June 27, 1961 R. E. MARTING 2,989,810

BOWLING AID

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FIG. 1.

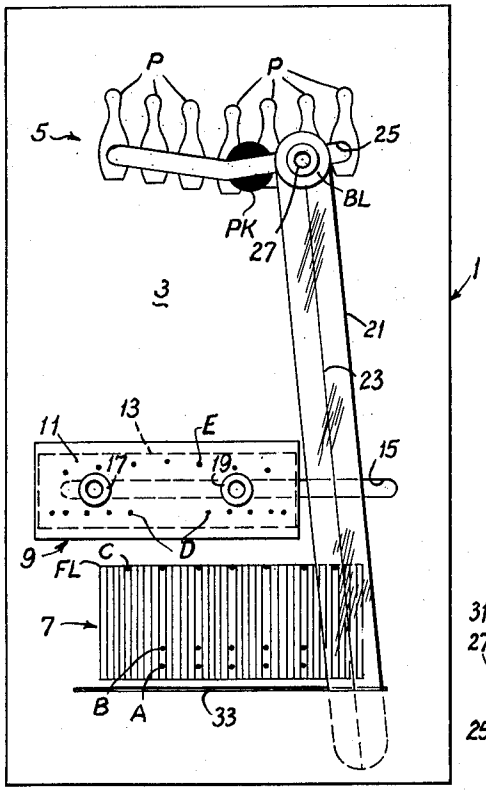

FIG. 2.

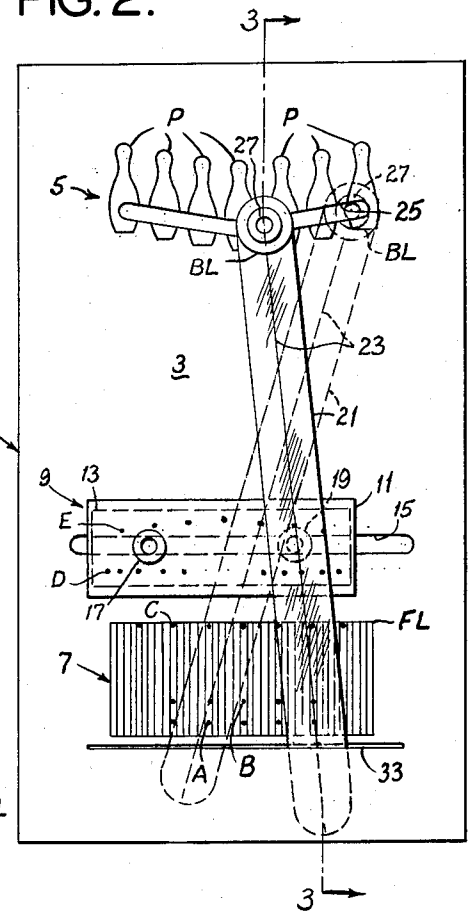

FIG. 3.

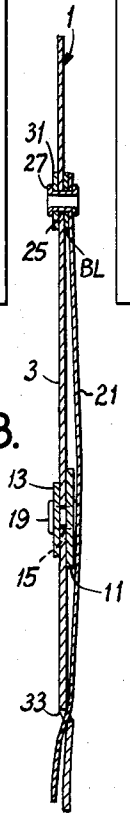

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FIG. 4.

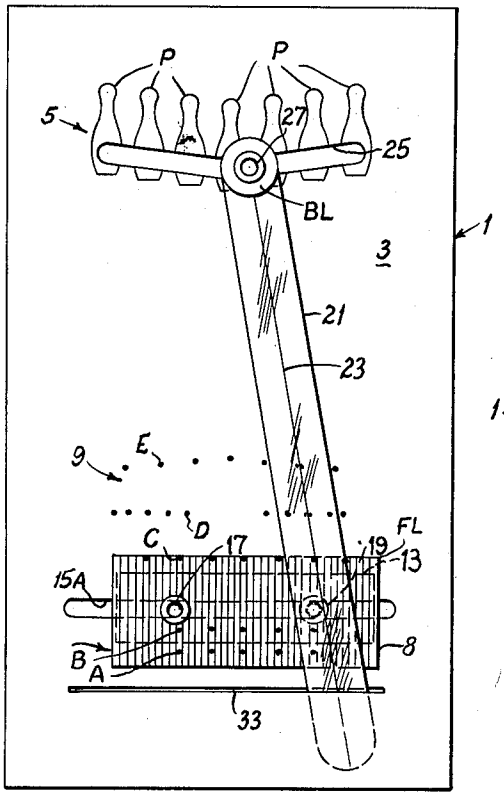
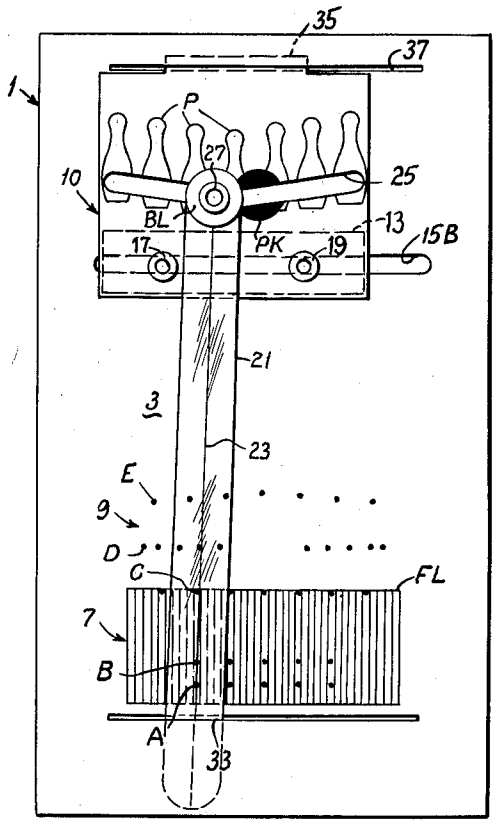


FIG. 5.



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BOWLING AID

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15 Claims. (Cl. 35—29)

This invention relates to bowling aids, and more particularly to a visuo-mechanical aid to bowlers.

Among the several objects of the invention may be noted the provision of a bowling aid which can be used by bowlers to improve their accuracy, consistency and score; the provision of a bowling aid of the class described which will assist bowlers in learning to "spot bowl" and to simply and effectively enhance their bowling game; the provision of such a bowling aid which will determine and establish certain reference points helpful in bowling and increasing the bowler's chances of bowling strikes and picking spares; the provision of a bowling aid that will serve as a guide for aligning the bowler with the alley and in guiding him during his bowling approach and delivery; and the provision of a bowling aid which is economical to manufacture, simple and convenient to use, and reliable in operation. Other objects and features will be in part apparent and in part pointed out hereinafter.

The invention accordingly comprises the constructions hereinafter described, the scope of the invention being indicated in the following claims.

In the accompanying drawings, in which several of various possible embodiments of the invention are illustrated,

FIG. 1 is a top plan view of one embodiment of a bowling aid of the present invention with the components thereof illustrated in a first possible alignment position;

FIG. 2 is a view similar to FIG. 1, but with the components thereof aligned in second and third possible positions;

FIG. 3 is a view in cross section taken on line 3—3 of FIG. 2; and,

FIGS. 4 and 5 are top plan views of two additional embodiments of bowling aids of the present invention.

Corresponding reference characters indicate corresponding parts throughout the several views of the drawings.

For a number of years, bowling alleys have been installed with certain indicia or marker spots provided on the approach section of the alley and in the forward end of the alley adjacent the approach section. These spots, usually in the form of round and/or dart-shaped wood inserts of contrastingly colored or grained wood, enable the bowler to position and align himself initially in the approach section and provide a guide for his bowling approach and delivery. After an initial warm-up during which the bowler bowls a few balls, he can usually establish with reasonable accuracy the proper initial position of his feet in the approach section of the alley and the proper alley spot to aim at during his approach and delivery to cause the ball to strike the so-called "strike pocket" (for right-handed bowlers this would be a point of ball impact between the #1 and #3 pins). Thereafter, by positioning his feet relative to the same selected spots on the approach section and aiming at the same selected alley spot during his delivery, the bowler should be able to direct the ball with substantial accuracy and consistency into the strike pocket. This style of bowling, commonly referred to as "spot bowling," can also be employed in picking spare pins, including splits, etc. However, it requires a high degree of skill and a vast amount of practice on the same alleys by a bowler to ascertain or establish not only the initial spot positions for

alignment and for guiding him in the proper delivery course to roll strikes but to pick all the various combinations of spare pins left remaining after failing to roll a strike. In accordance with the present invention, a visuo-mechanical aid to bowlers is provided which will enable even relatively unskilled bowlers not only to easily and quickly determine the proper initial foot positioning in the approach section and proper approach and delivery course to bowl strikes, but also to pick all arrangements of spares.

Referring now more particularly to FIGS. 1–3, a first embodiment of a bowling aid of the present invention, generally indicated at reference numeral 1, includes a flat base panel 3 of cardboard, plastic material, or the like. Toward one end of panel 3 is a first area or zone 5 on which is imprinted or drawn indicia P and PK representing (in a front elevation view) bowling pins and a bowling ball aligned at a point of impact for bowling a strike. Toward the other end of the card or panel 3 is a second zone 7 representing the approach section of a bowling alley and gearing indicia comprising three rows A, B and C of approach markers or spots for indicating initial foot positions of a bowler. A third zone 9 positioned forward of the second zone 7 has two rows D and E of alley markers or spots. The zone is constituted by a slider or panel 11 which is laterally shiftable relative to the length of the panel along a crosswise slot 15. To guide and retain panel 11 relative to the base panel 3 a backing panel 13 is secured thereto by eyelet type rivets 17 and 19. These rivets serve as guide pins and are so sized and crimped as to fit within slot 15 and cause panels 11 and 13 to be held in snug but slidable contact with the upper and reverse faces of base panel 3 adjacent the rim of slot 15. An arm 21, preferably of clear transparent plastic, with a straight line or trace 23 engraved or printed along the central longitudinal axis thereof, is pivoted at its one end in the area representing the pin end of the alley, i.e., zone 5. This arm generally represents the path or course of a bowling ball from the approach section to the pin end of a bowling alley. One end of arm 21, constituted by a ball marker or disc BL which represents a bowling ball, is pivoted in zone 5. This zone 5 also includes a generally crosswise slot 25. More particularly slot 25 is an obtuse angle, generally V-shaped, with its apex directed toward the approach section or zone 7. A guide and pivot pin 27 constituted by a rivet secures the ball end disc BL of arm 21 to a small circular backing disc 31. This disc and disc BL are secured together so as to snugly engage the faces of panel 3 adjacent the periphery of slot 25. Thus, the ball end of arm 21 can be adjusted to any desired position within the limits of slot 25 and will hold its position until again moved, while at the same time permitting pivotal movement of arm 21. The particular position of BL selected represents the desired point of impact of the ball with the pins. The other end of arm 21 extends past the end of zone 7 and is tucked into a transverse slit 33 so that its free end projects flatwise under the reverse face of panel 3 and can be conveniently moved to angularly position or rotate arm 21 about any preselected pivot point as represented by BL in zone 5.

It will be noted that pins P are shown in elevation on a reduced scale, for example, 1 inch=20 inches. Similarly, the ball disc BL and the ball indicia PK are on this same scale. The indicia in zones 7 and 9 are also spaced widthwise on this same scale. That is, the widthwise dimensions of zones 7 and 9 are dimensioned in accordance with or on this same scale. As to the length dimensions of zones 7 and 9 and the spacing between these zones and zone 5, however, they are shown on a second and smaller scale, for example, 1 inch=20 feet. More particularly it will be noted that the spacing between the

center line of slot 25 (at its apex) to the line (indicated at FL) constituting the upper border of zone 7 represents the length of the standard bowling alley which is 60 feet from the foul line to the center line of the #1 or head pin. Therefore, on the smaller or second scale of 1 inch= 20 feet, this dimension on a bowling aid of the present invention would be three inches.

Operation and use of the bowling aid device of FIGS. 1–3 is as follows. The bowler when bowling his first ball should carefully note the position of any preselected reference point of his feet, such as the toe of the right shoe, etc., and its location in reference to one of the approach spots, such as one of those represented in rows A or B in zone 7. He then makes his approach and delivery aiming his ball at one of the alley darts or spots, such as one of those represented in rows D or E of zone 9. The point of impact of the ball against the pins is then noted. This information can be put into the device, which has its components arbitrarily initially positioned as shown in FIG. 1. Assuming the bowler fortuitously bowled a strike on his first ball and the toe of his right foot was initially positioned at the approach section spot represented by that shown at the extreme right end of row B in zone 7, then the disc BL is positioned in registry with PK and the other end of arm 21 is aligned so its trace 23 intercepts the extreme right end spot in row B of zone 7. Assuming that the bowler aimed his ball and it actually passed over the second from the right dart in the farthest row of alley spots, panel 9 would then be moved along slot 15 from the position shown in FIG. 1 to that shown in FIG. 2 until the second from the right dart representation in row E of zone 9 is under trace 23. Bowling aid 1, after having its components thus positioned, can thereafter be used to pick spares. For example, to pick a spare comprising the #10 pin, disc BL is positioned as shown in dashed lines in FIG. 2 and the other end of guide arm 21 is pivoted until trace 23 crosses two reference indicia, one in one of the approach zone 7 rows A or B and the other in row D or E of alley zone 9. It will be noted that if the bowler uses for his alignment spots in rows B and D, for example, he will continue using these rows for alignment, for to do otherwise would necessitate a change in his bowling style and delivery form. As a spare constituted by a pin or pins standing on the right side of the alley is usually picked by the bowler starting his approach from the left side of the approach section of the alley, approach and alley indicia represented by the second approach spot from the left in row B and the third from the right dart in row E of zone 9 may be arbitrarily selected as points over which the trace 23 of guide arm 21 is aligned. It will be understood that it is not necessary to always align trace 23 on two spots in the two respective rows of zones 7 and 9, but that positions intermediate the spots may be used as references, for example, half-way between two spots of a row, etc.

The exemplary initial adjustment and the alignment of the device of the present invention thereafter to guide or aid the bowler in converting spares, accurately predicts the alignment points for the bowler's initial position as he addresses the pins and an aiming point at which the ball is directed during delivery. It is recognized that the actual path of the ball down the alley is not necessarily or even usually straight, but that it curves or hooks. However, this device compensates for this curvature in the ball path. That is, a variation or deviation of the actual ball path from the straight projected ball path as represented by the trace 23 is immaterial inasmuch as the three points of alignment of this device fall in three areas 5, 7 and 9 which are included in the course of the ball down the alley. The same principle applies to any deviation of the bowler from an angled path as indicated by the portion of trace 23 within zone 7, such deviation being immaterial as long as the points of reference in zones 7 and 9 are observed. The bowler who prefers a straight approach when picking all his spares (i.e., he approaches the foul line in a path perpendicular to the foul line) rather than the angle approach would choose a reference spot in row C of zone 7 rather than one in row A or B. Thus the trace 23 could be said to represent a projected ball course.

In practice, it is not too likely that the initial ball rolled will be a strike or, if it is, that bowler's positioning, aim, etc., are consistently established. Actually therefore it is probable that the data put into the device should be the result of bowling several balls, and that minor readjustment of the device may be desirable after further bowling a few frames or so. Also it will be understood that the indicia illustrated in zones 7 and 9 is simply illustrative of those approach and alley spots and darts used for example by one alley manufacturer. Another arrangement or number of spots or rows may be used by another manufacturer. However, it has been found that the arrangement is consistent and duplicated in all alleys manufactured by any particular company and that there is sometimes little, if any, significant difference in placement of spots by different manufacturers. In any event, it is to be noted that the device of this invention is applicable to all types of such spot arrangements and variation of the particular arrangement, number and spacing of the spots and rows of spots in zones 7 and 9 is contemplated and within the scope of this invention. Also left-handed bowlers may conveniently use device 1, in which event they would merely adjust disc BL by moving the pivot point to the left along slot 25 so as to position it at the pocket between the #1 and #2 rather than the #1 and #3 pins.

The embodiments of FIGS. 4 and 5 operate on the same principle as that illustrated and described in the embodiment of FIGS. 1–3. However in FIG. 4 the approach section represented by zone 7 is constituted by a sliding panel 8 rather than a fixed representation on base panel 3. Panel 8 is adapted to be laterally adjusted in a transverse slot 15A, while zones 5 and 9 are fixed. The FIG. 5 embodiment on the other hand has fixed approach and alley zones 7 and 9, but the pin zone 5 is constituted by a sliding panel 10 which may be laterally adjusted in a transverse slot 15B. Also, to retain the top edge of panel 5 against the face of panel 3 it has an ear 35 projecting from its upper edge and engaged for sliding movement in a transverse slit 37 in base panel 3. It will be noted that this bowling aid embodiment of FIG. 5 has its components adjusted in a position which exemplifies the use of this device by a left-handed bowler.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As various changes could be made in the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. A device for aiding bowlers in determining initial foot positions and spotting ball delivery comprising a panel representing the length of a bowling alley, said panel having a first zone toward one end thereof bearing indicia representing bowling pins, a second zone toward the other end thereof representing the approach section of a bowling alley and bearing indicia indicating foot placement positions, a third zone forward of said second zone bearing indicia representing ball delivery spots, and a movable arm representing the path of a bowling ball pivoted at its one end in said first zone and laterally slidable therein and adapted to extend from said first zone through said third zone and into said second zone, at least one of said zones being a panel laterally shiftable relative to the length of the main panel.

2. A device for aiding bowlers in determining initial foot positions and spotting ball delivery comprising a panel representing the length of a bowling alley on one scale, said panel having a first zone toward one end thereof bearing indicia representing bowling pins, a second zone toward the other end thereof representing the approach section of a bowling alley and bearing indicia indicating foot placement positions, a third zone forward of said second zone bearing indicia representing ball delivery spots, all of said indicia being spaced widthwise on a larger scale than said first scale, and an arm representing the path of a bowling ball pivoted at its one end in said first zone and laterally slidable therein and adapted to extend through said second zone and into said third zone, at least one of said zones being a panel laterally shiftable relative to the length of the main panel.

3. A bowling aid device as set forth in claim 2 in which said first zone includes a slot extending generally crosswise relative to the length of the main panel, said one end of the arm adapted to be moved and positioned along said slot.

4. A bowling aid device as set forth in claim 2 in which the laterally shiftable panel constitutes said first zone.

5. A bowling aid device as set forth in claim 2 in which the laterally shiftable panel constitutes said second zone.

6. A bowling aid device as set forth in claim 2 in which the laterally shiftable panel constitutes said third zone.

7. A device for aiding bowlers in determining initial foot positions and spotting ball delivery comprising a generally flat base panel representing the length of a bowling alley on a first scale, said panel having a first zone adjacent one end thereof bearing indicia representing the bowling pins in elevation on a second and larger scale, a second zone adjacent the other end of said panel representing the approach section of a bowling alley and bearing indicia indicating foot placement positions, a third zone positioned intermediate said first two zones representing the forward end of a bowling alley and bearing indicia indicating ball delivery spots, the dimensions and indicia of said second and third zones being on said second scale as to the width and on said first scale as to the length dimension of said bowling alley, said zones being spaced apart along the length of said panel on said first scale, an elongate arm generally representing the path of a bowling ball from the approach section to the pin end of a bowling alley and having one end representative of a bowling ball on said second scale, said ball end of said arm constituting a pivot and adapted for positioning in alternate positions within said first zone, at least one of said zones being a panel laterally movable relative to the length of said base panel whereby the arm may be adjusted relative to the base panel and said three zones to indicate the proper approach and delivery course of any particular bowler for bowling a ball down an alley along a projected ball path so as to strike the pins at any desired point of impact.

8. A bowling aid device as set forth in claim 7 in which said first zone includes a slot extending generally crosswise relative to the length of the base panel, said ball end of the arm adapted to be moved and positioned along said slot.

9. A bowling aid device as set forth in claim 8 in which said slot is generally V-shaped with its apex directed toward said second and third zones.

10. A bowling aid device as set forth in claim 9 in which the laterally shiftable panel constitutes the first zone.

11. A bowling aid device as set forth in claim 10 in which said base panel includes a slot extending generally crosswise relative to the length of the base panel, and guide pins projecting through said laterally shiftable panel and said last said slot whereby the first zone can be laterally moved and positioned in various desired positions relative to said second and third zones.

12. A bowling aid device as set forth in claim 9 in which the laterally shiftable panel constitutes the second zone.

13. A bowling aid device as set forth in claim 12 in which said base panel includes a slot extending generally crosswise relative to the length of the base panel, and guide pins projecting through said laterally shiftable panel and said last said slot whereby the second zone can be laterally moved and positioned in various desired positions relative to said first and third zones.

14. A bowling aid device as set forth in claim 9 in which the laterally shiftable panel constitutes the third zone.

15. A bowling aid device as set forth in claim 14 in which said base panel includes a slot extending generally crosswise relative to the length of the base panel, and guide pins projecting through said laterally shiftable panel and said last said slot whereby the third zone can be laterally moved and positioned in various desired positions relative to said first and second zones.

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