May 7, 1957 D. F. McDONALD 2,791,428

PINBALL MACHINE

Filed May 10, 1954 3 Sheets-Sheet 1

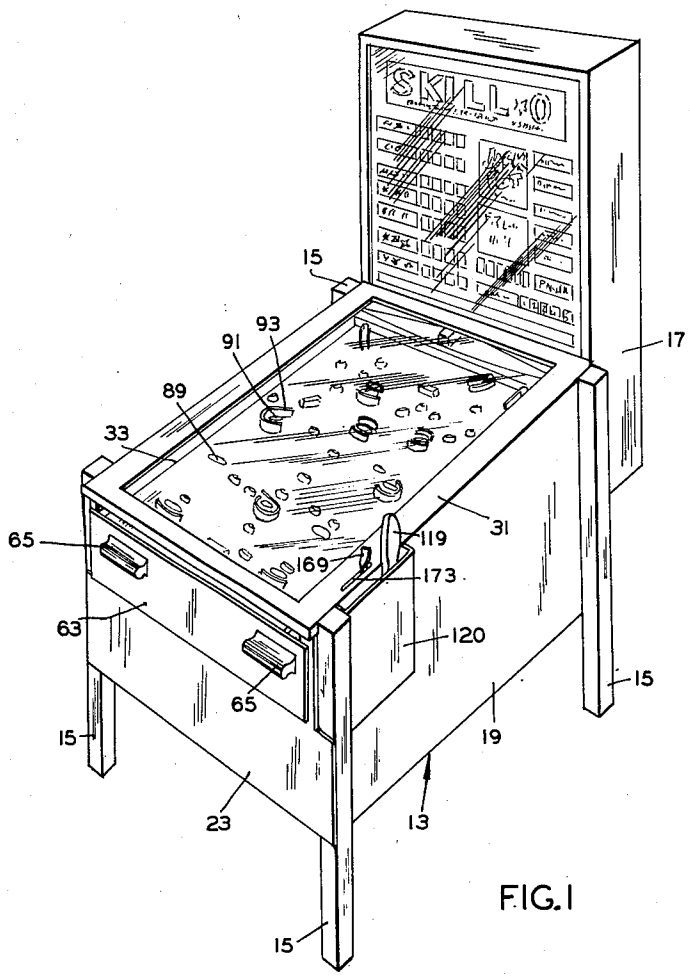


FIG. 1

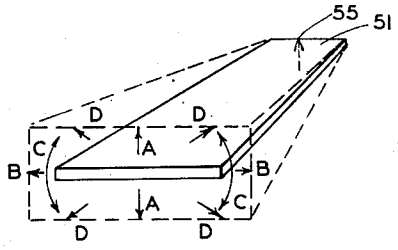


FIG. 2

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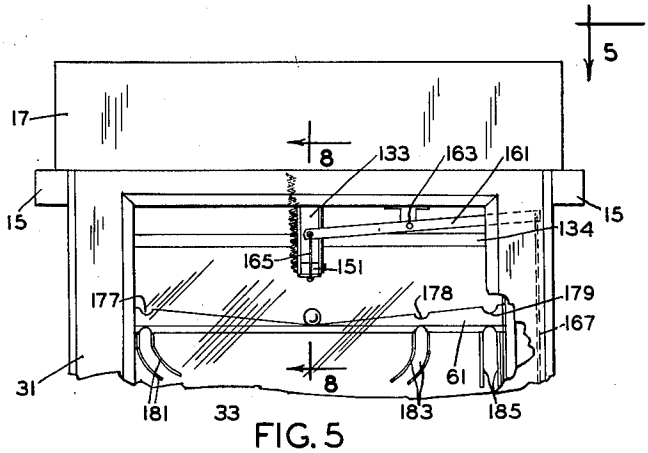


FIG. 5

FIG. 3

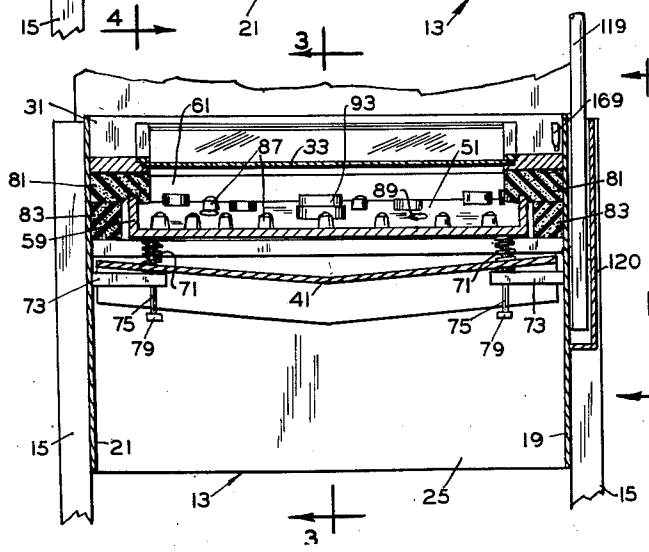


FIG. 4

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PINBALL MACHINE

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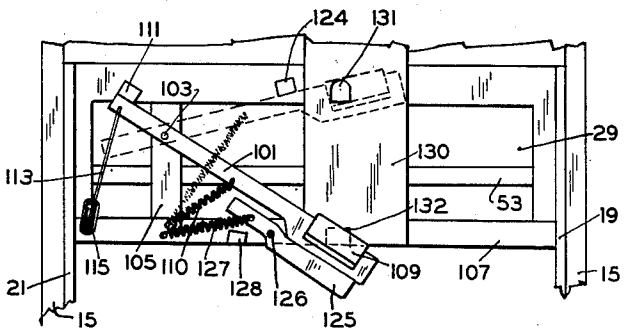


FIG.6

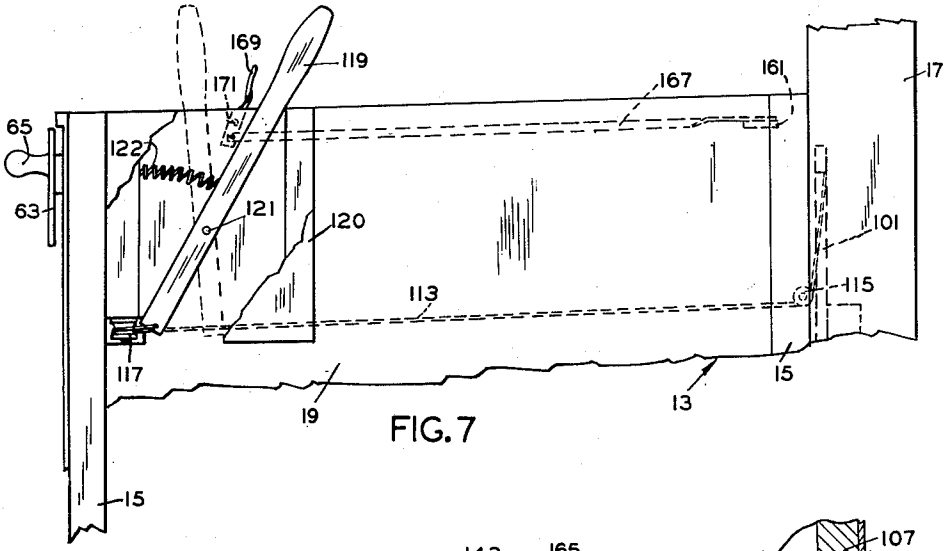


FIG.7

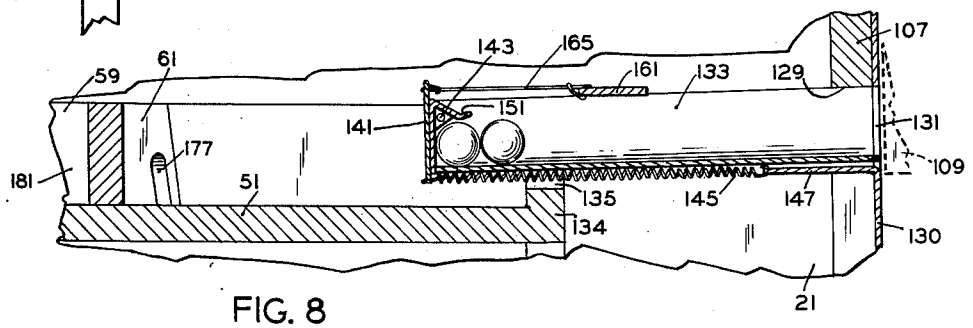


FIG. 8

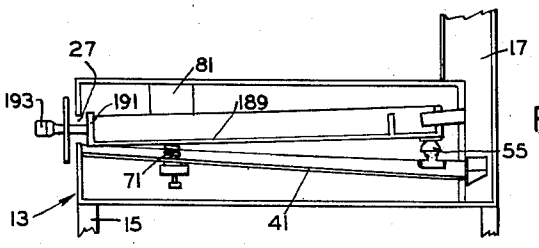


FIG. 9

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United States Patent Office 2,791,428 Patented May 7, 1957

2,791,428

PINBALL MACHINE

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Application May 10, 1954, Serial No. 428,444

9 Claims. (Cl. 273—110)

This invention relates to an amusement device and particularly to a game of skill having a movable game board over which balls are to be rolled.

The ball game board of a pinball machine is conventionally fixed within the cabinet so that the player has little opportunity of controlling the movement of a ball after it is projected onto the game board other than by grasping the cabinet and bumping the same at appropriate times during the descent of a ball along the board.

It has heretofore been proposed to provide a movable game board which can be manually operated by the player so as to exert a considerable degree of control over the path of movement of a ball. In some of the proposed machines, the boards are adapted to be shifted longitudinally, in others the board may be raised and lowered about the head end, and in others the board may be rocked in an attempt to gravitate the ball to one side or the other. None of such proposed machines have been successful in that the kind and degree of control over the movement of the ball is not a sufficient test of the skill of the player to hold his interest.

It is a main object of the present invention to provide a game of skill of the pinball variety, wherein there is provided a ball game board having three directions of movement.

More particularly, it is an object of the present invention to provide a pinball machine wherein the game board is mounted within the pinball machine cabinet in a manner permitting the operator to grasp the foot end of the game board and impart to the board limited independent or combined sidewise, vertical and rocking movements about universal pivot means supporting the head end of the board.

A further object of the present invention is to provide a pinball machine of the character described above wherein there are yieldable means urging the board toward a position between the extremes of movement thereof, thus being operable to yieldably resist movement of the board by the player.

A further object of the invention is to provide a pinball machine of the character described above wherein the foot end of the board is prevented from being elevated to a position higher than the head end, so that the operator is prevented from gravitating the ball upwardly along the board.

A still further object of the present invention is to increase the control which the player may exert over a ball by providing at the head end of the board a multi-passageway arrangement, whereby the player may select one of several passageways through which the ball may be gravitated onto the board.

A further object of the present invention is to provide a pinball machine having a movable ball game board and a mechanism adapted to receive balls from the board and return them as a group to the head end of the board for selective release by the player.

Various other objects of the present invention will be

apparent from the following description taken in connection with the accompanying drawings wherein:

Fig. 1 is a perspective view of a pinball machine embodying the concepts of the present invention;

Fig. 2 is a schematic perspective view illustrating the three directions of movement of the ball game board of the machine disclosed in Fig. 1;

Fig. 3 is a longitudinal vertical mid-sectional view through the machine disclosed in Fig. 1;

Fig. 4 is a cross-sectional view taken along line 4—4 of Fig. 3;

Fig. 5 is a partial plan view taken in the direction of the arrows 5—5 in Fig. 3;

Fig. 6 is a partial rear elevational view, taken in the direction of the arrows 6—6 in Fig. 3, the ball elevating arm being shown in dotted lines in its elevated position and in solid lines in its lowered position;

Fig. 7 is a partial side elevational view taken in the direction of the arrows 7—7 in Fig. 4, showing in detail part of the ball return mechanism, parts being broken away for convenience in illustration;

Fig. 8 is an enlarged sectional view taken along line 8—8 of Fig. 5, showing the construction of the ball release mechanism, and

Fig. 9 is a schematic fragmentary view of a modified form of the invention.

Referring to the accompanying drawings wherein similar reference characters designate similar parts throughout, the pinball machine disclosed has a cabinet 13 supported by four legs 15. At one end of cabinet 13 is secured a scoring panel casing 17. For convenience in description, the end of the machine adjacent the scoring panel will be considered as the head end of the machine and the opposite end of the machine will be considered the foot or player end.

The details of joining the various parts of the cabinet together are not of particular importance to the present invention and thus only sufficient description of the cabinet will be given to provide a background for the parts supported thereby. The cabinet 13 includes two side panels 19 and 21, compare Figs. 1 and 4, and a pair of end panels 23 and 25, see Fig. 3. The side panels are secured to the inner faces of the associated legs 15 and the end panels are secured to the end faces of the associated legs. Fig. 3 shows that the end panels 23 and 25 terminate short of the upper edges of the side panels 19 and 21 to provide a foot end opening 27 and a head end opening at 29, compare Figs. 3 and 6.

Secured to the upper edges of the side wall panels 19 and 21 is an open rectangular frame 31, within which is mounted a glass plate 33. Extending between end panels 23 and 25 and also between side panels 19 and 21 is a ball return chute board 41, which in a longitudinal direction slopes from its foot end toward its head end, and in transverse direction slopes toward its center for a purpose to appear hereinafter.

The members so far described may be considered as providing a compartment which is defined by glass plate 33, chute board 41 and the upper portions of side panels 19 and 21.

Disposed substantially entirely within this compartment is a ball game board 51, which is supported in a manner to be presently described so as to have a slightly inclined position from its head end toward its foot end, see Fig. 3. Game board 51 has a width substantially less than that between side panels 19 and 21, see Fig. 4, to provide for limited sidewise shifting movement of the game board within the compartment. The game board also has a maximum vertical thickness substantially less than the distance between the frame 31 and the chute board

41 so as to be movable vertically a limited extent within said compartment.

Arranged at the head end of the machine and within the compartment is a cross member 53, upon which substantially medially thereof is mounted a ball and socket joint 55, the lower part of which is secured to the cross member and the upper part of which is secured to the underside of the game board at the head end thereof. The ball and socket joint constitutes a universal pivot means for the game board, whereby vertical, sidewise or rocking movements may be imparted to the board about said joint. By rocking, it is meant that the board is tilted about a longitudinal axis of the board through the ball and socket joint 55.

The various movements of the board can be best appreciated from Fig. 2, wherein the arrows A indicate vertical movements, the arrows B indicate sidewise movement and the arrows C indicate rocking movement. These three directions of movement may be imparted to the board independently of one another or in any combination. For instance, the board may be shifted in the direction of a diagonal arrow D, and while being so shifted be rocked.

Provided at the side edges of the game board 51 are upstanding ball-retaining flanges or walls 59, and provided adjacent the head end of the board is an upstanding head end ball-retaining flange or wall 61, and provided at the foot end of the board is foot end panel 63. Panel 63 extends both above and below the plane of the game board, the upper portion of such panel providing a foot end ball-retaining flange or wall for the board. Secured to the foot end panel 63 is a pair of laterally spaced handles 65, enabling the operator to grasp the foot end of the board with both hands for the purpose of imparting desired movements to the board. Board 51, panel 63 and handles 65 may be considered as a game board assembly.

It is apparent that panel 63 and handles 65 are disposed exteriorly of cabinet 13 and of the compartment within which the game board 51 is mounted. For all practical purposes the game board may be considered to be mounted entirely within the cabinet 13. However, it is apparent that there is a minute foot end portion of the game board to which panel 63 is connected, which in actuality is disposed exteriorly of the cabinet. The panel 63 substantially shields or covers up the opening 27 during shifting of the board.

To dispose the board 51 in a position between the extremes of movement thereof and to resist movement of the board, there is provided a yieldable supporting system for the foot end of the board. This system includes a pair of transversely spaced upstanding compression springs 71, see Fig. 4, which are supported by brackets 73 from the side panels of the casing and extend through suitable openings formed in chute board 41. Extending through each compression spring is a retaining bolt 75, which has a rounded cap 77 engaging a metal pad or plate 79 provided on the underside of the board. The shank of the retaining bolt passes in loose-fitting relation through an opening in bracket 73, see Fig. 4, and has threaded on its lower end a nut 79. The nut merely retains the bolt against separation from the bracket.

Arranged above the side flanges 59 adjacent the foot end of game board 51 are a pair of sponge rubber pads 81 secured, such as by an adhesive, to the side panels and underside of the glass frame 31. The dimensions of the sponge rubber pads 81 are such that they are compressed in the normal position of the board as the parts are depicted in Fig. 4, by virtue of the upward force on the board by the springs 71. By the same token the pads cause compression of said springs. Carried by the underside of the foot end of the game board are two laterally spaced sponge rubber pads 82, one of which is shown in Fig. 3.

Arranged adjacent the sides of the foot end portion of board 51 is a pair of sponge rubber pads 83, which

are secured, such as by an adhesive, to the inner faces of the side panels 19 and 21. These pads may have sufficient thickness to engage the sides of the board in the neutral or normal position of the board, but they are shown as extending slightly short of engagement with the board.

The rubber pads above mentioned function not only to yieldably resist movement of the board but also cushion the board against sharp impact with the cabinet 13, which functions to positively limit movement of the board.

It is evident by a comparison of Figs. 3 and 4 that the foot end of the board may not be raised to a level greater than the head end of the board and thus the operator or player may not gravitate a ball toward the head end. In fact, it is preferable that the maximum elevation of the foot end of the board be somewhat below that of the head end so that the board is always disposed at a slightly inclined position from its head end toward its foot end.

The particular formation and distribution of the holes and bumpers on the board are largely a matter of choice and thus the particular arrangement shown is not intended to be a limiting factor on the present invention. The board shown has a plurality of bumpers 87 distributed over the board in accordance with a predetermined pattern. Provided along the board are a plurality of "no score" openings or holes 89 and a plurality of "scoring" openings or holes 91 distributed in a predetermined pattern on the board. The scoring openings are preferably protected by suitable guards 93 so as to make it more difficult to cause a ball to enter the scoring openings.

The game board is also formed at its foot end with a return slot 95 through which may pass balls which have not dropped through any of openings or holes 89 or 91. As is apparent from Figs. 3 and 4, balls dropping through any of the openings 89 or 91 or slot 95 will fall onto chute board 41 and will gravitate toward the center of the board and toward the head end of the board.

Disposed at the head end of the board is an elevator mechanism including an elevating arm 101, see Fig. 6, pivoted at 103 to a vertical support 105. The support is secured at its opposite ends to the upper and lower members of an open rectangular frame member 107. Frame member 107 is secured to the right-hand end of cabinet 13, as the parts are depicted in Fig. 3, in generally surrounding relation to the head end opening 29. Mounted on the right hand end of elevated arm 101, as the parts are depicted in Fig. 6, is a ball receptacle 109. The receptacle is elongated in a direction longitudinally of the arm and is open at the side thereof adjacent chute board 41. As is shown in Fig. 6, the center of the receptacle is arranged to be disposed in alignment with the longitudinal center of chute board 41, when arm 101 is in its lowered position. A spring 110 urges the arm 101 to swing in a clockwise direction and thus urges the end of the arm having the receptacle toward its lowered position. In such lowered position the left-hand end of the arm is disposed against a stop 111 carried by frame 107. Thus, balls rolling down chute board 41 may roll into the receptacle 109 and then drop downwardly into the lower portion of the receptacle and collect therein.

The elevating arm is adapted to be pivoted from the full line position shown in Fig. 6, to the dotted line position, by a cable 113 which is connected to the left-hand end of the arm and extends under a sheave 115, then around a sheave 117, see Fig. 7, and then is connected to the lower end of an elevating handle 119. Sheave 115 is mounted on frame member 107 for rotation about an approximately horizontal axis, see Fig. 6, whereas sheave 117 is mounted on cabinet 13 for rotation about a vertical axis, as is apparent from Fig. 7.

Handle 119 is contained within an open top case or box 120, compare Figs. 1, 4 and 7, fixed to the side panel 119 adjacent the foot end of the machine. Handle 119 is pivoted at 121 for pivotal movement within the case or box 120. A compression spring 122, arranged be-

tween the rear wall of the box and the upper portion of handle 119, urges the elevating handle to the full line forward or clockwise position shown in Fig. 7. When so positioned the elevating arm 101 is disposed in its fully lowered position shown in Fig. 6. However, when arm 119 is pulled toward the foot end of the machine, that is, counter-clockwise, as the parts are depicted in Fig. 7, cable 113 is effective to cause counter-clockwise movement of the elevating arm 101 to the dotted line position shown in Fig. 6 against a stop 124, to elevate balls within receptacle 109 to the level of the head end of the game board 51.

A ball-retaining member 125 is pivoted at 126 on frame 107, see Fig. 6, and urged against arm 101 by a tension spring 127. When arm 101 is elevated, member 125 follows said arm until the left-hand end of said member engages a stop 128. At this time the right-hand end of member 125 is in a blocking position relative to the center of chute board 41. Thus when the arm 101 is raised at a time when a ball is rolling down chute board 41, the ball will be retained at the head end of the chute board by member 125 until arm 101 is subsequently lowered to place receptacle 109 in register with the head end of the chute board.

When elevating arm 101 has been elevated to a position against stop 124, see Fig. 6, it is evident that receptacle 109 is inclined downwardly in a direction toward the pivot of elevating arm 101 and thus the balls within the receptacle gravitate from the right-hand end of the receptacle toward the left-hand end. The balls when so gravitated are in position for discharge from the housing. The bottom of the receptacle is inclined from right to left, as the parts are depicted in Fig. 3, consequently the balls are urged by the force of gravity to leave the receptacle.

Fixed to the open frame member 107 is a flat sheet metal piece 130, see Fig. 6, which has an opening 131, compare Figs. 6 and 8, formed therethrough at a location to be disposed in alignment with the left-hand end of receptacle 109, when said receptacle is elevated. Piece 130 also has an opening 132 at its lower end disposed in alignment with the central portion of the head end of chute board 41.

A chute 133, U-shape in cross section, fits at its left-hand end in an opening 129, see Fig. 8, formed in frame member 107 and is fixed to the sheet metal piece 130 around the forward edges of opening 131. Chute 133 is so secured to piece 130 as to incline downwardly from the right to the left, as the parts are depicted in Figs. 3 and 8, and thus be operative to gravitate balls deposited thereon toward the head end of game board 51. Chute 133 has sufficient length to overlie the head end of the board but extends short of end wall or flange 61, see Fig. 8. At the head end of the board is provided a second head end ball-retaining flange or wall 134, which is joined at its ends to side ball-retaining walls 59, and wall 134 at its center is recessed at 135 to accommodate chute 133.

It is evident that head end flange 61, head end flange 134 and the head ends of side ball-retaining flanges 59 provide a ball-receiving compartment adapted to receive balls from chute 133.

Operable to normally prevent balls within chute 133 from dropping within the compartment is a gate 141 pivoted at 143 in the sides of the left-hand end of chute 133, as the parts are shown in Fig. 8. A tension spring 145 is connected at one end to the lower end of the gate and at its other end to a lip 147 on piece 130, and constantly urges the gate toward a closed position.

Gate 141 is constructed for releasing one ball each time it is pivoted, and to effect such a result the gate is provided with an angularly disposed retaining finger 151, see Fig. 8, operable to be moved to a blocking position, when the gate is pivoted, to prevent the second ball in line from dropping out the end of the chute. When the gate is pivoted back to its closed position, finger 151 is disposed at a level to permit the second ball to move into engagement with the gate for subsequent release.

To effect pivoting movement of the gate 141, there is provided a mechanism including a link 161, see Fig. 5, pivoted at 163 to the framework of the machine and having its left-hand end, as the parts are shown in Fig. 5, connected by a cable 165 to the upper end of gate 141 and having its right-hand end connected to a link 167. The other end of link 167 is connected to the lower end of a release handle 169, see Fig. 7, which is pivoted at 171 on cabinet 13. Referring to Fig. 1, it is evident that frame 31 is provided with a suitable slot 173 accommodating handle 169.

Referring to Fig. 5, it is apparent that ball-retaining flange or wall 61 on game board 51 slopes from the outer ends thereof toward the center in a direction toward the foot end of said board. A ball released from chute 133 will drop into the compartment in alignment with the center of what may be termed a recessed portion of wall or flange 61, and remain in this position because of the fact that the game board is inclined from its head end toward its foot end, but is normally level considered in a transverse direction.

Formed through wall 61 are tunnels or passageways 177, 178 and 179 laterally spaced with relation to one another. From the outlets of the tunnels or passageways extend ball guides 181, 183 and 185, respectively, both pairs of guides 181 and 183 being shown as curved inwardly and guide 185 being shown as extending generally longitudinally of the game board.

When the game board is rocked, a ball disposed at the center recess of flange 61 will gravitate toward the lower side of the board. Thus, the ball may be brought into register with one of the tunnels or passageways in wall 61, where due to the longitudinal inclination of the game board, it will pass through such one tunnel or passageway and out onto the main playing field of the board. Thus, the operator or player by appropriate rocking of the board has an opportunity of selecting different ways in which the balls may be gravitated onto the playing field of the game board.

The wall 61 is preferably tapered from its upper edge downwardly so that the ball within the compartment at the head end of the board may be more readily viewed by the player. In fact, wall 61 may be made of a transparent material to enable the player to see the ball through the wall.

Fig. 9 shows a slightly modified form of the invention where the game board 189 is disposed entirely within the cabinet 13. There is a foot end ball-retaining flange or wall 191, and secured to the foot end of the game board are handles 193 which project through the opening 27 at the foot end of cabinet 13. Thus it may be said that board 189 in Fig. 9 is disposed entirely within cabinet 13. In Fig. 3 it is apparent that although the game board 51 is disposed substantially entirely within the cabinet, the very left-hand edge of the board which is connected to foot end panel 63 can be said to be disposed exteriorly of cabinet 13.

The operation of the machine has been generally indicated along the specific description of the parts and here will be merely summed up. To begin a game, the operator will pull back on handle 119 and elevate balls, which have collected in receptacle 109, upwardly to a discharge position in register with release chute 133. It is evident from Fig. 8 that sheet metal piece 130 is in such close proximity to the open side of receptacle 109 that the balls are prevented from falling out of the receptacle until they are brought into register with opening 131 in sheet metal piece 130. The balls will therefore gravitate into chute 133, being stopped by gate 141.

Thereafter the operator will pull back on release handle 169 to release the foremost ball, the second and remaining balls being retained by retaining finger 151. Upon

release of handle **169**, tension spring **145** snaps the gate **141** back to its closed position. The ball dropping within the head end compartment on game board **51** will remain at the central recessed portion of the compartment against ball-retaining flange or wall **61**.

Thereupon, the operator may grasp handles **65** and rock the game board **51** in the desired direction to gravitate the ball laterally or transversely of the game board into alignment with one of the tunnels **177**, **178** or **179**. He may or may not succeed in bringing the ball into register with the desired tunnel, depending on the skill of the operator. For instance, the operator may attempt to bring the ball into register with tunnel **178**, but tilt the board too much so that the ball passes by tunnel **178** and is brought into register with tunnel **179**. The ball after being brought into register with a tunnel will gravitate through the tunnel and the associated guides onto the playing field of the game board.

Thereafter the operator may move the board about its head end, either vertically, that is, raising or lowering the foot end of the board as indicated by the arrows A in Fig. 2, shift the board sidewise one way or the other in the direction of the arrows B, or rock the board as indicated by the arrows C. The primary purpose of raising or lowering the board is to decrease or increase the rate of gravitation longitudinally of the board, and the primary purpose of rocking the board is to gravitate the ball laterally or transversely of the board. However, the third direction of movement is of extreme importance since by skillful judgment by the operator of the time that a ball is brought into lateral register with a bumper, the operator may quickly move the game board sidewise and thus bump or project the ball sidewise in the desired direction.

An example of how the combination of three directions of movement of the board can be brought into play is appreciated when it is considered that the player may raise and lower or rock the foot end of the board in an effort to gravitate the ball along a path to pass by a desired side of a bumper on the board, whereupon just as the ball passes by the bumper the operator can in effect kick the board sidewise to project it in a desired path toward a particular "scoring" opening or hole. Also, the same maneuvering operation may be utilized in avoiding "no score" openings.

The above specific example of a combination of the three directions of movement of the board is only illustrative and in practice the player soon comes to realize the fine degree of control he may have over the ball, depending upon the skill with which he can maneuver the board. At the same time, the amount of movement which he can impart to the board is limited, and movement of the board is resisted by the yieldable means supporting the foot end of the board. Thus the operator has both a unique sense of control and a sense of constraint or limitation, both of which are essential to holding the interest of the player.

Having described the invention in what is considered to be the preferred embodiment thereof, it is desired that it be understood that the invention is not to be limited by the specific details shown unless they constitute critical features of the present invention, all of which will be apparent by reference to the following claims.

I claim:

1. A game of skill of the pinball variety, comprising a cabinet having walls defining a compartment, a rectangular ball game board having upstanding side and end ball-retaining flanges, said board being disposed substantially entirely within the compartment in an approximately horizontal position in spaced relation to the compartment walls, a universal pivot means mounting the board at one end for independent or combined rocking, sidewise and vertical movements of the board about said pivot means, means yieldingly urging the board to remain generally in a neutral position between the extremes of said movements, the compartment wall located adjacent the opposite end of the board having an opening formed therein, said opposite end of the board projecting through said opening in spaced relation to the edges defining said opening, and handle means exteriorly of said compartment secured to said opposite end of the board.

2. A game of skill of the pinball variety, comprising a cabinet having walls defining a compartment, a game board assembly having a head end and a foot end and including a rectangular ball game board having upstanding side and end ball-retaining flanges, said board being disposed substantially entirely within the compartment in an approximately horizontal position in spaced relation to the compartment walls, universal pivot means mounting the board at its head end for independent or combined rocking, sidewise and vertical movements of the board about said pivot means, means yieldingly urging the board to remain generally in a neutral position between the extremes of said movements, the just-mentioned means including yieldable elements interposed between the side flanges of said game board and the adjacent walls of the cabinet, the compartment wall adjacent the foot end of said board having an opening therein, said game board assembly including handle means at its foot end, said assembly projecting at its foot end through said opening in spaced relation to the edges defining said opening an extent to dispose said handle means exteriorly of said compartment.

3. A game device comprising a ball game board, universal pivot means mounting the board at one end for independent or combined lateral rocking, sidewise and vertical movements about said pivot means, handle means at the opposite end of the board, a cabinet substantially entirely enclosing the board except for the handle means and being disposed in spaced relation to the side and end edges, and top and bottom faces of the board to permit limited movement of the board in the manner above mentioned, and yieldable means urging the board toward a position between the extremes of said movements, said yieldable means including yieldable elements interposed between the side and top edges of said game board and the cabinet.

4. A ball game device comprising a generally horizontal ball game board having a head end and a foot end and being inclined from the head end downwardly toward the foot end, means mounting the board for lateral rocking movement, said board having upstanding side and end walls, a transverse wall separating an upper portion of the board from the remainder of the board to constitute said remainder of the board as a playing field for balls, said transverse wall having laterally spaced openings through which the balls may pass from one side of the wall to the other, means for supplying balls to the upper portion of the board at a location offset from said openings, said transverse wall being indented at least at said location to have a tendency to hold a ball at said location until said board is rocked, whereby the operator by rocking the board is given the opportunity of attempting to select one of the openings through which a ball may be directed onto the board.

5. A game device comprising a cabinet, a ball game board having a head end and a foot end, means mounting the board substantially entirely within the cabinet for rocking movement about a longitudinal axis of the board, said means disposing said board in a position inclined from its head end thereof downwardly toward its foot end, means at the head end of the board for receiving a plurality of balls, means for successively releasing balls from the last named means onto the head end of the board, and compartment means at the head end of the board receiving balls from said successively releasing means and being operable to release a ball onto the board in response to lateral rocking of the board.

6. A pinball machine comprising a cabinet, a ball game

board having a head end and a foot end, means mounting the board substantially entirely within the cabinet in a position inclined from its head end downwardly toward its foot end, said mounting means supporting said board for rocking movement about a longitudinal axis through the board, said board having openings therethrough through which balls may drop, a chute board underlying the game board fixed to the cabinet and in spaced relation thereto and being inclined in the opposite direction from the inclination of the game board and being operable to receive balls passing through the openings in the game board and to gravitate said balls in a direction toward the head end of the game board, means at the head end of the chute board operable to receive a plurality of balls from the chute board and elevate them as a group to the level of the head end of the game board, means at the head end of the game board receiving balls from the last named means and operable to release the balls one by one onto the head end of the board, and compartment means at the head end of the board receiving balls from the receiving means and being operable to release a ball onto the board in response to lateral rocking of the board.

7. A game device comprising a cabinet, a ball game board having a head end and a foot end, means mounting the board substantially entirely within the cabinet in a position inclined from its head end toward its foot end, said board having openings therethrough through which balls may drop, a chute board fixed to the cabinet and disposed beneath the game board and being inclined in the opposite direction from the inclination of the game board and being operable to receive balls dropping through the game board openings and gravitate the balls in a direction toward the head end of the game board, and means at the head end of the chute board operable to receive a plurality of the balls from the chute board and elevate them as a group to the level of the head end of the game board, and means at the head end of the board receiving balls from the last named means and operable to release the balls one by one onto the head end of the board.

8. A game device comprising an inclined ball game board having openings through which balls may pass, said game board having a head end and a foot end, said head end being higher than said foot end, universal pivot means mounting the board at one end for independent or combined rocking, sidewise or vertical movements about said pivot means, handle means at the foot end of the board by which the board may be moved, a cabinet enclosing the board in spaced relation to the side edges, top and bottom faces of the board to permit limited movement of the board in the directions above mentioned, said cabinet extending short of said handle means to leave said handle means exposed exteriorly of said cabinet, yieldable means carried by the cabinet and being disposed in operative relation to the board and urging the board toward a position between the extremes of movement thereof, a fixed

chute board mounted within the cabinet in underlying spaced relation to the game board and being inclined oppositely to the inclination of the game board and being operable to receive balls from the game board and gravitate them in a direction toward the head end of the game board, means for elevating balls from the lower end of the chute board to the level of the head end of the game board, and means at the head end of the game board for receiving balls from the last named means and being operable to release the balls one by one onto the head end of the board.

9. A game device comprising an inclined ball game board having openings through which balls may pass, said game board having a head end and a foot end and upstanding side and end ball-retaining walls, said head end being higher than said foot end, universal pivot means mounting the board at one end for independent or combined rocking, sidewise or vertical movements about said pivot means, handle means connected to the foot end of the board by which the board may be moved, a cabinet enclosing the board in spaced relation to the side edges, top and bottom faces of the board to permit limited movement of the board in the directions above mentioned, said cabinet extending short of said handle means to leave said handle means exposed exteriorly of said cabinet, yieldable means carried by the cabinet and being disposed in operative relation to the board and urging the board toward a position between the extremes of movement thereof, a fixed chute board mounted within the cabinet in underlying spaced relation to the game board and being inclined oppositely to the inclination of the game board and being operable to receive balls from the game board and gravitate them in a direction toward the head end of the game board, means for elevating balls from the lower end of the chute board to the level of the head end of the game board, means at the head end of the game board for receiving balls from the last named means and being operable to release the balls one by one onto the head end of the board, and compartment means at the head end of the board for receiving balls from the above named receiving means and being operable to release a ball onto the board in response to rocking movement of the board.

References Cited in the file of this patent

UNITED STATES PATENTS

1,352,517	King	Sept. 14, 1920
2,003,370	Kimball	June 4, 1935
2,060,797	Chambers	Nov. 17, 1936
2,152,872	Cheatham	Apr. 4, 1939
2,199,327	Ahrens	Apr. 30, 1940
2,522,782	Glickman	Sept. 19, 1940

FOREIGN PATENTS

421,190	Great Britain	Dec. 17, 1934
907,022	France	June 4, 1945