

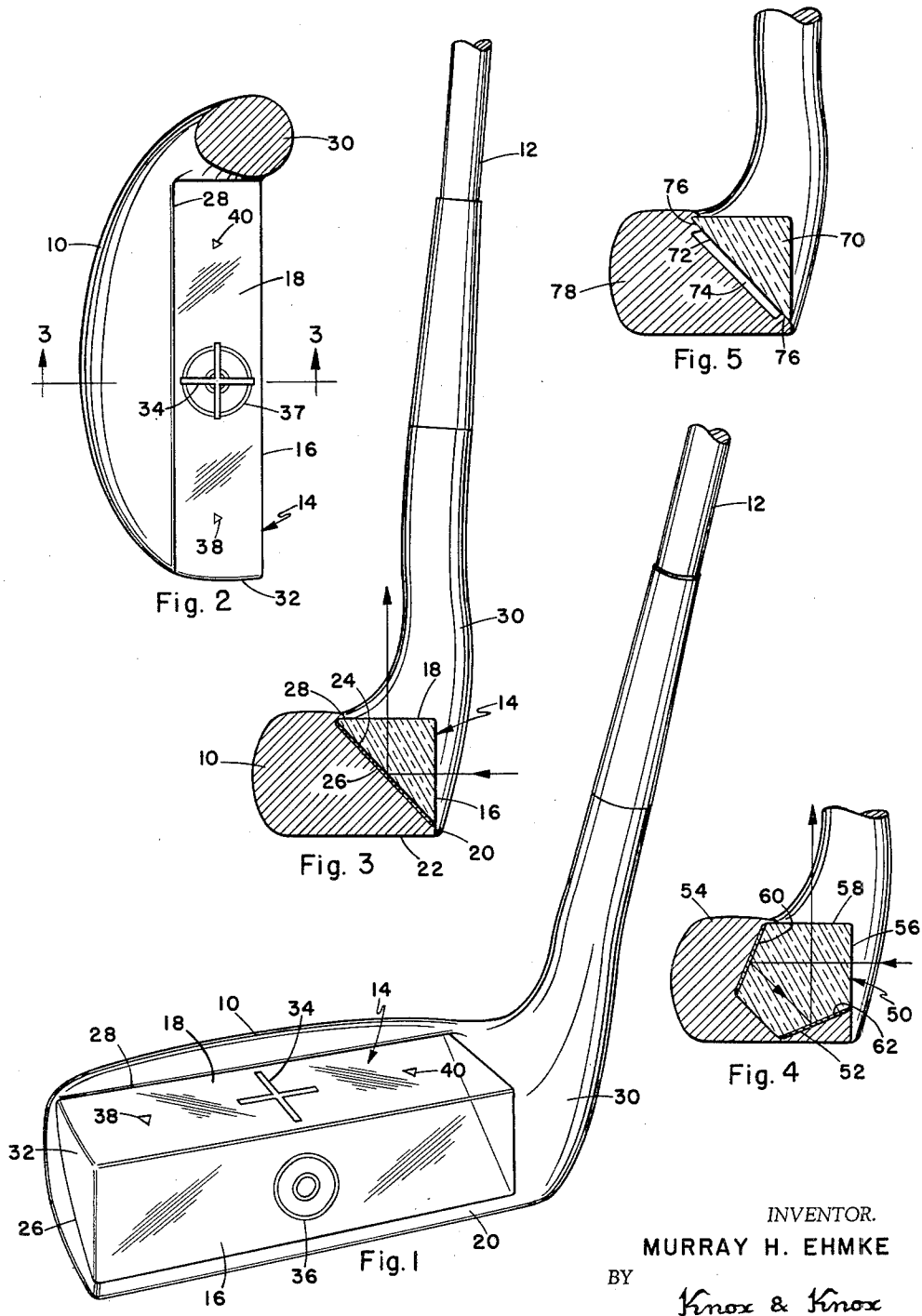
Jan. 30, 1962

M. H. EHMKE
GOLF CLUB HEAD

3,019,022

Filed June 26, 1958

2 Sheets-Sheet 1



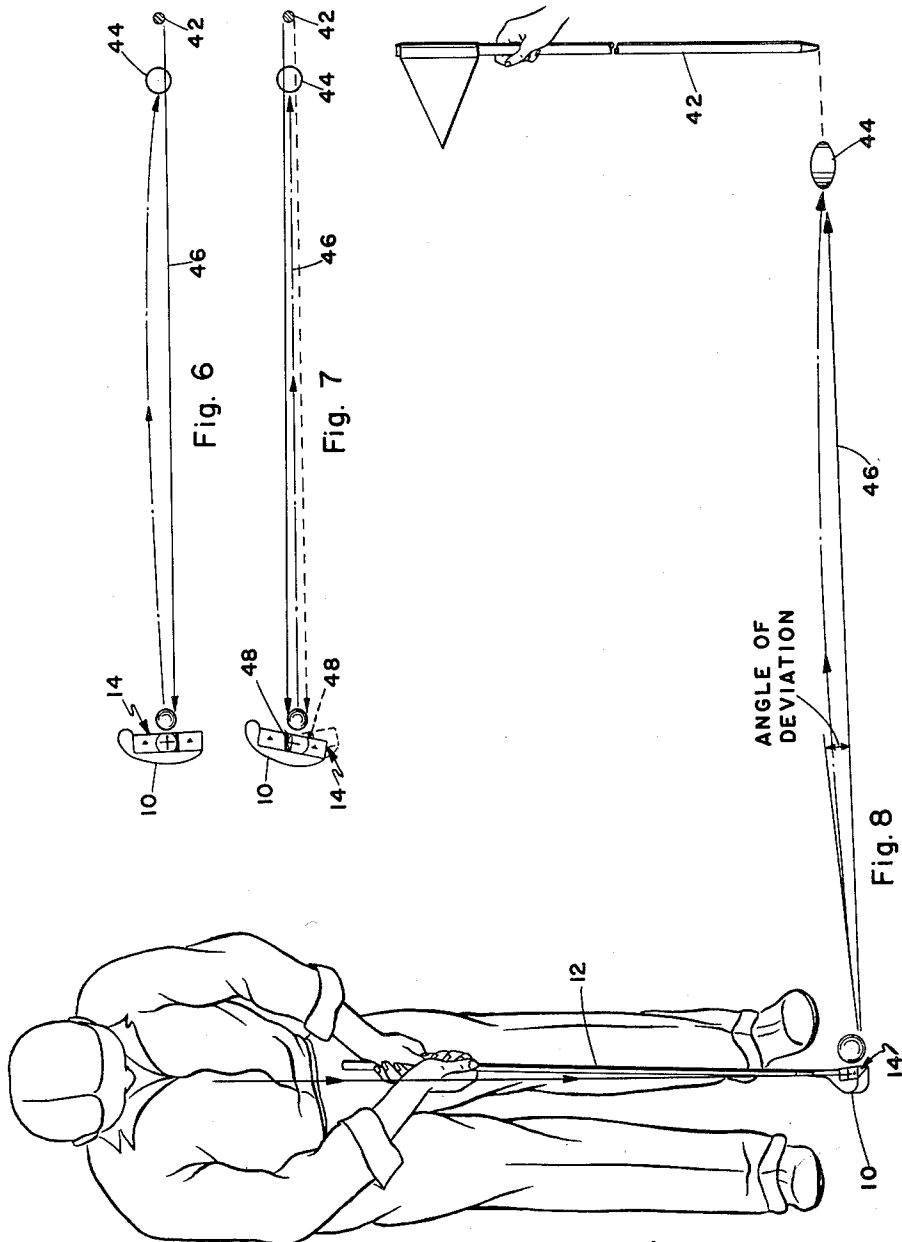
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GOLF CLUB HEAD
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The present invention relates generally to golf clubs and more particularly to a precision putter.

The problem solved by this invention arises from the necessity for a golfer in putting to determine what he believes to be the optimum path for the ball to follow on its trip to cup and, while retaining this mental concept of direction, remove his eyes from the flag pin or cup and usually concentrate on the rear side of the ball. In a sense, the presently available equipment requires the golfer to see around a corner, which is impossible, or to remember precisely a direction without adequate reference datum lines or planes, which is at least extremely difficult. Furthermore, in sighting the pin the lie of the green is very seldom completely level and the ball must be stroked in a direction other than straight toward the hole. Consequently the club should be positioned at a small angle to a line normal to the line joining the ball and hole. This small angle is difficult to guess but with the present invention, the user can quickly learn to gauge the angle more accurately. In the rare case when the ball is to be stroked directly toward the pin, the ball will hide the pin but will provide the effect of bracketing the reflection of the pin so that the player can ascertain when the striking face is normal to the line from ball to cup. In all other cases, the pin will be reflected offset slightly to one side of ball and the amount of offset accurately indicates the stroking angle.

The general object of this invention is, therefore, to provide a putter having a reflector to provide an image of a part of the putting green, cup and/or flag pin, to reflect the image upwardly directly to the player's eyes and to establish simultaneously a satisfactory arbitrary reference sight line which is fixed in relation to the putter head, all with a view to enabling the player to accomplish the putting stroke with greater directional precision, it being obvious that this results in increased confidence and lessened nerve strain with generally heightened playing efficiency and pleasure.

Another noteworthy object of this invention is to provide adequate reference indicia appearing on the upper face of the club head to facilitate accurate measurement of the angle of deviation from a line joining the club head and cup.

Another object of this invention is to provide a putter in which the prism is contained entirely within the generally conventional shape of the head and does not detract from the appearance or function of the head. In this connection, it is important to note that provision has been made in this invention for horizontal alignment of two elements simultaneously with vertical alignment of a third element, all within the club head, to establish a reference plane as well as a substantially vertical line of sight. The three elements are the reticle on the striking face, the reflection thereof on the reflector, and the reticle on the upper face, the latter two being also referred to herein as the lower and upper sights. All three elements are approximately at the level of the ball and close to the rear side of the ball, a distinct advantage.

With these objects definitely in view, along with other objects which will appear as this description proceeds, this invention consists in the novel construction, combination and arrangement of elements and portions, as will be hereinafter fully described in the specification, particularly pointed out in the claims, and illustrated in

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the drawings which form a material part of this disclosure, and in which:

FIGURE 1 is a perspective view of the golf club head, the handle or shaft being shown fragmentarily;

FIGURE 2 is a top plan view of the head with the handle indicated in section;

FIGURE 3 is a sectional view taken on the line 3-3 of FIGURE 2;

FIGURE 4 is a sectional view similar to FIGURE 3, but showing a pentagonal type of prism rather than the simple triangular type;

FIGURE 5 is a sectional view similar to FIGURE 3, but showing an embodiment of this invention wherein the reflector is a polished, unsilvered inclined surface of a prism providing total reflection.

FIGURE 6 is a diagrammatic top plan view showing the alignment of the club, ball and cup for a putt on a sloping green;

FIGURE 7 is a further diagrammatic view showing the bracketing method for alignment in a straight and level putt; and

FIGURE 8 is a pictorial view showing the method of using the golf club.

Referring now to the drawings in detail and in particular to FIGURES 1-3, one embodiment of my golf club head is represented as comprising an elongated head block 10 of wood, metal, plastic, or other suitable material, to which is fixed a conventional handle 12. The specific shape of the head block 10 is a matter of choice and may be of any reasonable design, the handle 12 being joined to the head block in any suitable manner. Recessed into the front of the head block 10 is a prism 14, generally triangular in cross section and having a substantially vertical front or striking face 16 and a horizontal upper face 18. The prism 14 extends for almost the entire length and height of the head block 10, a narrow lip 20 being retained at the lower forward edge of said block to hold the prism slightly clear of the ground, thus the front face 16 of the prism constitutes the main portion of the front surface of the head and serves as the actual ball striking face. For ease of use, the bottom surface 22 of the head block 10 is substantially flat and parallel to the upper face 18 of the prism so that, with the head block resting flat on the ground, the upper face 18 is substantially horizontal or at least parallel to the ground surface. The prism 14 has a rear reflecting face 24 which rests on the inclined surface 26 of the head block 10, said prism being secured by a suitable adhesive or the like and the upper portion of the head block being extended slightly over the edge of the prism to form a retaining lip 28. As illustrated, the inner end of the prism 14 abuts the handle socket portion 30 and the outer end 32 of said prism may be shaped to conform to the contours of the head block.

Centrally located on the upper face 18 is a reticle 34, which will also be referred to as the upper sight. This reticle is illustrated as a cross although other markings may be used, while centrally positioned on the front face 16 is a reticle 36 which is illustrated as consisting of concentric circles, although again, other types of marks may be applied. The reticles are positioned so that the reflected image 37 of the reticle 36, hereinafter also referred to as the lower sight, is concentrically aligned with the upper sight 34, as in FIGURE 2, when the prism 14 is viewed directly from above on a line of sight normal to the upper face 18 and passing through the center of said upper and lower sights. By so aligning these sights, the player is assured that his eye position is correctly located approximately vertically above the prism 14, or at least on a line of sight fixed in relation to the club head, so that ensuing sighting operations may be referenced to prior and subsequent putting stances.

As explained in the above recited third object, the reticle 34 and the lower sight 37 are spaced horizontally while the sights 37 and 34 are spaced vertically, thus providing the requisite number of points to establish a reference plane normal to the striking face 16, since a line joining the lower reticle and the lower sight 37 is normal to the striking face.

In the upper face 18 are laterally offset indicia 38 and 40, equally spaced on opposite sides of the upper sight 34, preferably at a distance apart substantially greater than the diameter of a golf ball.

The indicia 38, 40 constitute simplified calibration markings and may be amplified or extended as desired. These indicia constitute fixed reference points which quickly assume definite and precise reference significance to the player in determining the necessary angular deviation of the club head to compensate for the estimated roll or pitch of the putting green. In sighting the pin 42 as indicated in FIGURES 6 and 8, the lie of the green is very seldom completely level and the ball must be stroked in a direction other than straight toward the hole 44. Consequently the club should be positioned at a small angle to a line 46 normal to the line joining the ball and hole. This small angle of deviation, indicated in FIGURE 8, is difficult to guess but with the present invention, the user can quickly learn to gauge the angle more accurately. In the rare case when the ball is to be stroked directly toward the pin, as indicated in FIGURE 7, the ball will hide the pin but will provide the effect of bracketing the reflection of the pin, as indicated at 48, so that the player can ascertain when the striking face is normal to the line from ball to cup. In all other cases the pin will be reflected offset at least slightly to one side of ball and the amount of offset accurately indicates the stroking angle.

The modified structure shown in FIGURE 4 differs from that described above only in the cross sectional shape of the prism 50, which in this instance is of pentagonal form and is fitted into a suitably shaped recess 52 in the head block 54. The prism 50 has a front striking face 56, an upper face 58 and two internal reflecting faces 60 and 62 which are angularly opposed. The geometry of the pentagonal type prism is well known and such a prism provides an erect image by double reflection rather than the simple inverted image obtained with a triangular prism. However, since the image is viewed from the side in playing position, the type of prism used is a matter of choice according to whether an erect or an inverted image is found more convenient.

Further, in respect to the type of prism used, it is noteworthy that an unsilvered glass, reflecting prism 70 rely-

ing upon total reflection from the inclined, polished rear face 72, may be employed, as indicated in FIGURE 5. The necessary air space 74 is secured by the expedient of providing marginal seats 76 in the slightly modified head block 78.

However, it will be recognized that the term "reflector" used herein is proposed as encompassing all such concepts as the three forms herein illustrated; the silvered mirror type including plate-like mirrors which need not be unitary with the striking face as well as the silvered solid prism type of FIGURE 3, the pentaprism or double reflecting prism of FIGURE 4, and the total reflecting prism of FIGURE 5.

Still other arrangements of striking face means and mirror means will occur to those skilled in the art, all within the metes and bounds of the inventive concept illustrated in the drawings and all within the ambit of the claim hereunto appended.

I claim:

A precision putter for putting a golf ball toward the target area at or on the high side of the pin on a putting green, said putter comprising: a putter head having a striking face on the front thereof; a reflector in said head, in fixed relation to said striking face, and disposed at the level of and horizontally behind said striking face; that portion of the head between said striking face and said reflector being transparent and said reflector being disposed to reflect an image of the pin on the putting green generally upwardly toward the eyes of a player, said image appearing adjacent to the rear side of the ball and at the level of the ball; said head having upper and lower sights, the upper sight being capable of imposition directly upon said lower sight to establish an arbitrary fixed reference line of sight in a plane normal to said striking face and including the initial portion of the proposed path of the putted ball; said head including a prism of transparent material having a front face constituting said striking face and an inclined rear face with said reflector thereon; a reticle on said striking face, and said lower sight being an image of said reticle on said reflector; and said prism having a flat horizontal upper face and being a double reflecting pentaprism.

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