the shaft member.

3. A golf club according to claim 1, wherein the shaft member is fixed to the shaft connecting member at a welding junction.
4. A golf club according to claim 1, wherein the shaft member is fixed to the shaft connecting member at a butt-weld junction.

5. A golf club according to claim 1, further comprising:
   a finish material at least over a junction area where the shaft member is fixed to the shaft connecting member.

6. A golf club according to claim 5, wherein the finish material conceals the junction area such that the shaft member and the shaft connecting member appear as a continuous element at least in the junction area.

7. A golf club according to claim 1, wherein the shaft member is fixed to the shaft connecting member at a junction area, and wherein an outer dimension of the shaft connecting member at the junction area is the same or substantially the same as an outer dimension of the shaft member at the junction area.

8. A golf club according to claim 1, wherein the shaft member is fixed to the shaft connecting member at a junction area, and wherein an outer size and shape of the shaft connecting member at the junction area is the same or substantially the same as an outer size and shape of the shaft member at the junction area.

9. A golf club according to claim 1, wherein the golf club head is a putter head.

10. A golf club according to claim 9, wherein a first end of the shaft connecting member connects with a first end of the shaft member.

11. A golf club according to claim 9, wherein the shaft member is fixed to the shaft connecting member at a welding junction.

12. A golf club according to claim 9, wherein the shaft member is fixed to the shaft connecting member at a butt-weld junction.

13. A golf club according to claim 9, further comprising:
   a finish material at least over a junction area where the shaft member is fixed to the shaft connecting member.

14. A golf club according to claim 13, wherein the finish material conceals the junction area such that the shaft member and the shaft connecting member appear as a continuous element at least in the junction area.

15. A golf club according to claim 9, wherein the shaft member is fixed to the shaft connecting member at a junction area, and wherein an outer dimension of the shaft connecting member at the junction area is the same or substantially the same as an outer dimension of the shaft member at the junction area.

16. A golf club according to claim 9, wherein the shaft member is fixed to the shaft connecting member at a junction area, and wherein an outer size and shape of the shaft connecting member at the junction area is the same or substantially the same as an outer size and shape of the shaft member at the junction.

17. A golf club according to claim 1, wherein the golf club head is an iron club head.

18. A golf club, comprising:
   a golf club head including a ball striking head and a shaft connecting member extending from the ball striking head; and
   a shaft member fixed to the shaft connecting member at a shaft member/shaft connecting member junction located exterior to the ball striking head, wherein an outer surface of the shaft member and an outer surface of the shaft connecting member are sized, shaped, and fixed together such that the shaft member/shaft connecting member junction is smooth or substantially smooth.

19. A golf club according to claim 18, wherein a first end of the shaft connecting member connects with a first end of the shaft member.

20. A golf club according to claim 18, wherein the shaft member/shaft connecting member junction is a welding junction.

21. A golf club according to claim 18, wherein the shaft member/shaft connecting member junction is a butt-weld junction.

22. A golf club according to claim 18, further comprising:
   a finish material at least over the shaft member/shaft connecting member junction.

23. A golf club according to claim 22, wherein the finish material conceals the shaft member/shaft connecting member junction from view.

24. A golf club according to claim 18, wherein the golf club head is a putter head.

25. A golf club according to claim 24, wherein a first end of the shaft connecting member connects with a first end of the shaft member.

26. A golf club according to claim 24, wherein the shaft member/shaft connecting member junction is a welding junction.

27. A golf club according to claim 24, wherein the shaft member/shaft connecting member junction is a butt-weld junction.

28. A golf club according to claim 24, further comprising:
   a finish material at least over the shaft member/shaft connecting member junction.

29. A golf club according to claim 28, wherein the finish material conceals the shaft member/shaft connecting member junction from view.

30. A golf club according to claim 18, wherein the golf club head is an iron club head.

31. A method for making a golf club, comprising:
   providing a golf club head including a ball striking head and a shaft connecting member extending from the ball striking head; and
   fixing a shaft member to the shaft connecting member in a hosel-free manner.

32. A method according to claim 31, wherein the fixing includes connecting a first end of the shaft connecting member with a first end of the shaft member.

33. A method according to claim 31, wherein the fixing includes connecting the shaft member to the shaft connecting member by welding.

34. A method according to claim 31, wherein the fixing includes connecting the shaft member to the shaft connecting member by a butt welding procedure.

35. A method according to claim 31, further comprising:
   applying a finish material at least over a junction area where the shaft member is fixed to the shaft connecting member.

36. A method according to claim 35, wherein the finish material conceals the junction area such that the shaft member and the shaft connecting member appear as a continuous element at least in the junction area.
37. A method according to claim 31, wherein the shaft member is fixed to the shaft connecting member at a junction area, and wherein an outer dimension of the shaft connecting member at the junction area is the same or substantially the same as an outer dimension of the shaft member at the junction area.

38. A method according to claim 31, wherein the shaft member is fixed to the shaft connecting member at a junction area, and wherein an outer size and shape of the shaft connecting member at the junction area is the same or substantially the same as an outer size and shape of the shaft member at the junction area.

39. A method according to claim 31, wherein the golf club head is a putter head.

40. A method according to claim 39, wherein the fixing includes connecting a first end of the shaft connecting member with a first end of the shaft member.

41. A method according to claim 39, wherein the fixing includes connecting the shaft member to the shaft connecting member by welding.

42. A method according to claim 39, wherein the fixing includes connecting the shaft member to the shaft connecting member by a butting welding procedure.

43. A method according to claim 39, further comprising:
   applying a finish material at least over a junction area where the shaft member is fixed to the shaft connecting member.

44. A method according to claim 43, wherein the finish material conceals the junction area such that the shaft member and the shaft connecting member appear as a continuous element at least in the junction area.

45. A method according to claim 39, wherein the shaft member is fixed to the shaft connecting member at a junction area, and wherein an outer dimension of the shaft connecting member at the junction area is the same or substantially the same as an outer dimension of the shaft member at the junction area.

46. A method according to claim 39, wherein the shaft member is fixed to the shaft connecting member at a junction area, and wherein an outer size and shape of the shaft connecting member at the junction area is the same or substantially the same as an outer size and shape of the shaft member at the junction area.

47. A method according to claim 31, wherein the golf club head is an iron club head.

48. A method for making a golf club, comprising:
   providing a golf club head including a ball striking head and a shaft connecting member extending from the ball striking head; and
   fixing a shaft member to the shaft connecting member at a shaft member/shaft connecting member junction located exterior to the ball striking head, wherein an outer surface of the shaft member and an outer surface of the shaft connecting member are sized, shaped, and fixed together such that the shaft member/shaft connecting member junction is smooth or substantially smooth.

49. A method according to claim 48, wherein the fixing includes connecting a first end of the shaft connecting member with a first end of the shaft member.

50. A method according to claim 48, wherein the fixing includes connecting the shaft member to the shaft connecting member by welding.

51. A method according to claim 48, wherein the fixing includes connecting the shaft member to the shaft connecting member by a butting welding procedure.

52. A method according to claim 48, further comprising:
   applying a finish material at least over the shaft member/shaft connecting member junction.

53. A method according to claim 52, wherein the finish material conceals the shaft member/shaft connecting member junction from view.

54. A method according to claim 48, wherein the golf club head is a putter head.

55. A method according to claim 54, wherein the fixing includes connecting a first end of the shaft connecting member to a first end of the shaft member.

56. A method according to claim 54, wherein the fixing includes connecting the shaft member to the shaft connecting member by welding.

57. A method according to claim 54, wherein the fixing includes connecting the shaft member to the shaft connecting member by a butting welding procedure.

58. A method according to claim 54, further comprising:
   applying a finish material at least over the shaft member/shaft connecting member junction.

59. A method according to claim 58, wherein the finish material conceals the shaft member/shaft connecting member junction from view.

60. A method according to claim 48, wherein the golf club head is an iron club head.

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