June 8, 1937. S. MAY 2,083,463

CONTROL APPARATUS FOR CHECK DISPENSERS

Filed June 12, 1935 2 Sheets-Sheet 1

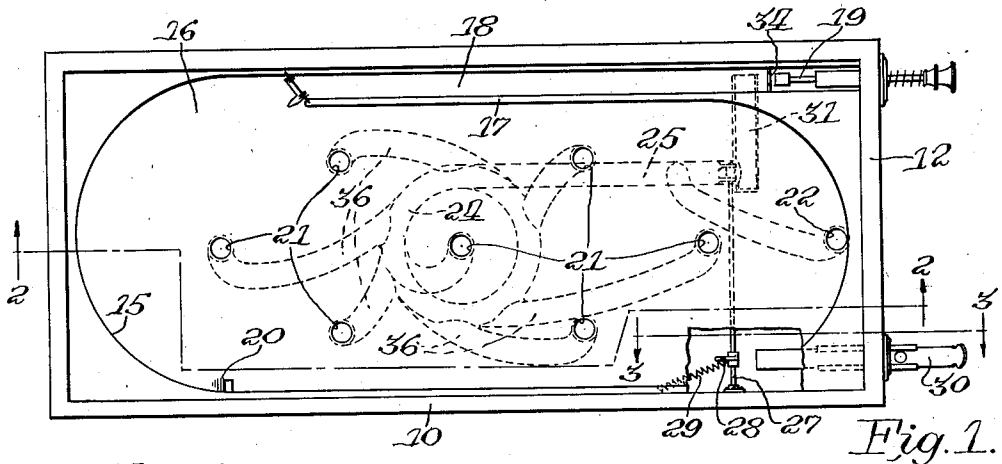


Fig. 1.

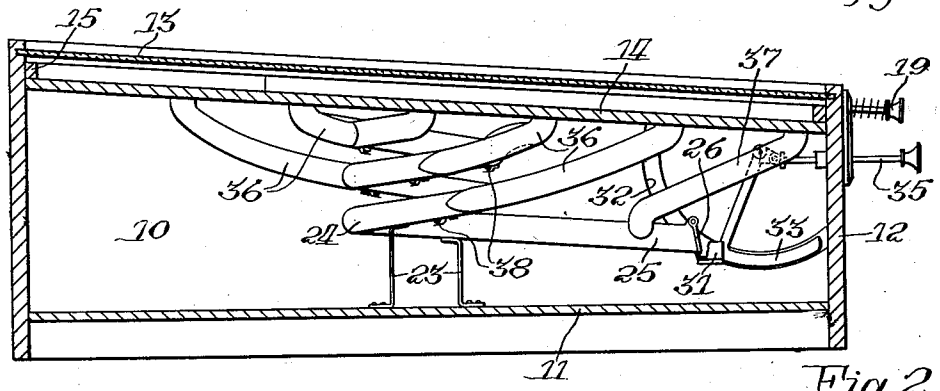
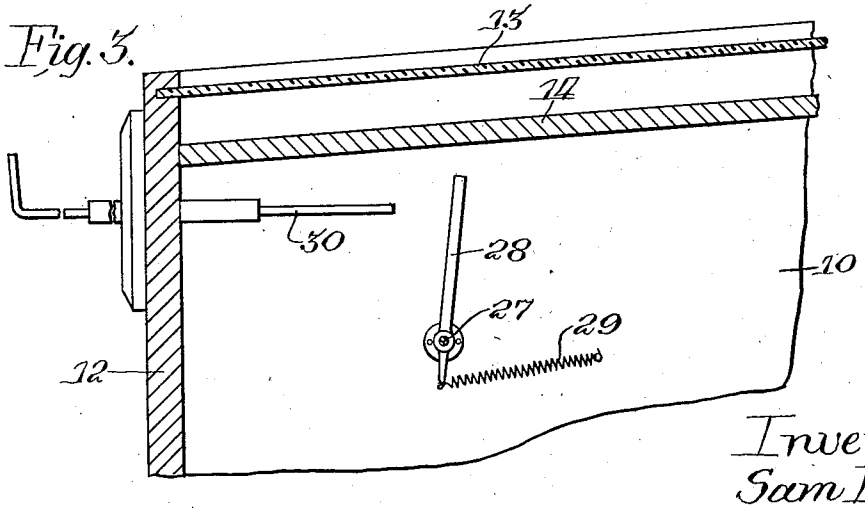


Fig. 2.

Fig. 3.



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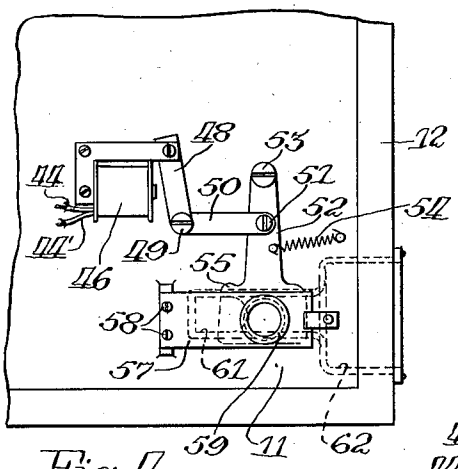


Fig. 1.

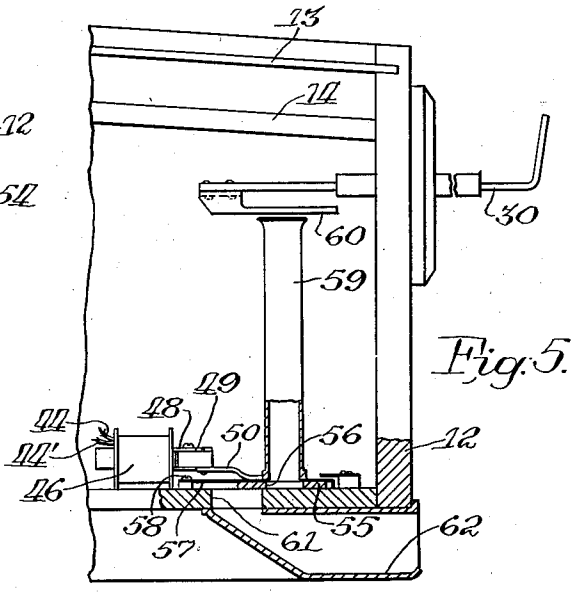


Fig. 5.

Fig. 7.

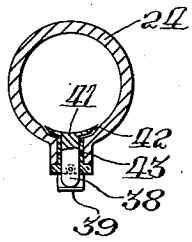


Fig. 6.

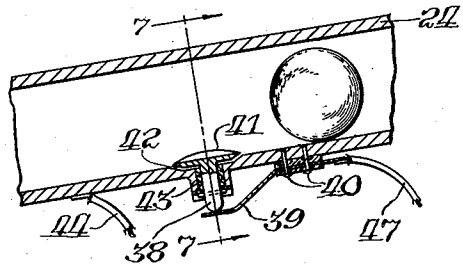
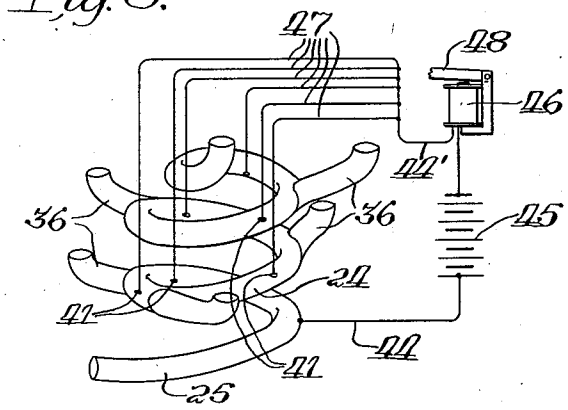


Fig. 8.



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UNITED STATES PATENT OFFICE

2,083,463

CONTROL APPARATUS FOR CHECK DISPENSERS

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Application June 12, 1935, Serial No. 26,215

6 Claims. (Cl. 273—1)

The invention relates to an improved dispenser and its control means for use with games, for example, of the pin ball type. More particularly, the balls, or playing pieces serve to close switches and circuits to control operation of an electrical device and a dispenser cooperable with a magazine, whereby to dispense checks, or the like.

These pin ball games, with which the present dispenser is especially useful, embody a play board sloped slightly from the horizontal, which board is formed with holes to trap balls rolled over the top surface of the board. Skill in the playing of the game is developed by practice and repeated playing thereof, and to encourage the maximum play, since the games are coin or check released, it is desirable automatically to pay out an award commensurate with the skill displayed in scoring the balls. Thus, the several ball trapping holes have different score values and balls entering the same cause the pay off to be varied in accordance with the skill required to roll balls into the several holes.

In the present case the pay-off unit embodies an upright check magazine at the lower end of which is a reciprocatory dispenser member which includes a pocket to take the checks from the magazine and deliver same to a dispensing position. The operator for said member preferably comprises an electro-magnet disposed in circuits which are normally open but individually closable by balls played into the scoring holes. These circuits include normally open switches arranged in a novel manner in a ball receiving and routing track which track is inclined and carries the switches at different levels whereby a ball entering the top of the track structure will successively roll over and close each switch in turn. By causing the balls from the several holes to enter this control track at different levels it is possible to regulate in a predetermined manner the number of pay off operations to be effected.

The main object of the invention is to provide a simplified pay off control mechanism for dispensers operatively associated with pin ball games, or the like.

Another object is to provide such a control means which can be cheaply produced and which is not likely to get out of order in use and operation.

Still another object is to provide a control track structure which is inclined to permit gravitation of balls theredown over switches arranged therealong to regulate operation of an electrically operated dispenser means.

It is also an object to arrange such control track in the form of a spiral and to associate therewith means to permit entry thereinto of balls from the score holes at different levels whereby to predetermine the number of switches that may be closed by a ball rolling through the spiral control track.

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

In the specific embodiment of the invention herein disclosed, a pin ball game of standard form is shown, and beneath its play board is arranged a spirally formed tube comprising an inclined track down which balls received thereby may roll by gravitation to discharge from the lower end thereof. Leading from the game board holes are tubes to lead the trapped balls into the spiral control track at different levels so that some balls may gravitate and roll the whole length of the spiral, while others roll only over a portion thereof. Arranged at spaced intervals within the spiral tube are normally open switches adapted to be momentarily closed by the weight of a ball rolling thereover to establish circuits to the electro-magnet for operating the same and its operatively associated dispenser. So much will suffice in giving a general idea of the improved dispenser control means.

In the accompanying sheets of drawings wherein is illustrated a practicable example of the invention:

Figure 1 is a general plan view of a pin ball game showing the improved dispenser and control unit operatively associated therewith;

Figure 2 is a side view taken along the line 2—2 of Figure 1, looking in the direction of the arrows; the control unit, however, being illustrated in side elevation;

Figure 3 is a side, fragmentary sectional view, taken along the line 3—3 of Figure 1, looking in the direction of the arrows;

Figure 4 is a detail plan view of a check dispenser unit and the motor or operator therefor;

Figure 5 is a side view of the structure shown in Figure 4 with parts broken away to facilitate illustration;

Figure 6 is a central, longitudinal, sectional view through a section of the spiral control track structure, illustrating one of the ball closed electric switches;

Figure 7 is a cross sectional view through one of these switches taken along the line 7—7 of Figure 6, looking in the direction of the arrows; and,

Figure 8 is a diagrammatic view of the spiral control track and the electrical circuits associated therewith.

The pin ball game illustrated may be of the usual form embodying a cabinet 10, having a floor 11, a front wall 12, and an open top closed by a glass panel 13. Below the panel 13, the cabinet carries a play board 14, sloped slightly from the horizontal, with its low end adjacent the front wall 12. A marginal plate on the board

14 provides an oval track 15, delineating a ball rolling or play field 16. A partition 17 on the board 14 provides a ball projection passage 18 along one side of the board, there being a manually operable, spring pressed, ball shooting plunger 19 carried in the front wall 12, and operable in the lower end of said passage 18, in the usual way, to project balls toward the high end of the field 16. Such balls will rebound from a bumper spring 20 and then lose their momentum to gravitate down the sloped board 14 to be trapped by any one of a number of holes 21 formed in and through the board 14 as shown in Figure 1. At the lower end of the field 16 the board 14 has formed therein a spent ball hole 22 for a purpose later to appear.

Disposed under the panel or board 14, in any suitable location on the floor 11, by means of brackets 23 is a spirally wound tube 24 having a number of convolutions arranged vertically, with the upper end of said tube opening under and in registration with the central hole 21 in the board 14 to receive balls dropping therethrough. The lower end of the tube 24 is extended forwardly at 25, its free end being closed by a flap gate 26 carried at one end of a transverse rock shaft 27 suitably journaled in the cabinet. This shaft carries fast thereon a lever 28 which has a portion extending below the shaft and pulled by a spring 29 for resiliently holding the gate 26 in position to close the end of the tube extension 25.

This lever 28 also has an upward extension lying in the path of movement of the usual coin released slide 30 carried in the front wall 12 as shown in Figure 3. When the player coin releases said slide 30 and pushes it into the cabinet, the inner end thereof hits the lever 28 to rock it and the shaft 27 to move the gate 26 away from the end of the tube extension 25, whereby to release the balls therefrom.

Such released balls then gravitate into a transverse trough 31, which is inclined toward the right hand wall of the cabinet to move balls therein by gravitation into an arcuate groove 32 formed in said wall as shown in Figure 2. A ball elevator or lifter 33 of standard form is pivoted to the adjacent side wall of the cabinet, said lifter having a portion movable across the discharge end of the trough 31 and in the groove 32 to raise the balls from said trough into the passage 18 and against an abutment 34, where the shooter 19 can engage the balls to project the same onto the board 14 and play field 16. This lifter 33 is operated in the conventional manner by a plunger 35 mounted in the front wall 12.

Under each of the remaining holes 21 is a branch pipe 36, each of said branches serving to deliver the balls into the main spiral 24 at a different level as shown in Figure 8, where it will be seen that the main pipe 24 is made of an electric conductor material for a purpose soon to appear. Balls missing the holes 21 gravitate to the lower end of the board 14 to be received by the spent ball opening 22, which communicates with a pipe 37 that leads such spent balls into the extension 25 as shown in Figure 2.

As indicated diagrammatically in Figure 8 and shown in detail in Figure 6, the main control unit 24, just below where each branch 36 enters the same, carries a ball operated contact switch each embodying a plunger 38 resting on a spring leaf conductor 39 secured in any suitable manner as by means 40 to the pipe 24. Each plunger 38 has a head 41 normally spaced from a countersunk portion 42 formed in the pipe. An insulator collar 43 carries each plunger as shown. The pipe 24 is electrically connected by a wire 44 with any suitable source of energy, such for example, as a battery 45, said battery being located in any convenient place within the cabinet, not shown.

In circuit with the wire 44 and battery 45 is an electro-magnetic motor device, such for example as an electro-magnet 46 appropriately mounted on the floor 11 of the cabinet. This magnet includes a wire 44' from which, in the present embodiment, is led six wires 47 respectively leading to six clips 39 for the six switches 38 located in the control pipe 24 as has been described.

The magnet 46 has operatively associated therewith a hingedly mounted armature lever 48 pivotally connected at 49 to a link 50, said link in turn being pivoted at 51 intermediate the ends of a dispenser member 52, which in turn is horizontally mounted by a pivot 53 on the floor 11 of the cabinet 10. A spring 54 serves to pull these connected parts to the normal position shown in Figure 4.

The free end of the dispenser lever member 52 is enlarged to form a head portion 55 provided with a check receiving opening 56. This head 55 reciprocates to and fro under a horizontal guide strip 57 secured at 58 to the floor 11, said strip carrying an upright check or coin containing magazine 59. This magazine is located under the discharge end of the coin slide so that in a well known manner the checks handled by said slide 30 will accumulate in the magazine 59. Said slide 30 carries a tail 60 to sweep excess coins off the column in the magazine when the latter is full, said swept off coins or checks being kicked onto a chute, not shown, for delivery into a check box, not shown, in a manner common in this art.

The head 55, when it is located to register its opening 56 under the magazine, receives one or more checks, depending upon the thickness of the portion 55 relative to the thickness of the checks, by gravitation and then moves the check or checks in said opening 56 to a point over a discharge opening 61 formed in the floor 11. Obviously the check, or checks, will now discharge by gravity through said opening 61, and into a chute 62 for delivery to a slot in the front wall 12 of the machine, where the player has ready access to his skill award. The use and operation of the improved game structure will now be described.

In starting the game play the balls available for play will all be stored in the pipe extension 25 and be held there by the spring pressed valve or gate 26. The first step is to check or coin operate the slide 30 which is pushed into the cabinet so that its inner end abuts the lever 28 to rock the shaft 27 against the pull of the spring 29 to open the gate 26 and permit the balls all to gravitate into the trough 31. When the slide 30 is retracted the gate 26 once more moves to closed position under the pull of the spring 29. Each ball in turn is now available for elevation up the groove 32 by means of the lifter 33 to lodge in the passage 18 against the abutment 34 for projection by the shooter 19.

Each ball is thus projected onto the upper end of the play field 16, the object, of course, being to lodge the balls in the score holes 21 arranged in scattered relation through the board 14. A ball dropping through the central hole 21 obviously enters the upper end of the control tube

24 and gravitates down the whole length thereof and over each of the six contact buttons 41. Each time the weight of the ball engages the button of each switch with the pipe 24 to close the circuit to the magnet 46. Six times, then, the magnet is energized to pull its armature 48 to pull the dispenser lever 52 to dispense a check on each stroke thereof from under the magazine 59 toward the opening 61. The balls close the respective contacts only for an instant and the instant the ball passes off the contacts they open under the spring pressure of the clips 39 to break the respective circuits. Also, the instant the magnet is deenergized the spring 54 is operative to pull the dispenser lever 52 forwardly to its check loading position as will be obvious.

A ball entering the other holes 21 is carried by the respective branches 36 to lower points on the spiral tubing so that such balls can engage fewer contacts 38. The lower down the balls enter said control tube the fewer contacts are closed. By this means the pay offs can be proportioned directly to the skill required in pocketing the balls. Finally, when all balls available have been played they lodge against the closed gate 26 in the manner already described.

Obviously in practice the control track need not be in the form of closed tubing, and it may be formed otherwise than in spiral form without departing from the substance of my invention. Also a ticket or other dispenser may be substituted for the check dispenser herein shown, for it should be perfectly apparent that the electromagnetic device 46 will serve as an operator for these other forms of dispensers.

It is the intention herein to cover all such changes and modifications of the illustrative form shown and described which do not in material respects constitute departures from the spirit and scope of the invention.

What is claimed is:

1. In a control apparatus for check dispensers having an electric motor and means operated thereby to dispense checks from a magazine, said apparatus comprising a spiral track wound around a substantially vertical axis and constructed to receive a ball at its upper end and to permit the ball to roll therethrough and be discharged from its lower end, and normally open switches in the track and connected in circuits for the operation of the motor, said switches being arranged in spaced relation along the length of the track and being closable to complete the circuits as the ball rolling along the track passes over the switches.

2. In a control apparatus for check dispensers having an electric motor and means operated thereby to dispense checks from a magazine, said apparatus comprising a spiral track in the form of a closed tube wound around a substantially vertical axis and constructed to receive a ball at its upper end and to permit the ball to roll through the tube and be discharged from its lower end, said lower end being open, and normally open switches arranged in the tube and connected in circuits for the operation of the motor, said switches being arranged in spaced relation along the length of the tube and being closable to complete the circuits successively as the ball rolls along the tube and passes over the switches.

3. In a control apparatus for check dispensers having an electric motor and means operated thereby to dispense checks from a magazine, said apparatus comprising a spiral track wound around a substantially vertical axis and constructed to receive a ball at its upper end and to permit the ball to roll along the track and to be discharged therefrom at its lower end, a plurality of radiating branch tracks constructed also to receive balls with ends of said branch tracks connected respectively to communicate with the spiral track and at different levels to guide balls from the branches into the spiral track, and normally open circuit closers included in circuits for the operation of the motor and located in the spiral track to be closed by a ball in the spiral track rolling thereover.

4. In a control apparatus for check dispensers having an electric motor and means operated thereby to dispense checks from a magazine, said apparatus comprising a spiral track wound around a substantially vertical axis and constructed to receive a ball at its upper end and to permit the ball to roll along the track and to be discharged therefrom at its lower end, a plurality of radiating branch tracks having open ends also to receive balls with the other ends of said branch tracks connected respectively to communicate with the spiral track and at different levels to guide balls from the branches into the spiral track, and normally open circuit closers included in circuits for the operation of the motor and arranged in spaced relationship along the length of the spiral track and respectively at points below the confluence of the branch tracks with the spiral track, said circuit closers being closable by balls rolling thereover.

5. In a control apparatus for check dispensers having an electric motor and means operated thereby to dispense checks from a magazine, said apparatus comprising a spiral track in the form of a closed tube wound around a substantially vertical axis and constructed to receive a ball at its upper end to permit the ball to roll through the tube and to be discharged from its lower end, a plurality of radiating branch tracks also in the form of closed tubes, said branch tubes respectively constructed at one end also to receive balls and having their other ends respectively connected to and communicating with the spiral track at different levels to guide balls from the branches into the spiral track, and normally open circuit closers included in circuits for the operation of the motor and arranged in spaced relationship along the length of the spiral tube and respectively at points below the confluence of the branch tubes with the spiral tube, said circuit closers being closable by balls rolling thereover.

6. In a control apparatus for check dispensers having an electric motor and means operated thereby to dispense checks from a magazine, said apparatus comprising a spiral track having a vertical axis and having radiating branches communicating with said track at different levels, said first track and the spiral tracks being respectively constructed to receive balls to permit the balls to enter and roll along the first track, a gate at the lower end of the first track to hold the balls, and normally open circuit closers included in circuits for the operation of the motor and arranged in said track structure to be closed when balls roll thereover.

SAM MAY.