June 16, 1936. C. R. KIRK ET AL 2,044,309

GAME APPARATUS

Filed Dec. 3, 1934

Fig. 1.

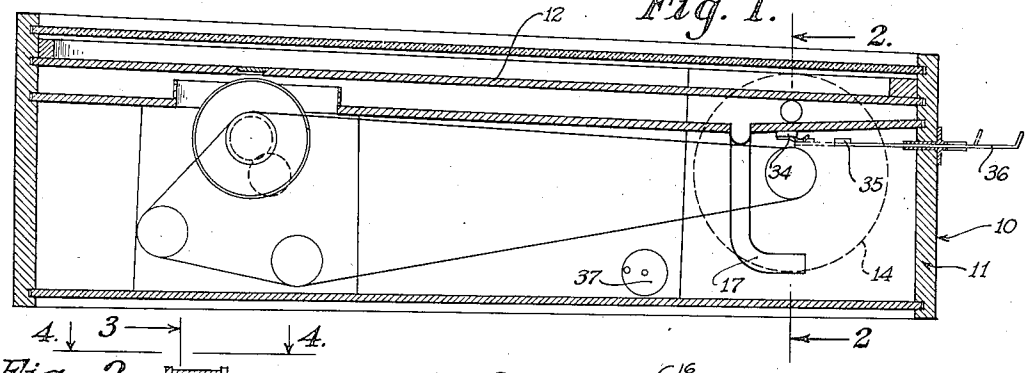


Fig. 2.

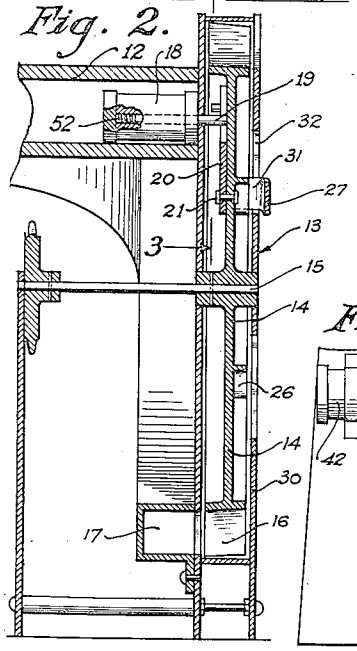


Fig. 3.

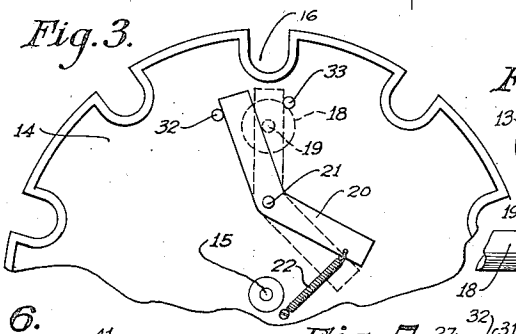


Fig. 4.

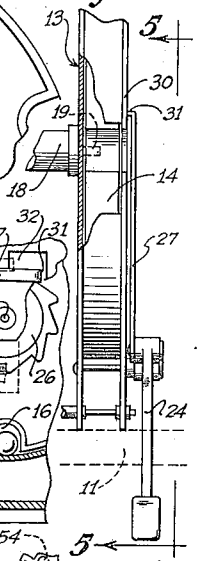


Fig. 6.

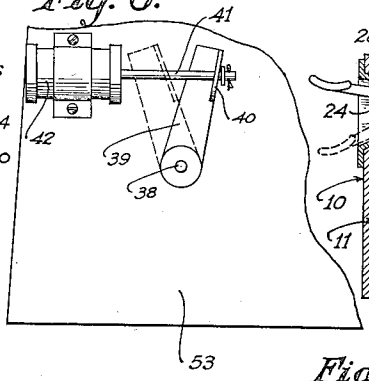


Fig. 5.

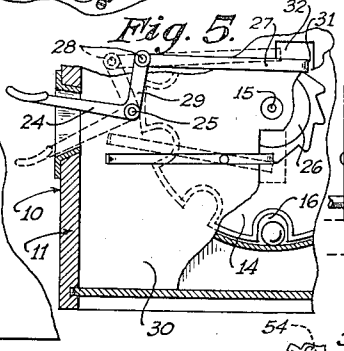


Fig. 7.

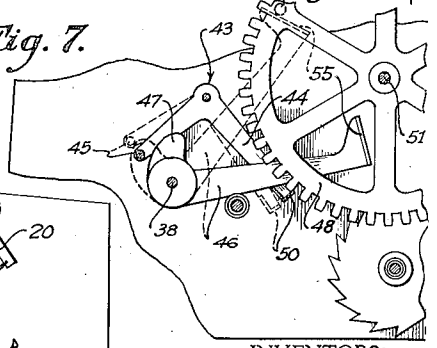
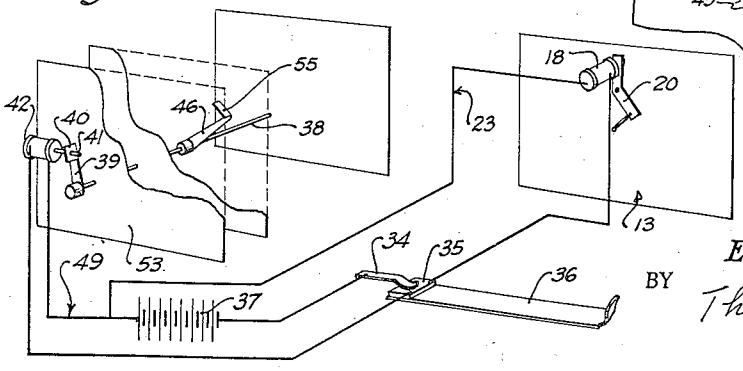


Fig. 8.



INVENTORS:
Claude R. Kirk,
Edward E. Collison

BY Threedy and Cannon

THEIR ATTORNEYS.

Patented June 16, 1936 2,044,309

UNITED STATES PATENT OFFICE

2,044,309

GAME APPARATUS

Claude R. Kirk and Edward E. Collison, Chicago, Ill., assignors to Standard Ticket Games Corporation, Chicago, Ill., a corporation of Illinois

Application December 3, 1934, Serial No. 755,680

4 Claims. (Cl. 273—121)

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.

This application is concerned with certain improvements upon the device disclosed in our Patent No. 1,973,815, on a game apparatus, dated September 18, 1934.

Another object of this invention is to provide an improved electromagnetic device for latching the ball elevating mechanism shown in our aforesaid patent against further operation after a predetermined number of balls have been elevated thereby from a point below the playing surface up to the level of the same.

A further object of this invention is to provide an improved electromagnetic device for resetting the score registering and printing device of the game apparatus, shown in our aforementioned patent, back into initial or reset position upon the insertion of a proper coin into the coin aperture of the coin slide and operation of the latter.

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 drawing, showing the preferred form of construction and in which:

Fig. 1 is a vertical sectional view of a game apparatus embodying a preferred form of our invention;

Fig. 2 is a vertical sectional view of the ball elevating device, on line 2—2 in Fig. 1;

Fig. 3 is a sectional view on line 3—3 in Fig. 2;

Fig. 4 is a top plan view of the ball elevating device, on line 4—4 in Fig. 2;

Fig. 5 is a fragmentary side elevational view of the ball elevating device, on line 5—5 in Fig. 4;

Fig. 6 is a side elevational view showing part of the electro-magnetic device for resetting the score registering and printing mechanism back into reset position after operation of the same;

Fig. 7 is a fragmentary elevational detail view showing certain parts of the resetting mechanism for the registering gears; and

Fig. 8 is a diagrammatic view showing the electro-magnetic circuit embodied in the invention.

A game apparatus embodying a preferred form of our present invention is shown in the drawing, is generally indicated therein at 10, and includes a cabinet 11 within which is arranged an inclined playing board 12 upon which balls may be propelled in any suitable manner, as, for example, by means of the usual spring-urged plunger or propelling device (not shown) whereupon the played balls may gravitate over the inclined playing board and drop through any one of a predetermined number of ball exit openings formed in the playing board 12; after which the played balls are returned to a magazine 17; the latter being arranged adjacent to the elevating device, which is generally indicated at 13, and by means of which the balls are elevated one at a time from a point below the playing board 12, that is, from the magazine 17, up to the level of the playing board 12.

The elevating device 13 comprises a rotary disk 14 which is mounted upon a horizontal shaft 15 for rotation therewith, and the disk 14 includes a plurality of radially arranged ball-receiving pockets 16 which are adapted to communicate one at a time with the open lower end of the ball return runway or magazine by means of which balls are fed into the pockets 16 for elevation up to the level of the playing board 12; the balls being dumped from the pockets 16 onto the playing surface by reason of the axial inclination of the pockets 16 toward the playing board 12, as shown in Fig. 2; the rotary elevator disc 14 being operated by means of an operating lever 24, which is pivotally mounted on the elevator housing 30, as at 25, and has a portion projecting exteriorly of the cabinet 11.

Formed upon the axially outer side of the elevator disc 14 is a ratchet 26 with which is associated an operating pawl 27; one end portion of this operating pawl 27 being pivotally mounted, as at 28, (Fig. 5) to a link 29 and the latter is in turn attached to the operating lever 24.

The pawl 27 has an angled end portion 31 which projects through an opening 32, which is formed in a wall of the elevator housing 30, into engagement with the teeth of the ratchet 26 so that the rotary elevator disc 14 may be rotated (counterclockwise, Fig. 5) by depression of the hand lever 24, thereby pivoting the link 46 and pawl 44 from full to dotted line position (Fig. 5).

The present invention is, in one aspect thereof, concerned with the provision of an electro-magnetic device for preventing further operation of the rotary elevator disk 14 after a pre-determined number of balls have been elevated thereby from the ball return runway or magazine 17 up to the level of the playing board 12, and to this end there is provided in the cabinet 11, adjacent the elevating device 13, an electro-magnetic solenoid 18 which includes a movable arm or armature 19, and this armature 19 is slidably projectible into

and out of engagement with a latch or stop member 20 which is pivotally mounted between its ends, as at 21, upon the innerside of the rotary elevator disk 14, as shown in Fig. 3, the latch or stop member 20 being urged (clockwise, Fig. 3) by means of a spring 22 and being movable between two stop members or pins 32 and 33 which are carried by the disk 14 and project laterally from the inner side thereof. The arm 19 of the solenoid 18 is urged, by a spring 52, Fig. 2 (from left to right, Fig. 2) into engagement with the latch member 20.

The foregoing arrangement is such that when a predetermined number of balls have been elevated by the disk 14 up onto the playing field 12, and the disk 14 has been rotated a predetermined circumferential distance, the latch member 20 is positioned as in full lines, Fig. 3 and engages the stop member or armature 19 of the electromagnetic device or solenoid 18, thus preventing further operation of the rotary elevator disk 14, (clockwise, Fig. 3) until the arm 19 is withdrawn from engagement with the latch or stop member 20. This is accomplished as follows: The solenoid 18 is arranged in an electromagnetic circuit 23 (Fig. 8) which includes a source of energy 37 and a relatively stationary contact 34; the latter being engageable with a movable contact 35, carried by the coin slide 36, to close the electromagnetic circuit 23. This arrangement is such that when a proper coin is inserted into the coin aperture of the coin slide 36 and the latter is pushed inwardly (right to left, Figs. 1 and 8) the movable contact 35 carried by the coin slide 36 engages the stationary contact 34, which is arranged in the cabinet 11, and thereby closes the electromagnetic circuit 23, whereupon the solenoid 18 withdraws its arm 19, against the action of the spring 52, out of the path of movement of the latch member 20 (right to left, Fig. 2). This frees the latch member 20 from engagement with the electro-magnetically operated stop member or armature 19 whereupon the spring 22 pivots the latch member 20 (clockwise, from full to dotted line position, Fig. 3) past the armature or stop member 20, thus freeing the elevator disc 14 for further operation (clockwise, Fig. 3). However, as soon as the coin slide 36 is retracted and the circuit 23 is broken the armature 19 again returns to its effective position, Fig. 2.

The ticket or score printing device of our aforementioned patent includes a horizontal shaft 38 which may be arranged in a cabinet, such as 11, and this shaft 38 carries a radially extending arm 39. In the present invention we provide this arm 39 with a lateral extension 40 and slidably extended through an opening formed in the extension 40 is an armature 41 of a solenoid 42. This solenoid 42 is mounted on a supporting wall 53 which is arranged in the cabinet 11 and this solenoid 42 is included in an electromagnetic circuit 49 (Fig. 8); the circuit 49 including the source of energy 37 which is also common to the circuit 23, and being controlled by the operation of the coin slide 36 and associated contacts 34—35.

Pivotally mounted in the cabinet 11 above the shaft 38 is a latch member generally indicated at 43, (Fig. 7), and this latch member 43 is formed as a part of a rectangular frame or carriage which includes side arms 44 and a horizontal bar 45; and mounted on the shaft 38 is an arm 46 which has a cam portion 47; the latch member 43 being urged by a spring (not shown) into latching engagement with the main timing gears 48 of the score registering and printing device shown in our aforementioned patent and to which reference may be had for a more complete description of the operation of these timing gears 56 and associated parts shown in Fig. 7 hereof.

When a coin of proper denomination is inserted into the coin aperture of the coin slide 36 and the latter is pushed into coin-discharging position, (right to left, Figs. 1 and 8), the contact 35 carried by the inner end portion of the coin slide 36 engages the stationary contact 34, and thereby closes the electromagnetic circuit 49 (Fig. 8), whereupon the solenoid 42 acts upon its armature 41 to move the latter (right to left, Fig. 6), thereby rocking the shaft 38 (counterclockwise as seen in Figs. 6 and 7). During this motion of the rock shaft 38 the cam portion 47 of the latch releasing member 46 engages the horizontal bar portion 45 of the timing gear latch member 43, and thereby pivots the timing gear latch member 43 (clockwise as seen in Fig. 7), thus disengaging the horizontal bar 50 of the latch member 43 from latching engagement with the main timing gears 48 of the score-recording or printing device, and thereby freeing the timing gears which are thereupon returned or re-set back into their initial position by an operating spring (not shown) which acts upon the horizontal shaft 51 and the timing gears 48 to rotate the same (counterclockwise, Fig. 7) back into reset position wherein they are stopped and held by the engagement of a laterally extending pin 54, which is carried by one of the timing gears 48, with a horizontal extension or latching portion 55 of the member 46, as shown in dotted lines (Fig. 7).

The arrangement of the score printing and registering device in the present application differs somewhat from that shown in our aforesaid patent since in the present case the registering and recording devices are arranged in the upper end of the cabinet (left hand end, Fig. 1), rather than in the lower end of the same (right hand end, Fig. 1) as in our aforesaid patent.

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

Having thus described our invention what we 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 adapted to have balls propelled thereover and the spent balls being adapted to pass from the said playing surface to a point below the same; means for elevating the spent balls from a point below said playing surface up to the level of the same; means for latching said elevating means against operation after a predetermined number of balls have been elevated thereby from a point below said playing surface up to the level of the same; and means, including an electromagnetic device, for moving said latching means out of latching engagement with said elevating means so as to permit operation of the latter.

2. In a game apparatus, the combination of: a cabinet including a member providing a ball playing surface adapted to have balls propelled thereover and the spent balls being adapted to

pass from the said playing surface to a point below the same; means for elevating the spent balls from a point below said playing surface up to the level of the same; means for latching said elevating means against operation after a predetermined number of balls have been elevated thereby from a point below said playing surface up to the level of the same; and means including an electromagnetic device for moving said latching means out of latching engagement with said elevating means so as to permit operation of the latter; said third and last-named means including an actuating member movably mounted in a wall of said cabinet and adapted when moved from its initial position to actuate said electromagnetic device and thereby move said latching means out of latching engagement with said elevating means.

3. In a game apparatus, the combination of: a cabinet including a member providing a ball-playing surface; means, including a disc rotatably mounted in said cabinet, for elevating balls from a point below said playing surface up to the level of the same; a latch member carried by said disc; an electromagnetic device in said cabinet including a movable latch element normally disposed in the path of said latch member and engageable by the latter after a predetermined number of balls have been elevated, by said disc, up to the level of said playing surface; and means, including a member movably mounted in a wall of said cabinet, for closing circuit to said electromagnetic device so as to actuate the latter and thereby withdraw the said movable latch element thereof out of latching engagement with said latch member.

4. In a game apparatus, the combination of: a cabinet including a member providing a ball-playing surface; means, including a member movably mounted in said cabinet, for elevating balls from a point below said playing surface up to the level of the same; a latch member carried by said movably mounted member; an electromagnetic device in said cabinet including a movable latch element normally disposed in the path of said latch member and engageable by the latter after a predetermined number of balls have been elevated, by said second-named member, up to the level of said playing surface; and means, including a member movably mounted in a wall of said cabinet, for closing circuit to said electromagnetic device so as to actuate the latter and thereby withdraw the said movable latch element thereof out of engagement with said latch member.

CLAUDE R. KIRK.
EDWARD E. COLLISON.