United States Patent [19]

Bennett

[11] **3,841,641**

[45] **Oct. 15, 1974**

[54] **PUTTER**

[76] Inventor: **Richard C. Bennett,** 7333 Armitage, Elmwood Park, Ill. 60635

[22] Filed: **Aug. 31, 1972**

[21] Appl. No.: **285,228**

[52] **U.S. Cl.** ..... **273/164,** 273/80 C, 273/167 G

[51] **Int. Cl.** **A63b 53/00**

[58] **Field of Search** ..... 273/77 R, 79, 80 C, 164, 273/167–175, 183 D, 186 R, 193 R, 194 R, 194 A

[56] **References Cited**

UNITED STATES PATENTS

1,535,707	4/1925	Barnes	273/79
3,035,839	5/1962	Coglianese	273/164
3,037,770	6/1962	Palmer	273/164 X
3,143,349	8/1964	MacIntyre	273/164 X
3,226,123	12/1965	Roraback	273/164
3,328,032	6/1967	Griswold	273/164
3,392,977	7/1968	De Lacey	273/168
3,448,981	6/1969	Anweiler	273/167 G
3,595,582	7/1971	Chapman	273/164 X
D137,814	5/1944	Newsome	273/167 D UX
D208,984	10/1967	Huelsman	273/167 D UX

FOREIGN PATENTS OR APPLICATIONS

12,743	6/1901	Great Britain	273/167 F
186,522	10/1922	Great Britain	273/164

OTHER PUBLICATIONS

"Golf Rules in Pictures," by J. C. Dey, Jr., The U.S. Golf Assn., 1970, Rule 2.

"Macgregor Golf Goods," 1927, pgs. 17, 21, 23, 24 and 26.

Primary Examiner—Richard J. Apley

Attorney, Agent, or Firm—Prangley, Dithmar, Vogel, Sandler and Stotland

[57] **ABSTRACT**

A putter has a shaft with a head at one end thereof. The head includes a front face for striking a golf ball and two pivot points opposite the front face. The head also includes a bottom surface, at least a portion of which is adapted to rest on a putting green. The angle between the front face and a straight line defined by the pivot points is substantially equal to the angle between the shaft and a normal to the putting green. The putter is first placed in a prone position, whereupon the golfer sights down the shaft and then pivots the putter about the pivot points to an upright position. The putter has thereby been automatically aligned.

12 Claims, 11 Drawing Figures

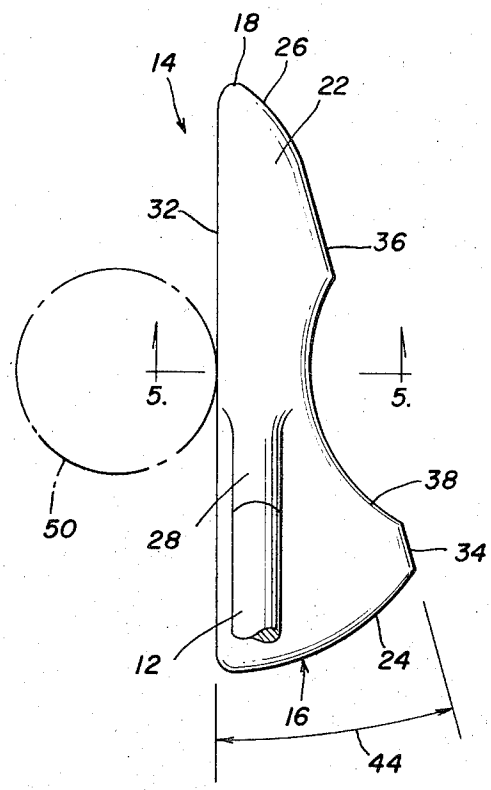


FIG. 1

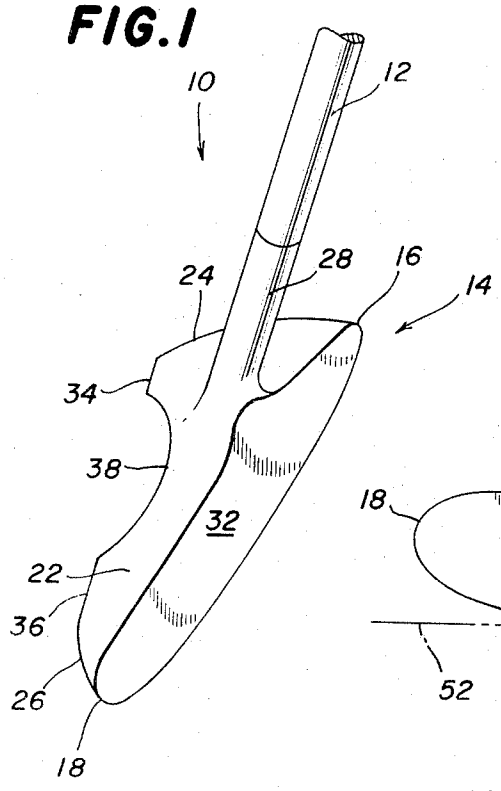


FIG. 2

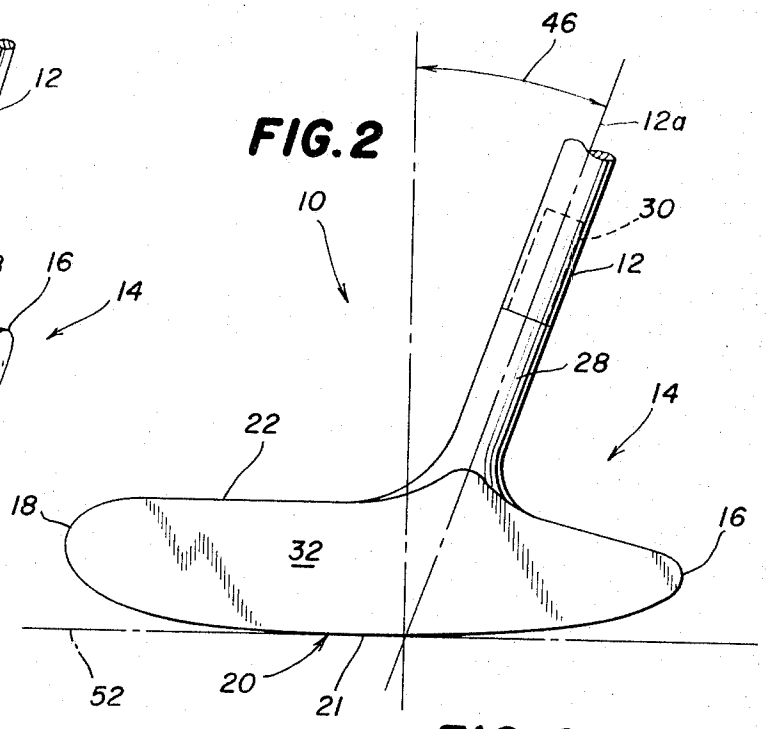


FIG. 3

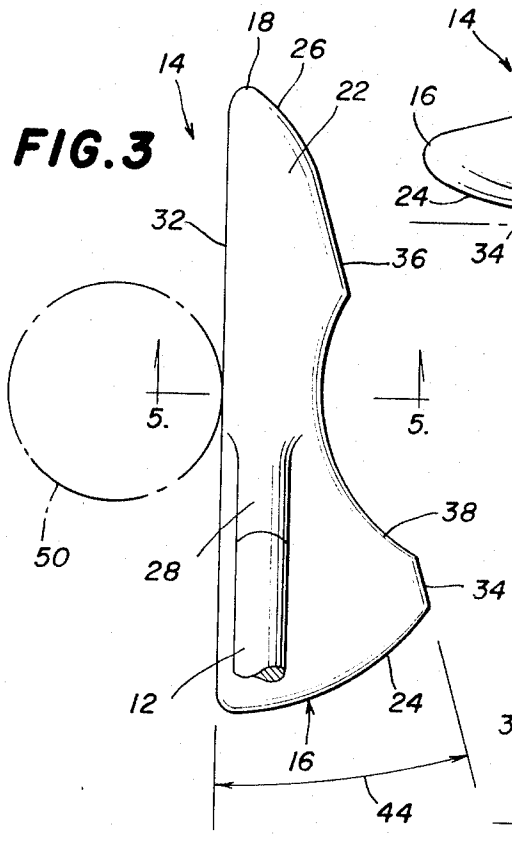


FIG. 4

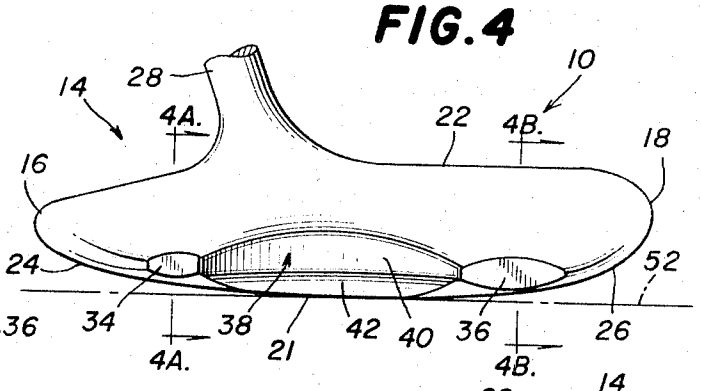


FIG. 5

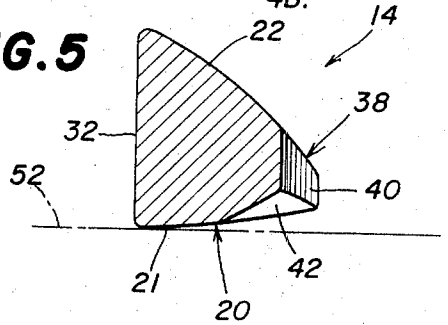


FIG. 4A

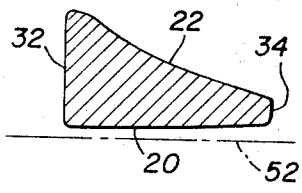


FIG. 4B

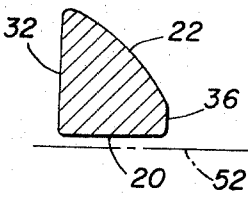


FIG. 6

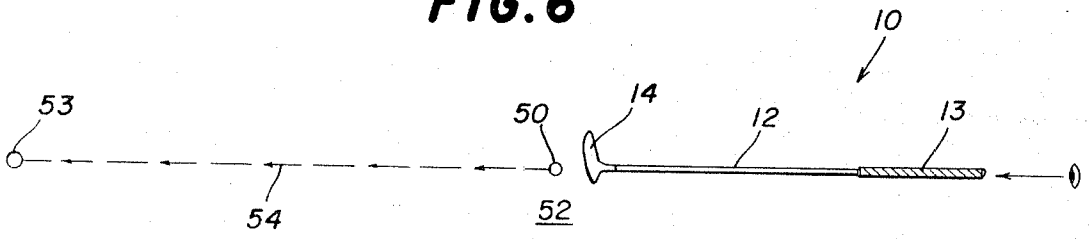


FIG. 7

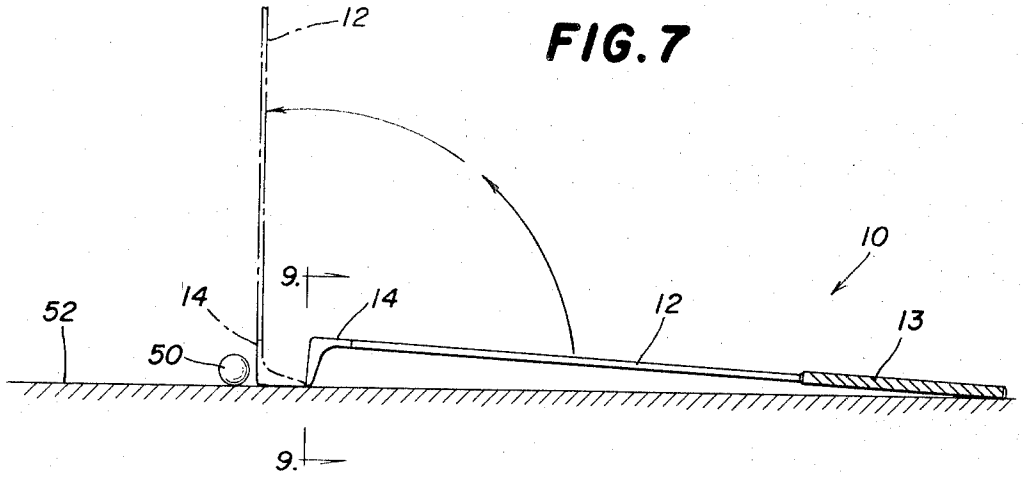


FIG. 8

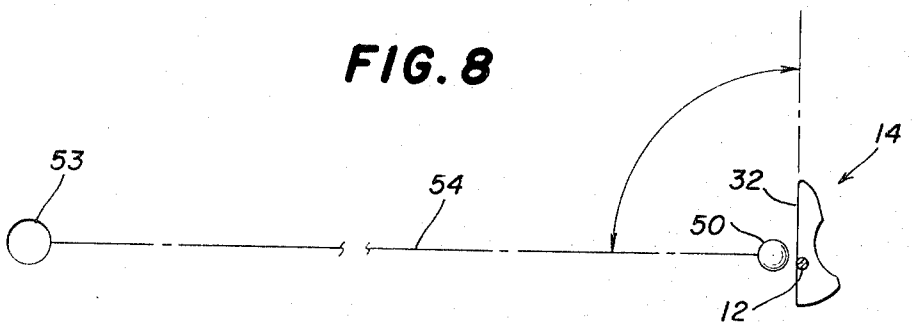
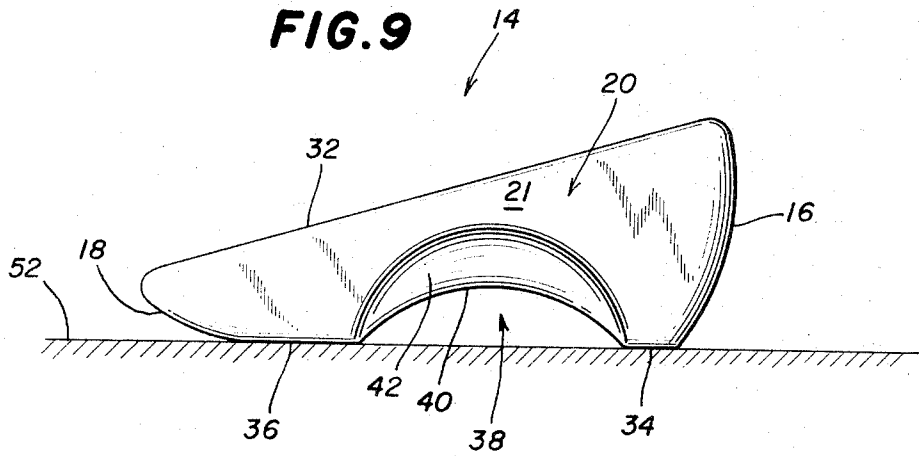


FIG. 9



PUTTER

BACKGROUND OF THE INVENTION

As any golfer will attest, a significant facet of the game is the ability to putt accurately. There are many ways of putting and aligning a putt. One of the most prevelant is first to analyze the lie of the ball relative to the hole and decide upon a direction for the ball to travel to fall into the hole. In making such analysis, the golfer will walk around the immediate area of the ball and often walk around to the other side of the hole so that it is between him and the golf ball. Usually he will return to a position behind the ball and crouch down to align the putt and decide upon a direction in which the ball should travel to drop into the hole. After making some mental notes, he gets up and assumes the usual ball-addressing position. Attempting to recall the mental notes made while crouching behind the ball, he will wiggle the putter accordingly until the face of the putter head is perpendicular to the direction decided upon. However, often he will not have translated his mental notes precisely or will have forgotten them completely, and the ensuing putt will go astray.

SUMMARY OF INVENTION

It is therefore an important object of the present invention to provide an improved putter.

Another object is to provide a putter by which automatic alignment of a putt may be achieved.

Still another object is to enable one to align his putt by crouching behind the ball and then to pivot the putter to an upright position while maintaining the selected alignment.

Yet another object is to provide a putter which has automatic alignment features, yet is finely balanced.

A further object is to provide a putter head which has automatic alignment features along with a very low center of gravity.

A still further object is to provide a putter head which has automatic alignment features that can be modified to accommodate the idiosyncrasies of a particular golfer.

Yet a further object is to provide a putter which has an automatic alignment surface on the rear thereof, but which has features enabling the putter to be used alternatively by placing it in front of the ball during alignment of the putt.

Th summary, there is provided a putter for use on a putting green, comprising a shaft having an axis, a head at one end of the shaft, the head including a front face for striking a golf ball and two pivot points opposite the front face, there being a first predetermined angle between the front face and a straight line through the pivot points, the head including a bottom surface having a portion which is tangent to an imaginary surface that coincides with the surface of the putting green when the putter assumes a predetermined ball-addressing position, there being a second predetermined angle between the axis of the shaft and a normal to the imaginary surface, the second predetermined angle being substantially equal to the first predetermined angle, whereby the putter is used by first positioning it in a prone position so that the pivot points are on the green and the shaft is aligned with a proposed direction of travel of a golf ball and then pivoting the putter about the pivot points to said predetermined ball-addressing position in which the bottom surface portion is on the green and thereby automatically causing the front face to be perpendicular to the proposed direction of travel of the golf ball.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel steps and certain features of construction, and a combination of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the steps and in the form, proportion, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

For the purpose of facilitating an understanding of the invention, there is illustrated in the accompanying drawings a preferred embodiment thereof, from an inspection of which, when considered in connection with the following description, the invention, its mode of construction, assembly and operation, and many of its advantages should be readily understood and appreciated.

FIG. 1 illustrates a perspective view of a fragmentary portion of a putter incorporating therein the features of the invention;

FIG. 2 is a front elevational view on an enlarged scale of the putter of FIG. 1;

FIG. 3 is a top plan view of the putter head and the fragmentary portion of the shaft;

FIG. 4 is a rear elevational view of the putter;

FIG. 4A is a view in vertical section taken along the line 4A—4A of FIG. 4;

FIG. 4B is a view in vertical section taken along the line 4B—4B of FIG. 4;

FIG. 5 is a view in vertical section taken along the line 5—5 of FIG. 3, but on an enlarged scale;

FIG. 6 is a view of the putter on a putting green as used during alignment;

FIG. 7 is a side elevational view of the putter of FIG. 6 in its alignment position and also illustrating a phantom view of the putter in its upright position;

FIG. 8 is a plan view of the putter head in its upright position and its relationship to the golf ball and the hole on the putting green; and

FIG. 9 is an enlarged bottom view of the putter head as it lies on the putting green when in its alignment condition.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Turning now to the drawings, there is illustrated a putter **10** incorporating therein the features of the present invention. The putter **10** comprises a shaft **12** which may be, for example, an elongated hollow tube. Provided at one end of the shaft **12** is the usual grip **13** which provides a means for gripping or holding the putter **10.** Secured to the shaft **12** at the other end thereof is a putter head **14.**

The putter head **14** is defined by a heel **16** at one end thereof and a toe **18** at the other end thereof. Te bottom surface **20** of the head **14** extends from the heel **16** to the toe **18** and defines the entire bottom of the head **14.** The bottom surface **20** includes a portion **21** which is substantially flat and is adapted to rest on a putting

green. The rest of the bottom surface **20** is curved upwardly, that is, away from the portion **21.** Specifically, that portion of the bottom surface **20** in the region of the heel **16** is curved upwardly, as is that region of the bottom surface **20** near the toe **18.** However, it is not necessary that the bottom surface **20** have any region which is flat.

The head **14** has a top surface **22** which slopes downwardly from the front of the head **14** toward the rear, whereby the thickness or height of the head **14** adjacent to the front thereof is substantially greater than the thickness or height of the head **14** near the rear thereof. The slope of the top surface **22** at the heel **16** of the putter head **14** is substantially less than the slope of the top surface **22** in the region of the toe **18**; in other words, as shown in FIGS. **4A** and **4B**, the region of the top surface **22** at the heel **16** forms an angle with the bottom surface **20** less than the angle between the surfaces **20** and **22** at the toe **18.** The bottom surface **20** mates with the top surface **22** in the region of the heel **16** along an edge **24** which has a slight lateral curve. Similarly, the bottom surface **20** mates with the top surface **22** in the region of the toe **18** along an edge **26** which is also slightly curved laterally. The top surface **22** thus has a gentle flow so as to give the head **14** a very attractive appearance.

Protruding upwardly from the top surface **22** and toward the heel **16** is a hosel **28,** which has a reduced end portion **30.** The reduced end portion **30** frictionally engages in the shaft **12.** Usually an adhesive is used to furnish a secure and permanent interconnection between the shaft **12** and the hosel **28.** The axis of the shaft **12** is aligned with, and is a continuation of, the axis of the hosel **28.**

The head **14** has a front face **32** which is preferably inclined slightly toward the shaft **12,** so as to be tilted upwardly when the putter **10** is in the ball-addressing position. The front face **32** defines a striking surface for striking a golf ball to move it in a selected direction on a putting green. The head **14** further comprises a rear surface, which, in the form illustrated, consists of a pair of spaced-apart rear surface regions **34** and **36.** The regions **34** and **36** are coplanar and define an imaginary surface which intersects the front face **32.** An arcuate recess **38** is formed in the rear surface between the rear surface regions **34** and **36.** The recess **38** has a curvature which corresponds generally to the curvature of a golf ball. The recess **38** is defined by a vertical surface **40** that is arcuate, the directrix of which is substantially parallel to the shaft **12.** The recess **38** also includes a flared surface **42** which extends from the vertical surface **40** and intersects the bottom surface **20.** The flared surface **42,** therefore, effectively reduces the width of the flat portion **21** of the bottom surface **20.**

There is a first predetermined angle **44** (FIG. **3**) between the front face **32** and the imaginary surface defined by the rear surface regions **34** and **36.** There is also a second predetermined angle **46** (FIG. **2**) between the axis **12a** of the shaft **12** and a normal to the flat portion **21** of the bottom surface **20.** The first and second angles **44** and **46** are substantially equal. Throughout the detailed description and the claims appended thereto, the phrase "substantially equal" should be taken to mean exactly equal insofar as it is technically possible from a manufacturing standpoint. As previously explained, the bottom surface **20** need not have a flat portion **21,** in which case the angle **46** would be between the shaft axis **12a** and a normal to an imaginary surface that coincides with the surface of the putting green when the putter **10** assumes the ball-addressing position depicted in FIG. **2.**

Turning to FIGS. **6–9,** the use of the putter **10** will be described. The golfer studies the lie of his ball **50** and its position relative to the hole **53** on the putting green **52.** In accordance with usual practice, the golfer crouches behind the putter **10** which is, in turn, placed in a prone position behind the ball **50,** as shown in FIG. **6.** The shaft **12** is used as a sighting means and is so positioned as to be aligned with the proposed path of travel **54** of the golf ball **50.** In the example shown in FIG. **6,** the putting green **52** is assumed to be perfectly flat whereby the path of travel **54** of the golf ball **50** to the hole **53** will be a straight line. The shaft **12** of the putter **10** is then shifted back and forth until it is aligned with the proposed path of travel **54.** This is done by sighting down the length of the shaft **12.** It will, of course, be appreciated that the putting green usually is not perfectly flat, and there will be what is commonly referred to as a "break," so that the ball **50** does not roll along a straight path, but, rather, will curve in one or more directions as it rolls toward the hole **53.** For example, if the right-hand side of the green **52** (above the hole **53,** as viewed in FIG. **6**) slopes downwardly to the left-hand side of the green (below the hole **53,** as viewed in FIG. **6**), then the golfer would decide on a proposed path of travel **54** to the right of the hole **53** (above the hole **53,** as viewed in FIG. **6**). To compensate for such slope, the shaft **12** would be shifted to place it in alignment with such proposed path of travel.

As is best seen in FIG. **9,** the rear surface regions **34** and **36** rest on the green **52** during the alignment procedure. Because of the width of the putter **10,** the shaft **12** may slope downwardly, as shown in FIG. **7,** when the grip **13** is resting on the green **52,** although such downward slope is not necessary. The golfer will normally hold the grip **13** and move the putter **10** back and forth until the shaft **12** is aligned with the proposed direction of travel.

The golfer then pivots the putter **10** in the direction shown in FIG. **7** about the surface regions **34** and **36** which, therefore, function as pivot points. When the shaft **12** has reached the upright, ball-addressing position indicated by the phantom lines in FIG. **7,** the golfer will have simultaneously walked around to the usual position for putting. As shown in FIG. **8,** the front face **32** will automatically be perpendicular to the proposed direction of travel **54** of the ball **50.** The golfer needs to make no adjustments, since the putter **10** is now perfectly aligned. He then takes a stroke in the usual fashion, causing the ball **50** to traverse the selected direction of travel.

In order to accomplish the above-described operation, it is necessary that the angles **44** and **46** be substantially equal. In other words, the closer the shaft **12** is to being perpendicular to the portion **21** of the bottom surface **20,** the more nearly the imaginary plane defined by the rear surface regions of **34** and **36** is parallel to the front face **32.** In one embodiment of the invention, the angles **44** and **46** were **20°.** Of course, the farther the shaft **12** deviates from being perpendicular to such portion **21,** the greater the deviation of such imaginary plane is from being parallel to the front face

32. The shaft 12 thus may have a "medium" lie which is what is depicted in the drawings; or it may have an "upright lie," meaning that the shaft 12 is more nearly perpendicular to the portion; or it may have a "flat lie," meaning that the shaft is less perpendicular to such portion 21.

Once the putter 10 has been tilted to its upright position, so that the face 32 is perpendicular to the proposed direction of travel 54, the putter 10 is in a position for putting, as previously explained. However, the shaft 12 may be tilted forwardly counterclockwise, as viewed in FIG. 2) or rearwardly (clockwise) to achieve the most comfortable position for the golfer. Such tilting motion is possible because the bottom surface 20 in the regions of the heel 16 and the toe 18 are upwardly curved.

Referring to FIG. 2, the putter 10 assumes a predetermined orientation when it is in the ball-addressing position shown. When the putter 10 is tilted to the upright position shown, it will tend to assume a predetermined position with respect to any flat surface, whether or not the bottom surface 20 includes a flat portion 21. The portion (or even point) of the bottom surface 20 which naturally contacts the putting green 52 when the putter 10 is tilted to its upright position is tangent to an imaginary surface that coincides with the surface of the putting green 52 when the putter 10 is in the ball-addressing position.

Although the rear surface regions 34 and 36 in the above-described embodiment to be spaced from the surface of the putting green 52 when the putter 10 is in the upright, ball-addressing position, it is to be understood that the bottom surface 20 can be so contoured that the lowermost points of the surface regions 34 and 36 contact the surface of the putting green 52, both in the prone and upright positions of the putter 10. In that case, such points of the surface regions 34 and 36 themselves provide the pivot points to pivot the head 14 from the prone position in which the surface regions 34 and 36 contact the green 52 to the upright position in which the bottom surface 20 contacts the putting green.

The recess 38 reduces the quantity of material necessary for construction of the putter head 14. Such recess also reduces the mass of the head 14 centrally, so that a greater proportion of the mass is present in the regions of the heel 16 and the toe 18. Such mass distribution has proved highly effective. The recess 38 is defined partially by the flared surface 42 which reduces the width of the flat portion 21 of the bottom surface 20. This improves the stability of the putter 10, as it is pivoted from the prone position to the upright position by minimizing the tendency of the head 14 to rock as it is being so pivoted.

Another advantage of the recess 38 is that it reduces the size of the rear surface to two small rear surface regions 34 and 36. In manufacturing the head 14, these rear surface regions 34 and 36 may be ground to achieve the selected value of the angle 44. In certain instances, it may be desirable to have some difference between the angles 44 and 46. For example, the golfer may have some idiosyncrasy in his putting stroke, which causes the ball to veer one way or the other, rather than in the selected direction. Such idiosyncrasy can be compensated for by changing the angle 44. The regions 34 and 36 can easily be ground to obtain the desired angle, since the regions are small in area.

Although the putter 10 is designed to be used primarily as described with reference to FIGS. 6–9, it may be used in the normal way of simply sighting the putt while in a crouched position, then addressing the ball and finally putting. In such case it is usual for the golfer to place the putter in front of the ball and shifting it until the striking face is perpendicular to the proposed direction of travel. The recess 38 is shaped to accommodate the front of a ball while in such position. In this manner, the putter 10 may be brought up next to the ball, despite the presence of a pivoting surface consisting of the rear surface regions 34 and 36.

The fact that the top surface 22 is inclined downwardly and toward the rear lowers the center of gravity of the head 14. This is a highly desirable characteristic, since the lower the center of gravity, the better the swinging action.

Although the putter 10 is illustrated as being of the "center shafted" type, that is one in which the shaft 12 is secured to the head 14 at a point immediate to the heel 16 and the toe 18, it should be understood that other types of putters can utilize the invention herein described. For example, the putter 10 may be the kind in which the shaft is secured to the head 14 at or very near the heel 16. Although the shaft 12 is shown to be straight, the shaft or hosel 28 can be bent.

The bottom surface 20 apart from the portion 21, by being curved, facilitates use of the putter 10 on a surface which is not horizontal. Thus, if the golfer has a downhill lie, the heel 16 will be nearer to the green 52; whereas, if he has an uphill lie, the toe 18 will be nearer to the green 52.

The putter head 14 may be made by one of a number of methods, such as casting, forging, etc. It may be constructed of any suitable material such as plastic or brass.

Existing putters may be modified to incorporate the automatic alignment features. A suitably-formed rear member can be provided which is attachable to a standard putter. Such member would have a rear surface that defines pivoting means.

It is believed that the invention, its mode of construction and assembly, and many of its advantages should be readily understood from the foregoing without further description, and it should also be manifest that, while a preferred embodiment of the invention has been shown and described for illustrative purposes, the structural details are, nonetheless, capable of wide variations within the purview of the invention, s defined in the appended claims.

What is claimed is:

1. A putter for use on a putting green, comprising a shaft having an axis, a head at one end of said shaft, said head including a front face for striking a golf ball and two pivot points opposite said front face, there being a first predetermined angle between said front face and a straight line through said pivot points, said head including a bottom surface having a portion which is tangent to an imaginary surface that coincides with the surface of the putting green when the putter assumes a predetermined ball-addressing position, there being a second predetermined angle between the axis of said shaft and a normal to said imaginary surface, said first and second predetermined angles being substantially equal and being substantially greater than zero degrees, whereby said putter is used by first positioning it in a prone position so that said pivot points

are on the green and said shaft is aligned with a proposed direction of travel of a golf ball and then pivoting said putter about said pivot points to said predetermined ball-addressing position in which said bottom surface portion is on the green, thereby automatically causing said front face to be perpendicular to the proposed direction of travel of said golf ball.

2. The putter set forth in claim **1**, wherein said shaft is substantially straight.

3. The putter set forth in claim **1**, and further comprising a grip at the other end of said shaft.

4. The putter set forth in claim **1**, wherein said head has a heel and a toe and said shaft is attached to said head at a region between said heel and said toe.

5. The putter set forth in claim **1**, wherein the center of gravity of said head is below the geographical midpoint thereof.

6. The putter set forth in claim **1**, wherein said head has a heel and a toe which are curved in the direction toward said shaft so as to be curved upwardly when said putter is in said ball-addressing position.

7. The putter set forth in claim **1**, wherein the rear portion of said bottom surface is flared toward said shaft to reduce the area of contact of said bottom surface with the putting green.

8. The putter set forth in claim **1**, wherein said first and second predetermined angles are about 20°.

9. A putter for use on a putting green, comprising a shaft having an axis, a head at one end of said shaft, said head including a front face for striking a golf ball and a rear face, there being a first predetermined angle between said front face and said rear face, said head including a bottom surface having a portion which is tangent to an imaginary surface that coincides with the surface of the putting green when the putter assumes a predetermined ball-addressing position, there being a second predetermined angle between the axis of said shaft and a normal to said imaginary surface, said first and second predetermined angles being substantially equal and being substantially greater than zero degrees, whereby said putter is used by first positioning it in a prone position so that said rear face is on the green and said shaft is aligned with said proposed direction of travel of a golf ball and then pivoting said putter to said predetermined ball-addressing position about the juncture between said rear face and the bottom surface until said bottom surface portion is on he green, thereby automatically causing said front face to be perpendicular to the proposed direction of travel of said golf ball.

10. The putter set forth in claim **9**, wherein a recess is formed in said rear face to accommodate at least a portion of the golf ball, whereby the putter may be aligned by placing it in front of the golf ball so that a portion of the golf ball is in said recess in such a manner that the front face is perpendicular to the proposed direction of travel, whereafter said head may be shifted to a position immediately behind the golf ball preparatory to putting.

11. The putter set forth in claim **9**, wherein said rear face includes two relatively-small coplanar and spaced regions.

12. The putter set forth in claim **11**, and further comprising a recess in said rear face, the rear of said bottom surface being upwardly flared in the region of said recess to minimize the thickness of said portion of said bottom surface that contacts the putting green.

* * * * *