April 20, 1937. L. W. GENSBURG 2,077,684

CONTROL DEVICE FOR GAMES

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Fig. 1.

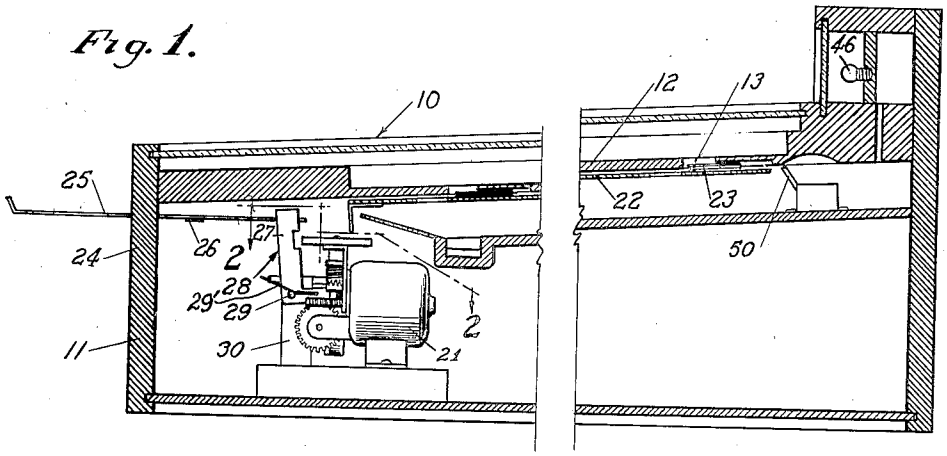


Fig. 3.

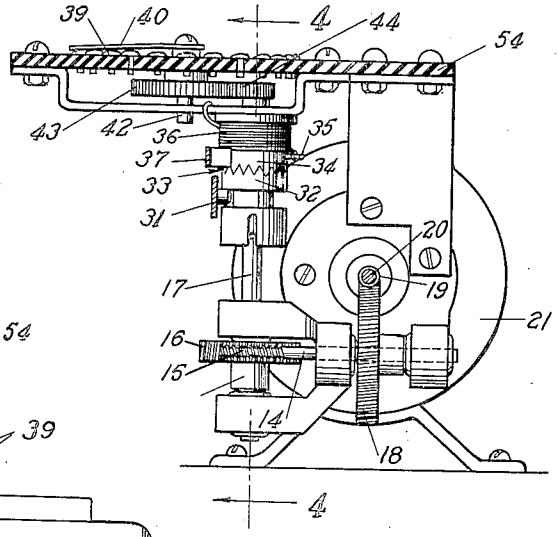
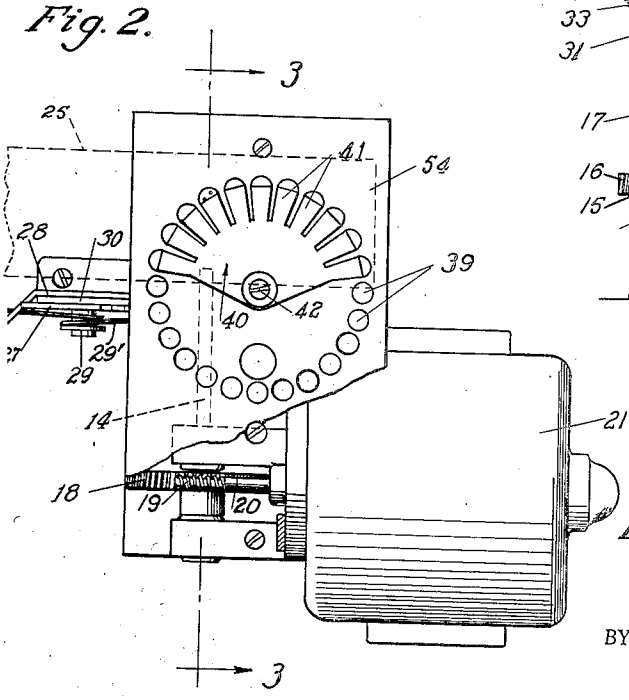


Fig. 2.



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Fig. 4.

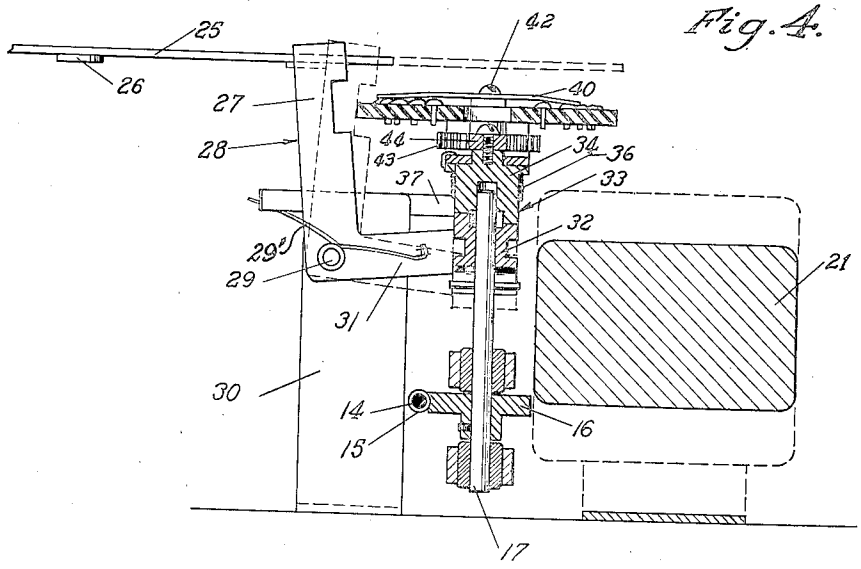
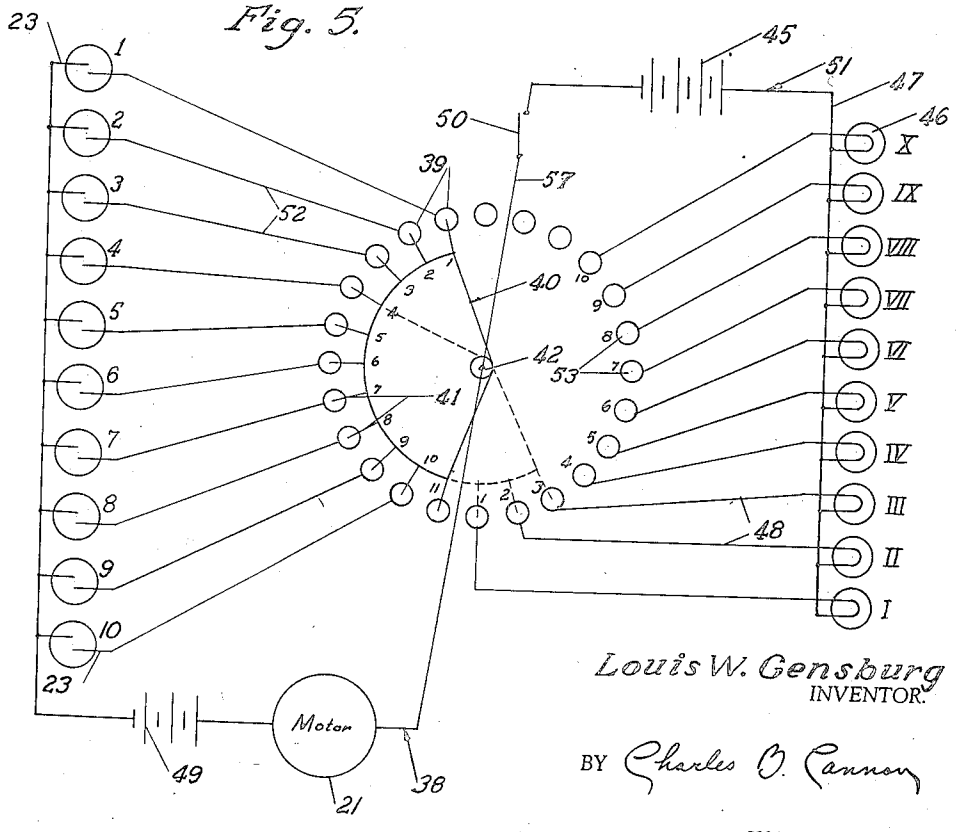


Fig. 5.



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CONTROL DEVICE FOR GAMES

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Application October 11, 1935, Serial No. 44,487

3 Claims. (Cl. 200—52)

This invention relates to a control device for games.

It is an object of this invention to provide an improved timing device 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 timing or control device for an amusement game apparatus of the so-called pin and marble game type and which control or timing device is adapted to control the number of operations of a motor, the said motor being adapted to operate any desired instrumentality which may be associated with such a game apparatus, such as, for example, a bank of score-indicating signal lamps or the like.

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

Fig. 1 is a sectional view of a game apparatus of the so-called pin and marble game type showing a preferred form of the present invention associated therewith;

Fig. 2 is a top plan view of the new control or timing device, on line 2—2 in Fig. 1;

Fig. 3 is a sectional view of the new timing or control device, on line 3—3 in Fig. 2;

Fig. 4 is a sectional view on line 4—4 in Fig. 3; and

Fig. 5 is a diagrammatic view of an electrical circuit embodied in the present invention.

A game apparatus having a preferred form of the present invention associated therewith is shown in the drawings, is therein generally indicated at 10, and comprises a cabinet 11 which includes an inclined playing board 12 which has ball exit openings or ball-receiving pockets 13 formed therein, the cabinet 11 being provided with the usual ball propelling device or plunger (not shown) by means of which balls may be propelled, one at a time, onto the upper portion of the inclined playing board 12 so that they may gravitate thereover and enter into the ball exit openings or pockets 13 in which the balls may be releasably held by the usual slidable ball-retaining member 22. Carried by the ball-retaining member 22 are resilient contacts or switches 23 which are normally disposed under the ball-exit openings or pockets 13 so as to hold balls releasably in the latter.

Rotatably mounted in the cabinet 11 is a horizontal shaft 14 and formed on the shaft 14 is a worm screw 15 which meshes with a worm gear 16 which is mounted upon a vertical shaft 17. Carried by the horizontal shaft 14 is a gear 18 which meshes with a worm gear 19 which is formed on the shaft 20 of a motor 21, (Fig. 2).

Slidably mounted in the wall 24 of the cabinet 11 is a coin slide 25 which includes a laterally extending arm 26 and this arm 26 is engageable with an arm 27 of a clutch-operating member 28 which is pivotally mounted in the cabinet 11, as at 29, upon an upright support 30 (Figs. 1 and 4). This clutch-operating member 28 has an arm 31 which is engageable with the lower jaw 32 of a clutch 33, this clutch jaw 32 being slidably mounted upon the vertical shaft 17 so that it may be moved into and out of clutching engagement with the upper clutch jaw 34 which is fixedly mounted upon the vertical shaft 17 adjacent the upper end of the latter.

Attached to the upper and relatively stationary clutch jaw 34 is a pin 35 and arranged upon the vertical shaft 17 is a coil spring 36 which has one end attached to the pin 35, this pin 35 being engageable, in a manner to be described hereinafter, with a stop arm 37 which is mounted upon the upright support 30 (Fig. 3).

A spring 29' is coiled upon the pivotal mounting 29 and has a pair of divergent arms, one of which bears against an ear on the bracket 30 and the other arm of which is anchored by an ear to arm 31 of the clutch operating member 28, this spring being effective to urge the lower clutch jaw 32 upwardly against the upper jaw 34.

The switches 23 are arranged in a motor circuit 38 (Fig. 5) which also includes a radially arranged series of relatively stationary contacts 39 which are mounted in the cabinet 11 upon a horizontal support 54 (Fig. 3). This circuit 38 also includes a segmental conductive commutator plate 40 which includes a plurality of conductive fingers 41, the conductive plate 40 being attached to a short vertical shaft 42, adjacent the upper end of the latter, (Fig. 3), and this shaft 42 being rotatably journaled in the horizontal support 54. This shaft 42 is operated by the shaft 17 through the medium of speed-reducing gears 43 and 44.

The contact fingers 41 are adapted to be moved successively into engagement with the relatively stationary contacts 39 by movement of the conductive plate 40 which is, in turn, operated through the medium of the motor 21, and the driving mechanism 19—20—18—17—32—33—44—43 and 42.

The motor circuit 38 also includes the oper-

ating motor 21, a suitable source of current 49, which may be a battery of dry cells, or the like, arranged in the cabinet 11.

Associated with the motor circuit 38 is an auxiliary circuit 51 which includes a suitable source of current 45, a bank of instrumentalities in the form of score-indicating signal lamps 46 which may be arranged in the cabinet 11 in any suitable manner, as, for example, at the upper end of the inclined playing board 12 (Fig. 1), a conventional timing or control switch 50, a conductor 57 which leads from one side of the switch 50 to the conductive plate 40, a bank of relatively stationary contacts 53 which are also mounted on the supporting panel 54, and a plurality of conductors 48 which lead from the contacts 53 to the lamps 46.

Operation

When a ball enters one of the ball-exit openings or pockets 13 in the inclined playing board 12 it engages the corresponding switch 23, thereby closing the motor circuit 38 to the operating motor 21 (Fig. 5), and thus setting the motor 21 in operation.

When the operating motor 21 is thus set in operation, it acts, through the medium of the driving mechanism, which includes a shaft 20, worm 19, and a gear 18, to operate or rotate the horizontal shaft 14, and the latter acts, through the medium of the worm 15 and gear 16 to rotate the vertical shaft 17, this movement of the vertical shaft 17 being transmitted, by way of the speed-reducing gears 43 and 44, to the shaft 42 and the conductive commutator plate 40 mounted thereon, thereby moving the conductive commutator plate 40 and the contact fingers 41 formed thereon successively into engagement with the stationary contacts 39, (Fig. 5).

When the conductive commutator plate 40 and the contact fingers 41 formed thereon are thus moved, relative to the stationary contacts 39, the contact fingers 41 also successively engage the stationary contacts 53 and thereby successively close the auxiliary circuit 51 to the signal lamps 46.

Thus, for example, assuming that a ball enters the particular ball-receiving pocket or exit opening 13 which has a scoring value of "3". In this event the ball will engage and close the corresponding switch 23 (which is indicated by the numeral "3", Fig. 5), thereby closing the motor circuit 38 and thus energizing the motor 21. When the motor 21 is thus energized it will act, through the medium of the driving mechanism 20—19—18—14—15—16—17—32—33—44—43 and 42 to rotate the shaft 42 and the conductive commutator plate 40 and the contact fingers 41 (counterclockwise, Fig. 5), and during this operation the contact finger 41 (which is identified by the numberal "11", Fig. 5) will engage the stationary contact 53 (which is identified by the numeral "1", Fig. 5). Current will then flow through the auxiliary circuit 51 as follows: From one side of the current source 45, through the conventional timing or control switch 50, thence, through the conductor 57, conductive commutator plate 40 and the particular contact finger 41 formed thereon (which is identified by the numeral "11", Fig. 5), thence through the stationary contact 53 (which is identified by the numeral "1", Fig. 5), thence by way of the corresponding conductor 48 to the score-indicating signal lamp or instrumentality 46 (indicated by the numeral I, Fig. 5), and then by way of the common conductor 47 back to the battery 45, thereby illuminating the score-indicating lamp 46 (which is identified by the numeral I, Fig. 5), and thus indicating that the player has made a score upon the game apparatus with which the present invention is associated.

As the motor 21 continues to operate it will rotate the conductive plate 40 and contact fingers 41 formed thereon (counterclockwise, Fig. 5, thereby moving the contact fingers 41 (which are designated by the numerals 1 and 2, Fig. 5) successively into engagement with the stationary contact 39, (which is identified by the numeral "3"), so as to close the motor circuit 38, and during this operation the contact finger 41 (which is identified by the numeral "11") moves into engagement with the stationary contact 53 (which is identified by the numeral "2") and the contact finger 41 (which is identified by the numeral "10") moves into engagement with the contact 53 (which is identified by the numeral "1") thereby illuminating the signal lamp 46 which are identified by the numerals I and II (Fig. 5), and, in the present example, when the contact 41, (which is identified by the numeral "1", Fig. 5) moves into engagement with the stationary contact 39 (which is identified by the numeral "3", Fig. 5) the contact finger 41 (which is identified by the numeral "9") will engage the stationary contact 53 (which is identified by the numeral "1"), whereupon the three lamps 46 (which are identified by the numerals I, II and III) will be illuminated. However, as the commutator plate 40—41 continues to rotate (counterclockwise, Fig. 5) the contact finger 41 (identified by numeral "1") will move out of engagement with the stationary contact 39 (which is identified by numeral "3") whereupon the motor circuit 38 will be opened and the device will stop, thereby necessitating that a ball be played into another ball-receiving pocket 13 before the motor circuit 38 may again be closed and the device operated.

The particular ball which is at this time disposed in engagement with the contact switch 23 (which is identified by the numeral "3", Fig. 5) may then be released from the corresponding ball-receiving pocket 13 by movement of the coin slide 25 and ball-retaining member 22, in the usual manner.

When the coin slide 25 is operated, (left to right, Fig. 1), the lateral extension 26 of the same engages the arm 27 of the clutch-operating member 28, thereby pivoting the latter at 29 (clockwise, Fig. 4), whereupon the arm 31 of the clutch-operating member 28 engages the lower jaw 32 of the clutch 33 and thereby moves the latter, upon the vertical shaft 17, out of engagement with the upper jaw 34 of the clutch 33 so as to prevent the shaft 17 and the circuit-closing or conductive commutator plate 40 and its contact fingers 41 from being fraudulently operated by the player while holding the coin slide 25 pushed partially in, thereby necessitating that the coin slide 25 complete a full stroke and be returned to its initial or coin-receiving position before the device can be operated.

As the vertical shaft 17, and the clutch jaws 32 and 34, are rotated in a progressive rotary movement, by the operating motor 21 and driving mechanism 20—19—18—14—15—16 (Fig. 3), as above set forth, the resetting coil spring 36 is tensioned.

However, when the coin slide 25 is pushed inwardly, from coin-receiving to coin-discharging position, (left to right, Fig. 1), thereby moving the

lower clutch jaw **32** out of engagement with the upper clutch jaw **34** of the clutch **33**, the tensioned resetting spring **36** acts, through the speed-reducing gears **43** and **44**, and shaft **42**, to rotate the conductive commutator plate **40** and the contact fingers **41** back into their initial position (clockwise, Fig. 5), and during this resetting operation the pin **35** on the clutch jaw **34** engages the stop arm **37**, thereby stopping the commutator plate **40** and its contact fingers **41** in their initial positions.

When the coin slide **25** is returned to its initial or coin-receiving position, (right to left, Fig. 1), the resetting spring **29'** again urges the clutch-operating member **28** (in a counterclockwise direction, Fig. 4), thus re-engaging the lower clutch jaw **32** with the upper clutch jaw **34** so as to permit operation of the drive shaft **17** and associated driving mechanism **32—33—34—44—43—42—40** and **41**.

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. A commutator switch for use with game apparatus having a coin slide control, said switch including stationary contacts, a rotatable multiple contactor engageable with the fixed contacts, driving means for rotating said multiple contactor from initial to advanced position in one direction, means for rotating said multiple contactor in an opposite direction from advanced position back to initial position, said means including an energy storing member energized by the advancing movement of the multiple contactor, clutch means releasably connecting the said multiple contactor with the said driving means to permit the operation of said energy storing means to return the multiple contactor to initial position, and means including a lever arm adapted for operative engagement by a said coin slide and operable to release said clutch means.

2. Switching means for use with game apparatus having a coin control and electrical instrumentalities operable by playing of the game, said switching means including stationary contacts and a rotatable multiple contactor engageable therewith, motor means for advancing said contactor in one direction from an initial position, energy storing means operable by the advancing movement of said contactor, a clutch normally interconnecting the said contactor and said motor means and preventing movement of said contactor by said energy storing means, together with clutch releasing means adapted for actuation by a said coin control to disconnect said contactor from said motor means and permit the return movement of the contactor by said energy storing means from an advanced to an initial position.

3. Switch mechanism for use with game apparatus including a coin control, said mechanism comprising a driving member, a stationary contact block supported on said member, a movable contactor engageable with the stationary contacts of said block, a link mechanism including a releasable clutch and interconnecting said driving member with said contactor for movement of the latter in one direction, energy storing means connected with said link mechanism and operable to move said contactor in an opposite direction when said clutch is released, together with means adapted for actuation by a said coin control and operable to release said clutch.

LOUIS W. GENSBURG.