Nov. 19, 1968 D. K. McGOWAN 3,411,779

AIMING POINT INDICATOR FOR BILLIARDS

Filed Oct. 28, 1966 2 Sheets-Sheet 1

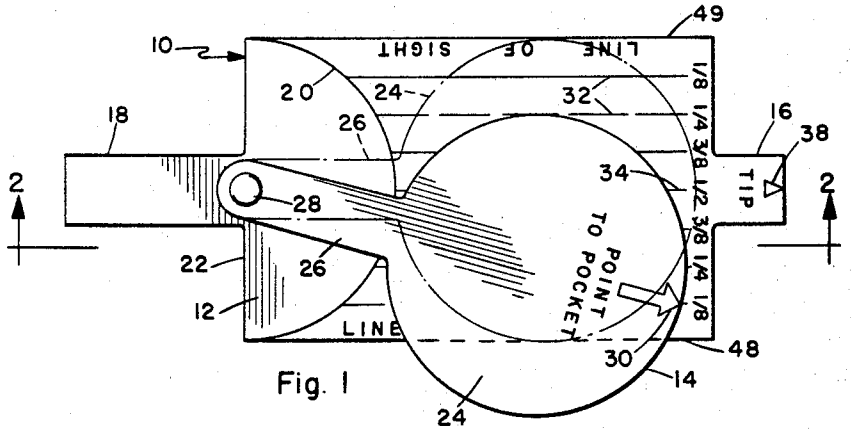


Fig. 1

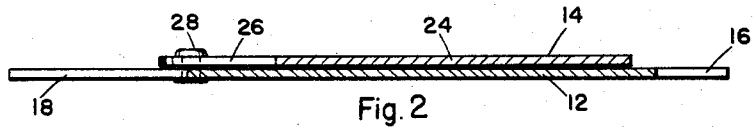


Fig. 2

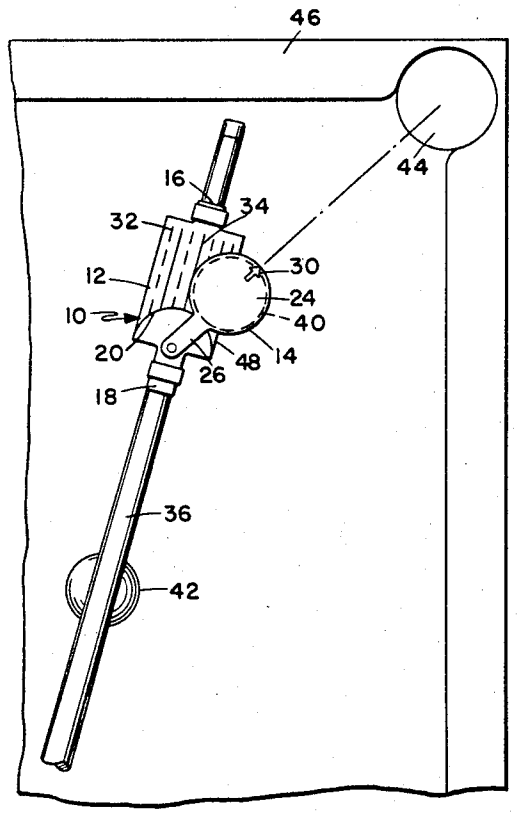


Fig. 3

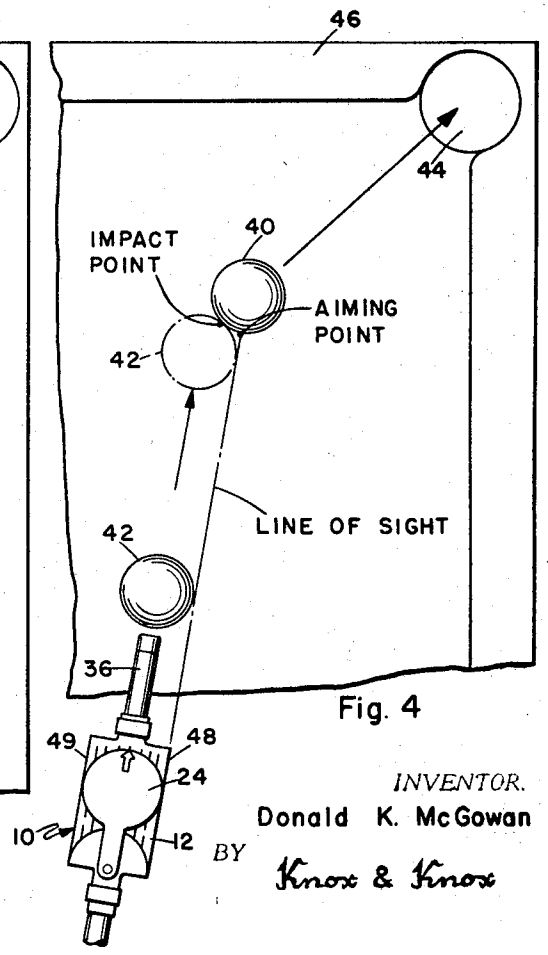


Fig. 4

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Nov. 19, 1968 D. K. McGOWAN 3,411,779

AIMING POINT INDICATOR FOR BILLIARDS

Filed Oct. 28, 1966 2 Sheets-Sheet 2

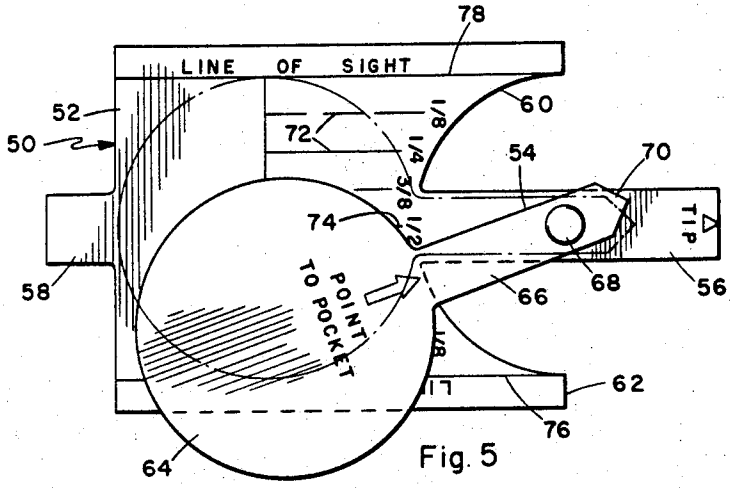


Fig. 5

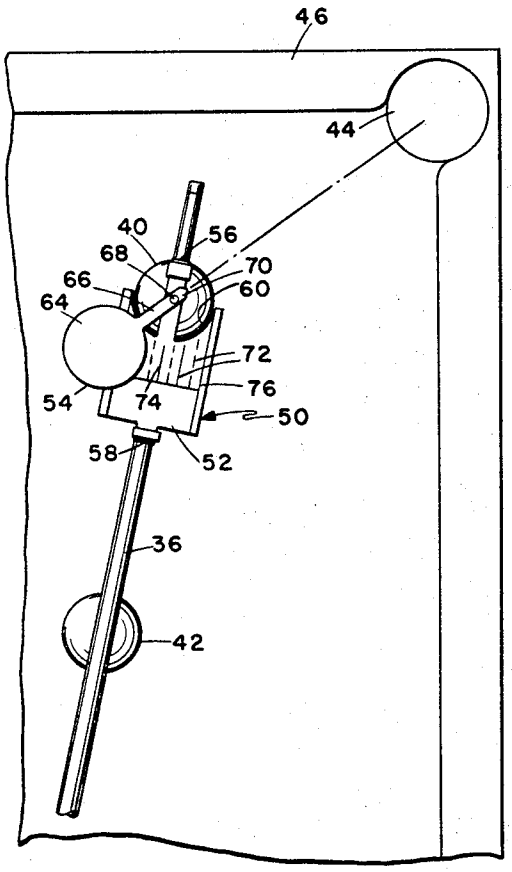


Fig. 6

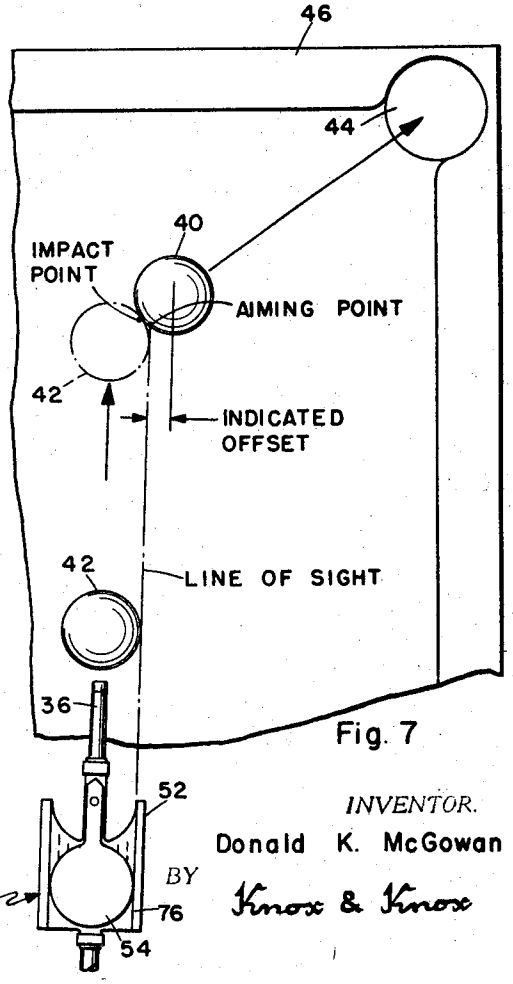


Fig. 7

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AIMING POINT INDICATOR FOR BILLIARDS

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7 Claims. (Cl. 273—2)

The present invention relates to game apparatus and specifically to an aiming point indicator for billiards.

In the various forms of billiards the path of the cue ball and the subsequent path of the object ball to the selected pocket intersect at some specific angle, except in straight or full ball shots which are rare. With a little practice it is not difficult to see the required angle, but some skill is needed to determine the point of impact or the aiming point of the cue ball on the object ball. Several types of sighting or indicating devices have been developed, but these are usually complex units which are placed on the billiard table over the object ball and have adjustable portions to indicate the paths of the balls. In most cases the device must be removed before the shot is made, since the structure would interfere with play.

The indicator described herein is a small unit of simple design, with only one moving part and a directly readable scale and can be mounted on the billiard cue without interfering with play. In fact the cue can be used in the initial line-up of the shot, then the indicator used as an actual aiming point sight on the cue while making the shot.

Two forms of the indicator and their uses are illustrated in the drawings, in which:

FIGURE 1 is a top plan view of one form of the indicator;

FIGURE 2 is a sectional view taken on line 2—2 of FIGURE 1;

FIGURE 3 is a diagram showing the initial aiming point determination;

FIGURE 4 is a diagram showing sighting of the shot as determined in FIGURE 3;

FIGURE 5 is a top plan view of an alternative form of the indicator;

FIGURE 6 is a diagram showing aiming point determination with the indicator of FIGURE 5; and

FIGURE 7 is a diagram showing sighting of the shot as determined in FIGURE 6.

Similar characters of reference indicate similar or identical elements and portions throughout the specification and throughout the views of the drawing.

Referring now to FIGURES 1 and 2 of the drawings, the indicator **10** comprises a base plate **12** on which is mounted a movable pointer element **14**. Base plate **12** is a rectangular element of metal, plastic, cardboard, or other such rigid material and has arms **16** and **18** extending from opposite ends along the longitudinal center line thereof. On one end of base plate **12** is a semicircular ball locating arc **20** using the end edge **22** as a diameter, the radius of said arc being substantially the same as that of a standard billiard ball. For added convenience, described later, the width of base plate **12** is substantially equal to the diameter of a billiard ball.

Pointer element **14** comprises a ball disc **24**, of flat sheet material, with a radially extending arm **26** which is pivotally attached to base plate **12** by a pivot pin **28** at the center of radius of arc **20**. The length of arm **26** is equal to the radius of arc **20**, so that the ball disc **24** remains in tangential alignment with said arc as the pointer element is moved. At the edge of ball disc **24** diametrically opposed to arm **26** is a pointer, indicated as a directional arrow **30**, to be directed toward the selected pocket of the billiard table.

The width of base plate **12** is divided, by longitudinal lines **32**, into suitable increments of the diameter of a billiard ball, the outermost lines at the full width of the ball coinciding with the side edges of the base plate in this instance. As illustrated, the center line **34** is taken as one-half of the ball diameter or half ball, with divisions on each side for three-eighths, one-quarter and one-eighth ball positions. Other fractional portions or increments may be used but those indicated have been found to be convenient and sufficiently accurate for learning the technique involved.

If the unit is made from plastic material, portions or all of the two elements may be transparent to facilitate alignment in use. The various markings can be printed or impressed on the elements in any suitable manner depending on the material.

For most convenient use the indicator is attached to a billiard cue **36** near the tip by securing arms **16** and **18** to the cue with adhesive tape, rubber bands, or other such means, so that the longitudinal axis of base plate **12** is parallel to the cue axis. The arm **16** at the end remote from pivot pin **28** is marked in a suitable manner, as at **38**, to indicate that this end must be toward the tip of the cue.

As illustrated in FIGURE 3, an object ball **40** is to be driven by cue ball **42** into a corner pocket **44** of a billiard table **46**. To find the aiming point on the object ball **40** the ball disc **24** is held over the object ball **40** with arrow **30** pointing to pocket **46**. For clarity of illustration the object ball has been shown slightly smaller than the ball disc, although these will actually be of equal diameter for accuracy of alignment. Cue **36** is then swung so that the cue axis passes over the center of cue ball **42**, which will cause the base plate **12** to be angularly offset relative to pointer element **14**. This will offset the ball disc **24** so that one of the division lines is tangent or near tangent to the ball disc. In FIGURE 3, the center line **34** is shown as tangent to ball disc **24**, indicating an aiming point of one-half ball or the center of the ball. The alignment has been derived with reference to a tangent of the ball disc, which represents the object ball, so sighting will be made along a tangent to the cue ball in order to maintain proper relation of the balls.

Sighting for the shot is shown in FIGURE 4. Since the base plate **12** has a width equal to the diameter of cue ball **42**, the longitudinal edge **48** of the base plate on the near side, or side nearest the pocket **44**, can be used as a line of sight. The line of sight will then pass tangent to the cue ball, when the cue tip is in centered striking position, and intersect the object ball at its center or half ball position. If the cue ball is struck correctly the object ball will then be driven into the pocket as indicated. For a shot in which the object ball must be driven to a pocket in the direction opposite to that shown, the other longitudinal edge **49** of base plate **12** would be used for the line of sight.

It should be noted that the aiming point on the object ball is not the actual point of impact of the two balls. In fact the impact point need not be known or considered to make the shot. However, for a visual reference which may be useful in learning the technique, the arc **20** represents the cue ball at impact with the object ball, which latter is represented by the ball disc **24**. In FIGURE 3 it can be seen that the sighting edge **48** does intersect the ball disc at the half ball position, while the impact point is indicated at the intersection of the arc by the longitudinal axis of arm **26**.

An alternative form of the indicator is illustrated in FIGURES 5–7. This indicator **50** has a base plate **52** and a pointer element **54**, the base plate having longitudinally opposed arms **56** and **58** for attachment to a cue. Base plate **52** has a ball locating arc, which in this instance is an arcuate cut out **60** in one end, with the diameter at the end edge **62**. Pointer element **54** comprises a ball disc **64** with a radially extending arm **66**,

which is attached by a pivot pin **68** to arm **56** at the center of radius of cut out **60**. The pointer element can swing with ball disc **64** tangential to cut out **60**. The end of arm **66** remote from the ball disc has a pointer **70** to indicate the direction to the selected pocket.

Base plate **52** is provided with longitudinal graduation lines **72** at suitable increments with the central line **74** representing the half ball position.

Indicator **50** is attached to the cue **36** as described above and is used in the same general manner as indicator **10**. With the cue **36** aligned over the cue ball **42** and object ball **40**, the indicator is positioned so that the object ball is concentric with arcuate cut out **60**. Pointer element **54** is then swung to point at the selected pocket **44** and the position of ball disc **64** is noted on the base plate **52**. As shown in FIGURE 6, an aiming point slightly to the left of the three-eights ball mark is indicated. The shot is then made by placing the cue in striking position and sighting at the indicated point on the object ball along sight line **76** on base plate **52**.

To avoid pointed ends at edge **62** the base plate **52** has been made wider than the diameter of a ball, so the sight lines **76** and **78** are inset from the side edges and spaced apart at a distance equal to the ball diameter. If indicator **50** is made from plastic material, however, with arcuate portion **60** left transparent instead of being cut out, the width of the base plate could be reduced and the side edges used as sight lines, in the manner of indicator **10**.

It has been found that the aiming point on the object ball, once determined by the indicator, can be visually estimated with considerable accuracy in increments of ball diameter. It should be understood that the indicator is intended merely as a training aid to familiarize unskilled players with angles and aiming techniques involved in various billiard shots. The indicator can be secured at a convenient location on the cue, so as not to interfere with the natural positions of the hands holding and guiding the cue while making a shot.

It is understood that minor variation from the form of the invention disclosed herein may be made without departure from the spirit and scope of the invention, and that the specification and drawings are to be considered as merely illustrative rather than limiting.

I claim:

1. An aiming point indicator for billiards, for indicating the point on an object ball at which a cue ball must be aimed in order to direct the object ball to a selected pocket, the indicator comprising:

a base plate having a ball locating arcuate element corresponding to a portion of a billiard ball, and a calibrated scale, said scale having parallel demarcations extending adjacent to said arcuate element for indicating a progression of fractional portions of the diameter of the ball;

a pointer element including a disc portion representing a billiard ball, with an arm extending radially from said disc portion and being pivotally attached to said base plate at the center of radius of said arcuate element, and said disc portion being tangential to said arcuate element;

the adjusted position of said pointer, in use, giving a reading as one of said fractional portions, thus indicating the proper aiming point on an object ball.

2. An indicator according to claim **1**, and including means on said base plate for attachment to a billiard cue with said linear demarcations on said scale parallel to the axis of the cue.

3. An indicator according to claim **2**, wherein said means for attachment includes arm elements projecting from opposite ends of said base plate parallel to said linear demarcations.

4. An indicator according to claim **1**, wherein outermost demarcations of said scale are spaced apart at the diameter of a ball and coincide with sight lines along which a sight can be taken to the aiming point on the object ball.

5. An indicator according to claim **4**, wherein said sight lines correspond to the side edges of said base plate.

6. An indicator according to claim **1**, wherein said arcuate element is a cut out portion at one end of said base plate for concentric alignment with the object ball and said disc portion corresponds to the desired position of a cue ball at impact with an object ball.

7. An indicator according to claim **1**, wherein said disc portion positionally and dimensionally represents an object ball and said arcuate element correspondingly represents a cue ball at impact with the object ball.

References Cited

UNITED STATES PATENTS

3,220,122 11/1965 Miller ---------- 273—14 X

FOREIGN PATENTS

26,076 5/1913 Great Britain.
323,795 1/1930 Great Britain.

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T. ZACK, *Assistant Examiner.*