

June 20, 1967

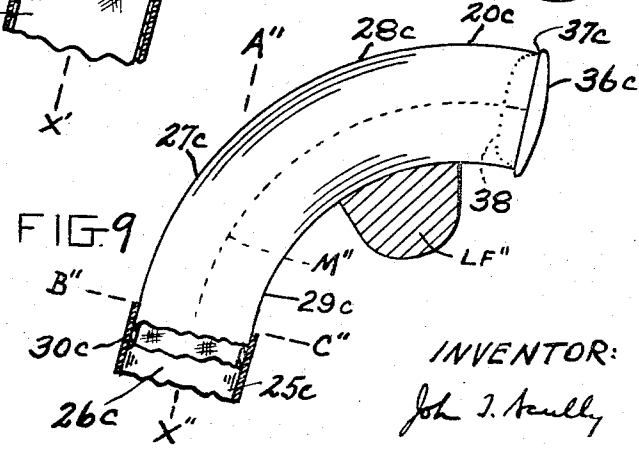
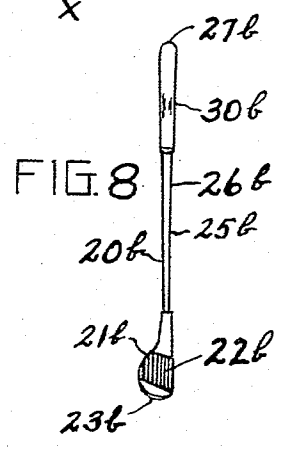
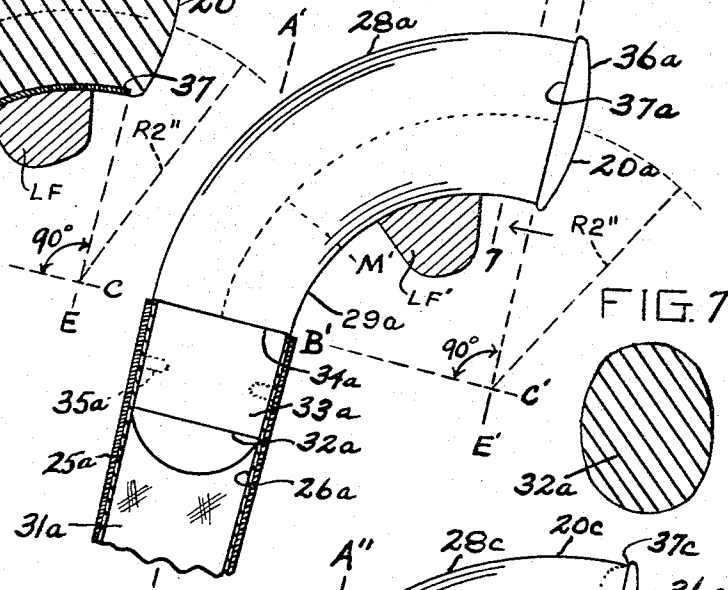
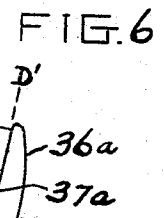
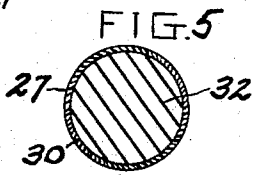
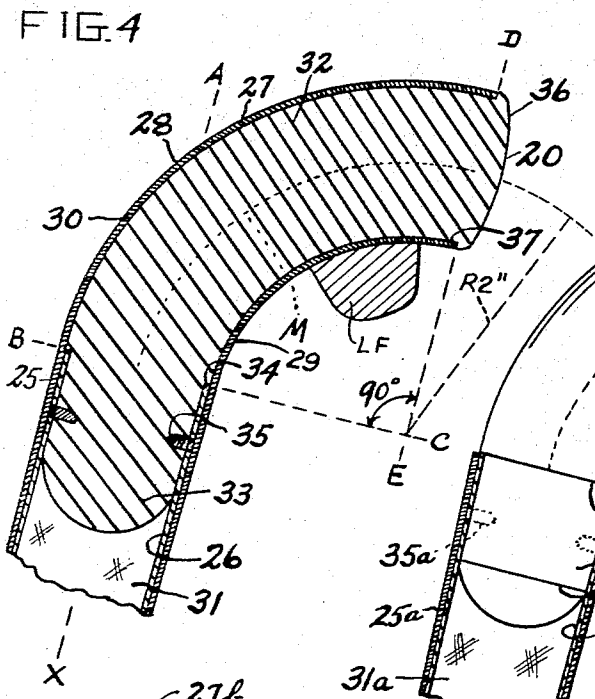
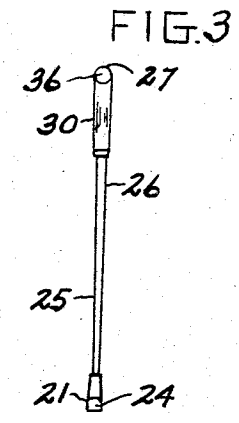
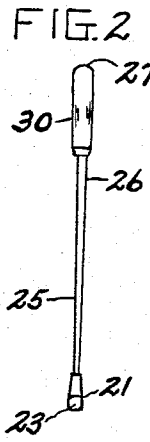
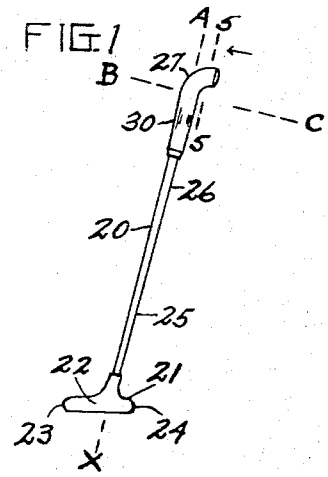
J. T. SCULLY

3,326,554

GOLF CLUB INCLUDING ARCUATE GRIP MEANS

Filed Feb. 25, 1965

2 Sheets-Sheet 1



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GOLF CLUB INCLUDING ARCUATE GRIP MEANS

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2 Sheets-Sheet 2

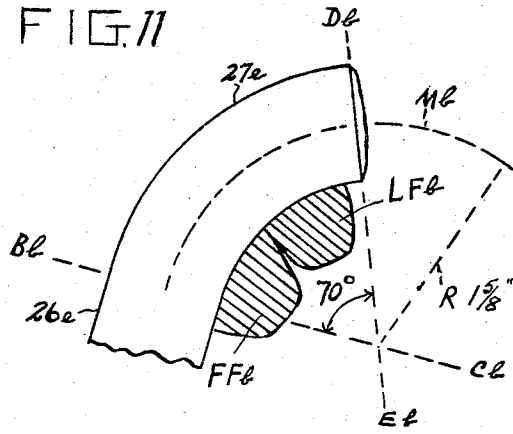
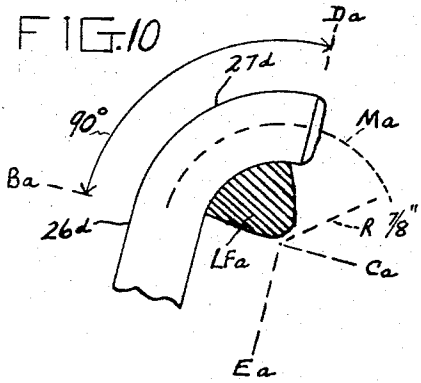
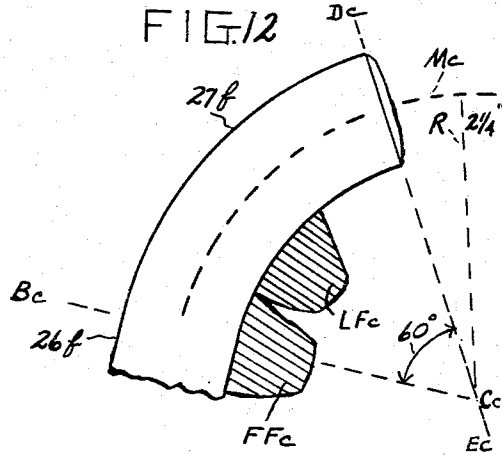
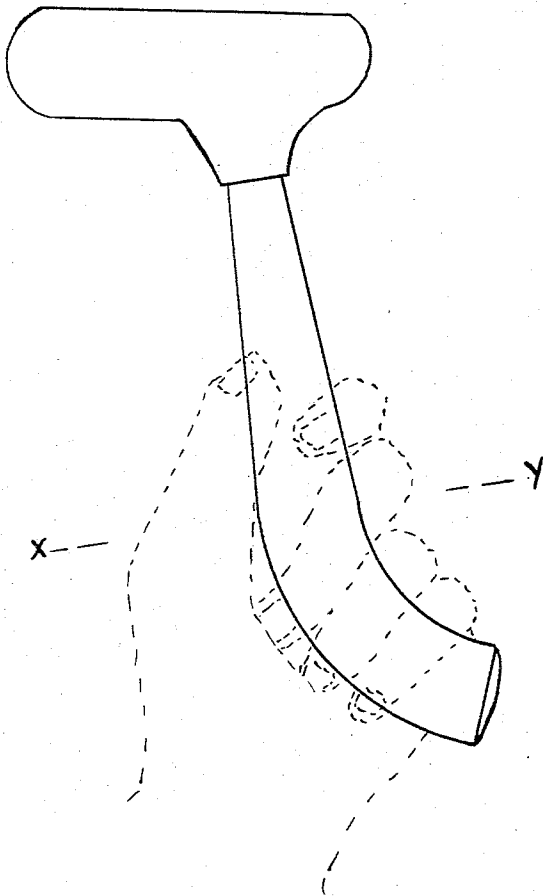


FIG. 13



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3,326,554
**GOLF CLUB INCLUDING ARCUATE
 GRIP MEANS**

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 Filed Feb. 25, 1965, Ser. No. 441,952
 4 Claims. (Cl. 273-81.3)

This application is a continuation-in-part of the application for Letters Patent, Ser. No. 255,984, filed by me Feb. 4, 1963, for an improvement in golf clubs and now abandoned in favor of this present application for Letters Patent.

This invention relates to golf clubs, the implements with which a ball is propelled in the game known as golf.

The present invention has for a principal object the provision of a generally improved golf club. Among other objects are the provision of a golf club with which a golf ball may be propelled in a more accurate direction and the provision of a golf club which may be better controlled throughout the swing or stroke and the further provision of a golf club which, in some instances, may be swung more powerfully than ordinarily might be the case. Other objects will be apparent from the description taken in connection with the accompanying drawing in which similar reference numerals or characters refer to similar or corresponding parts throughout the several views.

In the drawing: FIG. 1 is a side view of a golf club illustrating the invention; FIG. 2 is a front view of the club shown in FIG. 1 turned ninety degrees anti-clockwise; FIG. 3 is a rear view of the club shown in FIG. 1 turned ninety degrees clockwise; FIG. 4 is an enlarged, fragmentary, longitudinal section side view of parts with a human finger also shown in cross-section; FIG. 5 is an enlarged cross-sectional view taken on the line 5-5 of FIG. 1; FIG. 6 is a fragmentary side view, partly in section and partly in elevation and with parts removed, of a modification, on the approximate scale of FIG. 4; FIG. 7 is a cross-sectional view of a modification taken on line 7-7 of FIG. 6; FIG. 8 is a front perspective view of a further modified golf club embodying the invention; FIG. 9 is a fragmentary side view, partly in section and partly in elevation, with a grip part removed, showing a further modification of a part; FIG. 10 is a fragmentary side elevation of a modification of a part; FIG. 11 is a fragmentary side elevation of a further modification of a part; FIG. 12 is a fragmentary side elevation of a further modification of a part; FIG. 13 is a diagrammatic side view, upside down, and with a part greatly foreshortened and parts on a larger scale of the golf club shown in FIG. 1, but axially turned to the left in the hand of a player.

Referring in more detail to the drawing:

The golf club shown in FIGS. 1-5 inclusive and generally designated 20 is in the form of a putter, a club commonly used to propel a ball lying on a "green" towards or into a designated hole. Club 20 may have any suitably shaped head 21, of any suitable material, and is preferably provided on one side with a straight, flat striking face 22 substantially perpendicular to the ground and lying between the toe end 23, or front end, and the rear or heel end 24 of the head, all in a well known manner. The axis of the striking face of the head may be said to lie extending in the direction towards the toe end from

the heel end lengthwise with but above the sole of the head, the sole being the bottom of the club head usually grounded as the player addresses the ball before he strikes it. A shaft, generally designated 25, is secured at its lower end, in the usual manner, in the hosel carried by the head. Shaft 25 includes a relatively long straight portion 26 and, at the upper end of the straight portion, a relatively shorter, rearwardly projecting, preferably curved, top portion 27. Curved portion 27 has a rearwardly convex top or outer side 28 and a rearwardly directed concave bottom or underside 29 substantially concentrically curved as shown. This curved portion of the shaft together with the adjacent straight top portion provide the gripping portion which is adapted and intended to be simultaneously gripped by the player's hands in manipulating the club 20 and, as is customary, is provided with a grip 30 for the hands to engage against in making the stroke during play. Grip 30 may be of any material in common use suitable for the purpose. The straight part 26 of shaft 25 may be of wood or any other suitable material and, as here shown, is made of tubular steel slightly tapering outwardly in the direction towards the curved end 27 and preferably tapering in the manner of the best practice in the steel shaft art, and, into the tubular top end 31 of the straight portion of the shaft, adjacent the curved end, curved end member 32 is inserted and secured with its straight bottom portion 33 reduced and complementarily shaped to the hollow of the shaft and with its annular shoulder 34 preferably engaged against the circular wall of the shaft at the extreme top end of the straight portion of the shaft. End member 32 may be of wood or any other suitable material and, as herein shown, is preferably of a molded piece of plastic material and is stiff and its end 33 is preferably cemented to the steel shaft by suitable material, for example an epoxy resin. If desired, pins 35 extending into member 32 from holes in the walls of steel shaft portion 26 may also be used to secure member 32 to the steel shaft portion 26 and against relative turning thereto. The rearward end 36 of member 32 serves as a solid end similar to an end plug and is provided with an annular shoulder 37 abutting the top or rearward end of a cemented sleeve-like grip 30 surrounding the upper end of the shaft which grip is shown of synthetic or natural rubber tubing stretched on the shaft and cemented thereto. Preferably, the grip 30 will be molded of any suitable material with straight and curved portions complementary to the straight and curved portions of the shaft.

In the form shown, curved end 27 of the shaft projects rearwardly on this putter preferably in the direction opposite to the direction in which the axis of the striking face of the head extends from the heel end towards the toe end and is substantially tangential to the adjacent straight portion 26 of the shaft. In some instances, the curved end 27 may extend rearwardly at any desired and suitable angle to the axis of the striking face of the club head or to the direction in which the toe of the head faces or points and the curved end may extend at such an inclination (to the axis of the club head face or direction in which the toe of the head faces or points) either in the direction towards the hole being played or direction of forward swing of the club; or the curved end may extend at such an inclination or slant (to the axis of club head face) in the direction away from the hole being played or

direction of back swing of the club. For example the curved end may extend rearwardly exactly one hundred and eighty degrees from the direction of the axis of the striking face of the club, as herein shown, or, if desired, the curved end 27 may extend slanted in the direction of the forward swing or slanted in the direction of the back swing at any angle to the axis of the striking face of the club head within the range from ninety degrees to one hundred and eighty degrees, that is the curved end 27 may be bent to one side or the other to any suitable degree, such a bend in the forward direction is shown in the British patent to Walker, number 174,490. Curved end 27 may be curved or extended any suitable arcuate distance from the extreme top end of portion 26, represented by plane B-C perpendicular to axis A-X of the straight portion of the shaft, and may be curved on any suitable radius or radii. For a principal purpose of this invention, the preferred arcuate distance which the curved end may be curved and project will be dependent, to a great degree, upon the mean radius of curvature of the curved end. As a preferred general rule, for the particular purpose desired, the shorter the radius of curvature of the curved end, the longer the arcuate length may be up to a maximum arcuate length of approximately ninety degrees. The axis of the striking face may not necessarily pass through the heel and toe and may lie in a plane to one side or the other of the heel and toe, I have found that an approximate thickness of one or one and one-eighth inches for the curved portion of the shaft is satisfactory for a large male adult hand, but the curved portion may be thicker or thinner, as desired, and I have found that a mean radius of curvature, measured from the dotted line M, of approximately two inches for the curved portion may be satisfactory in some instances.

In instances where the club is designed for hands of various smaller sizes, for example medium-size male hands, or smaller female hands, or still smaller childrens' hands, the thickness of the curved portion 27 of the shaft and the mean radius of its curvature may be suitably proportionately decreased for each size of hand. In all instances, however, it is preferred that curved portion 27 have an arcuate length no greater than is necessary to fully receive, side by side, the fourth and little fingers of the uppermost hand of the player on the shaft, having in mind the hereinbefore various sizes of hand such clubs may be designed and made for. In any instance where the arcuate length of the curved end may be approximately ninety degrees, it will be curved on a shorter mean radius of curvature, preferably substantially shorter, than the radius thought to be suggested or implied by the British patent to Jarman, No. 417,005, wherein, it appears, the curved end is designed for and curves for sufficient distance to comfortably receive, side by side, all four fingers of the uppermost hand of the player in order to create a better axis in the wrist of the holding hand, which axis can be held more or less stationary to provide a pendulum swing or pendulum type swing or stroke, a type of swing or stroke which is also suggested by the domestic patents Knight, 1,616,377; Murphy et al. 1,561,349 and Williams 2,949,304, all of which show a top end extending rearwardly a relatively long distance, that is in excess of three times the thickness of the top end, and all of which are really constructed for a swing, a truly pendulum swing, wherein the axis of the top end remains steady or stationary while in applicant's invention the axis of the top end moves forward and backward in a translatory movement together with the club head, as the stroke is made. Further, the thickness of the curved end 27, or its average thickness, and the extent to which the curved end 27 extends angularly rearwardly or directly rearwardly from the plane of the straight upper shaft portion are so related that the curved end 27 extends from the plane of the straight upper shaft portion a distance

greater than the average thickness of the curved top portion 27 but extends a distance not as great as three times the average thickness of the curved top portion 27 and, if desired, may extend any suitable distance, angularly rearwardly or directly rearwardly, from the plane of the straight upper shaft portion within a range from one to two and seven-eighths times its thickness. Further, the thickness of the top end of the straight portion 26 of the shaft 25, or its average thickness at the marginal top portion, which is approximately the uppermost two inches of the straight portion 26, and the extent which the curved end 27 extends angularly rearwardly or directly rearwardly from the plane of the marginal top portion of the straight portion 26 of the shaft are so related that the curved end 27 extends from the plane of the straight upper shaft portion a distance greater than the average thickness of the marginal top portion of the straight portion 26 of the shaft, but extends a distance not as great as three times the average thickness of the marginal top portion of the straight portion 26 of the shaft, and if desired, or when desired, may extend any suitable distance angularly rearwardly or directly rearwardly from the plane of the straight upper shaft portion within a range from one to two and seven-eighths times the average thickness of the marginal top or end of the top of the straight portion of the shaft. These relationships are important especially because it is intended that, in using the golf club, the uppermost hand, of the player, on the shaft will simultaneously grasp or grip both the marginal top end of the straight portion of the shaft and also the curved portion, as hereinafter described, and when the club shaft is properly grasped or gripped it is very important that the curved end of the shaft be short enough to avoid projecting sufficiently from the hand to catch against the player's clothing as he keeps his hands close to his body for the portions of the stroke which comprise the starting translatory movement of the hands on the back swing and the finishing translatory movement of the hands close to and at impact on the forward swing, that is just prior to and during the strike of the ball.

Also, I have found that upon a suitable radius or radii an arcuate length, for curved member 27, from approximately forty degrees to approximately 90 degrees, represented by the broken line D-E may be satisfactory, for a preferred manner of holding or grasping the club. In some instances, the arcuate length may depend upon the thickness of the player's fingers. Preferably, the mean radius of curvature, which will be related to the arcuate length, of the curved end 27 will be as great as seven-eighths of an inch but not greater than two and one-quarter inches and, as may be desired, the mean radius of curvature of the curved end 27 may be any distance within the range of seven-eighths of an inch to two and one-quarter inches. Preferably and because of the desired best position of the uppermost hand on the shaft, when the club is properly grasped or gripped as herein described, the mean radius of curvature of curved end 27 is relatively short and may be any length or distance within the range of seven-eighths of an inch to one and five-eighths of an inch. As shown clearly in FIG. 4, the preferred mean axis of curvature of curved end 27 is tangential or substantially tangentially to the axis A-X of the straight upper gripping portion of the shaft at the plane represented by line B-C and the convex top surface 28 of the curved end 27 intersects the upward extension or plane of axis A-X of the straight portion of the shaft at the arcuate length of approximately forty-one and one-half degrees from the plane B-C and, consequently, the curved end 27 extends angularly rearwardly or directly rearwardly a desired distance from the plane of the straight upper shaft portion for preferred proper gripping.

A right-handed player will simultaneously grip the adjacent upper straight end of the shaft and the curved end with his left hand in the approximate position whereby

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the thumb extends downwardly on the front of the straight portion of the shaft and with the forefinger around the straight portion 26 and angularly disposed thereto with the finger tip facing up towards the downwardly bent head of the player; the middle finger is engaged around the shaft above and parallel and side by side with the forefinger and with its tip facing or touching the fleshy part of the thumb and, in this position, the middle finger is opposite and around the marginal top end of the straight portion of the shaft; the fourth and little fingers are side by side with each other and the middle finger and have their tips facing the palm of the hand and the fourth finger may surround the shaft adjacent the middle finger and be disposed partially and simultaneously engaging the top straight portion of the shaft and the curved end 27 of the shaft, engaged in the concavity also of the curved end, while the little finger surrounds and engages only the curved portion of the shaft and is received in the concavity also of end 27 wholly widthwise. In some instances, the fourth finger may be wholly received in the concavity widthwise similarly as the small finger and side by side therewith and with the other fingers; in other instances, the fourth finger may engage only the straight upper end portion of the shaft. Preferably, in all instances, the curved end 27 is only long enough to wholly receive widthwise in its concavity not more than two fingers of the uppermost hand and, because of this, the absolute length of the curved end may depend upon whether the club is made for adult male hands, female adult hands or children's hands.

With the left hand thus properly positioned, the right hand is then positioned below the left hand on the straight portion of the shaft and in the usual relative position and manner for the overlapping or the interlocking grip, as may be desired, or in any other suitable manner. With the club thus held, the player will position the club head so that the axis of its striking face is perpendicular to the line of direction in which he desires to putt the ball. Simultaneously as he watches the club head and he manipulates it into the desired position his eyesight indicates to be proper, the player will also observe or sense by "feel" as to the curved portion of the shaft whether the latter is directed precisely at the right angle or perpendicular or normal, as the case may be, to the line of direction in which he desires to putt the ball and thus improve the chance, because of the improved position of his uppermost hand relative to the lower hand and to the shaft, that he has the club head in the precisely correct position for his swing and at the correct angle axially. Further, it appears to applicant that the left hand (uppermost) grip on the curved portion, as described herein, positions the left wrist at a good angle for a naturally more accurate translatory movement of the top of the shaft as well as the club head and also seems to make the uppermost hand, in this case the left hand, capable of exerting more power than is usually possible with traditional clubs. Moreover, on long putts or strokes, the uppermost hand grip, as described herein, minimizes any tendency of twisting the shaft or torque as the ball or ground is struck by the club head.

In the modification shown in FIGS. 6 and 7, the curved end of the shaft 25a is shown with the grip removed and is eccentrically curved whereby convex top side 28a and concave bottom or underside 29a slightly diverge in the rearward direction to give a substantially elliptical cross-sectional shape to the curved member as shown in FIG. 7. The rearward end 36a is provided with an annular shoulder 37a which will abut a sleeve-like grip (similarly as in FIG. 4) when the latter is in place on the shaft. In other respects club 20a is similar to club 20.

In the modification shown in FIG. 8, golf club 20b is shown in the form of a niblic or sand wedge and wherein the striking face 22b has considerable loft as is customary in the heads of such clubs. Niblics and wedges have rela-

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tively short shafts in comparison to "woods" and other "irons" with less loft and this club can be gripped similarly as the previously described putter. During play, a player, on occasion, may have previously hit his ball into a sand trap or other obstacle with the result that he is then required to use a niblic or wedge club to properly hit the ball out of or away from the obstacle. Usually, with the ball resting in a sand trap, it is considered advantageous to hit the sand first and well behind the ball in the extricating stroke and whereby a very considerable amount of sand will travel as a cushion between the striking face of the moving club head and the ball. In this kind of stroke, the curved end of the shaft when properly held by the left hand, the club shown being a right-hand club, will enable the player to so firmly control the club as to minimize any tendency to twist or torque action as the club head meets the sand, especially if the latter is wet or damp, causing the speed of the stroke to be enormously slowed and, in some instances, abruptly slowed, as the head ploughs through the sand in a deep cut. Also, the player will feel or sense the capability of additional or stronger left hand power for this kind of stroke thereby enabling the player to get further distance than normally and with greater accuracy. The greater power and control with a full stroke is probably partly accounted for by the fact that the little and fourth fingers of the uppermost hand, the left hand, can be kept in firm engagement with the shaft of the club at the top of the swing. In other respects club 20b is similar to club 20 and may be similar to club 20a.

In the modification shown in FIG. 9, club 20c has a tubular curved end portion 27c which is a curved extension of the shaft 25c. The upper marginal end of an otherwise straight tubular shaft is bent, during manufacture of the club, to the desired curved shape and with the desired rigidity. An end plug 36c having an annular shoulder 37c to abut a sleeve-like grip (not shown) is employed to close the curved tubular end of the shaft, the plug 36c having its inner end 38 properly shaped to fit in the curved end of the shaft. In other respects, club 20c is similar to club 20 and, if desired, the curved end may be curved similarly as the corresponding end of club 20a.

It will be noted in FIGS. 4, 6 and 9 that the concave underside of the curved top portion of the shaft is, at all times, of sufficient length to wholly widthwise receive at least the little finger, respectively LF, LF' and LF'', of a human hand.

In the modification shown in FIG. 10, a golf club shaft part, round in cross-section, is shown with its curved top portion 27d extending approximately ninety degrees from the extreme top of straight shaft portion 26d or plane Ba-Ca. The curved portion 27d is shown having a mean radius of curvature of seven-eighths of an inch, $R\frac{7}{8}$ ", measured from the axis Ma of the curved portion to the intersection of the plane Da-Ea with the plane or line Ba-Ca. The arcuate length of curvature of curved portion 27d is approximately ninety degrees and the length of the concave underside is sufficient to wholly receive widthwise a human finger such as the little finger LFa. In other respects, aside from the thickness of the parts 26d and 27d, curved end 27d is similar to end 27 (FIG. 4) and the club otherwise similar to the structure shown in FIGS. 1 to 4, and, when desired, may be otherwise similar to the club in FIGS. 6 and 7 and 8 and 9.

In FIG. 2, the curved end 27e of the shaft extends approximately seventy degrees in arcuate length from the extreme top of straight shaft portion 26e or plane Bb-Cb. Curved end 27e is shown as having a mean radius of curvature, $R1\frac{3}{8}$ ", of one and five-eighths inches measured from the intersection of lines Bb-Cb and Db-Eb to the axis of curvature Mb of the curved end. Pressed against the concave underside of end 27e is a human finger, the little finger, LFb wholly received widthwise in the concavity; the fourth finger of a human hand FFb is

shown partially against the concave underside and partially against the adjacent straight portion 26e of the shaft. In other respects, curved end 27e is similar to end 27 and the club is otherwise similar to the club in FIGS. 1-4, and, when desired, may be otherwise similar to the club shown in FIGS. 6 and 7 or 8 and 9.

In FIG. 12, the curved end 27f of the shaft extends approximately sixty degrees in arcuate length from the extreme top of straight shaft portion 26f or plane Bc-Cc. Curved end 27f is shown having a mean radius of curvature, $R\frac{1}{4}$ ", of two and one-quarter inches measured from the intersection of lines Bc-Cc and Dc-Ec to the axis of curvature Mc of end 27f. Pressed against the concave underside of end 27f is shown the little finger LFc of a human hand which finger is wholly received widthwise in the concavity of end 27f. The fourth finger of the hand FFc is shown alongside the little finger and partially in the concavity and against the concave underside of end 27f and partially against the adjacent straight portion 26f of the shaft. In other respects, curved end 27e is similar to end 27 and otherwise the club is similar in structure to the club shown in FIGS. 1-4, and, when desired, the club may be otherwise similar to the structure shown in FIGS. 6 and 7 or in FIGS. 8 and 9.

In FIG. 13, a preferred manner of gripping the club shaft with the left hand of a right hand player is shown, the club being shown as rotated to the player's left approximately ninety degrees to show the relationship of the fingers of the player's uppermost hand to the various parts of the golf club and to further show that the uppermost hand, because several of its fingers are on the curved portion of the shaft and several simultaneously on the straight shaft portion, is appreciably more "compact" than would be the case were the shaft straight for its entire length. The plane X-Y perpendicular to the straight shaft portion indicates the extreme top or top end of the latter. It may be further said that in instances where the club may be a niblic or other "iron" which is to be swung in a half or full swing, especially the latter swing, it appears to be easier to maintain the fourth and little fingers in close and firm contact with the shaft at the top of the swing.

In using the word "approximately" herein in referring to the various degrees of curvature of the curved end of the shaft, it is intended to mean a range from two and one-half degrees less to and including two and one-half more, for example "approximately ninety degrees" means within a range from eighty seven and one-half degrees to and including ninety two and one-half degrees. And in using in the claims the statement "no more than two fingers of a human hand" the words "fingers of a human hand" shall be construed to mean men's fingers in a club designed ordinarily for men, or women's fingers in a club ordinarily designed for women, or children's fingers in a club ordinarily designed for children.

While I have shown and described the invention in several embodiments, it should be construed as an illustration and not as a limitation and I wish it to be understood that the invention may be embodied in or adapted to any of the golf clubs known as "woods" or known as "irons" which are useful in the game of golf, all within the spirit and scope of the appended claims.

Having described the invention, I claim:

1. A golf club comprising a head and a shaft extending upwardly from the head, the head having a heel end and a forwardly pointing toe end, the shaft having a gripping portion including a fixed, straight, upper shaft portion and a rearwardly projecting shaft top portion extending from the upper end of the straight upper shaft portion and fixed relatively thereto, the top portion of the shaft curved in a rearward direction relatively to the direction in which said toe end of the head points and presenting a convex upper side and a concave underside and a curved axis, the curved portion extending for the greater part of the length of said top portion and extending rearwardly from the plane of said straight upper shaft portion a distance

greater than the average thickness of the curved top portion on a cross-section perpendicular to said curved axis and measured from said convex upper side to said concave underside but a distance not as great as three times the average thickness of the curved top portion on a cross-section perpendicular to said curved axis and measured from said convex upper side to said concave underside, the concave underside having an arcuate length to wholly widthwise receive in engagement therewith and transversely disposed thereto no more than two fingers of a human hand.

2. A golf club comprising a head and a shaft extending upwardly from the head, the head having a heel end and a forwardly pointing toe end, the shaft having a gripping portion including a fixed, straight, upper shaft portion having a main axis and a rearwardly projecting shaft top portion extending from the upper end of the straight upper shaft portion and fixed relatively thereto, the top portion of the shaft curved in a rearward direction relatively to the direction in which said toe end of the head points for the greater part of the length of said top portion and extending rearwardly from the plane of said straight upper shaft portion a distance greater than the average thickness of the marginal top portion of the upper end of the straight upper shaft portion on any cross-section of the latter perpendicular to said main axis but a distance not as great as three times the average thickness of said marginal top portion on any cross-section of the latter perpendicular to said main axis, the curved top portion of the shaft presenting a convex upper side and a concave underside, the concave underside having an arcuate length to wholly widthwise receive in engagement therewith and transversely disposed thereto no more than two fingers of a human hand.

3. A golf club comprising a head and a shaft extending upwardly from the head, the head having a heel end and a forwardly pointing toe end, the shaft having a gripping portion including a fixed, straight, upper shaft portion and having a main axis and a projecting shaft top portion extending from the upper end of the straight upper shaft portion and fixed relatively thereto, the top portion projecting in a rearward direction relatively to the direction in which said toe end of the head points, the top portion of the shaft continuously curved arcuately in the rearward direction for the greater part of the length of said top portion and presenting a curved axis and having a mean radius of curvature as great as seven-eighths of one inch but not greater than two and one-quarter inches measured from a plane perpendicular to the axis of the straight shaft portion at the extreme top end of the latter to said curved axis, the center of curvature of the curved top portion being spaced from said top end in the same rearward direction in which the curved top portion extends, said top portion presenting a convex upper side and a concave lower side, the concave lower side having an arcuate length to wholly widthwise receive in engagement therewith and transversely disposed thereto no more than two fingers of a human hand.

4. A golf club comprising a head and a shaft extending upwardly from the head, the head having a heel end and a forwardly pointing toe end, the shaft having a gripping portion including a fixed, straight, upper shaft portion and having a main axis and a projecting shaft top portion extending from the upper end of the straight upper shaft portion and fixed relatively thereto, the top portion projecting in a rearward direction relatively to the direction in which said toe end of the head points, the top portion of the shaft continuously curved arcuately in the rearward direction for the greater part of the length of said top portion and presenting a curved axis and having a mean radius of curvature as great as seven-eighths of one inch but not greater than one and five-eighths inches measured from a plane perpendicular to the axis of the straight shaft portion at the extreme top end of the latter to said curved axis, the center of curvature of

the curved top portion being spaced from said top end in the same rearward direction in which the curved top portion extends, said top portion presenting a convex upper side and a concave lower side, the concave lower side having an arcuate length to wholly widthwise receive in engagement therewith and transversely disposed thereto no more than two fingers of a human hand.

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