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BALL ROLLING GAME

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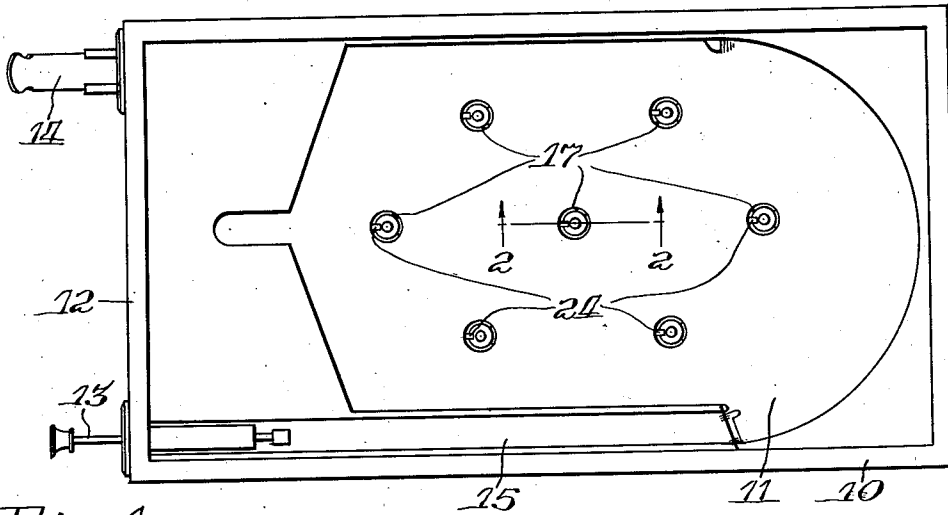


Fig. 1.

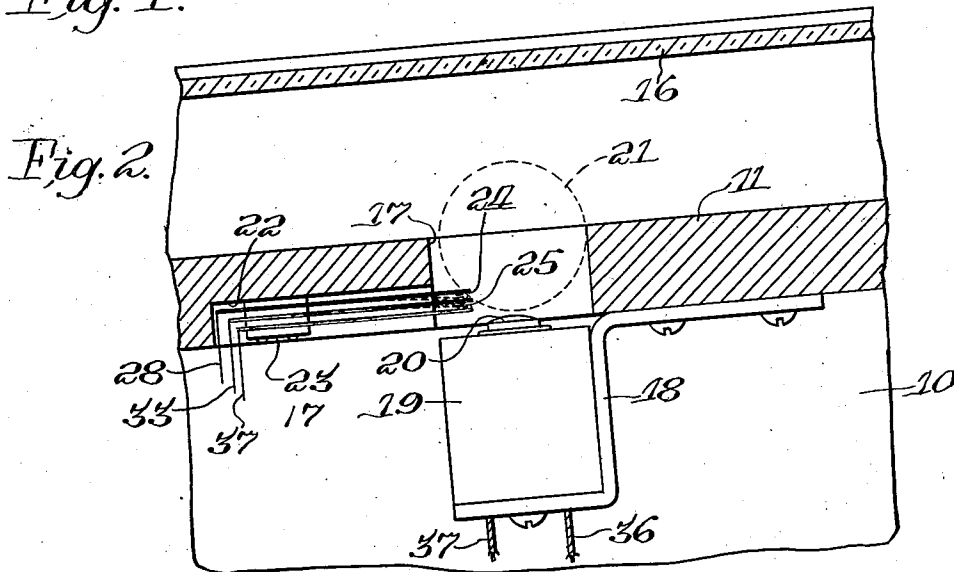


Fig. 2.

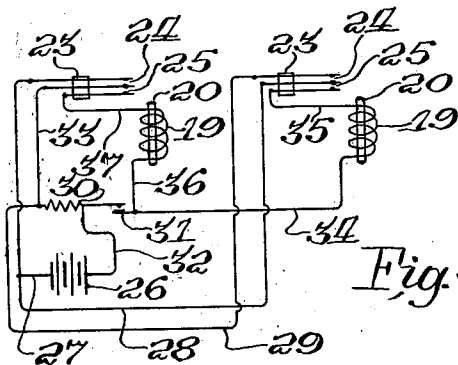


Fig. 3.

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BALL ROLLING GAME

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5 Claims. (Cl. 273—118)

The invention relates to a ball rolling game of the type having a table sloped slightly from the horizontal so that balls projected onto the table may roll gravitationally thereover, and if skilfully projected, to be lodged in pockets formed in the table.

More particularly the invention relates to the provision of a delayed action means disposed in certain, or all of the pockets, to receive the ball and then after the lapse of a desired interval of time, to cause the ball to pop up or be unseated from the pocket for further rolling movement over the table.

It is desirable that such pop up action be automatic and preferably controlled by the ball itself after it has been seated in a pocket.

The main object of the invention is to provide an improved ball rolling game.

Another object is to provide novel action for such a game to enhance player appeal and interest.

Further it is an object in a game of the pocket type for receiving a ball, to provide means operative after a time lag to cause the ball to be unseated, or pop up out of the pocket for further rolling action on the game table.

Still another object is to provide such a delayed pop up action, which will be automatic in operation.

Also it is an object to provide such delayed pop up action which is ball controlled, and preferably by the ball itself which is to be unseated.

Further, it is an object to provide such means which will be electromagnetically operated, fool-proof, and simple in operation.

Other important objects will become apparent to those versed in this art as the disclosure is more fully made.

For the purpose of carrying out the invention a ball rolling table is provided with vertical holes or pockets into which a ball is adapted to lodge. Within certain, or all pockets, is positioned an electromagnetic device on the core of which the ball seats itself, at the same time holding closed a spring blade switch structure for a circuit closable by the ball as it is seated. The circuit includes a thermal timer switch, which after a time lag closes to cause the electromagnetic device to be energized and eject or pop the seated ball upwardly off its seat and out of the pocket for further rolling movement down the table.

In the accompanying sheet of drawings:

Figure 1 is a general plan view of a typical ball rolling game of the ball receiving pocket type;

Figure 2 is an enlarged cross sectional view taken along the line 2—2 of Figure 1 to illustrate one of the delayed action ball pop up means; and,

Figure 3 is a wiring diagram for the electrical circuits involved.

The game comprises the usual rectangular cabinet 10, carrying a ball rolling table, or board 11, sloped slightly from the horizontal, with its low end adjacent the front wall 12 of the cabinet, said wall carrying a conventional ball shooting projector 13 and a coin operated release slide 14. The projector is used to project balls one at a time, along a right hand passageway 15 onto the upper end of the table for gravitation there-down. A glass panel 16 encloses the top of the cabinet 10.

The board or table 10 is preferably of wood and is formed with suitably spaced vertical holes or pockets 17. The underside of the table adjacent each hole or pocket carries a bracket 18 for supporting on a substantially vertical axis, an electromagnetic device, such as the solenoid 19. It is to be noted that each solenoid will be disposed directly under a pocket 17 so that the armature or core 20 thereof functions as a seat on which a ball indicated in dotted lines at 21 may rest. The underside of the board 11 adjacent each hole 17 is notched longitudinally as at 22 to provide a space for locating an insulated packing 23 which carries three parallel flat spring blade switch arms providing two separate contact switches 24 and 25.

Looking now to the diagram of Figure 3 it will be seen that a suitable source of electrical energy will be provided as at 26, a wire 27 leading therefrom and connecting to a wire 28. This wire 28 is connected to one side of the contact switch 24, as shown. A wire 29 connects to one side of a thermal timer device 30 operatively associated with a switch 31, the wire 29 connecting with one side of the contact switch 24. A wire 32 leads from the opposite side of the energy source 30 to the resistance element 30 and a wire 33 leads from wire 29 to the middle blade for the first set of contact switches 24, 25. A wire 34 leads from the switch 31 to the right hand solenoid 19, and a wire 35 leads from the opposite side of said solenoid to the lower blade of the contact switch 25 in the second or right hand set shown in Figure 3. Similarly, a wire 36 and a wire 37 connect the first solenoid 19 with the lower blade for contact switch 25 of the first or left hand set.

The thermal timer 30 in practice will comprise a bi-metallic resistance which requires the desired lag or time interval to elapse before it heats

and is operative to close the contact switch 31. Thus, the switch 31 may be termed a thermal timer switch. The circuit as shown in Figure 3 will be such that a single unit 30, 31 will serve all solenoids 19 if more than one solenoid is used in a series hookup, as shown.

In operation a ball 21 will be projected by the shooter 13 along the passageway 15 in the usual manner to cause the ball to emerge at the upper end of the table 11 for gravitation theredown. When the ball is received in a pocket or hole 17 equipped with a delayed action pop up device, as shown in Figure 2, the ball seats itself on the core 20 of a solenoid 19, at the same time the weight thereof holding closed the spring blade contact switches 24 and 25. This sets up a circuit 28, 27, 26, 32, 30 and 33 to cause the resistance 30 to heat and after a definite time lag interval, the resistance thermal device acts to close the switch 31 to complete a circuit from the battery by wire 32, 36, 37 and switch 25 to energize the solenoid 19 and cause its core 20 to pop up or eject the ball 21 from the pocket for further rolling movement on the board. The moment the ball leaves the pocket the circuit described is opened because the spring switches 24, 25 are always open when not weighted down by a ball.

The delayed action pop up means thus creates a novel and interesting action usable in various ways in these game organizations for building up score values.

It is the intention to cover all changes and modifications of the example herein shown which do not in material respects constitute departures from the spirit and scope of the invention, as hereinafter claimed.

What is claimed is:

1. For a ball rolling game having a substantially horizontal table over which a ball is rollable, said table formed with a pocket adapted to receive a ball, an electromagnetic device disposed below the pocket, a circuit for said device including a switch closable by a ball in the pocket to establish the circuit and energize the device to pop up the ball lodged in said pocket, and means in the circuit and controlled by said ball for delaying the action of the device for a predetermined interval.

2. For a ball rolling game having a substantially horizontal table over which a ball is rollable, said table formed with a pocket adapted to receive a ball, an electromagnetic device disposed adjacent the pocket, a circuit for said device including a normally open switch positioned ad-

jacent the pocket to receive and be closed by a ball entering the pocket, said switch included in a circuit with the electromagnetic device, and a delayed action means disposed in the circuit and controlled by said ball to be operable after the switch is closed to cause the device to operate and eject the ball from the pocket.

3. In a ball rolling game having a table sloped slightly from the horizontal and formed with a ball receiving opening, a pair of normally open spring blade contact switches horizontally carried under the table to project into said opening whereby when a ball enters the opening it closes said switches by its weight, an electromagnetic device including an armature disposed under the opening, means to carry the device from the table so that a ball lodging in the opening and closing the switches is supported above the armature, and circuits with a source of energy for the switches and device, said circuits including a timer to delay for a predetermined interval the energization of the device, the armature thereof when operative serving to pop the ball out of the opening for further rolling down the table.

4. For a ball rolling game having a substantially horizontal table over which a ball is rollable into a hole formed through said table, a switch structure carried by the table and extending into the hole to support a ball entering the hole, a solenoid carried by the table below the hole with its core movable normal to the plane of the table, a circuit for the switch structure and solenoid controlled by a ball in the pocket on said switch structure to energize the solenoid, and means controlled by the said ball itself to cause a definite time interval delay before the solenoid is operative to cause the core to pop the ball out of the hole and onto the table for further rolling movement.

5. A game having a substantially horizontal table formed with a vertical hole to receive a ball rollable on the table, a solenoid carried immediately below the hole with its core vertically movable upwardly, a switch structure extending into the hole on which the ball may lodge to close said switch structure, a circuit for the solenoid including the switch structure and an electrical delaying means which must first function before the solenoid can operate and cause its core to pop up onto the table the ball resting on the switch structure, the action of the delaying means being controlled by said ball.

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