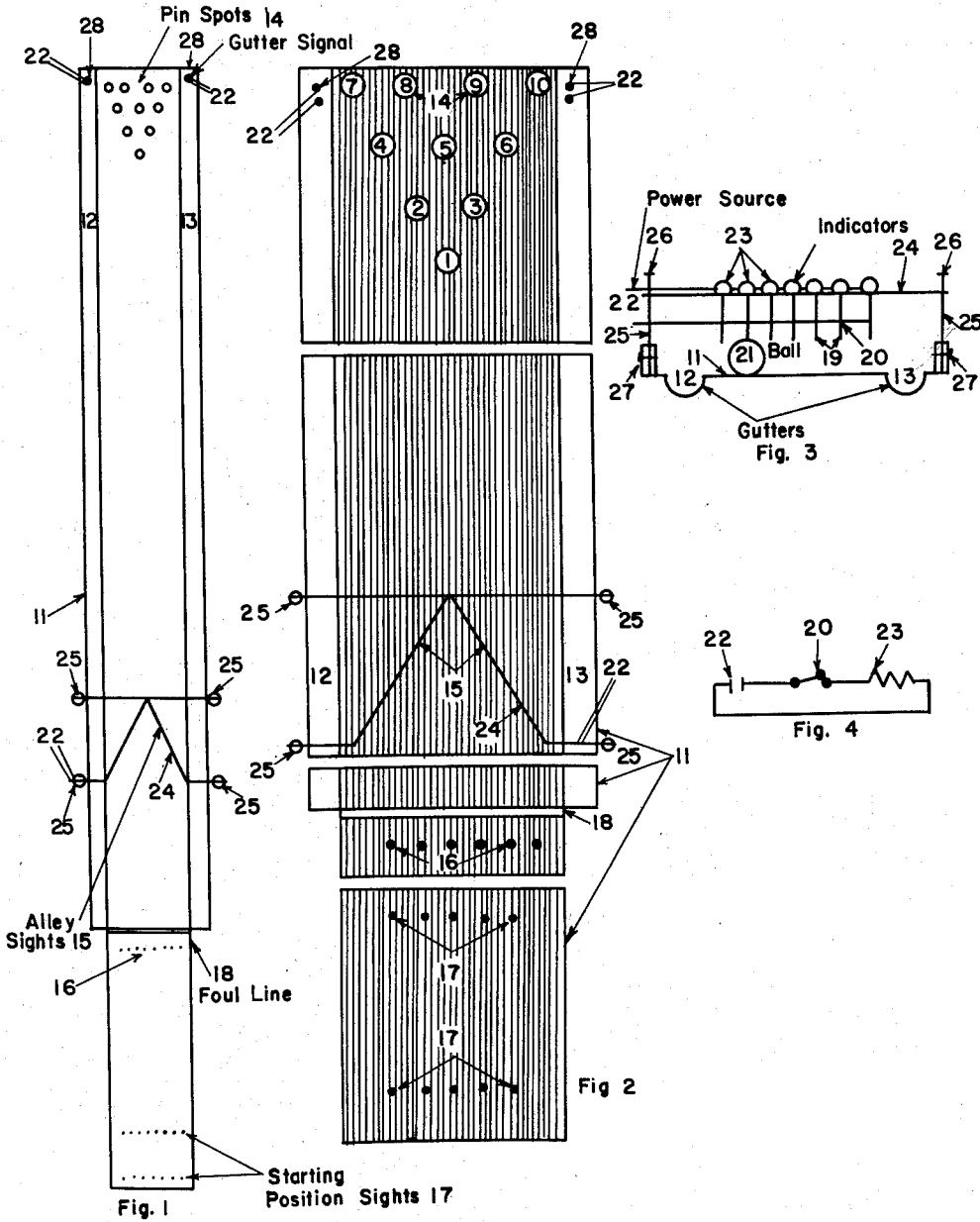


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CUING DEVICE FOR BOWLERS

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**CUING DEVICE FOR BOWLERS**

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6 Claims. (Cl. 273-41)

This invention relates to bowling. In one of its aspects this invention relates to a device for pin pointing a bowling ball on the alley. In another aspect this invention relates to a cuing device for indicating to those having impaired vision the location of a bowling ball on a bowling alley.

Bowling as a sport has become ever more popular in recent years. This sport can be enjoyed on an individual or team basis. As the sport began to grow, it attracted members of both sexes and many people with various handicaps. In the game of bowling, the bowler takes a round ball molded from a hard plastic and weighing up to about 16 pounds, and having two or three finger holes for gripping, and moves along the approach portion of a bowling alley to the foul line where he delivers, i.e. throws the ball, toward the bowling pins, the object being to knock as many of said pins down as possible. As the sport developed, it was found that more accurate control is obtained if the ball is aimed over certain locations called spots on the alley rather than aiming directly at the pins. This method of aiming being called spot bowling. Most all of the alleys have 7 spots placed in the alley in a prescribed manner so that the bowler can readily use these spots when moving from one alley to another. The experienced bowler will pick one of these spots depending upon the number and position of pins standing. If he does not obtain the desired pin action, e.g. desired pins falling, he will vary his point of delivery slightly but will aim for the same spot.

It would be desirable, therefore, if the bowler and his instructor could pinpoint the position of the bowling ball in relationship to these spots. This would be particularly desirable for those bowlers having impaired eyesight or even being blind. For example in my copending application February 6, 1961, and having Serial No. 87,383, a cuing device is disclosed that preferably attaches to the end of a guide rail used by blind bowlers, said cuing device registering the pins knocked down by means of a movable element responsive to knocking down pins. The blind, however, cannot spot bowl in the absence of the cuing device of this invention.

It is an object of this invention to provide a cuing device for indicating the position a bowling ball passes along the bowling alley.

Another object of this invention is to provide a training device for bowling.

Still another object of this invention is to provide a device to cue the blind as to the location of a bowling ball on the bowling alley.

Still other objects, features and advantages of this invention will be obvious to those skilled in the art having been given this disclosure.

These and other objects of this invention are accomplished by means of a registering element responsive to position determining means placed in a predetermined order along the bowling alley.

The apparatus of this invention comprises in combination a plurality of feeler elements projecting downward a predetermined distance above the bowling alley surface so as to be activated when a bowling ball passes thereunder and means for registering this information.

This invention will be further described with reference to the drawings of which:

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FIGURE 1 is a plan view of a bowling alley embodying the features of this invention.

FIGURE 2 is a plan view on a greatly enlarged scale of portions of the alley of FIGURE 1.

FIGURE 3 is a front view of one embodiment of this invention.

FIGURE 4 is a schematic wiring diagram useful in this invention.

Referring now to the drawings, alley 11, having gutters 12 and 13 is marked in the conventional manner with pin spots 14 marked 1 to 10, alley sights 15, delivery sights 16, starting position sights 17 and foul line 18.

Mounted over the alley are feeler elements 19 which are adjusted over predetermined alley positions to activate switches 20 when the surface of a bowling ball 21 comes into contact with the element 19. When the switch 20 is activated, current from power source 22 flows to indicator 23 thereby activating same.

The feelers 19 are preferably mounted on bar 24 which is supported by vertical rods 25. The bar 24 is adjustable horizontally by loosening clamp screws 26 and the bar is adjusted vertically by means of geared screws 27.

Contacts of switches 28 are placed in the gutters and are activated by ball 21 passing thereover. These switches complete circuit from power source 22 to indicators not shown in the same manner as do feelers 19 and switches 20.

Preferably, the feelers will be placed on the alley to suspend vertically over alley sights 15. However, these feelers can be placed in any position desired such as be placed to cross the alley at right angles to its length.

In general, for practice sessions, the height of the feelers above the spots will be so adjusted that the feeler will be activated only if the ball is directly over the spot, e.g. ball diameter.

The indicators 23 can be lights and the switch being a timed cycle so as to open after a predetermined time. These indicators can be connected to activate a recording device such as a tape which would be useful say in conjunction with movies for review purposes.

The apparatus is also useful as a cuing device for the bowler with impaired vision or the blind bowler. When used for such bowlers, the feelers are lowered so as to cover a wider ball path. The indicators in this case will be audio, preferably ranging in tone from left to right so that the bowler can tell from the tone where his ball is on the alley. The contacts 28 are connected also with audio devices so that the bowler can tell if his ball left the alley and to which side.

This invention has been described in one of its preferred embodiments. Those skilled in the art will see many modifications which can be made without departing from the scope of this invention. For example, the invention has been described showing seven feeler elements placed over the alley sights. More or fewer such elements can be used and various locations can be selected. Micro switches are illustrated, however, other contact means such as photo-electric cells can be used. The gutters are shown as terminating at the end of the approach section of the alley, however, in actual practice, the gutter is also used as a ball return and will rise at this point and come back to the start of the approach.

I claim:

1. A cuing device for bowlers comprising in combination a plurality of feelers adjustable to predetermined heights over a bowling alley to vary the sensitivity of responsiveness of said feelers to ball paths of various widths, means for completing an electrical circuit responsive to a bowling ball contacting one of said feelers and

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means for registering a signal responsive to closing of said circuit.

2. The device of claim 1 wherein the signal registering means registers a visual signal.

3. The device of claim 1 wherein the signal registering means registers an audio signal.

4. The device of claim 1 wherein the feelers are seven in number with one located over each alley sight of a bowling alley.

5. A system for cuing a blind bowler comprising in combination a plurality of feelers placed in a predetermined position above a bowling alley, each set to complete a separate electric circuit when said feeler is contacted by a bowling ball, means for adjusting the heights of said feelers to vary the sensitivity of responsiveness of said feelers to ball paths of various widths, a plurality of

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audio signaling devices of predetermined sensibly different sounds activated responsive to completion of said electric circuits and means for opening said circuits.

6. The device of claim 3 having at least one circuit closing device in each gutter of the bowling alley, each of said circuit closing devices being responsive to a bowling ball rolling down the gutter.

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