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(54) **GOLF CLUB WITH ADJUSTABLE SHAFT**

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(57) **ABSTRACT**

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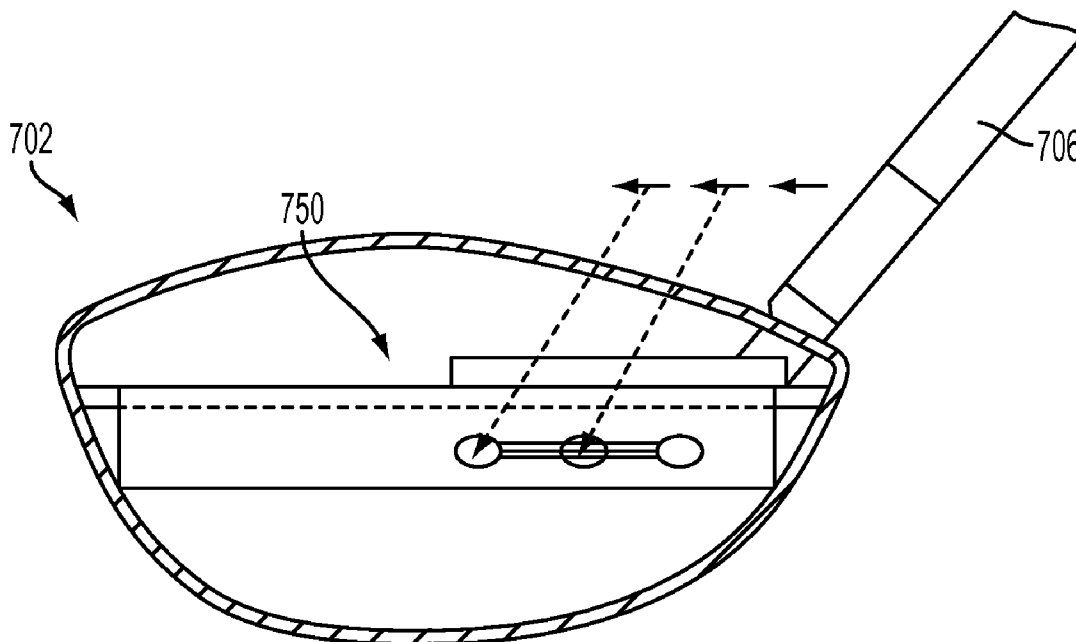
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Golf club, golf club shaft and golf club head structures are presented. The golf club may include an adjustable shaft configured to be received in a slot formed in a crown of the golf club head. In some examples, the slot may include a plurality of receivers, such as apertures, configured to receive the shaft in various positions along the length of the slot. The various positions may be progressively closer to a central area of the ball striking surface in order to increase the power transferred to the ball upon striking it.



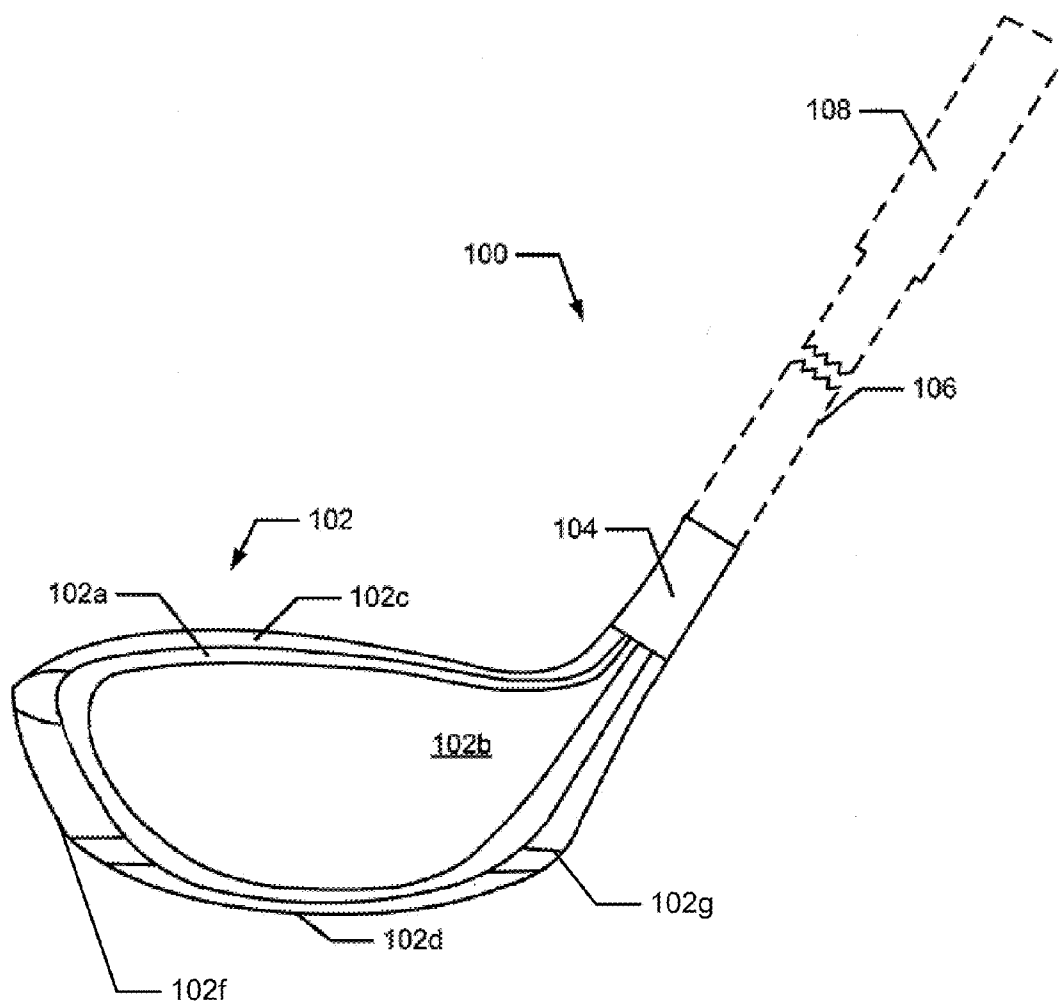


Fig. 1A

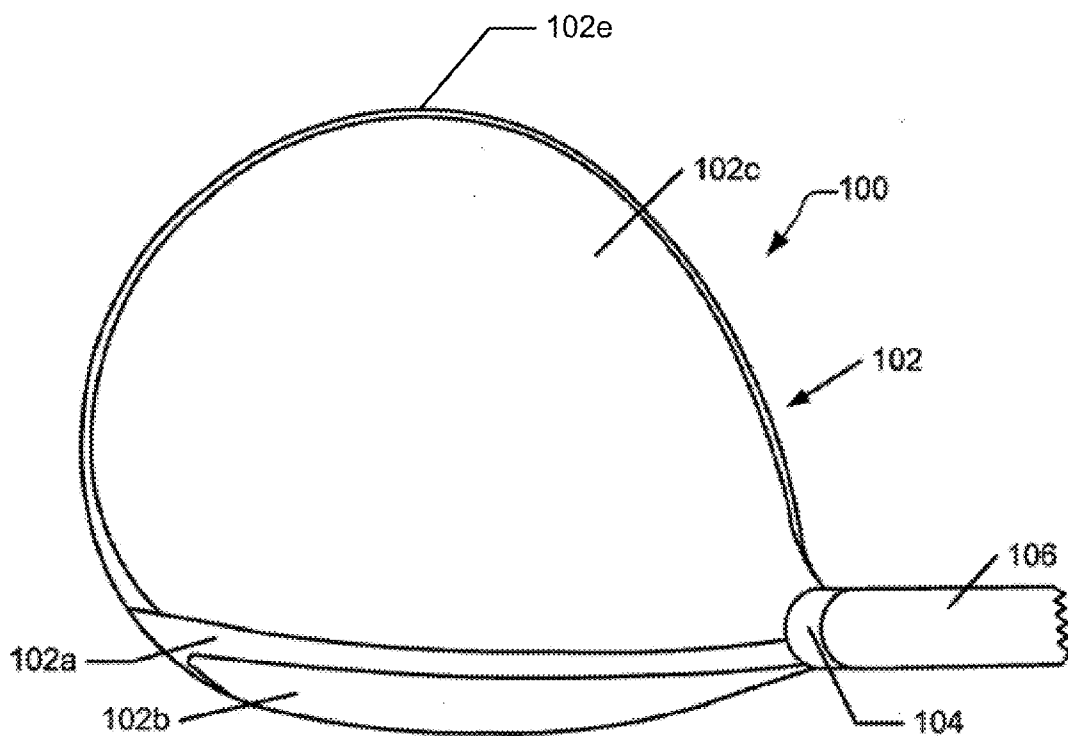


Fig. 1B

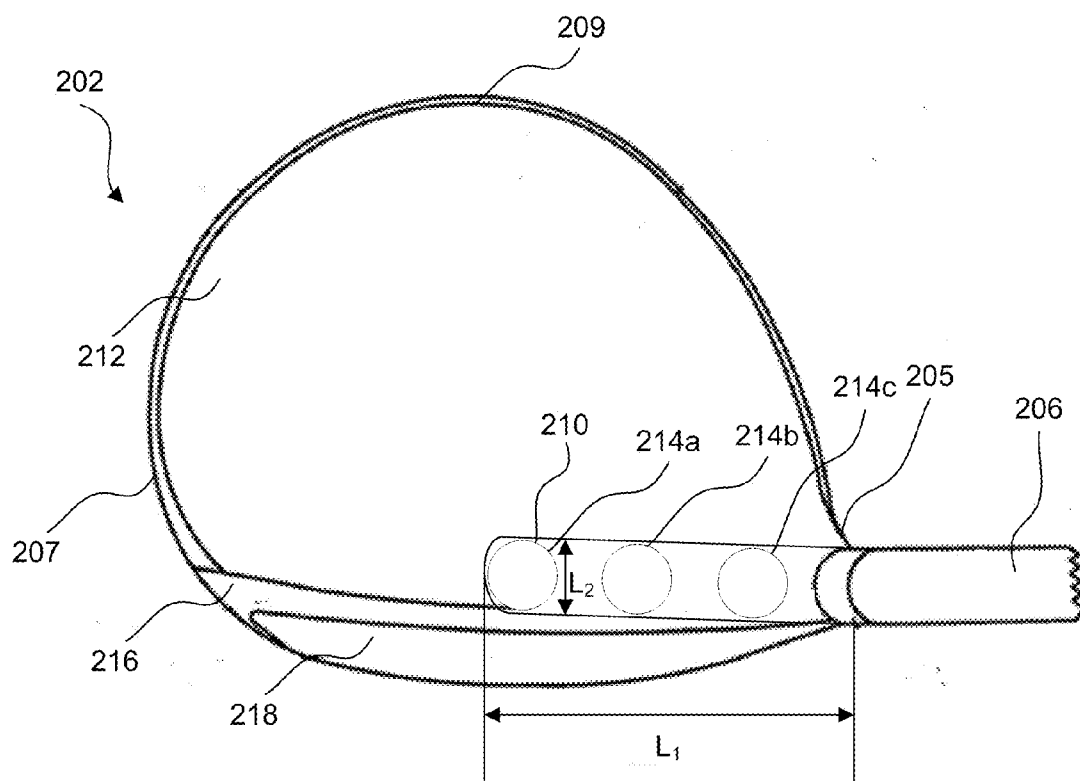


FIG. 2

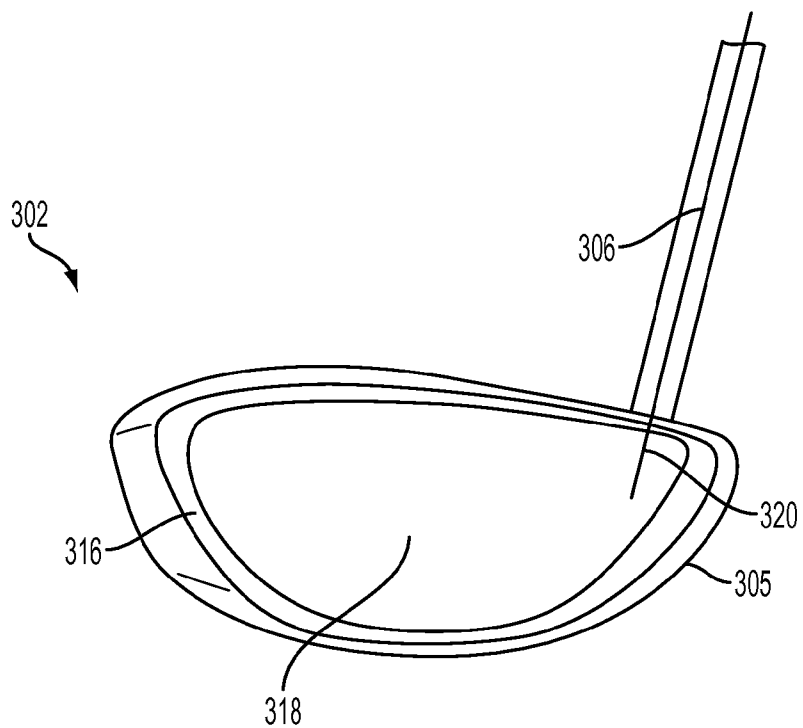


FIG. 3A

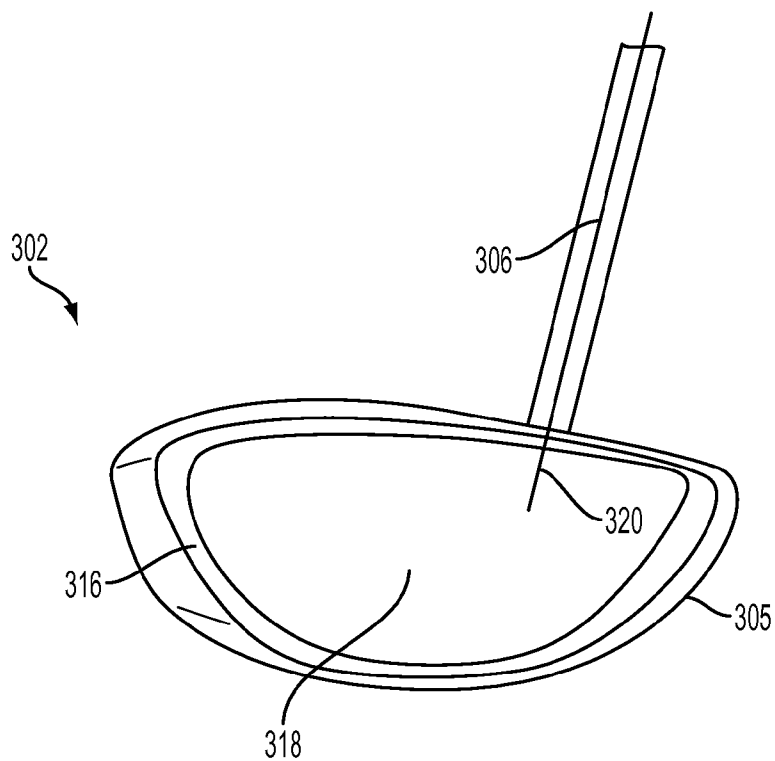


FIG. 3B

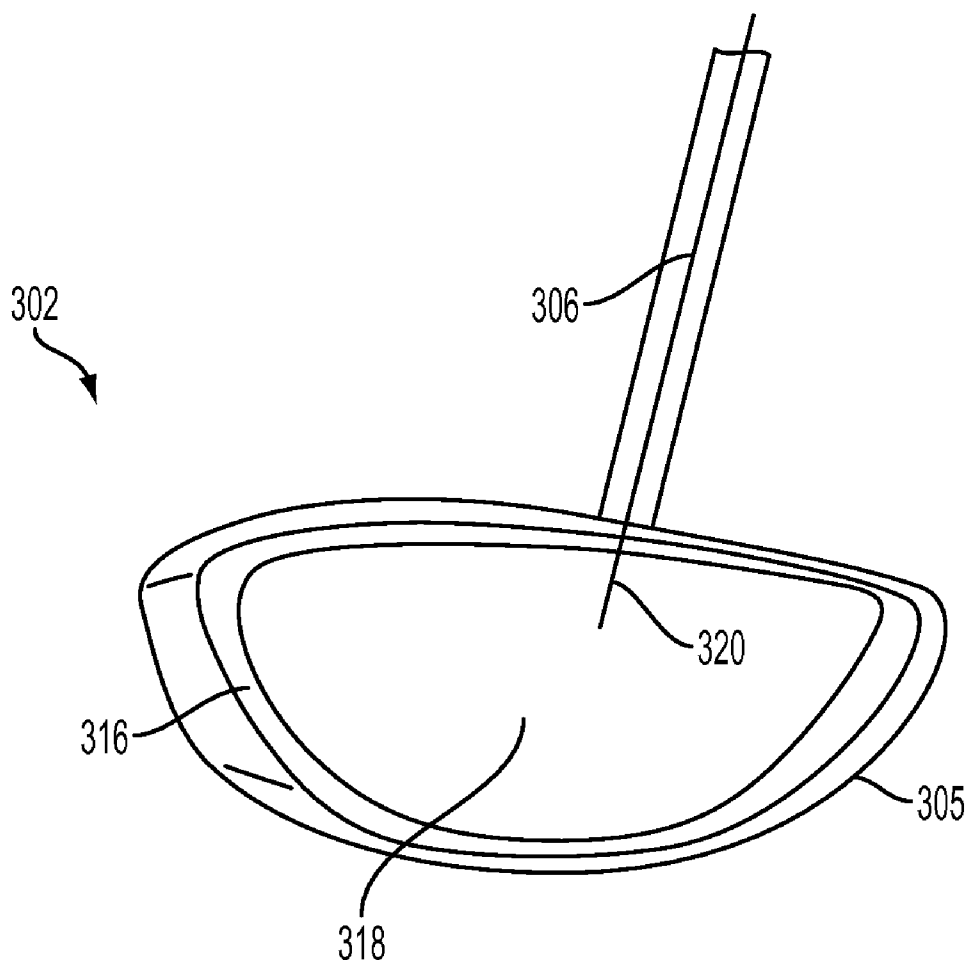


FIG. 3C

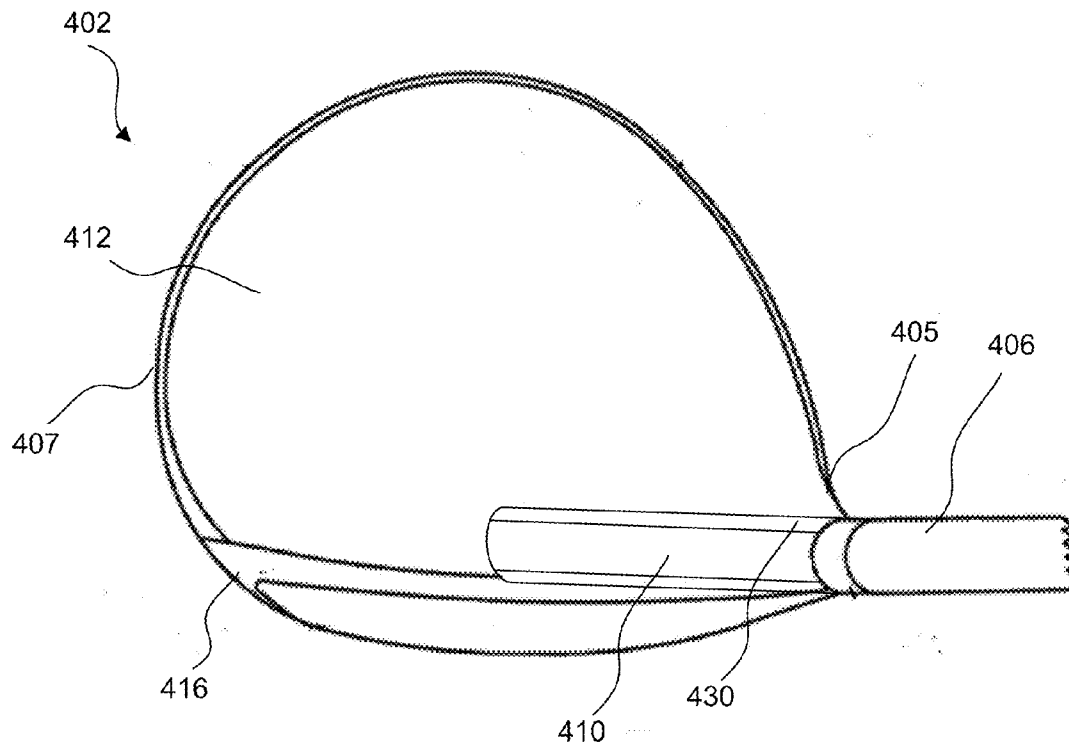


FIG. 4A

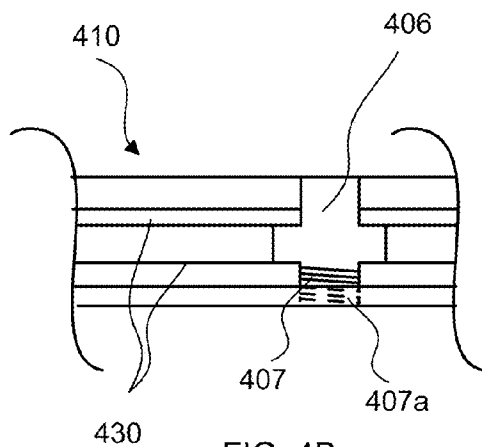


FIG. 4B

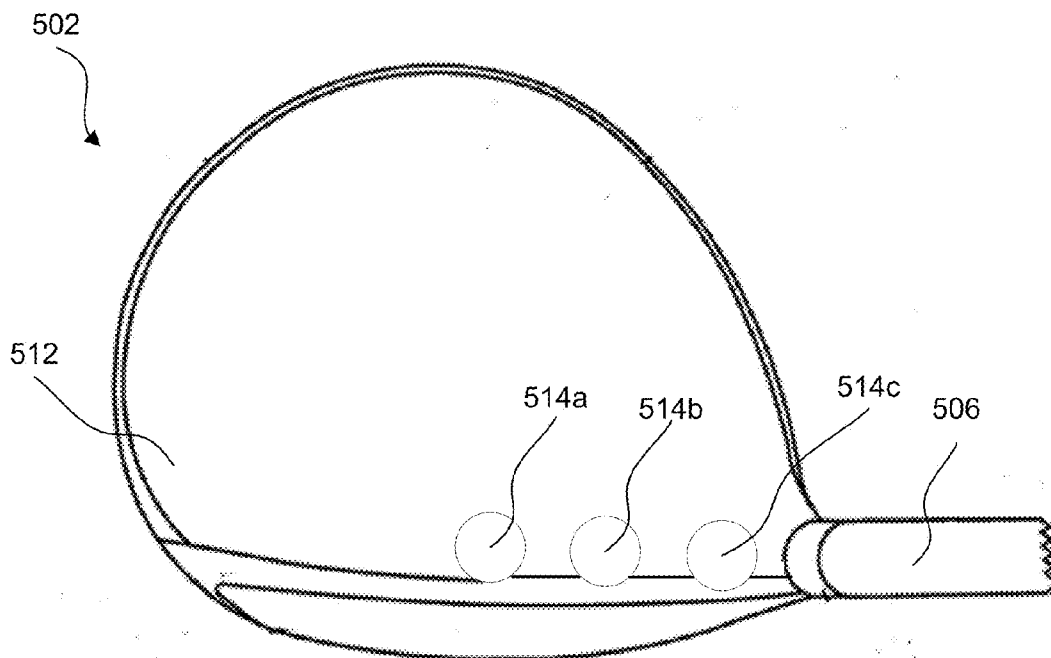


FIG. 5

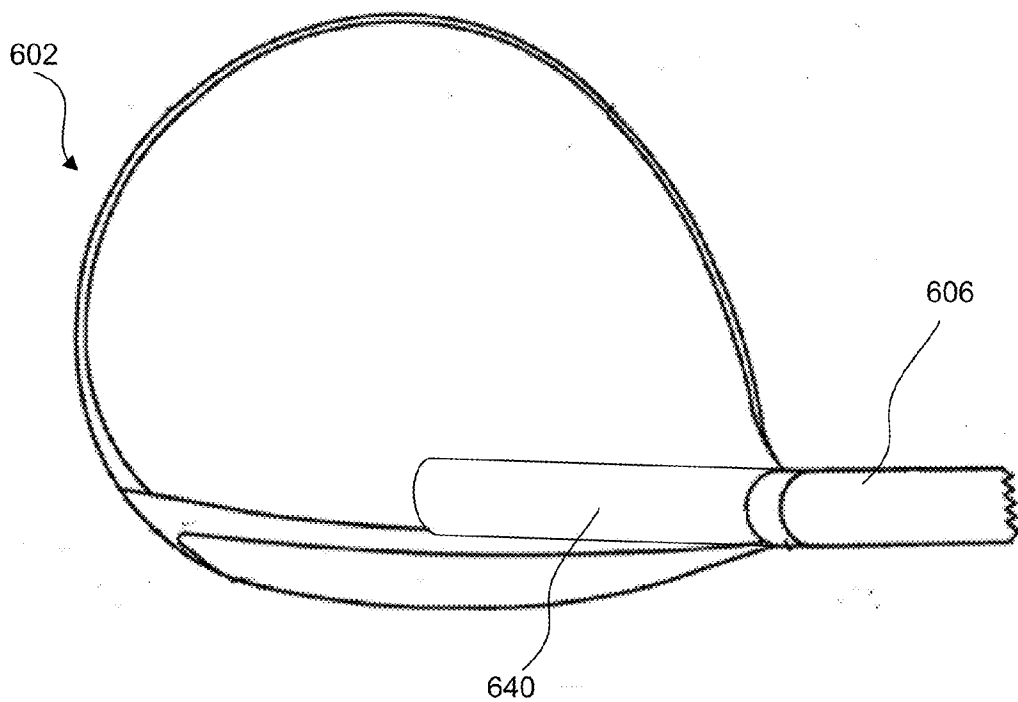


FIG. 6

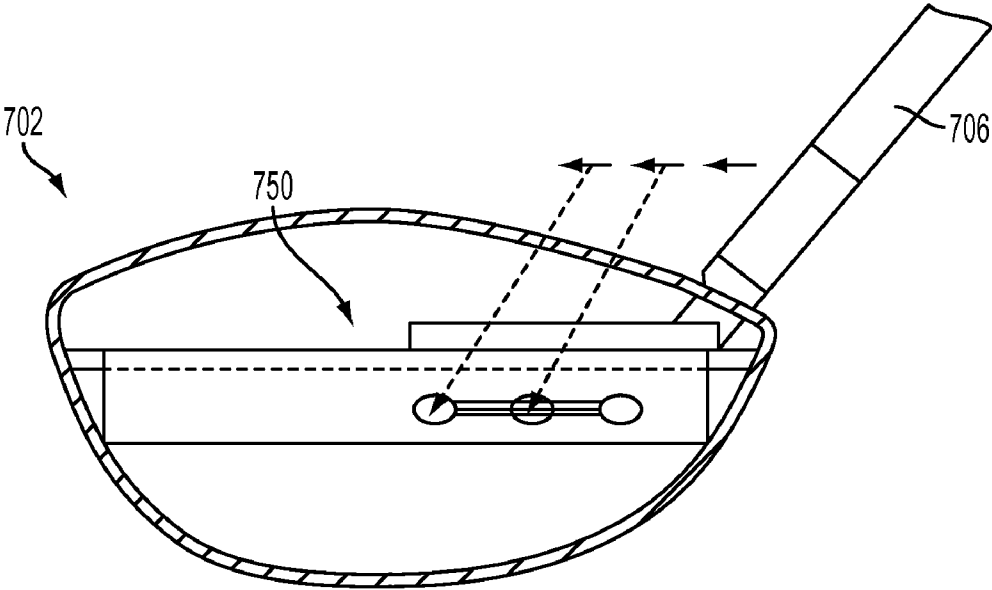


FIG. 7

GOLF CLUB WITH ADJUSTABLE SHAFT

FIELD OF THE INVENTION

[0001] The present invention relates generally to golf clubs and golf club heads. Particular example aspects of this invention relate to a golf club having an adjustable shaft that may be secured in various positions along the club head to provide additional power when striking a ball.

BACKGROUND

[0002] Golf is enjoyed by a wide variety of players—players of different genders and dramatically different ages and/or 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 the 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.

[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 in recent years, 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 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); some designed for faster or slower swing speeds; etc. A host of swing and/or teaching aids also are available on the market that promise to help lower one’s golf scores.

[0004] Even the best golfers desire additional power when striking a golf ball. Conventional golf club arrangements position the shaft near the heel of the golf club head which may reduce the amount of power transferred from the golf club to the ball during a swing. Accordingly, a golf club that may allow a user to position the shaft nearer the central or ball striking surface of the golf club head may be advantageous.

SUMMARY OF THE INVENTION

[0005] The following presents a simplified summary in order to provide a basic understanding of some aspects of the invention. The summary is not an extensive overview of the invention. It is neither intended to identify key or critical elements of the invention nor to delineate the scope of the invention. The following summary merely presents some concepts of the invention in a simplified form as a prelude to the description below

[0006] Aspects of this invention relate to golf club, golf club shaft, and golf club head structures that may allow for adjustment of the position of the shaft relative to the ball striking surface of the golf club head. In some examples, the golf club head may include a slot or groove configured to receive the shaft. In some arrangements, the slot or groove may include a plurality of apertures into which the shaft may be received and secured to the golf club head. In some

examples, the slot may include a lip or edge to aid in maintaining the shaft within the slot.

[0007] The shaft may be adjustable between two or more positions within the slot. For instance, the shaft may be adjusted between a first position near the heel of the golf club head and at least a second position closer to and proximate to a central portion of the front face of the golf club head. Movement of the shaft closer to the center of the ball striking surface of the golf club head may aid in transferring additional power from the golf club to the golf ball which may aid in increasing the distance the ball may travel.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The present invention is illustrated by way of example and not limited in the accompanying figures, in which like reference numerals indicate similar elements throughout, and in which:

[0009] FIGS. 1A and 1B generally illustrate features of golf club and golf club head structures according to at least some examples of this invention.

[0010] FIG. 2 illustrates one example golf club head having an adjustable shaft according to at least some examples of this invention.

[0011] FIGS. 3A-3C illustrate another example golf club head having an adjustable shaft and illustrating the adjustable shaft in various positions according to at least some examples of this invention.

[0012] FIG. 4A illustrates another example golf club head having an adjustable shaft according to at least some examples of this invention.

[0013] FIG. 4B is a cross sectional view of the slot shown in the example golf club head of FIG. 4A and illustrating the adjustability of the shaft according to at least some examples of this invention.

[0014] FIG. 5 illustrates yet another golf club head having an adjustable shaft according to at least some examples of this invention.

[0015] FIG. 6 illustrates one example golf club head having a cover over a portion of a slot according to at least some examples of this invention.

[0016] FIG. 7 illustrates an example shaft adjustment system according to at least some examples of this invention.

[0017] The reader is advised that the various parts shown in these drawings are not necessarily drawn to scale.

DETAILED DESCRIPTION

[0018] The following description and the accompanying figures disclose features of golf clubs, golf club shafts, and golf club head structures in accordance with examples of the present invention.

I. General Description of Example Golf Clubs, Golf Club Heads and Golf Club Shafts in Accordance with this Invention

[0019] Aspects of this invention relate to golf clubs having a golf club head and a shaft. In some examples, the shaft may be adjustably connected to the golf club. In at least some arrangements, the golf club head may include a slot arranged in a crown of the golf club head and extending from a heel of the golf club head toward a toe of the golf club head. In some examples, the slot may be configured to receive the shaft in at least a first position along the crown of the golf club head and a second position along the top or crown of the golf club head,

wherein the first position is closer to the central region of the golf club head than the second position.

[0020] Additional aspects of this invention relate to a golf club having a shaft adjustably connected to the golf club. The golf club may further include a golf club head having at least a top or crown, a bottom or sole, a toe, a heel, a rear, a front face and a ball striking surface forming at least a portion of the front face. In some examples, the golf club head may further include a slot formed in the crown and extending from the heel toward the toe along and vertically above the front face of the golf club head. In some arrangements, the slot may terminate in the crown vertically above a generally central portion of the front face. In at least some examples, the slot may be configured to receive the shaft in at least a first position located near the heel of the golf club head and a second position located nearer the central portion of the front face than the first position. In some examples, the slot may include a plurality of receivers, such as apertures, configured to receive the shaft in various positions along the crown of the golf club head. In other examples, the slot may include one or more rails configured to aid in maintaining the position of the shaft within the slot.

[0021] Still other aspects of the invention relate to a golf club including a golf club head having at least a top or crown, a bottom or sole, a toe, a heel, a rear, a front face and a ball striking surface forming at least a portion of the front face. The golf club head may further include a slot formed in the crown of the golf club head. In some examples, the slot may include a plurality of apertures. The golf club may further include a shaft adjustably connected to the golf club head. In some arrangements, the shaft may be configured to mate with the plurality of apertures formed in the slot. In at least some examples, the shaft may be adjustable between at least: a first position located in the heel of the golf club head; a second position located vertically above a generally central portion of the ball striking surface; and a third position located between the first position and the second position.

[0022] Still other aspects may relate to a golf club head configured to mate with a shaft. The golf club head may include a golf club head body including a crown, a sole, a toe, a heel, a rear and a front face including a ball striking surface. The golf club head may further include a plurality of receivers formed in the crown of the golf club head body, the receivers being configured to receive the shaft in at least a first and second position, the first position being more proximate a central region of the ball striking surface than the second position. In some examples, the plurality of receivers include apertures. In still other examples, the plurality of receivers are formed in a slot formed in the crown of the golf club head.

[0023] Given the general description of various example aspects of the invention provided above, more detailed descriptions of various specific examples of golf clubs, golf club shaft and golf club head structures according to the invention are provided below.

II. Detailed Description of Example Golf Clubs, Golf Club Heads and Golf Club Shafts According to the Invention

[0024] The following discussion and accompanying figures describe various example golf clubs sleeves in accordance with the present 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.

[0025] Various golf club heads and golf club shafts in accordance with aspects described herein may be used with various types of golf clubs. For instance, the adjustable shaft may be used with wood-type golf clubs and golf club heads, e.g., clubs and club heads typically used for drivers and fairway woods, as well as for “wood-type” utility or hybrid clubs, or the like. Such club head structures may have little or no actual “wood” material and still may be referred to conventionally in the art as “woods” (e.g., “metal woods,” “fairway woods,” etc.). The adjustable golf club shaft may also be used with iron-type, hybrid-type, utility type, etc. golf clubs and golf club head structures.

[0026] Golf club heads may generally include a plurality of different regions, segments, portions, ends, etc. In an example embodiment, a golf club head may generally include a front face, a rear, a toe, a heel, a crown and a sole that may, generally, define an interior or interior cavity of the golf club head. The golf club heads may include a multiple piece construction and structure, e.g., including one or more of a sole, a front face (optionally including a ball striking surface that may be integrally formed therein or attached thereto), a top or crown, a bottom or sole, a rear, etc. Of course, if desired, various portions of the club head structure may be integrally formed with one another, as a unitary, one piece construction, without departing from the invention (e.g., the front face and/or rear may be integrally formed with the sole and/or crown, etc.). Optionally, if desired, the various portions of the club head structure (such as the sole, the crown, the front face, the rear, etc.) individually may be formed from multiple pieces of material without departing from this invention (e.g., a multi-piece crown, a multi-piece sole, etc.). Also, as other alternatives, if desired, the entire club head may be made as a single, one piece, unitary construction, or a front face may be attached to a one piece club head body (optionally, a hollow body, etc.). More specific examples and features of golf club heads and golf club structures according to this invention will be described in detail below in conjunction with the example golf club structures illustrated in FIGS. 1 through 7.

[0027] FIGS. 1A and 1B generally illustrate an example wood-type golf club **100** and/or golf club head **102** in accordance with this invention. As mentioned above, aspects of the adjustable golf club shaft described herein may be used with various other types of golf clubs and golf club head structures, including hybrid type clubs, iron-type clubs, and the like. Although the general description of golf club structures found in FIGS. 1A and 1B is generally directed to wood-type golf club heads, nothing in the disclosure should be viewed as limiting use of the adjustable golf club shaft as described herein to use with only wood-type golf clubs. Instead, the golf club shafts, golf club heads, etc. described herein may be used with various types of golf clubs without departing from the invention.

[0028] In addition to the golf club head **102**, the overall golf club structure **100** of this example includes a hosel **104**, a shaft **106** received in and/or inserted into and/or through the hosel **104**, and a grip or handle **108** attached to the shaft **106**. Optionally, if desired, the external hosel **104** may be eliminated and the shaft **106** may be directly inserted into and/or otherwise attached to the head **102** (e.g., through an opening provided in the top of the club head **102**, through an internal hosel (e.g., provided within an interior chamber defined by the club head **102**), etc.), as will be discussed more fully below. The shaft **106** may be received in, engaged with, and/or attached to the golf club head in various adjustable

manners which permit movement of the shaft **106** along the golf club head **102**, as will be discussed more fully below.

[0029] The shaft **106** may be made from any suitable or desired materials, including conventional materials known and used in the art, such as graphite based materials, composite or other non-metal materials, steel materials (including stainless steel), aluminum materials, other metal alloy materials, polymeric materials, combinations of various materials, and the like. Also, the grip or handle **108** may be attached to, engaged with, and/or extend from the shaft **106** in any suitable or desired manner, including in conventional manners known and used in the art, e.g., using adhesives or cements; via welding, soldering, adhesives, or the like; via mechanical connectors (such as threads, retaining elements, etc.); etc. As another example, if desired, the grip or handle **108** may be integrally formed as a unitary, one-piece construction with the shaft **106**. Additionally, any desired grip or handle **108** materials may be used without departing from this invention, including, for example: rubber materials, leather materials, rubber or other materials including cord or other fabric material embedded therein, polymeric materials, and the like.

[0030] The club head **102** itself also may be any of various types of golf club heads and may be constructed in any suitable or desired manner and/or from any suitable or desired materials without departing from this invention, including from conventional materials and/or in conventional manners known and used in the art. For example, in the exemplary structure **102** shown in FIGS. 1A and 1B, the club head **102** includes a front face **102a** that defines a ball striking surface **102b** (the ball striking surface **102b** may optionally comprise a plate that may be integrally formed with the front face **102a** or attached to the club **100** such that the ball striking surface plate and a frame member together constitute the overall front face **102a**). The club head **102** of this illustrated example further includes a crown **102c**, a sole **102d**, a rear **102e**, a toe **102f**, and a heel **102g**. A wide variety of overall club head constructions are possible without departing from this invention. For example, if desired, some or all of the various individual parts of the club head **102** described above may be made from multiple pieces that are connected together (e.g., by welding, adhesives, or other fusing techniques; by mechanical connectors; etc.). The various parts (e.g., crown **102c**, sole **102d**, rear **102e**, etc.) may be made from any desired materials and combinations of different materials, including materials that are conventionally known and used in the art, such as metal materials, including lightweight metal materials. More specific examples of suitable lightweight metal materials include steel, titanium and titanium alloys, aluminum and aluminum alloys, magnesium and magnesium alloys, etc.

[0031] As additional examples or alternatives, in order to reduce the weight of the club head **102**, if desired, one or more portions of the club head structure **102** advantageously may be made from a composite material, such as from carbon fiber composite materials that are conventionally known and used in the art. Other suitable composite or other non-metal materials that may be used for one or more portions of the club head structure **102** include, for example: fiberglass composite materials, basalt fiber composite materials, polymer materials, etc. The composite or other non-metal material(s) may be incorporated as part of the club head structure **102** in any desired manner, including in conventional manners that are known and used in the art.

[0032] The various individual parts that make up a club head structure **102**, if made from multiple pieces, may be engaged with one another and/or held together in any suitable or desired manner, including in conventional manners known and used in the art. For example, the various parts of the club head structure **102**, such as the front face **102a**, the ball striking surface **102b**, the crown **102c**, the sole **102d**, the rear **102e**, etc. may be joined and/or fixed together (directly or indirectly through intermediate members) by adhesives, cements, welding, soldering, or other bonding or finishing techniques; by mechanical connectors (such as threads, screws, nuts, bolts, or other connectors); and the like. If desired, the mating edges of various parts of the club head structure **102** (e.g., the edges where members **102a**, **102b**, **102c**, **102d**, **102e**, **102f**, **102g**, etc. contact and join to one another) may include one or more raised ribs, tabs, ledges, or other engagement elements that fit into or onto corresponding grooves, slots, surfaces, ledges, openings, or other structures provided in or on the facing side edge to which it is joined. Cements, adhesives, mechanical connectors, finishing material, or the like may be used in combination with the raised rib/groove/ledge/edge or other connecting structures described above to further help secure the various parts of the club head structure **102** together.

[0033] The dimensions and/or other characteristics of a golf club head structure according to examples of this invention may vary significantly without departing from the invention.

[0034] In some conditions, it may be advantageous to provide a golf club head with a shaft that may be adjusted between a conventional position near the heel end of the golf club head and one or more positions located in a more central region of the golf club head. Although much of the power may be generated near the region where the shaft meets the golf club head, the ball may be actually struck in a more central region of the club head. This may reduce the power transferred to the ball upon striking which may cause the ball to lose distance. By joining the shaft to the golf club head in an area closer to the ball striking portion of the golf club, more power may be transferred to the ball during a swing, thereby causing the ball to travel a greater distance.

[0035] FIG. 2 illustrates a top view of one example golf club head **202** having an adjustable shaft **206**. The golf club head **202** may be any suitable golf club head, such as a wood-type golf club head, and may be formed using any of the methods, arrangements, etc. described above. In addition, the golf club head **202** may include a slot **210** or other recess formed in the crown **212** of the golf club head **202**. The slot **210** may be an open slot **210** or may have a lip or edge (as shown in FIG. 4B) to aid in securing the shaft **206** to the golf club head **202**. In some examples, the slot **210** may be formed in the golf club head **202** during manufacture of the golf club head, such as during molding or formation of the top or crown of the golf club head **202**. In other examples, the slot **210** may be cut into the crown of the golf club head **202** during manufacture or after, as desired.

[0036] In some arrangements, the slot **210** may be formed in the crown **212** of the golf club head **202** and may be positioned vertically above the front face **216** and/or ball striking surface **218** of the golf club head **202**. That is, the slot **210** may be formed in the crown **212** and may run along the front face **216** of the golf club head. In some examples, the slot **210** may extend from a heel **205** of the golf club head toward a toe **207** of the golf club head. In some arrangements,

the slot **210** may extend from the heel **205** toward the toe **207** and may terminate at a point vertically above and generally proximate to a central portion of the front face **216**. In at least one arrangement, the slot **210** may terminate at a point vertically above the center of the front face **216**.

[0037] In some examples, the slot **210** may be between 0.5 and 2.0 inches long (e.g., in a first direction along the front face **216** as shown by length L_1) and may be between 0.25 and 1.0 inches wide (e.g., in a second direction extending from the front face **216** toward a rear **209** of the golf club head **202** as shown by length L_2). The slot **210** may be configured to receive the shaft **206**, for instance, in one or more receivers, and may be configured to permit adjustment of a position of the shaft **206**. For instance, the slot **210** may include a plurality of receivers, such as apertures **214a-214c**, into which the shaft **206** may be received. Positioning of the shaft **206** within one of apertures **214a-214c** may adjust the position of the shaft **206** with respect to the golf club head **202** and, in particular, the ball striking region **218** of the golf club head. As the shaft **206** is moved closer to a central region (e.g., ball striking region) of the golf club head **202** along the slot **210**, more power may be transferred from the golf club to a ball during a golf swing.

[0038] In the arrangement of FIG. 2, the shaft **206** is shown in a first position that may be considered a traditional shaft position arrangement. That is, the shaft **206** is connected to the golf club head **202** near or proximate to a heel **205** of the golf club head **202**. This arrangement may place the primary power generated at an area where the shaft **206** meets the golf club head **202** that may be generally offset from the ball striking surface **218** of the golf club head **202**. The shaft **206** may be removed from the first position (such as in aperture **214c**) and adjusted to another position that may be closer to a central region of the golf club head **202**. For instance, the shaft **206** may be inserted into apertures **214b** or **214a** in order to position the shaft **206** closer to the ball striking surface **218** of the golf club head **202**, thereby increasing the power transferred from the golf club to the ball which may increase the distance a ball may be hit. In some examples, the shaft **206** may be slidable along the slot **210** in order to adjust the position of the shaft **206** within the slot **210**.

[0039] In some examples, the shaft **206** may include a threaded end which mates with a corresponding thread within the aperture **214a-214c** on the golf club head **202** in order to secure the shaft **206** to the golf club head **202**. In some examples, a stop may be used to prevent the shaft **206** from completely disconnecting from the golf club head **202**. Instead, the stop may maintain a connection between the shaft **206** and, in some examples, the slot **210**, to aid in adjustment of the shaft **206** relative to the golf club head **202**. In other examples, the shaft **206** may employ another mechanical connector in order to removably secure the shaft **206** to the golf club head **202**. For instance, quick disconnect connectors may be used, a button release may be used, etc. In still other examples, a gear type connection may be used. FIG. 7 illustrates one example gear type shaft adjustment system **750** that may be used in accordance with at least some examples of the invention. Similar to the arrangement above, the golf club head **702** may include a slot (similar to the slots described above). A sliding gear system **750** may be contained within the slot and may allow adjustment of the shaft **706** between multiple positions. For instance, the shaft **706** may slide along a gear system **750** and may lock in place in various positions along the golf club head **702**.

[0040] Although the arrangement of FIG. 2 is described as having a slot **210** with apertures **214** arranged within the slot **210**, in some examples, the golf club head **202** may not include a slot **210** and instead may have a plurality of receivers formed directly in the crown of the golf club head that are configured to receive the shaft **206** in various positions along the crown of the golf club head. FIG. 5 illustrates one example arrangement of a golf club head **502** having a plurality of receivers, such as apertures **514a-514c**, formed in the crown **512**. Similar to the arrangement of FIG. 2, the apertures **514a-514c** are configured to receive the shaft **506** in various positions along the top surface **512** of the golf club head **502**. In some examples, the shaft **506** and apertures **514a-514c** may have a threaded arrangement such that the shaft **506** may be connected to and/or secured to the golf club head **502** via a mating thread in the apertures **514a-514c**. Additionally or alternatively, other mechanical or other fasteners may be used to secure the shaft **506** to the golf club head **502** in various positions.

[0041] In some examples, the angle of the shaft relative to the golf club head may remain constant as the shaft moves through various positions along the golf club head. For instance, although the shaft may move or shift closer to a center of the golf club head, the angle of the shaft relative to the golf club head may remain constant or substantially constant throughout the various positions along the golf club head. In other examples, the angle of the shaft relative to the golf club head may also be adjustable via the shaft adjustment system described herein.

[0042] FIGS. 3A-3C illustrate front views of a golf club head **302** similar to the golf club head **202** of FIG. 2. As shown in FIGS. 3A-3C, the position of the shaft **306** may be adjusted. FIG. 3A illustrates a first position of the shaft **306** connected to the golf club head **302**. The shaft **306** is shown in a generally conventional position near the heel end **305** of the golf club head **302**. The shaft **306** may include a longitudinal axis (indicated by line **320**) extending along the length of the shaft **306**. As shown in FIG. 3A, an extension of this longitudinal axis **320** may extend through a portion of the front face **316** near the heel **305** of the golf club head **302**. That is, the longitudinal axis **320** generally does not extend through a central, ball striking surface **318** of the golf club head **302**.

[0043] FIG. 3B illustrates the shaft **306** in a second position within the golf club head **302**. This second position is generally closer to a central portion **318** of the front face **316** of the golf club head **302**. This arrangement may provide additional power transfer from the golf club to the golf ball during a golf swing because the shaft **306** is positioned closer to the ball striking surface **318**. In FIG. 3B, an extension of the longitudinal axis **320** of the shaft **306** may extend through a portion of the front face **316** that is nearer the central, ball striking surface **318**. In some examples, the axis **320** may extend through or be aligned with a portion of the ball striking surface **318**. For instance, the axis **320** may be aligned with a portion of the ball striking surface **318** that is offset from the center of the ball striking surface **318**.

[0044] FIG. 3C illustrates yet another shaft **306** position. This third position is generally closer to a central portion of the front face **316** than the first and second positions shown in FIGS. 3A and 3B, respectively. This arrangement may provide additional power transfer from the golf club to the golf ball during a golf swing by positioning the shaft **306** nearer the ball striking surface **318**. In the arrangement of FIG. 3C,

an extension of the longitudinal axis **320** would generally extend through or align with the ball striking surface **318** of the golf club head **302**. In some examples, the axis **320** may extend through or be aligned with a center or central region of the ball striking surface **318**.

[0045] Although three positions are shown in the shaft **306** arrangements of FIGS. 3A-3C, more or fewer positions may be provided without departing from the invention. For instance, two shaft positions may be available. Alternatively, four, five or more shaft positions may be available.

[0046] FIG. 4A illustrates another golf club head having yet another adjustable shaft arrangement. Similar to the arrangements discussed above, the golf club head **402** may include a slot or recess **410**. The slot **410** may be formed in a crown **412** of the golf club head and may extend from a heel **405** of the golf club head **402** toward a toe **407** of the golf club head **402**. In some examples, the slot **410** may terminate near a central portion of a front face **416** of the golf club head **402**.

[0047] The slot **410** may include one or more rails **430** configured to aid in securing the shaft **406** to the golf club head **402**. FIG. 4B illustrates a cross sectional view of the slot **410** with the one or more rails **430** visible. In some examples, the shaft **410** may have a threaded end **407** that is configured to mate with corresponding threads in the slot **410**. In some examples, a portion of the threaded end **407a** may extend into an interior of the golf club head **402**.

[0048] In some arrangements, the shaft **406** may be slidably adjustable along the rails **430** within the slot **410**. For instance, the shaft **406** may be adjustable through infinite positions along the rails **430**. Alternatively, a plurality of stops (not shown) or other finite position markers may be provided to secure the shaft **406** to the golf club head **402**.

[0049] In some examples, one or more removable covers may be used to cover at least a portion of the slot formed in the golf club head. FIG. 6 illustrates one example of golf club head **602** having a removable cover **640** covering at least a portion of the slot (not shown). The removable cover may aid in preventing dirt, debris, etc. from entering the slot. In some examples, one or more covers may be provided and may be used with various shaft positions within the slot. The cover **640** may be held in place using known methods of connection, such as mechanical fasteners, snap fits, and the like.

[0050] The adjustable shaft arrangements described above provide a variety of advantages to players. For instance, positioning the shaft nearer the center of the ball striking surface provides power at the primary point of contact, thereby transferring more power to a ball when it is struck which may cause the ball to travel a greater distance. In addition, positioning the shaft nearer the center of the ball striking surface may aid in improved alignment of a player's swing with the ball target area of the ball striking surface because the shaft may be aligned with the target area. Further, failure to strike the ball in the target area (e.g., in the center of the ball striking surface) may still result in improved power with the shaft nearer the center of the ball striking surface because secondary power regions (such as areas just off the target portion of the ball striking surface) will still receive increased power due to the shaft being nearer the target area.

III. Conclusion

[0051] The present invention is described above and in the accompanying drawings with reference to a variety of example structures, features, elements, and combinations of structures, features, and elements. The purpose served by the

disclosure, however, is to provide examples of the various features and concepts related to the invention, not to limit the scope of the invention. One skilled in the relevant art will recognize that numerous variations and modifications may be made to the embodiments described above without departing from the scope of the present invention, as defined by the appended claims. For example, the various features and concepts described above in conjunction with FIGS. 1A through 7 may be used individually and/or in any combination or subcombination without departing from this invention.

What is claimed is:

1. A golf club, comprising:
 - a shaft; and
 - a golf club head, the shaft being adjustably connected to the golf club head, the golf club head including a slot arranged in a crown of the golf club head and extending from a heel of the golf club head toward a toe of the golf club head, the slot being configured to receive the shaft in at least a first position along the crown of the golf club head and a second position along the crown of the golf club head, wherein the first position is closer to the central region of the golf club head than the second position.
2. The golf club of claim 1, wherein the slot includes a plurality of apertures into which the shaft is received.
3. The golf club head of claim 2, wherein the plurality of apertures includes at least three apertures.
4. The golf club head of claim 2, wherein the plurality of apertures includes no more than four apertures.
5. The golf club head of claim 1, wherein the slot is between 0.5 and 2.0 inches in length.
6. The golf club head of claim 1, wherein the slot is between 0.25 and 1.0 inches wide.
7. The golf club head of claim 1, wherein the slot includes a lip configured to maintain the position of the shaft within the slot.
8. The golf club head of claim 1, wherein the shaft is slidably connected to the golf club head.
9. The golf club head of claim 8, wherein the shaft is slidably connected to the golf club head along a sliding gear system.
10. The golf club head of claim 1, wherein the slot extends along the crown along a front face of the golf club head.
11. The golf club head of claim 10, wherein the slot extends from the heel toward the toe and terminates in a central region of the golf club head.
12. A golf club, comprising:
 - a shaft; and
 - a golf club head, the shaft being adjustably connected to the golf club head, the golf club head having at least a crown, a sole, a toe, a heel, a rear, a front face and a ball striking surface forming at least a portion of the front face, the golf club head further including a slot formed in the crown and extending from the heel toward the toe along and vertically above the front face of the golf club head, the slot terminating in the crown vertically above a generally central portion of the front face, the slot being configured to receive the shaft in at least a first position located proximate the heel of the golf club head and a second position located nearer the central portion of the front face than the first position.
13. The golf club of claim 12, wherein the slot includes a plurality of apertures into which the shaft is received.

14. The golf club head of claim **13**, wherein the plurality of apertures includes at least three apertures.

15. The golf club head of claim **13**, wherein the plurality of apertures includes no more than four apertures.

16. The golf club head of claim **12**, wherein the slot is between 0.5 and 2.0 inches in length.

17. The golf club head of claim **12**, wherein the slot is between 0.25 and 1.0 inches wide.

18. The golf club head of claim **12**, wherein the slot includes a lip configured to maintain the position of the shaft within the slot.

19. The golf club head of claim **12**, wherein the shaft is slidably connected to the golf club head.

20. The golf club head of claim **12**, wherein the slot further includes a plurality of rails along which the shaft may slide and configured to aid in maintaining the position of the shaft within the slot.

21. A golf club, comprising:

a golf club head having at least a crown, a sole, a toe, a heel, a rear, a front face and a ball striking surface forming at least a portion of the front face, the golf club head further including a slot formed in the crown of the golf club head and including a plurality of apertures; and

a shaft adjustably connected to the golf club head, the shaft configured to mate with the plurality of apertures formed in the slot, the shaft being adjustable between at least: a first position located proximate the heel of the golf club head;

a second position located vertically above a generally central portion of the ball striking portion; and

a third position located between the first position and the second position.

22. The golf club of claim **21**, wherein the shaft mates with the plurality of apertures via a threaded connection.

23. The golf club of claim **21**, wherein the slot extends from the heel of the golf club head toward the toe and terminates at a central portion of the front face.

24. The golf club of claim **21**, wherein the shaft is slidably connected to the golf club head.

25. The golf club of claim **21**, further including a removable cover configured to cover at least a portion of the slot.

26. A golf club head configured to mate with a shaft, comprising:

a golf club head body including a crown, a sole, a toe, a heel, a rear and a front face including a ball striking surface;

a plurality of receivers formed in the crown of the golf club head body, the receivers being configured to receive the shaft in at least a first and second position, the first position being more proximate a central region of the ball striking surface than the second position.

27. The golf club head of claim **26**, wherein the plurality of receivers include apertures.

28. The golf club head of claim **26**, wherein the plurality of receivers are formed in a slot formed in the crown of the golf club head.

29. The golf club head of claim **28**, wherein the slot is between 0.5 and 2.0 inches in length.

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