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Vella

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[54] **PUTTER HAVING CIRCULAR LEVEL**

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[52] **U.S. Cl.** ..... **273/162 B;** 273/167 F; 33/379; 33/263

[51] **Int. Cl.**[2] **B63B 53/04**

[58] **Field of Search** ..... 273/162 B, 163 R, 164, 273/167–175, 194 R, 194 A; 33/174 F, 377–382, 263

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Primary Examiner—Richard J. Apley

[57] **ABSTRACT**

The putter has a head with a thin front wall and an arcuate bottom wall. A circular level is mounted on a support which is cantilevered rearwardly from the front wall.

3 Claims, 5 Drawing Figures

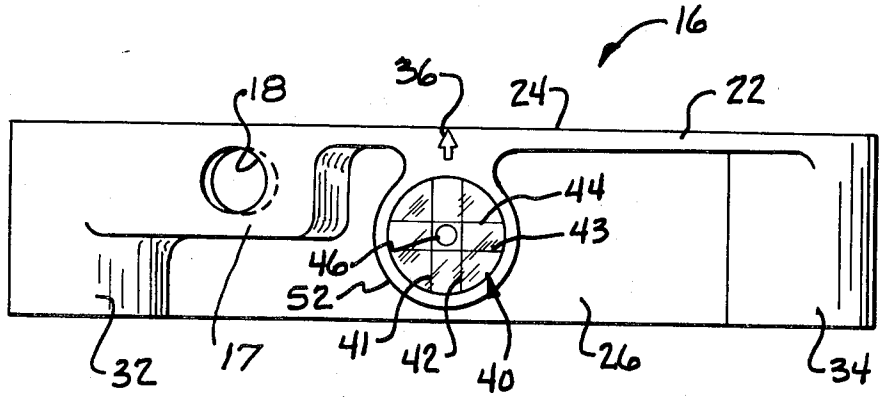
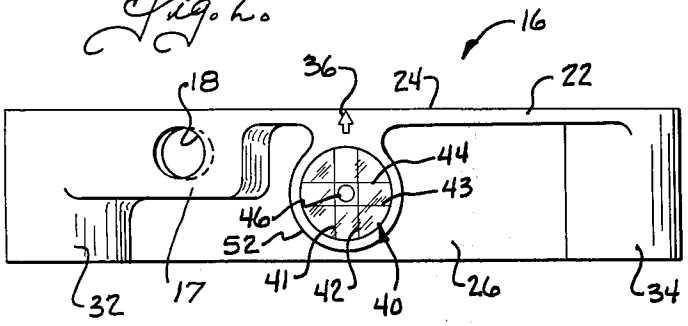


Fig. 2.



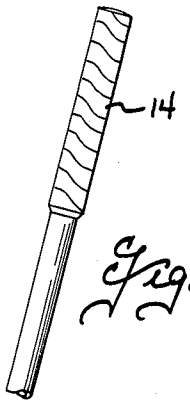


Fig. 1.

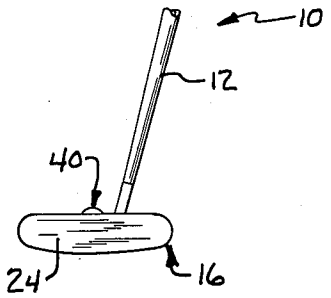
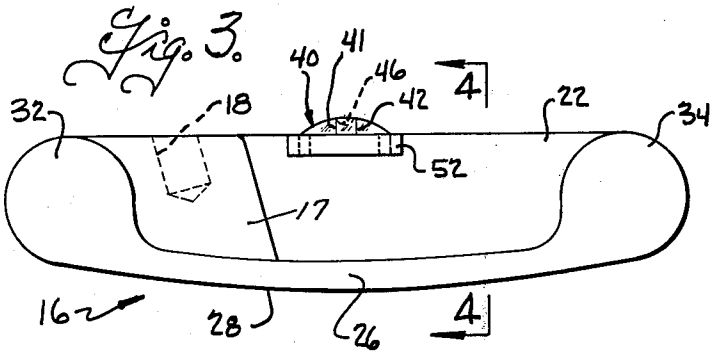


Fig. 3.



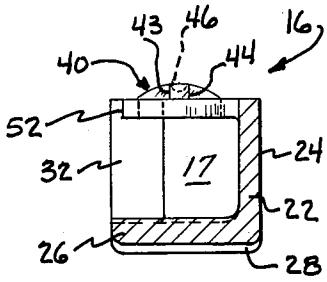
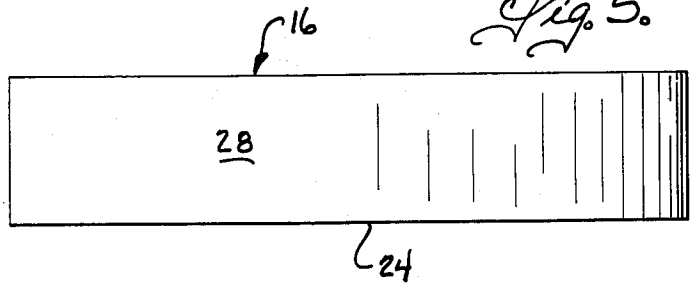


Fig. 4.

Fig. 5.



PUTTER HAVING CIRCULAR LEVEL

BACKGROUND

The invention pertains generally to the art of games and more particularly to the game of golf.

Putting is a very important part of the game of golf. Various apparatus have been previously provided to aid a golfer in his putting. For example, levels have been provided on putter heads as shown in U.S. Pat. No. 3,306,618, issued Feb. 28, 1967 to J. L. Liljequist. The purpose of that level was to indicate the slope of the green and this necessitated a flat bottom for the putter head. The flat bottom, however, sometimes interfered with the putting action. Most putters are constructed with a face that is disposed at a rearwardly inclined angle of 2° or 3° from the vertical and with considerable mass behind the face at the center of percussion.

SUMMARY

The present invention relates to a golf club, and more particularly to an improved putter.

It is an object of the present invention to provide an improved putter with a bottom wall shaped to have minimized drag during putting.

Another object is to provide an improved putter having an upright front wall and a level to assure that the front wall is always positioned upright for putting operation.

Still another object is to provide an improved putter with a relatively thin front wall.

Yet another object is to provide an improved putter in accordance with the foregoing object but with a center of percussion at the center of the head.

It is another object to provide an improved putter in accordance with the foregoing object and with a unique mounting arrangement for a level at the center of the head.

Another object of the present invention is to provide an improved putter with a two-dimensional level to maintain the face at a pre-selected angle to the horizontal and the shaft at a pre-selected angle to the vertical.

These, and other objects and advantages of the present invention, will become apparent as the same becomes better understood from the following detailed descriptions when taken in conjunction with the accompanying drawings.

DRAWING

FIG. 1 is a front elevation of a putter constructed in accordance with the present invention and having portions of the shaft broken away;

FIG. 2 is a top view of the putter head;

FIG. 3 is a rear view of the putter head;

FIG. 4 is a cross-sectional view taken along lines 4—4 of FIG. 3; and

FIG. 5 is a bottom view of the putter head.

DESCRIPTION

Reference is now made more particularly to the drawings which illustrate the best presently known mode of carrying out the invention and wherein similar reference characters indicate the same parts throughout the several views.

In FIG. 1 there is shown an improved putter, generally designated **10**, including a shaft **12** having a handle **14** at one end and a putter head **16** at the other end.

The putter head **16** is preferably made of brass and includes a shaft mounting block **17** which has an opening **18** into which the shaft is received.

As best seen in FIGS. **2** and **4**, the putter head **16** has a relatively thin front wall **22** which defines an elongate, planar, ball-engaging face **24** at the front side of the putter. In the embodiment illustrated, face **24** lies in a plane parallel to the axis of the shaft **12.** A bottom wall **26** is generally of uniform thickness and has an arcuate lower surface **28** to minimize the drag while putting. Lower surface **28** is disposed 90° from the ball-engaging face **24,** as shown in FIG. **4.** As can be seen from the drawing, walls **24** and **26** form an L-shaped cross-section in the central area of the putter head without any material behind the central area of the front wall **22.** This means that the location where the ball would ordinarily be struck is a thin front wall without any backing. It has been found that this configuration provides a greater roll to the ball caused either by the vertical front wall or by a slight resiliency in the front wall **22** upon impact. In any event, the thin front wall **22** provides a more pleasing sound upon striking a ball than the dull "thud" provided by a putter with considerable mass behind the point of impact.

To provide sufficient mass to the putter head **16,** first and second members **32, 34** are provided at either end of the putter head. In the preferred embodiment illustrated, members **32, 34** are generally cylindrical in shape and are located above the bottom wall **26** and behind the front wall **22.** Member **32** is alongside shaft mounting block **17** as shown on the drawing. These members are formed integrally with the walls **22, 26** and extend only to the back side of the bottom wall **26** and to the top edge of the front wall **22.** The size of members **32, 34** and the location of the opening **18** is selected so that the center of percussion is at the longitudinal center of the putter head **16.** The center of percussion is indicated by the arrow **36** shown in FIG. **2.**

A circular level, generally designated **40** is mounted on the putter head **16** and is operatively aligned with the ball-engaging face **24** to indicate when the face lies in a vertical plane. The level **40** is also operatively aligned with the shaft **12** to indicate when the axis of the shaft is at a pre-selected angle to the vertical, usually 15°. The level **40** may be constructed in any manner to achieve an accurate circular level, and may, for example, be constructed in accordance with the method described in U.S. Pat. No. 3,061,920, issued Nov. 6, 1962 to L. A. Johnson. Level **40** has four ceramic cross-lines **41–44** arranged in a tic-tac-toe configuration. In this manner, lines **41** and **42** cooperate with a bubble **46** to indicate when the axis of the shaft **12** is at said pre-selected angle. Similarly, lines **43** and **44** cooperate with the bubble **46** to indicate when the ball-engaging face **24** lies in a vertical plane.

In accordance with the present invention, the level **40** has a diameter of 15 to 15½ millimeters and a sensitivity of 180 minutes per one-tenth inches movement of the bubble **46.** The cross-lines **41–44** define a centering square have a dimension of 0.187 inch on each side. Similar levels have a sensitivity in the range of about 100 to 240 minutes per one-tenth inch of movement are also suitable for use in the present invention.

The level **40** is preferably mounted at the top of the front wall so that the bubble **46** is about at the same level as the top of the golf ball to be putted. To mount the level **40,** a rearwardly extending support **52** is canti-

levered rearwardly from the top of the front wall **22** at the longitudinal center thereof. Support **52** is ring-shaped and encompasses the body of the level **40.** Preferably, the support **52** extends no further rearwardly than the back side of the bottom wall **26** and may terminate frontwardly thereof as in the illustrated embodiment.

While a preferred embodiment of the invention has herein been illustrated and described, this has been done by way of illustration and not limitation, and the invention should not be limited except as required by the scope of the appended claims.

What is claimed is:

1. An improved putter including a shaft having one end adapted to be held by a golfer, and a putter head fixed to the other end of the shaft, characterized by said putter head having:

a front wall defining an elongate, generally planar, ball-engaging face;

a bottom wall having a convex arcuate lower surface from the toe to heel portion of the club head;

said walls having an L-shaped cross-section in the central area of the putter head intermediate the ends thereof, without any material contiguous to the central area of the back side of the front wall and without any reinforcing flange at the top of the front wall;

an enlargement at each end of the putter head above the bottom wall and behind the front wall to provide mass to the club head, each enlargement extending upwardly approximately to the top of the front wall;

a shaft mounting block between said enlargements above the bottom wall and behind the front wall;

the shaft being fixed to the shaft mounting block at a location so that the center of percussion is at the midpoint of the ball-engaging face;

a circular level having a sensitivity in the range of about 100 to 240 minutes per one-tenth inch of movement, the circular level being operatively aligned with the ball-engaging face to indicate when the face lies at a pre-selected angle to the horizontal and with the shaft to indicate when the axis of the shaft is at a pre-selected angle to the vertical; and

a rearwardly-extending support cantilevered rearwardly from the top of the front wall for holding the circular level at said alignment and for permanently mounting the circular level on the putter head behind the front wall adjacent the top thereof and midway between the ends of the putter head, and the support having a width substantially less than the length of the top of the front wall.

2. An improved putter as set forth in claim **1** wherein the circular level has cross-lines in a cross-hatched configuration.

3. An improved putter as set forth in claim **1** wherein the ball-engaging face lies in a plane parallel to the axis of the shaft; and arcuate lower surface of the bottom wall is disposed 90° from the ball-engaging face.

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