June 16, 1936. B. RADTKE 2,044,328

GAME APPARATUS

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Fig. 1.

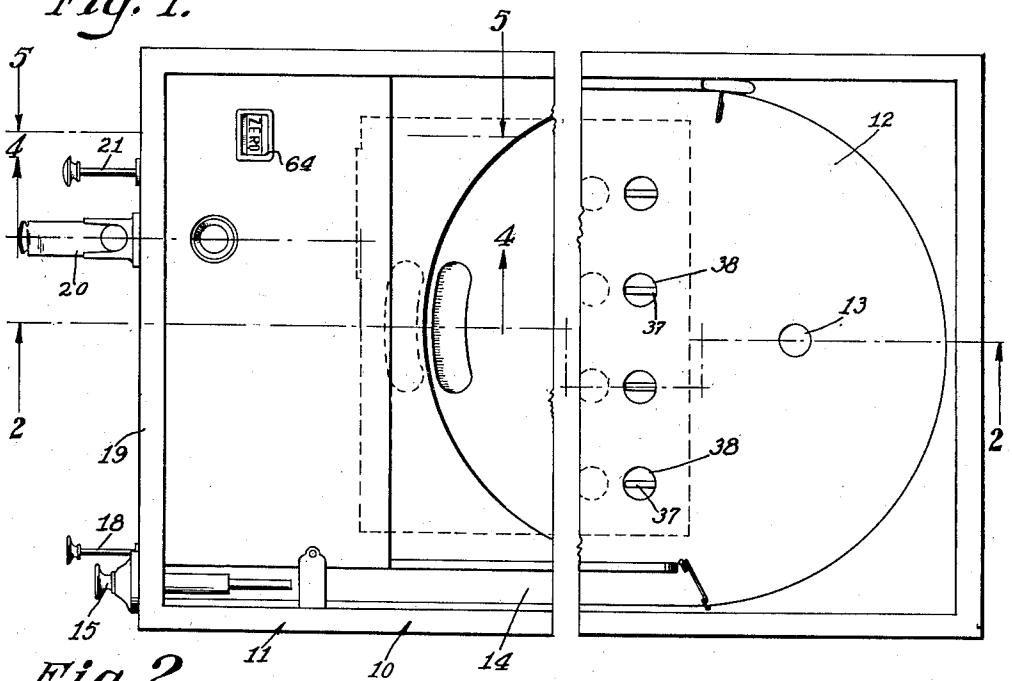


Fig. 2.

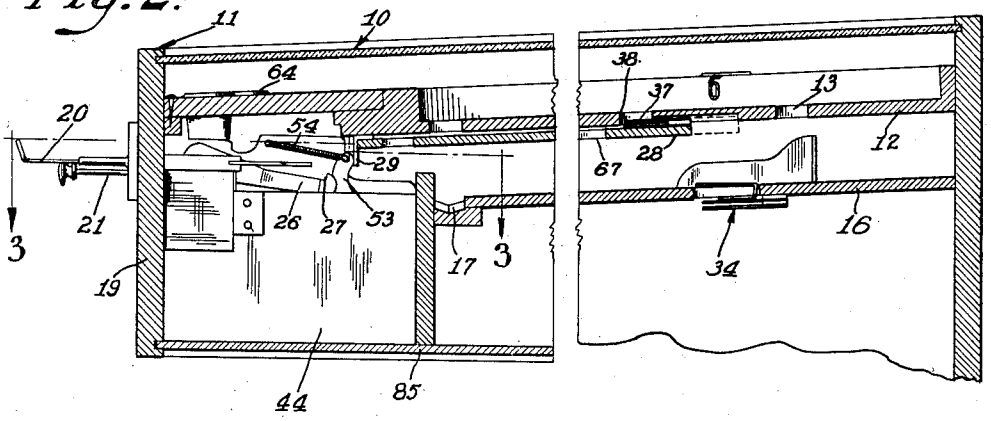
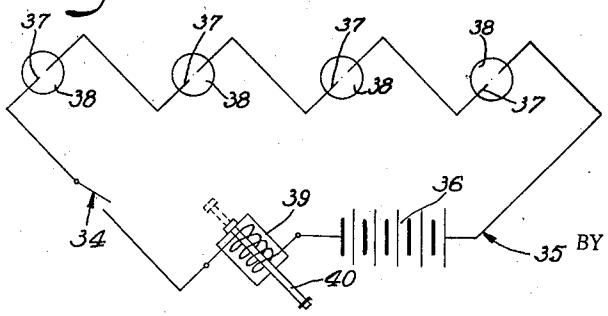


Fig. 9.



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GAME APPARATUS

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Fig. 3.

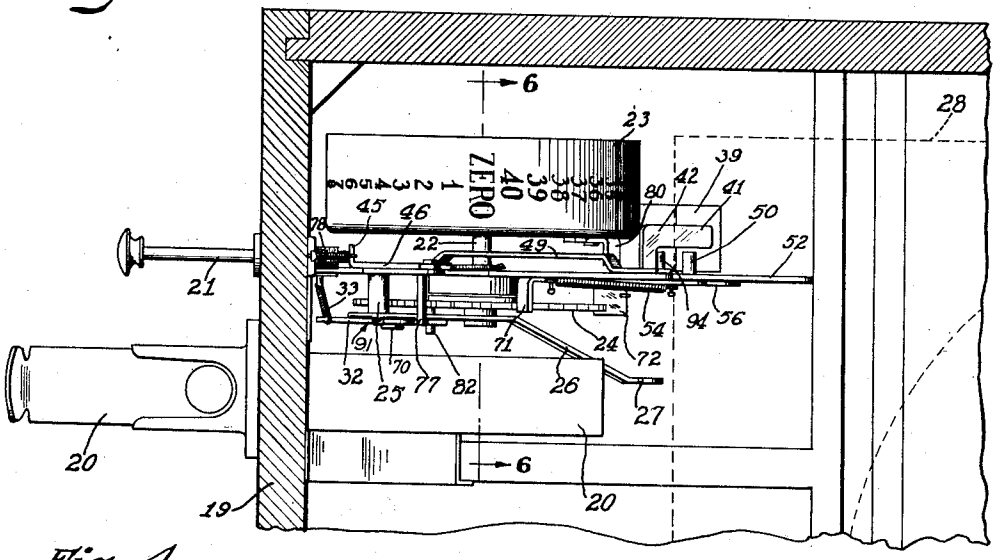
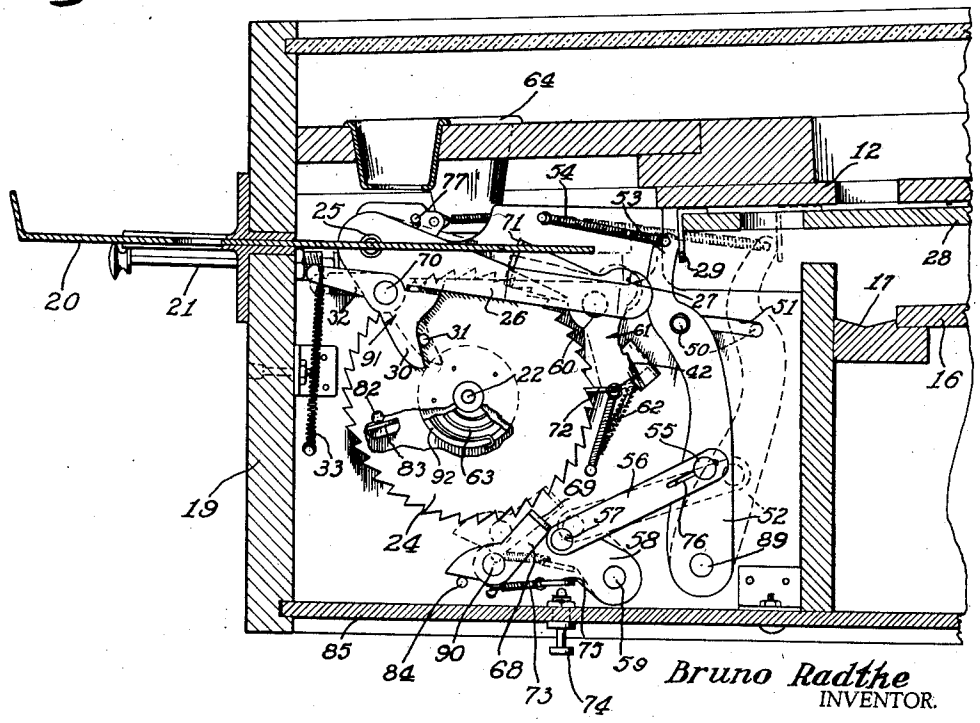


Fig. 4.



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GAME APPARATUS

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Fig. 5.

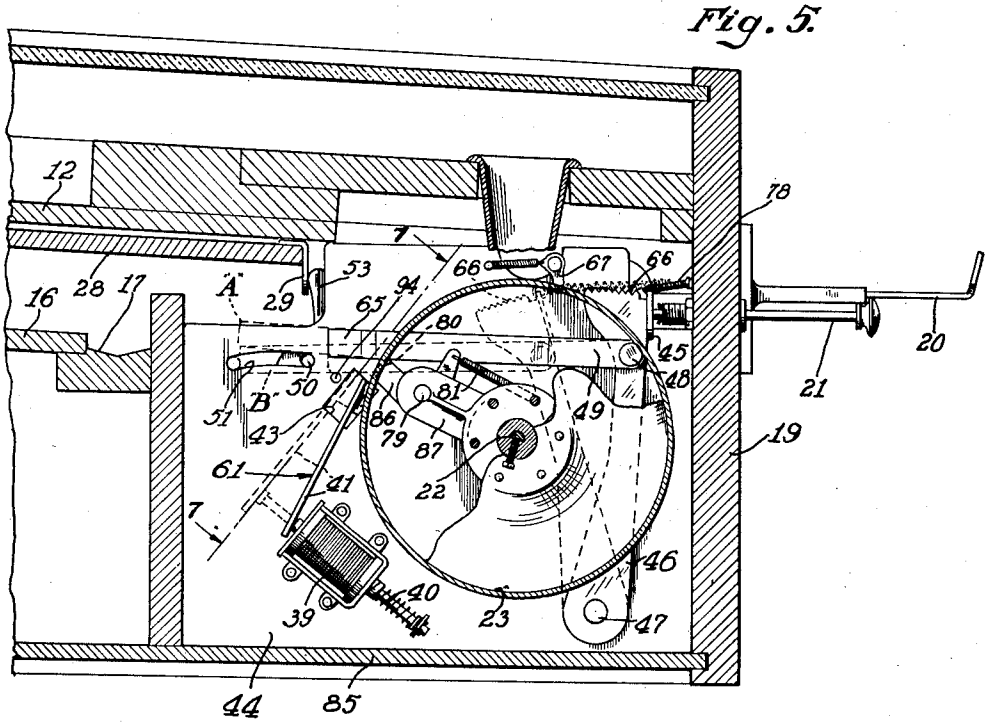


Fig. 7.

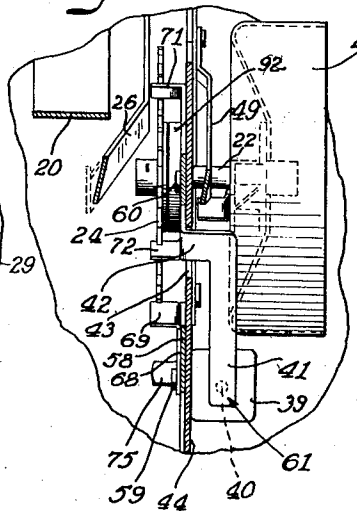


Fig. 6.

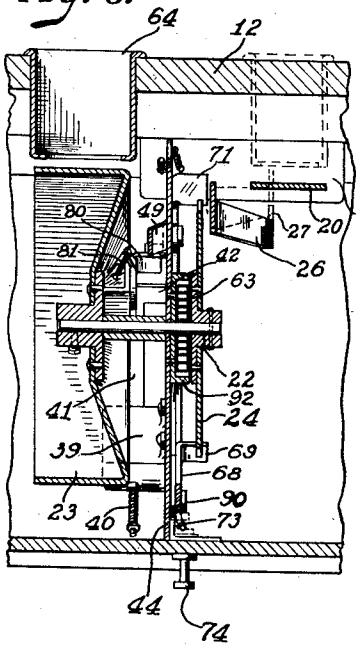
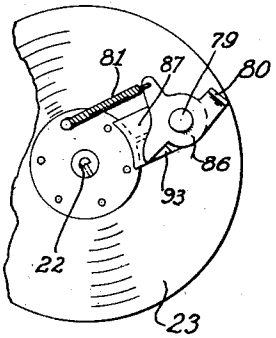


Fig. 8.



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Patented June 16, 1936 2,044,328

UNITED STATES PATENT OFFICE

2,044,328

GAME APPARATUS

Bruno Radtke, Chicago, Ill., assignor to Exhibit Supply Company, Chicago, Ill., a corporation of Illinois

Application July 29, 1935, Serial No. 33,651

3 Claims. (Cl. 194—1)

This invention relates to a game apparatus.

It is an object of this invention to provide an improved game apparatus which is relatively simple and inexpensive in construction and efficient in use.

Another object of the present invention is to provide a new and improved free play or free game device for a game or amusement apparatus, the same being particularly adaptable for use in conjunction with game apparatus of the so-called pin and marble game type.

Another object of the present invention is to provide a novel device for preventing operation of the coin slide when the free game registering dial has been moved away from its initial or zero position to register one or more free games to the player's credit.

A further object of the present invention is to provide a novel device for manually resetting the free game registering dial back into its initial or zero position independently of the main or principal actuating member for the free game registering dial.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will best be understood by reference to the accompanying drawings, showing the preferred form of construction and in which:

Fig. 1 is a top plan view of a game apparatus embodying a preferred form of the present invention;

Fig. 2 is a vertical longitudinal sectional view, on line 2—2 in Fig. 1;

Fig. 3 is a fragmentary top plan view of the free game unit or device embodied in the invention, taken on line 3—3 in Fig. 2;

Fig. 4 is a vertical sectional view of the free game unit or device, on line 4—4 in Fig. 1;

Fig. 5 is a vertical sectional view on line 5—5 in Fig. 1;

Fig. 6 is a vertical sectional view on line 6—6 in Fig. 3;

Fig. 7 is a sectional view on line 7—7 in Fig. 5;

Fig. 8 is an elevational detail view of a part embodied in the present invention and

Fig. 9 is a schematic diagram of an electrical circuit embodied in the present apparatus.

A game apparatus embodying a preferred form of the present invention is shown in the drawings, is therein generally indicated at 10, and comprises a cabinet 11 which includes an inclined playing board 12 having a master ball exit opening or ball-receiving pocket 13 therein (Fig. 2).

Provided in the cabinet 11, adjacent one side thereof, is a ball runway or ramp 14 (Fig. 1) and slidably mounted in the cabinet 11 at the lower end of the runway or ramp 14 is a ball-propelling device or plunger 15 by means of which balls may be propelled, one at a time, up the ramp 14 onto the upper area of the inclined playing board 12 so that they may gravitate thereover and enter into the master ball exit opening or pocket 13.

Arranged in the cabinet 11, below the inclined playing board 12, is a ball return runway 16 by means of which the spent balls which pass through the master ball exit opening or pocket 13 are conducted back to a transverse runway 17 by which they are, in turn, conducted to a point adjacent to, but below the ball-elevating device, which is generally indicated at 18.

Slidably mounted in the lower end wall 19 of the cabinet 11 is a main actuating member in the form of a coin slide 20, and likewise slidably mounted in the end wall 19 of the cabinet 11, adjacent the coin slide 20, is an auxiliary actuating member in the form of a plunger or push rod 21; the coin slide 20 providing a main actuating member for the slidable ball-retaining member 28 and the push rod 21 providing an auxiliary actuating member for the ball-retaining member 28.

Rotatably mounted in the cabinet 11, below the inclined playing board 12, is a horizontally extending shaft 22 (Figs. 4 and 6) and fixedly mounted on this shaft 22 is a free game registering dial 23 (Fig. 6), this dial 23 being visible through a sight opening 64 which is provided in the top wall of the cabinet 11 (Fig. 1). Likewise fixedly mounted on the shaft 22, adjacent the free game registering dial 23, is a ratchet 24.

Slidably mounted in the cabinet 11, below the inclined playing board 12, is a ball-retaining member 28 attached to and depending from this slidable ball-retaining member 28 is an arm 29.

Pivotally mounted at one end in the cabinet 11, as at 25 (Fig. 4), is a latch member 26 which has a notched end portion 27 and this notched end portion 27 is latchingly engageable with the inner end portion of the coin slide 20 (Fig. 4), pivotal movement of the latch member 26 (counterclockwise, Fig. 4) being limited by a stop 77 (Fig. 4).

Pivotally mounted upon the latch member 26 as at 70 is a member 91 which includes a depending arm 30, which is engageable with a pin or lug 31 which is attached to, and projects lat-

erally from the ratchet 24. The member 91 also includes a forwardly extending arm 32 and attached to this arm 32 is a coil spring 33 which normally is tensioned (as shown in Fig. 4) to urge the latch member 26 in a counterclockwise direction when the laterally extending pin 31 is moved away from the depending arm 30 in a manner to be hereinafter described.

Mounted upon the inclined ball return runway 16 (Fig. 2) is a circuit-closing device or switch of conventional design, and which is generally indicated at 34, this switch 34 being arranged in an electrical circuit 35 which includes a suitable source of current which may be, for example, a battery of dry cells or the like 36 arranged in the cabinet 11. Likewise embodied in the circuit 35 are a plurality of switches 37, each of which is associated with a ball-receiving pocket or exit opening 38 which is formed in the inclined playing board 12 (Figs. 1 and 2).

Likewise embodied in the electric circuit 35 is a solenoid 39 and the movable element or core 40 of this solenoid 39 is engageable with an arm 41 of an escapement dog 61 (Fig. 5) which is pivotally mounted in the cabinet 11, as at 60, (Fig. 4). This dog 61 has an angled arm 42 which projects laterally through an opening 43, which is provided in a vertical supporting wall 44, and the arm 42 has an offset end portion 72 (Fig. 7) which is engageable with the teeth of the ratchet 24. The dog 61 also has an end portion or arm 71 which is likewise engageable with the teeth of the ratchet 24.

The inner end portion of the auxiliary actuating member or push rod 21 is engageable with a laterally extending portion or flange 45 of a member 46 which is pivotally mounted in the cabinet 11, at its lower end, as at 47 (Fig. 5) and pivotally connected to this member 46, adjacent the upper end of the latter, as at 48, is a slide bar 49, this slide bar 49 being adapted to engage or ride over a laterally extending lug or pin 50 which projects through a slot 51 which is formed in the vertical supporting wall 44. Formed on the upper end portion of the pivotal member 46 is a rack of teeth 66 and engageable with this rack of teeth 66 is a pivotal dog 67, this dog 67 and the rack of teeth 6 constituting a full stroke device for the pivotal member 46 and the auxiliary actuating member 21 and necessitating a full stroke of the same once movement thereof has been instituted.

The lug or pin 50 is carried by a member 52 which is pivotally mounted in the cabinet 11, adjacent its lower end, as at 89 (Fig. 4), and the upper end portion 53 of this member 52 is engageable with the depending arm 29 of the slidable ball-retaining member 28; the upper end portion 53 of this member 52 being urged out of engagement with the depending arm 29 of the slidable ball-retaining member 28 by means of a spring 54 (Fig. 4).

Pivotally connected to the member 52, by means of a pin and slot or lost motion connection 55—76 (Fig. 4), is a link 56 and this link 56 is pivotally connected, as at 57, to a member 58 which is pivotally mounted in the cabinet 11, as at 59. Pivotally mounted upon the member 58, as at 90, is a pawl 68 and this pawl 68 has an angled extension or arm 69 which is engageable with the teeth of the ratchet 24.

Slidably mounted in the bottom wall 85 of the cabinet 11 (Fig. 4) is a plunger 74 and the inner end portion of this plunger 74 is engageable with a laterally projecting arm 75 of the member 58. Attached to the arm 75 of the member 58 is one end of a coil spring 73, the other end of this spring 73 being attached to the dog 68. This spring 73 urges the pawl 68 in a direction (counterclockwise, Fig. 4) to engage the angled arm 69 thereof with the teeth of the ratchet 24, and the movement of the pawl 68—69, under the action of the spring 73 (counterclockwise, Fig. 4) is limited by a stop 84 (Fig. 4).

Pivotally mounted in the cabinet 11, as at 60 (Fig. 4), is a latch dog 61 which is normally urged, by a spring 62, into engagement with the ratchet 24, and arranged on the shaft 22 is a coil spring 63 which normally urges the shaft 22 and the ratchet 24 (in a clockwise direction, Fig. 4), one end convolution of the coil spring 63 being attached to the shaft 22 and the other end convolution of the same being attached to the housing 92 which is fixedly mounted upon the vertical supporting wall 44 (Fig. 6).

Carried by, and projecting laterally from, the ratchet 24 (Fig. 4) is a pin or lug 82 and the ratchet 24 and free game registering dial 23 are stopped in their initial positions, (as in Figs. 3 and 4) by the engagement of this lug 82 with the stop 83 which is formed from a part of the supporting wall 44.

Pivotally mounted, as at 79, upon a supporting bracket 87, (Figs. 5 and 8), is a member 86 and this member 86 has an angled extension or arm 80 which is urged into engagement with the bottom edge of the slide bar 49 (counterclockwise, Fig. 8) by a spring 81, this movement being limited by the stop 93.

The slide bar 49 rests upon a laterally projecting pin 94 when the arm 80 is moved out of engagement with the slide bar 49.

Operation

Balls may be propelled, one at a time, onto the upper portion of the inclined playing board 12 and, by the exercise of skill, the player may cause the played balls to enter into the several ball-receiving pockets or exit openings 38 wherein they will rest upon the switches 37.

Accordingly, if the player succeeds in playing a ball into each of the pockets 38 and then succeeds in playing a ball into the exit opening 13 it will drop through the latter into the ball return runway 16, whereupon, upon traveling down the runway 16, it will engage and close the switch 34, thereby energizing or actuating the solenoid 39, whereupon the movable element 40 of the solenoid 39 will engage the arm 41 of the escapement dog 61 and pivot the latter (clockwise, from full to dotted line position, Fig. 5), thereby moving the angled end portion or arm 72 of the escapement dog 61 out of engagement with the ratchet 24. The tensioned coil spring 63 will then rotate the ratchet 24, shaft 22 and free game registering dial 23 a predetermined circumferential distance (clockwise, Fig. 4), thereby advancing the numeral "1" on the free game registering dial 23 into registration with the sight opening 64 and thus indicating that the player has one free game to his credit.

The foregoing movement of the ratchet 24 (clockwise, Fig. 4), which moves the numeral "1" on the free game dial 23 into registration with the sight opening 64, likewise causes the pin or lug 31 on the ratchet 24 to move away from the arm 30 of the latch member 26, whereupon the tensioned spring 33 urges the latch member 26 (counterclockwise, Fig. 4), until the upper edge of the member 26 engages the stop 77, thereby

moving the notched end portion 27 of the latch member 26 into latching engagement with the inner end portion of the coin slide 20 and thus preventing operation of the coin slide 20 while the player has one or more free games to his credit, as indicated by the free game registering dial 23.

When the player has thus earned one or more free games, and desires to release the balls from the pockets 38 for replay, this may be accomplished by operating the auxiliary actuating member or push rod 21, (left to right, Fig. 4, right to left, Fig. 5). During the foregoing movement of the push rod 21, (left to right, Fig. 4, right to left, Fig. 5), the inner end portion of the same engages the flange or arm 45 of the pivotal member 46, thereby pivoting the latter at 47 (counterclockwise, Fig. 5).

This movement of the member 46 (counterclockwise, from full to dotted line position, Fig. 5) shifts the slide bar 49 (right to left, Fig. 5), and during this movement of the slide bar 49 the relatively free end portion 65 of the same moves into position "B", Fig. 5, it being noted that the spring 54 normally urges the pivotal member 52 in a direction (counterclockwise, from dotted to full line position, Fig. 4) to dispose the lug 50, which is carried by the pivotal member 52, in the right hand end of the slot 51 (as seen in Fig. 5), and that the resetting spring 78 normally urges the pivotal member 46 in a direction (clockwise, from dotted to full line position, Fig. 5).

Accordingly, when the slide bar 49 is shifted (right to left, Fig. 5) by operation of the push rod 21 and pivotal member 46—45, the relatively free end portion 65 of the slide bar 49 engages the lug or pin 50 which is carried by the pivotal member 52 and thereby pivots the member 52, at 89, (clockwise, from full to dotted line position, Fig. 4); the slide bar 49 being held in a position to engage the lug or pin 50 by means of the laterally projecting arm 94.

It is to be noted that when the ratchet 24 is advanced clockwise (Fig. 4) and the free play dial 23 is correspondingly advanced counterclockwise (Fig. 5) by means of their interconnection with the shaft 22 the angled end portion or arm 80 of the member 86 is moved counterclockwise along with the bracket 87 which is mounted upon the free play dial 23 (Figs. 5 and 6).

During this movement of the member 52 (clockwise, from full to dotted line position, Fig. 4), the upper end portion 53 of the same engages the depending arm 29 of the slidable ball-retaining member 28, thereby shifting the latter (left to right, Figs. 2 and 4). This movement of the slidable ball-retaining member 28 moves the switches 37, which are carried by the slidable member 28, out of registration with the openings 38 and at the same time moves the openings 67 in the slidable member 28 into registration with the pockets 38, whereupon the balls disposed in the pockets 38 will drop therefrom into the inclined ball return runway 16 by which they are conducted to the transverse runway 17, by which they are, in turn, conducted to a point adjacent to but below the elevating device 18.

The foregoing movement of the member 52 (clockwise from full to dotted line position, Fig. 4), which operates the slidable ball-retaining member 28, likewise acts, through the link 56 and member 58 to move the angled arm 69 of the pawl 68 into engagement with the ratchet 24, thereby rotating the shaft 22, ratchet 24, and the free game registering dial 23 a predetermined circumferential distance (counterclockwise, Fig. 4) in a direction back toward their initial or zero positions, against the action of the spring 63, which is thus tensioned. During this movement, the lug or pin 31 which projects from the ratchet 24 engages the depending arm 30 of the member 91 and pivots the latch member 26 at 25, (clockwise, Fig. 4), against the action of the spring 33, thereby moving the notched portion 27 of the latch member 26 out of latching engagement with the inner end portion of the coin slide 20, whereupon the coin slide 20 may again be operated to move the ball-retaining member 28 (left to right, Figs. 2 and 4); it being noted that when there are one or more free games to the player's credit, upon the free game registering dial 23, and the notched portion 27 of the latch member 26 is disposed in latching engagement with the inner end portion of the coin slide 20, the latter can not be operated to move the slidable ball-retaining member 28.

If there are one or more free games credited to the player upon the free game registering dial 23 and the operator or proprietor of the present machine desires to rotate the free game registering dial 23 in a direction back toward its initial or zero position (as in Fig. 3), without operating the push rod 21, this may be accomplished by manipulating the resetting device or plunger 74 (Fig. 4).

When the plunger 74 is pushed upwardly (bottom to top, Fig. 4), the inner end portion of the same will engage the angled extension or arm 75 of the member 58, thereby pivoting the latter, at 59, (clockwise, Fig. 4), this movement of the member 58 moving the pawl 68 away from the stop 84 whereupon the spring 73 will urge the angled arm 69 of the pawl 68 into engagement with the teeth of the ratchet 24, whereupon the ratchet 24, shaft 22 and free game registering dial 23 are rotated a predetermined circumferential distance in a direction (counterclockwise, Fig. 4) back toward their initial or zero positions, against the action of the spring 63. By repeating this operation of the plunger 74 as many times as there are free games credited upon the free game registering dial 23, the latter may be reset back into its initial or zero position (as in Fig. 3) without operating the actuating member or push rod 21.

It is to be noted that during the foregoing operation of resetting the free game registering dial 23 back into its initial or zero position by means of the plunger 74, the movement of the plunger 74 is not transmitted to the pivotal member 52, nor to the slidable ball retaining member 28, because of the lost motion connection 76—55 between the link 56 and the pivotal member 52, (Fig. 4).

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification, without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention what I claim as new and desire to protect by Letters Patent is:

1. In a game apparatus, the combination of: a cabinet including a member providing a ball playing surface having a ball-receiving pocket or exit

opening therein; a member slidably mounted in said cabinet below said playing surface for temporarily retaining therein a ball which enters into said ball exit opening or pocket; a coin-controlled actuating member movably mounted in a wall of said cabinet for operating said ball-retaining member; a free game registering dial in said cabinet; means including a device actuated by a played ball at a preselected point in said cabinet for moving said free game registering dial in circumferential steps in a direction away from its initial or zero position; and means, controlled by the said first-named means, for latching said coin-controlled actuating member against operation when said free game registering dial has been moved away from its initial or zero position.

2. In a game apparatus, the combination of: a cabinet including a member providing a ball playing surface having a ball-receiving pocket or exit opening therein; a member slidably mounted in said cabinet below said playing surface for temporarily retaining therein a ball which enters into said ball exit opening or pocket; a coin-controlled actuating member and an auxiliary non-coin-controlled actuating member movably mounted in a wall of said cabinet for selectively operating said ball-retaining member; a free game registering dial in said cabinet; means including a device actuated by a played ball at a preselected point in said cabinet for moving said free game registering dial in circumferential steps in a direction away from its initial or zero position; means coacting with the said auxiliary actuating member for moving said free game registering dial in circumferential steps in a direction back toward its initial or zero position; and means controlled by the said first-named means for latching the said coin-controlled actuating member against operation when the said dial is away from its initial or zero position.

3. In a device of the character described, the combination of: a cabinet having a ball-playing surface provided with ball-receiving openings or pockets; means movably mounted in the said cabinet for temporarily retaining therein some of the balls which enter the said ball-receiving openings or pockets; a coin-controlled member movably mounted in a wall of said cabinet for operating said ball-retaining means; a free game registering dial in said cabinet; means including a device actuated by a played ball passing through one of the said ball-receiving openings or pockets for moving said free game registering dial in circumferential steps in a direction away from its initial or zero position; means controlled by the said free game registering dial for latching the said coin-controlled member against movement when the said registering dial is moved away from its initial or zero position; and means for simultaneously returning the said free game registering dial in circumferential steps in a direction back toward its initial or zero position and for moving said ball-retaining means so as to release any ball or balls held thereby in the said ball-receiving openings or pockets.

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