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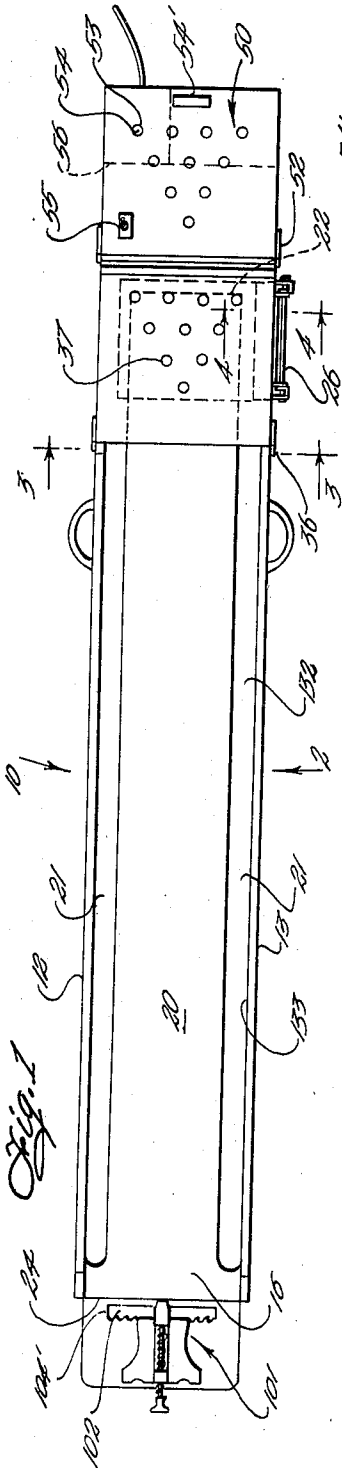
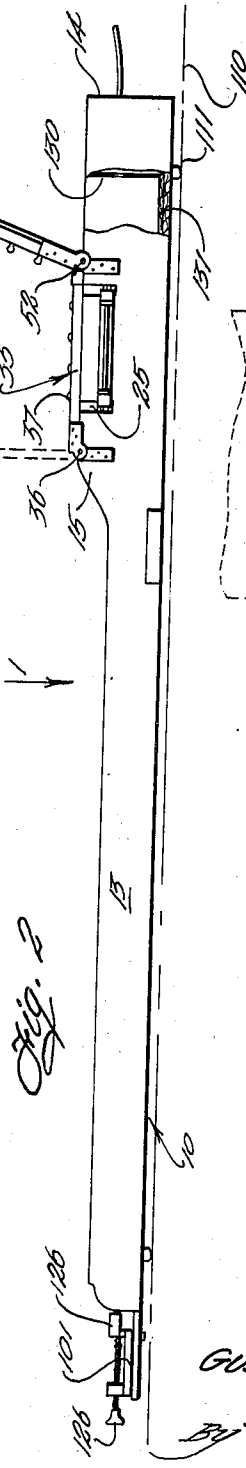
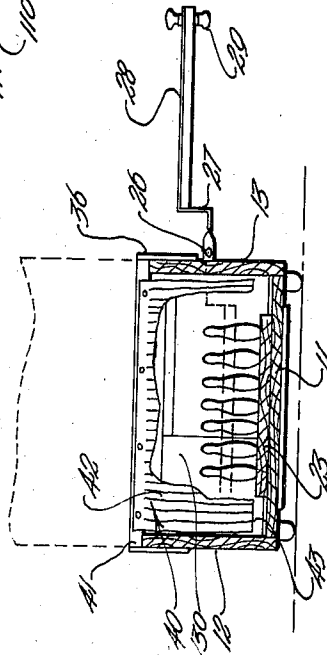
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2,210,398

BOWLING GAME

Filed Oct. 12, 1938

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

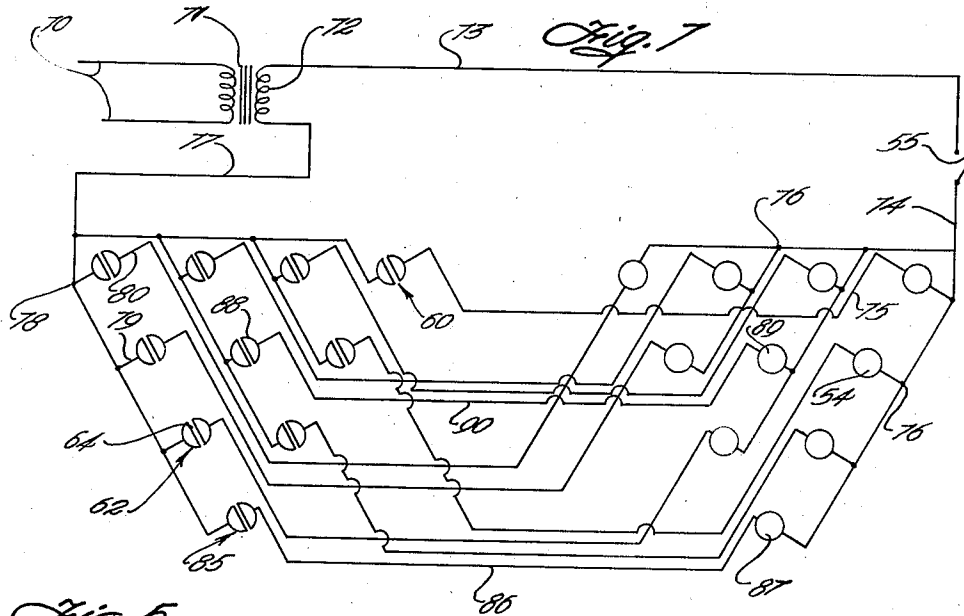


Fig. 5

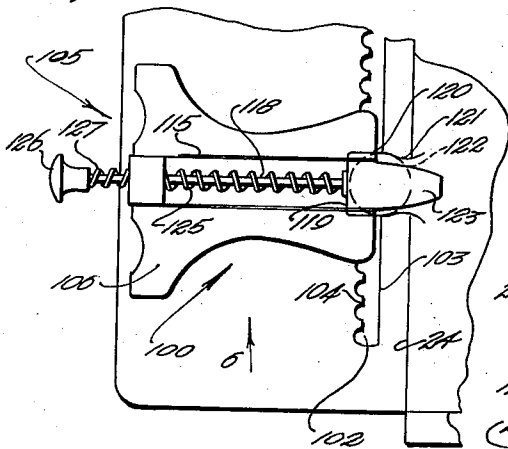


Fig. 4

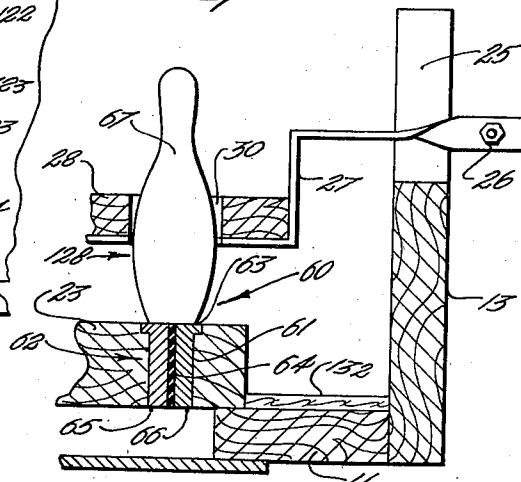
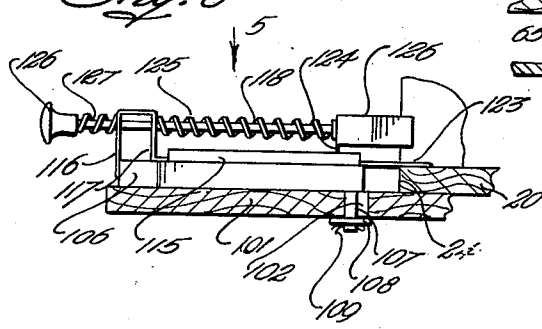


Fig. 6



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UNITED STATES PATENT OFFICE

2,210,398

BOWLING GAME

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Application October 12, 1938, Serial No. 234,601

2 Claims. (Cl. 273-37)

My invention relates to a miniature bowling game of a type simulating alley bowling of the ten-pin type. In this invention an object is to have a miniature alley with pins and the balls substantially proportioned to those used in the full sized game, the alley of course being much reduced in length.

In the above general type of game, one of the objects and features is to utilize a device for properly placing and centering the ten-pins in their proper arrangement and relation one to the other, this centering or locating device being shiftable during the playing of the game. A further feature is employing a curtain or screen which obstructs the view of the player of the pins, however to aid the player in bowling at the pins, my invention contemplates utilizing a cover which prevents direct observation of the pins but has indicating devices such as buttons thereon, one centered directly over each pin. In addition I employ a signalling device in the form of a series of lamps fixed on a panel in the same arrangement as the pins on the alley. Such panel may be inclined to show the bowler the pins which are standing erect by the individual light corresponding to each pin being illuminated.

A further characteristic of my invention includes an electric circuit in which each pin forms a contact or a bridging connection in a partial circuit to its corresponding lamp whereby when the pin is properly standing on the contacts, it forms a bridge establishing a closed circuit, however when the pin is bowled over, the circuit is broken and such light extinguished. Therefore the bowler without seeing the pins, by noting the lamps remaining illuminated, can determine which pins are still standing, therefore direct his subsequent playing shots to knock down the remaining pins. Thus a main characteristic of my invention is that it requires and develops considerable skill, the element of chance entering only to a minor extent. The feature of having the pins obscured by the curtain and the cover or lid makes it necessary for the bowler to make an indirect aim at the pins. A further characteristic which requires skill is that the panel of lights is offset rearwardly from the pins and therefore the player if he aims at the remaining illuminated lamps has to make an indirect aim to strike the pins. When all the pins are knocked down, manifestly all the lights are extinguished. It is intended that this game be played somewhat after the same procedure as the alley bowling game and including that all of the pins knocked down but not completely rolled off the board will be removed by a

second player or an attendant prior to subsequent shots by a bowler.

Another characteristic and feature of my game is in the projector for the balls. This includes a spring actuated plunger which may be retracted and then released to drive the balls along the smooth surface of the alley, however with this I employ a spring-like clip which frictionally holds the ball in place until struck by the plunger thrust forward under the action of the spring. Another characteristic of the projector is the employment of a type of transverse and oscillating guide, the oscillation being on a vertical axis so that the player may shoot the balls at any place between the two sides of the alley and at a desired angle to the center or axis of the alley. A more detail feature of this guide is in employing a transverse slot in an extension of the floor of the alley, providing this with notches and having the projector provided with a pin fitting in the slots and the notches.

My invention is illustrated in connection with the accompanying drawings, in which:

Fig. 1 is a plan taken in the direction of the arrow 1 of Fig. 2, the lamp panel however being in its lowered position.

Fig. 2 is a side elevation taken in the direction of the arrow 2 of Fig. 1 showing the lamp panel in its elevated and operative position.

Fig. 3 is a vertical transverse section on the line 3-3 of Fig. 1 in the direction of the arrows showing however the centering device for the pins removed to its inactive position, the curtain screen being broken away to exhibit the pins.

Fig. 4 is a partial and enlarged vertical section on the line 4-4 of Fig. 1 in the direction of the arrows on an enlarged scale illustrating the electrical bridging connection of the metallic pin with two contacts and the centering device for the pins.

Fig. 5 is a plan taken in the direction of the arrow 5 of Fig. 6 of the projector. This may also be considered as an enlargement on the projector as shown in Fig. 1.

Fig. 6 is a side elevation of the projector taken in the direction of the arrow 6 of Fig. 5.

Fig. 7 is an electrical diagram.

Referring first particularly to Figs. 1, 2 and 3 I employ a box-like structure 10 having a bottom or floor 11, two opposite sides 12 and 13 and an end wall 14. The sides have a high portion 15 joining with the end 14. The box structure is open at the opposite end 16. Located on the bottom 11 there is the alley board 20. This consists of a smooth surfaced board spaced evenly between the sides

12 and 13, leaving on each side return runways 21 for the balls. The floor terminates at 22 and has a surface area 23 adjacent thereto for positioning the pins. The opposite end terminates at the edge 24, this being at the open end of the box. On one of the sides there are two slots 25 and on the outside adjacent these slots there is a hinge 26 with arms 27 for a pin centering board 28. This board has knobs 29 at its outer edge and is provided with a series of perforations 30, there being one for each pin and located in the proper position so that when the board 28 is shifted from the position of Fig. 3 to that of Figs. 1 and 2, the pins may be centered. In order to move this pin centering board however it is necessary to upwardly tilt a cover or lid designated 35. This lid is hinged by a transverse hinge 36 and has a series of indicators such as small bright buttons or the heads of tacks 37 in direct alignment with the guide perforations 30 of the centering board 28 and thus being located directly over each pin when this is in its closed position as shown in Fig. 2. The cover may be tilted upwardly to the position shown dotted in Fig. 2. When the cover is in its lowered position of Figs. 1 and 2, manifestly the player cannot look down or see the pins from a top view.

In order to prevent the player from sighting directly at the pins from the bowling end of the alley, I employ a curtain assembly 40. This has a cross bar 41 substantially in alignment with the hinge 36 from which depends a slitted or tasseled curtain 42, the bottom edge 43 of which has a slight clearance above the alley board 20. The tassels or fringes do not interfere with the rolling of a ball.

The signal or sighting panel designated 50 employs a board-like structure 51 hinged at 52 to the sides 12 and 13 at the elevated portions 15. This panel has a series of lamp sockets 53 of which there are electric lamps 54. Such lamps are arranged in positions similar to the arrangement of the pins on the alley and thus similar to the buttons 37 and the perforations 30 in the guide or setting board 28. A handle 54' is used to raise or lower this panel board and there is also a switch assembly 55 forming the main switch in the electric circuits hereunder detailed. The panel has a friction hinge so that it may be left at rest at an inclined position as shown in Fig. 2. The space 56 indicated dotted in Fig. 1 back of the panel and below the same when closed, is utilized for an electrical transformer and for storage space for the balls and the pins.

In connection with the electric circuits to illuminate and break the circuits to the individual lamps 54, I employ bridging contacts designated by the assembly numeral 60, note Fig. 4, to support the pins. In this construction the end section of the alley board on which the pins are located is provided with a series of recesses 61 in which there are fitted conducting plugs 62. These plugs are cylindrical as to the main portion and have a shoulder 63. The plugs are formed in substantially half sections of conducting material and have an insulating separating web or diaphragm 64 extending from the bottom to the top of these conductors, therefore there is no electrical connection directly between the two halves of the contacts. Electric leads 65 and 66 are attached to each half of each bridging support. The pins 67 are preferably made of metal or at least have a metal base of conducting material so that when the pins are prop-

erly positioned as shown in Fig. 4 on the conducting plugs 62, they form a bridging connection between the two segments of the plug across the insulating diaphragm 64. The pins are always accurately positioned when using the centering board 28 so that each pin is accurately positioned straddling the diaphragms 64.

Referring to the electrical diagram of Fig. 7, the bridging plugs 62 are illustrated as arranged in the usual manner of the spacing of ten pins in the game. The lamps 54 also have a similar arrangement. The source of power supply indicated by the electric feed lines 70 have a step down transformer 71, this being of the usual type for transforming the usual domestic A. C. circuits to a low voltage A. C. circuit. From the secondary 72 of the transformer there is a lead line 73 having the main controlling switch 55 therein. Beyond the switch a line 74 connects to the lamps. The lamps are arranged in parallel, each having its own connecting lines 75. The leads for each individual lamp are attached by connecting branch points 76. From the opposite terminal of the secondary of the transformer 72, there is the electric lead 77 which by means of connecting points 78 lead to one side of each of the contact plugs 62, these connections being indicated at 79. The opposite side of the plug has lead-off lines 80 which communicate each to a lamp. Thus for instance considering the contact plug 85 at the apex of the triangular arrangement of plugs, this has the communicating lead 86 to the apex lamp 87 of the bank of lamps. Thus in a sequence the contact plugs along the sides of the triangular arrangement are connected to the corresponding lamps on the sides of the triangle defining the bank of lamps and the inside or center single plug 88 has a connection to the inside or center lamp 89 by the lead 90. It is not necessary to enumerate each of the separate electric leads. In Fig. 7 it is presumed that the apex plug for the apex pin is directed towards the bottom of the set. A flexible electrical conductor leading from the transformer in the box structure 56 is secured to the back of the panel assembly 50.

The projector assembly 100, note Figs. 1, 2, 5 and 6, employs an extension board 101 positioned slightly below the alley board 20 and extending from the edge 24. This has a transverse slot 102 therein, such slot having a straight face 103 towards the alley and a series of notches 104 on the opposite side, the slot being illustrated as terminating at 104'. The projector 105 has a projector base 106 which may be a small board cut out as shown in Fig. 5 to facilitate grasping with the hand. This has a pin 107 extending downwardly in the slot 102, being retained in position by a washer 108 and cotter pin 109. This is positioned above the playing table surface 110 or other support by small legs or nubs 111 on the box structure 10. A metal channel 115 is mounted on the base 106 and at the rear end has two spaced vertical plates 116 and 117 which have aligned perforations and through which extends a plunger 118. This plunger at its outer end has a vertical plate 119 with two forwardly projecting spring arms 120 having an inwardly pressed curved portion 121 and forming spring clips for gripping a ball 122 indicated dotted in Fig. 5. This ball rests on a tongue 123 which overlaps the bowling alley board 20. A guide plate 124 extends downwardly from the end 119 and operates in the guide channel 115. A coil compression spring 125 is coiled

around the plunger 118 and thrusts against the plate 117, this forming an abutment and the end plate 119. A finger grip knob 126 is secured to the end of the plunger and there is a secondary rebound coil spring 127 between this finger grip nub and the plate 116. By this construction it will be seen that a ball may be placed in the holding clip, the projector as a whole may be shifted with the pin 107 moving lengthwise in the slot and engaging in any one of the notches 104, this forming a pivoting center, therefore the player may shift the projecting instrument from one side to the other of the bowling board 20 to the limit of the slot 102 and may rotate this on the pivot pin 107 to direct his shot either in a straight direction parallel to the axis of the bowling board 20 or at an angle to such axis and therefore the player can aim at any one of the pins.

As above mentioned in designing the equipment, the pins and the balls are made proportionate to those used in full sized bowling games and the ball being of such a size that it contacts the pin at approximately a position indicated 28, Fig. 4. This is slightly below the largest diameter of the pin and tends to strike the pin upwardly so that it will not be merely toppled over. In playing the game after the pins are all set, the cover 35 is in its closed position, the player therefore cannot directly observe the pins on account of the obstruction by the curtain assembly 40 and its cover 35, however he may obtain an approximate aim by the buttons or indicators 37 and also by the illuminated lamps in the lamp panel 50 which is located at an inclination as shown in Fig. 2. After the player has made a shot and if he has knocked down one or more of the pins, obviously the current at the plug from which the pin has been displaced is open circuited, therefore extinguishing the particular lamps corresponding to the pins displaced. Before the next stroke the attendant raises the cover 35 and removes the knocked down pins from the alley if these have not been struck completely off the bowling board 20. This leaves the remaining pins in place and with the lamps remaining lit corresponding to the pins still in place. The player then bowls the second ball and in succession until he has knocked down all of the pins or for an allotted number of balls. It is obvious that various rules of the game may be devised either following quite closely or differentiating from the ordinary rules of bowling. A further hazard may be introduced into the game by opening the switch 55 at any stage of the play so that no lamps are illuminated.

In order to absorb the shock of the balls and the pins which have been knocked out of position, it is desirable to employ a thick baize covering indicated at 130 on the back wall of the alley and also on the floor at the end of the

alley board 20, this being designated 131. The return runways or gutters 21 are also covered with green baize cloth indicated at 132. The inside of the walls 12 and 13 is also covered by green baize as indicated at 133. This is for the purpose of deadening any shock of balls which may run off of the alley board 20. The baize in the gutters also lessens the noise of the returned balls.

Various changes may be made in the details of the construction without departing from the spirit or scope of the invention as defined by the appended claims.

I claim:

1. In a device as described, an elongated alley board with a surface for rolling bowling balls, one end of the surface having a series of pairs of electric contacts, each pair to form a closed circuit with a bowling pin combined with a panel, means forming a pivotal connection of the panel transversely of the alley board located beyond the rearward contacts, electric sockets with lamps positioned on the panel and located each to align longitudinally of the board in a vertical plane through a specific pair of terminals for the pins whereby when all of the pins are in place relative to their terminals all of the lamps are illuminated and when a pin or pins is displaced, the corresponding lamp or lamps become open circuited and extinguished.

2. In a device as described, the combination of an alley board having a surface for rolling bowling balls and a plurality of recesses adjacent one end, each with a pair of electrically conducting plugs separated by an insulating diaphragm, each pair of plugs being adapted to receive a bowling pin, such pin being adapted to form a bridge for a circuit, a panel pivotally mounted on a fixed structure at opposite sides of the alley board, the pintle being transverse to the alley board and located thereabove and positioned spaced from the most remote pair of conducting plugs, an adjusting means to position the panel at any desired inclination, the panel having a series of electric sockets each with an electric lamp, the sockets and lamps being located on the panel in a position similar to the pairs of conducting plugs whereby no matter what the inclination of the panel, a vertical longitudinal plane through the alley board and a recess with its conducting plugs passes through a corresponding socket and lamp, an electric circuit connecting each pair of conducting plugs and its associated socket whereby when pins are in position relative to the conducting plugs all of the lamps have a closed circuit and are illuminated and when any one or more pins are displaced, the corresponding sockets become open circuited and the lamps extinguished.

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