

Oct. 24, 1939.

C. H. HUENERGARDT

AMUSEMENT GAME

Filed July 16, 1937

2,177,066

5 Sheets-Sheet 1

Fig. 1.

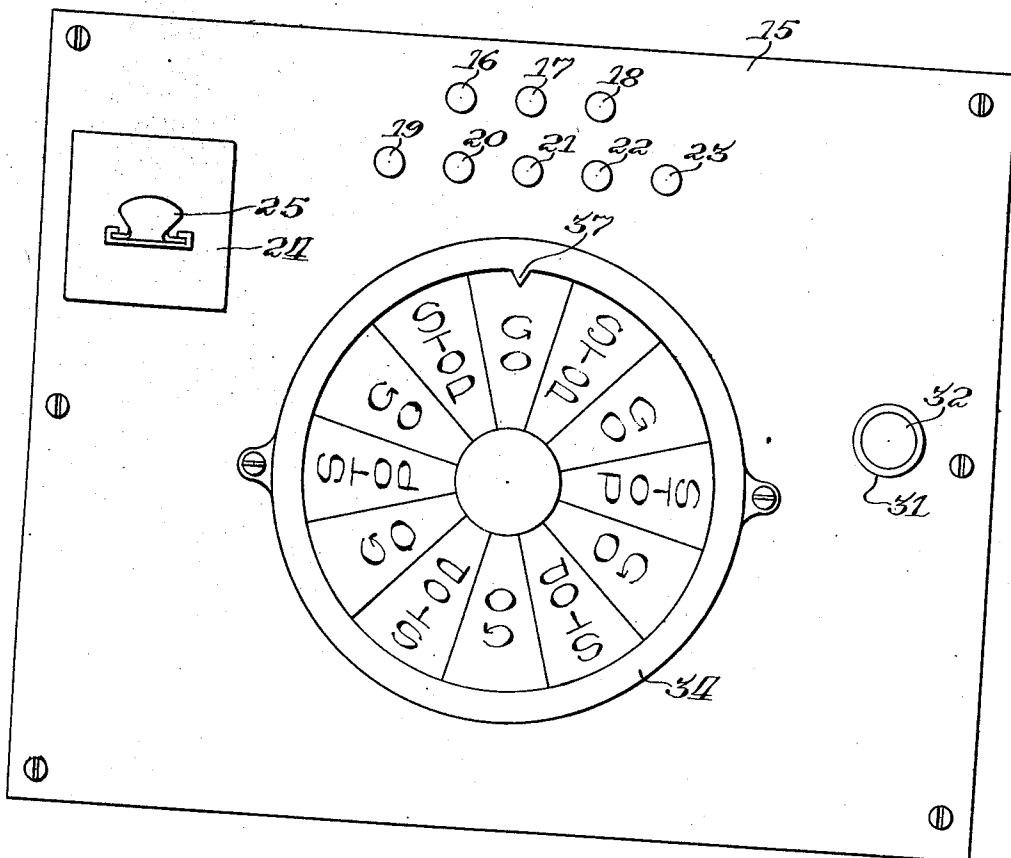
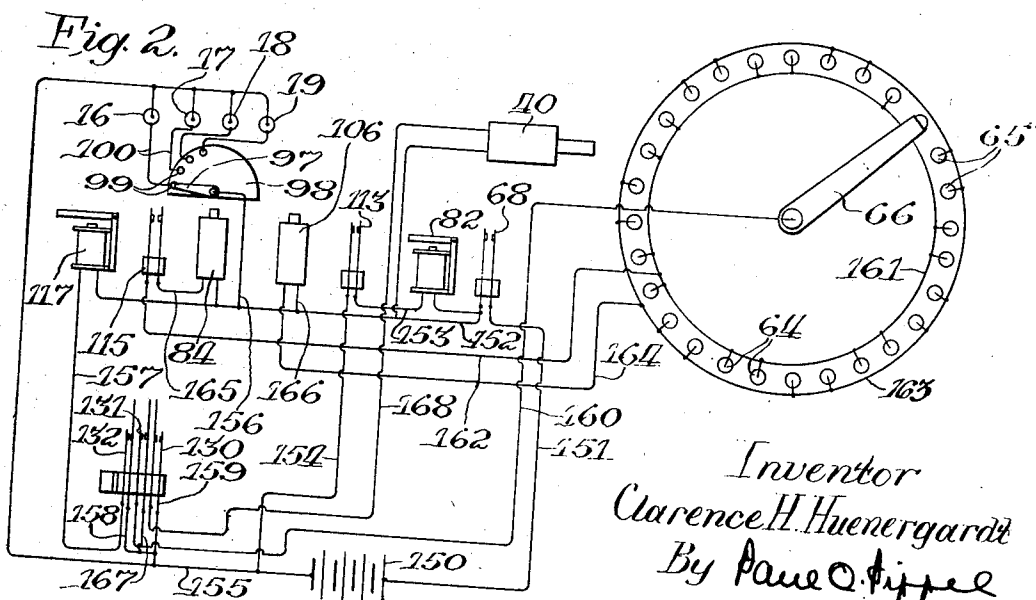


Fig. 2.



Inventor
Clarence H. Huenergardt
By Paul O. Fippel
Atty.

Oct. 24, 1939.

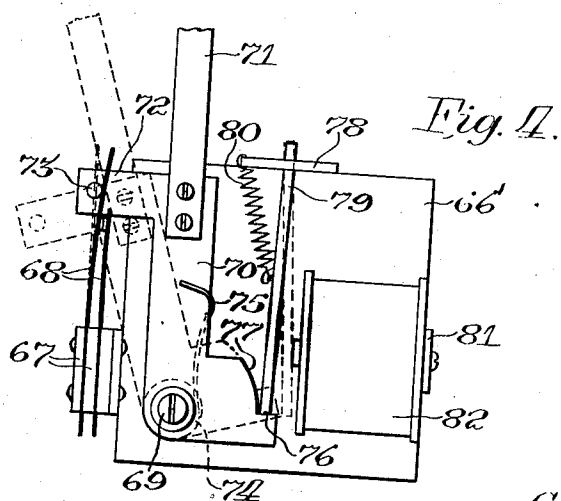
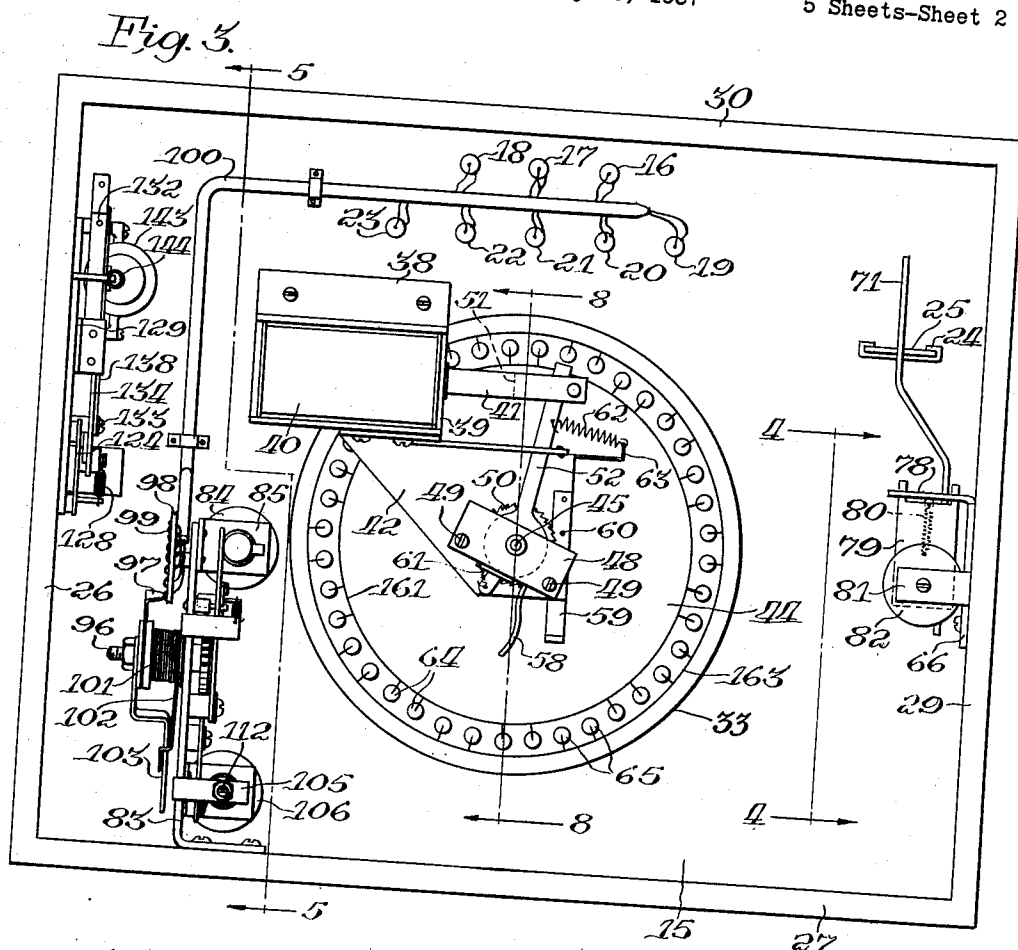
C. H. HUENERGARDT

2,177,066

AMUSEMENT GAME

Filed July 16, 1937

5 Sheets-Sheet 2



Inventor
 Clarence H. Huenergardt
 By Paul O. Pippel
 Atty.

Oct. 24, 1939.

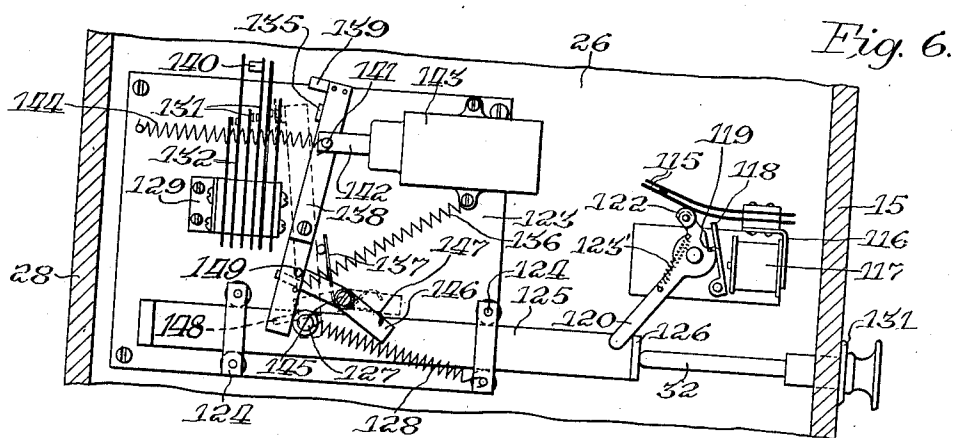
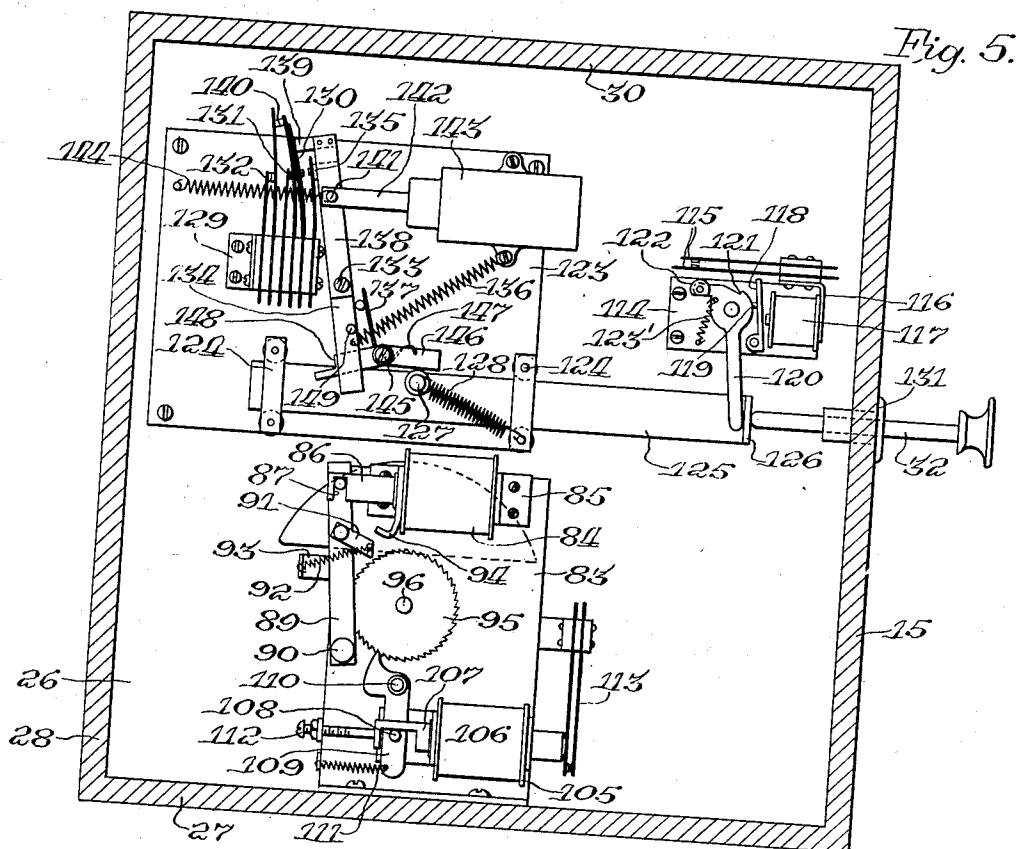
C. H. HUENERGARDT

2,177,066

AMUSEMENT GAME

Filed July 16, 1937

5 Sheets-Sheet 3



Inventor
Clarence H. Huenergardt
By Paul O. Pippel
Atty.

Oct. 24, 1939.

C. H. HUENERGARDT

2,177,066

AMUSEMENT GAME

Filed July 16, 1937

5 Sheets-Sheet 4

Fig. 7.

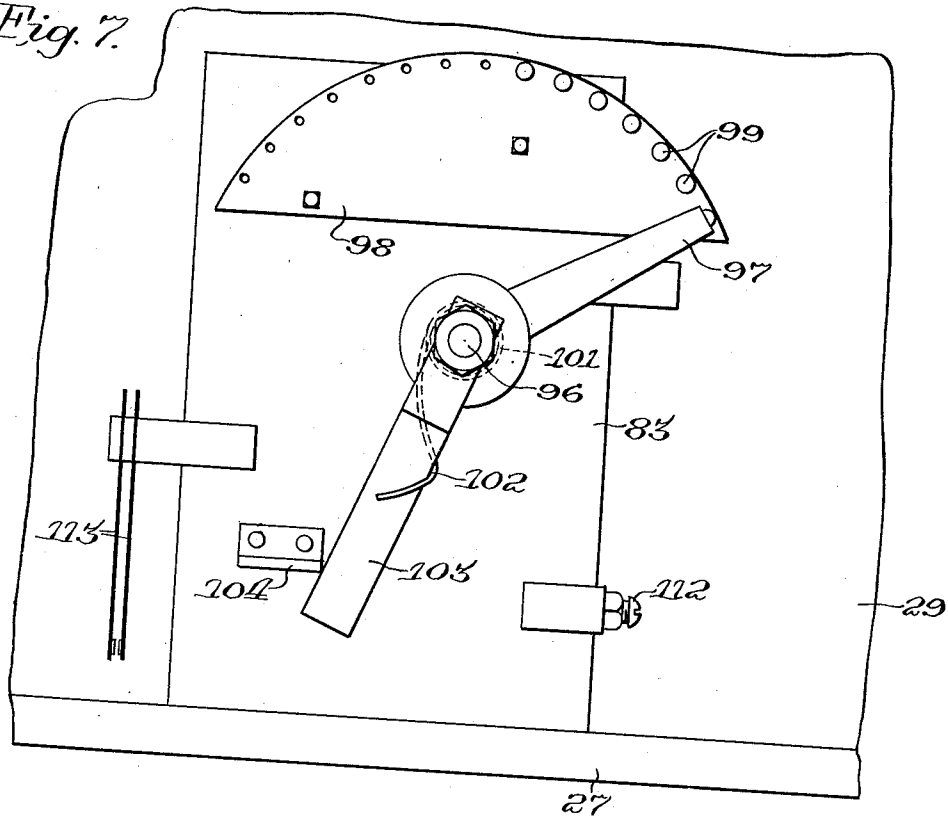


Fig. 8.

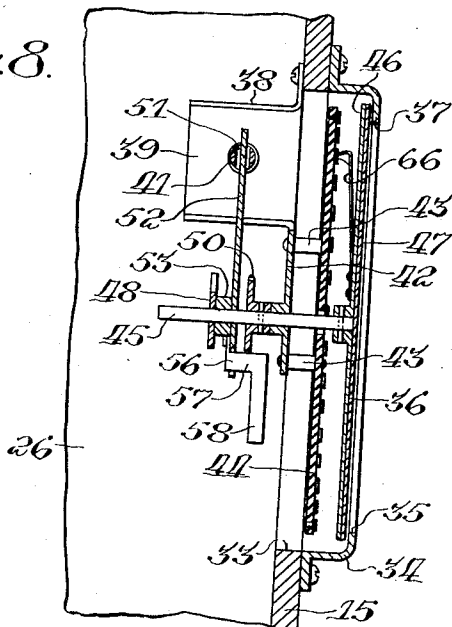
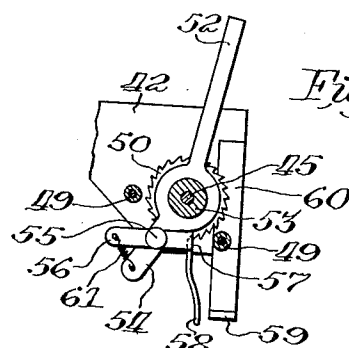


Fig. 9.



Inventor
Clarence H. Huenergardt
By Paul O. Pippel
Att'y.

Oct. 24, 1939.

C. H. HUENERGARDT

2,177,066

AMUSEMENT GAME

Filed July 16, 1937

5 Sheets-Sheet 5

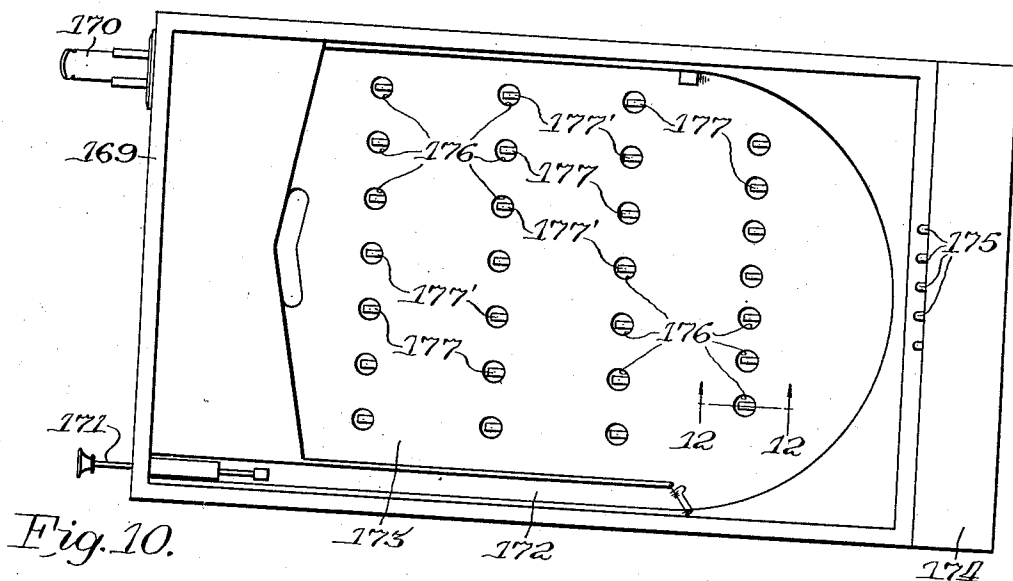


Fig. 10.

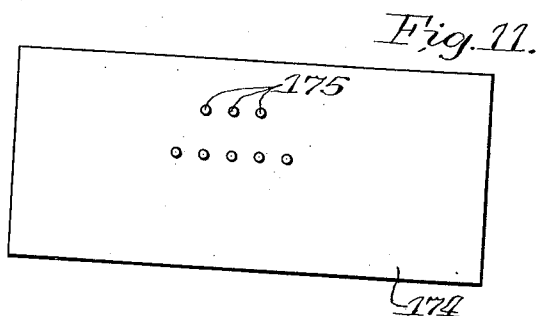


Fig. 11.

Fig. 12.

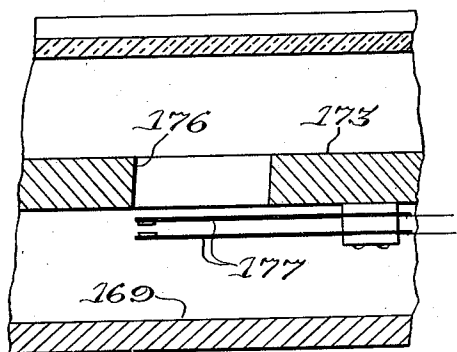
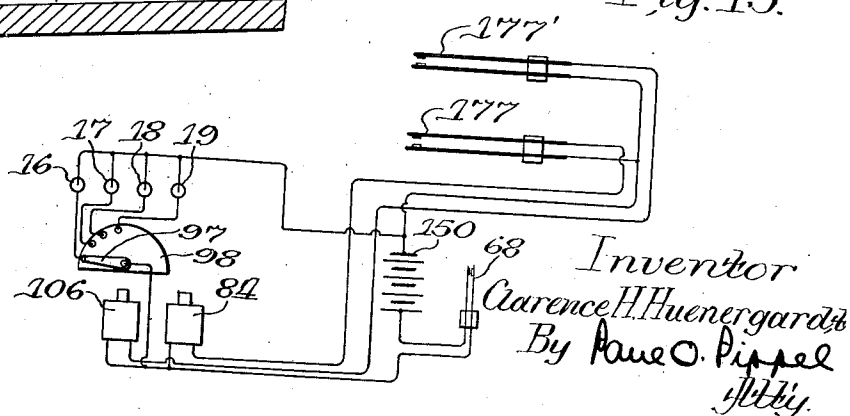


Fig. 13.



UNITED STATES PATENT OFFICE

2,177,066

AMUSEMENT GAME

Clarence H. Huenergardt, Cicero, Ill.

Application July 16, 1937, Serial No. 153,999

20 Claims. (Cl. 273—141)

The invention relates to an amusement game.

More particularly it relates to an amusement game mechanism in which it is desired to operate score designating signal means, such as electric lamps, by chance, or by skill, in a predetermined sequence, such operation being the result of the closing of electrical contacts in an appropriate circuit.

These games are usually coin released by any appropriate means, for example, a coin slide, or coin released lever. It is desirable in a cycle of play, that the game be open for continuous, or repeat play or operation within a given cycle, so long as the proper contacts are closed to operate the lamps or signals to build up a score sequence without the necessity of having to coin release the game over again, but when an improper contact and circuit is closed, the mechanism being released to cause the parts to be locked automatically against further play to terminate the game cycle, and requiring the coin slide, or the like, to be operated anew for the commencement of a new game cycle. For example, a proper contact would be marked "Go" and keep the game open for play, while an improper contact would be labeled "Stop" and cause closing of the game to prevent further play.

The invention may be carried out in different forms, for instance, in a form including a chance operated spinner for establishing the "Go" and "Stop" contacts; or in a pin ball game where balls serve to close the said contacts dependent upon the skill of the player in projecting the balls.

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

Another object is to provide a game in which electrical contacts are closable either by chance, or skill, to operate a step up switch to operate signal means in successive order.

Still another object is to provide a game in which certain contacts serve when closed to keep the game open for further play, while certain other contacts when closed serve to lock the game against further play and cause resetting of stepped up parts to their original starting positions.

Another object is to provide a coin released type of game which remains open for repeat plays while proper contacts are being closed, but which immediately upon closing of an improper contact sets means into operation for preventing further play and restoring all parts to their initial starting positions.

Other important objects will become apparent

to those skilled in this art as the disclosure is more fully made.

Briefly, these desirable objects are achieved by the electro-mechanical means of this invention illustrated in the drawings, in which there is generally shown a circuit including a main switch closed by coin release means and so held by a latch means to keep electrical energy flowing into the circuit. Step up "Go" contacts or release "Stop" contacts are then closable by chance or skill means one at a time. Should a "Go" contact switch be closed an electro-magnetic device is operable to step up, one step, a wiper switch to light an electric lamp. Should another "Go" switch be closed another lamp, in order, will be lighted, and so on, with the game remaining open for continued play so long as "Go" switch contacts are closed. However, when a "Stop" contact switch is closed, then a release electro-magnetic device is operable to permit a spring to drive the wiper switch to its starting position, cause turning off of the lamps, and finally operation of another electromagnetic device to release the latched starting switch and hold open the entire circuit, so that a game cycle is definitely ended and the game must be coin released anew. Generally then, the gist of the invention resides in the provision of a circuit including electro-magnetic devices to perform step up and release functions, along with a novel arrangement of switch controls to effect the purposes of the invention, all as will later more fully appear.

In the drawings:

Figure 1 is a general front elevational view of one form which the invention may assume in practice, the game here being of the chance operated spinner type;

Figure 2 is an electrical wiring diagram for such a game apparatus;

Figure 3 is a rear elevational view of the spinner type game;

Figure 4 is an enlarged detail, side elevational view of the starting switch and final cut out structure, as seen from the line 4—4 of Figure 3;

Figure 5 is a side elevational view of the spinner game structure taken from the line 5—5 of Figure 3;

Figure 6 is a view duplicating the showing of certain parts as shown in Figure 5, but showing the parts in a different position;

Figure 7 is an enlarged back-side elevational view of the step up wiper switch structure;

Figure 8 is a vertical cross sectional view through the spinner switch structure, taken along the line 8—8 of Figure 3;

Figure 9 is a detail view of the spinner mechanism;

Figure 10 shows a modification of the invention incorporated in a pin ball type of game;

Figure 11 is an elevational view of the score lamp carrying panel part of the game of Figure 10;

Figure 12 is an enlarged sectional view taken along the line 12—12 of Figure 10 to show the "Stop" and "Go" type of switch utilized; and,

Figure 13 is a modified wiring diagram usable when the game is in pin ball form.

First, will be described the chance operated spinner form of game of Figures 1 to 9 inclusive, where for the sake of illustration only, is shown a suitable cabinet having a front, vertical wall 15, which in any suitable manner carries, for example, small electric lamps 16, 17, 18, 19, 20, 21, 22 and 23 to be lighted, for score, signal, or other purposes in the order of their numbering. To one side thereof is a frame 24 for mounting in the well known way, a coin slide 25, which extends through the wall 15 and into the cabinet which includes a side wall 26, a bottom 27, a rear wall 28, and another side wall 29, a suitable top 30 completing the cabinet, or containing box, which may be generally rectangular in shape, as shown. Looking at Figure 1, it will be seen that the front wall 15 also carries a mounting 31 for a suitable plunger 32, which also extends into the cabinet, it now being observed that the coin release slide is located proximate to the side wall 29, while the plunger is proximate to the opposite side wall 26.

Centrally, disposed in the front wall 15, as shown in Figures 1, 3 and 8, is a large circular through opening 33, surrounded by an ornamental metal ring 34, leaving a circular window 35 behind which is visible a circular spinner disk 36 marked off in the desired number of segments labelled alternately "Stop" and "Go". The ring 34 includes a marker or pointer 37 to indicate the position of rest of the spinner 36 relative to its marked segments. The spinner assembly includes a bracket 38 carried on the inside of the front wall 15 as shown in Figures 3 and 8, said bracket including a housing 39 for mounting a horizontally positioned solenoid 40, having a core 41 reciprocable through an end wall of said housing 39, as shown. The housing 39 includes a depending wall portion 42 mounting forwardly extending studs 43 located in a manner to carry a non-rotatable insulator, circular disk 44 in the wall opening 33. Journaled in said wall 42 is a longitudinal, rotatable shaft 45 which passes through the stationary disk 44 in a forward direction, where at its front end it carries for rotation, a turnable disk 46 faced on its outside with the suitable covering marked off in a suitable number of segments, as shown in Figure 1, said segments preferably being alternately labelled "Stop" and "Go", or by some other suitable identifying legend. The disk 46 with its marked facing is thus positioned to occupy the window 35 in an obvious manner, to be visible.

Said shaft 45 has its rearward end journaled in a plate 48 supported by suitable screw pins 49 (see Figs. 3 and 9) from the wall 42. The shaft 45 has pinned thereto a ratchet wheel 50 to turn with the shaft. The core 41 of the solenoid 40 has its free end slotted as at 51 to receive the upper end of a lever 52 loosely pivoted on the shaft 45 and held in place thereon by a spacer 53. The lower end of the lever 52 embodies an integral extension 54 to which, as shown in Fig-

ure 9, is pivoted at 55 a lever 56 having a bent portion 57 positioned to act as a pawl for engaging the teeth of the ratchet wheel 50. The bent portion 56 terminates in a depending tail or trip portion 58 which portion is adapted to engage a stop 59 formed at the lower end of a bar 60 carried by the plate 42. The lower end of the extension 54 carries a pull spring 61 connected to the lever 56 to help engage the pawl portion 57 thereof with the teeth of the ratchet wheel 50. Obviously, when the solenoid 40 is energized the core 41 pulls the lever 52 to cause the extension 54 to move the pawl 57 to engage and spin the ratchet wheel 50, thereby spinning the shaft 45 and with it the spinner disk 46. When the trip tail 58 hits the stop 59 the pawl 57 is released from the ratchet wheel 50 thereby making possible a free spinning action of the wheel or disk 46, in a manner that is quite obvious. A spring 62 is connected between the lever 52 and a bracket extension 63, as shown in Figure 3, to pull the core out of the solenoid 40 when the latter is deenergized.

The stationary plate 44 is a contact carrying switch structure and carries alternate pairs of contacts 64 and contacts 65. The contacts 64 are "Go" contacts and the contacts 65 are "Stop" contacts, as will later appear. Turnable with the disk 46 is a radial wiper switch arm 66 spinning with the disk 46 and coming to rest on one of the buttons 64 or 65 in a chance manner to establish either a "Go" circuit that will keep the game open for further play, or a "Stop" circuit which will lock the mechanism against further play, all as will later more fully appear.

On the inside of the wall 29 is a suitable bracket 66' (see Figures 3 and 4) carrying an insulator pack 67 for mounting of an upright spring blade switch 68 which is the main power input or final cut-out switch. Adjacent this switch the bracket 66' carries a screw pivot pin 69 for pivotally mounting a bell crank lever 70. Said lever has an upright extension 71 positioned in the path of movement of the coin slide 24 to be engaged thereby, said lever also having a forward extension 72, carrying a transverse pin 73 positioned to engage one of the switch blades 68 which is extended upwardly for that purpose. A spring 74 coiled around the pivot pin 69 has a leg extension 75 normally urging the bell crank lever 70 to a forward position indicated in dotted lines in Figure 4, thus normally holding the spring switch 68 open. When the coin slide 24 is pushed in to engage the extension 71 the lever 70 is moved rearwardly against said spring 75 to close said main power switch 68. Means is provided releasably to lock said switch in its closed position, and for that purpose a leg of the bell crank lever 70 is formed with a step portion 76 and a relieved face 77. The bracket 66' at its top includes a transverse support 78 from which is pivotally suspended an armature plate 79 pulled by a spring 80 to the left as viewed in Figure 4. The bracket 66' also carries a support 81 for an electromagnet 82, which may be termed the final cut out magnet.

When the coin slide 24 is pushed in the same abuts lever 71 to swing the bell crank 70 rearwardly, causing pin 73 to engage and close the main power input switch 68; at the same time the lower edge of the spring pulled armature 79 catching on the step 76 to lock the bell crank 70 in its full line switch closing position as appears in Figure 4. Of course, when the cut out magnet 82 is energized then the armature 79 is 75

released and the spring 75 is operative to move the bell crank 70 to switch opening position.

As shown in Figures 3 and 5 the floor 27 of the cabinet carries an upright bracket 83 on the upper portion of which is carried a horizontally disposed solenoid 84 by means of an appropriate bracket 85, said solenoid being termed a step up solenoid or electromagnetic device. This solenoid has the usual spring pushed armature core 86 notched at its free end as at 87 pivotally to receive a pin 88 for connecting the core to an upright lever 89 pivotally mounted at 90 to said bracket 83. Said lever 89 intermediate its ends pivotally carries a pawl 91 pulled downwardly by a coil spring 92 connected between the pawl and a bracket extension 93 carried on the bracket 83. A stop 94 limits the throw of the pawl 91.

This pawl 91 engages the teeth on a ratchet wheel 95 turnable with a shaft 96 journaled in the wall 83. The ratchet wheel 95 moves but one step or tooth at a time by the pawl 91 due to the limiting action of the stop 94. (See Fig. 5.) The shaft 96 on the back side of the wall or bracket 83 carries a conductor wiper arm 97 as seen best in Figure 7 to turn with the shaft 96 and move from a starting position on an electrical contact or button over similar buttons carried on a sector insulator plate 98 suitably fastened to the upper portion of the bracket 83. The conductor buttons on this sector plate are shown at 99, and they are respectively connected by wires 100 to the lamps 16, 17, 18, etc. A coil spring 101 is wound around the shaft 96 in any suitable way, the spring having a leg 102 bearing against and pressing an arm 103 fast on the shaft 96 against a stop 104 mounted on the bracket 83, as shown. When the arm 103 is against the stop 104, the wiper switch arm 97 is at rest on the first or starting contact button 99, as shown in Figure 7.

Below the step up device 84, the wall bracket 83 carries a suitable support 105 for a horizontally disposed solenoid 106 which may be termed the release solenoid, the same having a suitable double-ended armature core 107 of conventional type. One end thereof is notched or hooked to embrace a pin 108 rigidly carried on the lower end of an upright dog lever 109 pivotally mounted on a pin 110 carried by the bracket 83, as shown in Figure 5. A spring 111 serves to pull the dog 109 yieldably into engagement with the ratchet wheel 95 to hold its gain. An adjustable screw 112 can be set to limit the throw of the core 107. Positioned on the bracket 83 adjacent the opposite end of the core 107 is a normally open spring blade contact switch 113 which is closed when the releaser solenoid is energized. This switch 113 may be termed the final cut out switch.

On the wall 26 of the cabinet adjacent the inner end of the plunger 32, as seen best in Figure 5, is a bracket 114 carrying a normally open, manually closable spring blade switch 115 carried on and insulated from a support 116 which carries an electromagnet 117 for which is provided an upright, hinged armature 118 including a lip 119. Adjacent the armature is pivotally carried a depending lever 120 having a circular head at its fulcrum formed with a notch 121. The head also includes an arm portion 122 formed with a cam head to engage and close the spring switch 115, a spring 123' being suitably connected, as shown, to hold the lever 120 normally in switch opening position, as viewed in Figure 5. The magnet 117 is termed the step-

up cut out magnet and controls opening of the switch 115.

To the rear of the structure just described, the wall 26 carries a mounting plate 123 on which is carried a pair of roller guides 124 for slidably carrying a horizontal bar 125 having a bent end 126 to be abutted by the plunger 22 when the latter is operated, to shift said bar 125 inwardly. A roller pin 127 is carried on the bar 125 and a spring 128 connects between said pin 127 and a bracket 124, said spring serving to retract the bar 125.

A bracket 129 on the plate 123 includes a suitable insulation pack for mounting three separate, upright, spring blade contact switches, 130, 131 and 132. These springs include substantially arcuately aligned contacts whereby these switches may be closed by a single operating member in successive order. The switch 130 is the spinner control switch for solenoid 40, the switch 131 is a step up or release switch for either the step up solenoid 84, or the release solenoid 106; and the switch 132 is the step up cut out switch for the magnet 117.

The wall plate 123 carries a pivot pin 133 on 25 which is pivotally mounted intermediate its ends a lever 134 which at its upper end has a boss 135 to engage and close the switch 130. A spring 136 normally pulls the lever 134 against a stop pin 137 so that the lever is in the position of Figure 5 with the pad or boss 135 engaging and closing the switch 130.

The pivot pin 133 also pivotally and independently carries an upright auxiliary lever 138 whose fulcrum is at its lower end. The upper end of said lever 138 carries an insulated pad 139 to engage and close the switch 131, while one of the switch blades 131 carries a similar pad 140 for closing the switch 132. The lever 138 carries a rigid pin 141 to which is loosely connected the piston rod 142 of a dash pot 143 mounted on the plate 123, as shown. A spring 144 normally holds the rod 142 out of the dash pot cylinder 143.

Just above the slide bar 125 the plate 123 carries a pivot pin 145 for mounting intermediate its ends a bell crank type of lever 146 having one arm pressed by a spring 147 yieldably to ride the roller 127, while the other end of the lever is notched at 148 to cooperate with a latch pin 149 on the lever 134 as shown in dotted lines in Figure 6.

Looking now to the wiring diagram of Figure 2, it will be seen that a suitable source of electrical energy is indicated at 150, a lead 151 going therefrom to one side of the main power switch 58. A wire 152 goes from the other side of switch 58 to the step up cut out magnet 117 and another wire 153 goes from one side of the switch 58 to one side of the final cut out switch 113. A wire 154 from the other side of switch 113 leads to a main wire 155 connected to the battery 156 and to side of each of the electric lamps 16, 17, 18, etc., as shown. The wires 100 run respectively from these lamps to the respective contact buttons 99 on the switch plate 98 as already described, and a wire 156 leads from the wiper switch arm 97 to the wire 152. A wire 157 leads from the magnet 117 to one side of the step up cut out switch 132 and a wire 158 leads from the opposite side of the switch 132 to a wire 159 and thence to the main wire 155. One side of the step up or release switch 131 is connected by a wire 160 to the wiper switch 86 of the spinner as shown. All of the "Go" buttons 64 connect with a common wire 161 on the stationary contact 75

member 44 which in turn is connected to a lead 162 running to one side of the switch 115. All of the "Stop" buttons 65 connect with a common wire 163 connected by a lead 164 to the releaser solenoid 106. A wire 165 connects the other side of switch 115 to the solenoid 84 and wire 152, and a wire 166 connects solenoid 106 to the same wire 152.

A wire 167 connects the opposite side of the switch 131 with wire 158, wire 159 and main line 155; while a wire 168 runs from one side of the spinner switch 130 to the spinner solenoid 40 and back to wire 152; the opposite side of said switch 130 being connected by the wire 159 to the wire 155 and the opposite side of the battery.

This completes the description of the spinner type of structure. In Figures 10 to 13 inclusive is a pin ball modification where skill in projecting balls determines the closing of "Stop" and "Go" switches.

In this modification a standard pin ball game cabinet is shown at 169 having a coin release slide 170 and the usual ball projecting plunger 171 for rolling balls one at a time through a side passage 172 and onto the usual play board 173. The rear end of the cabinet may have an upward extension 174 carrying electric lamps 175 corresponding to the lamps 16, 17, 18, etc., and provided for the same purpose. The board 173 is formed with any desired number of holes 176 to receive the balls, each hole having arranged therebelow in any suitable manner a normally open spring blade contact switch 177. Some of the switches 177 may be "Go" switches leading to the step up solenoid 84 of the circuit as shown in Figure 13 for stepping up the wiper switch 97 as in the diagram of Figure 2; and some are "Stop" switches leading to the releaser solenoid 106 to lock out the game and prevent further play which means further shooting of the balls, until the coin release slide 170 is operated.

The manner of use and mode of operation of the game of Figures 1 to 9 will now be described.

At the start the main power switch 68 is open; the plunger closed switch 115 is open; and the bank of switches 130, 131 and 132 are in the position shown in Figure 5. The fact that some are closed makes no difference since the main power switch 68 is open. All parts are therefore deenergized. The wiper 66 can be located any place on the stationary contacts 64, 65 and the wiper 97 is in its initial starting position on the first button for lamp 16.

The first step is to coin release the slide 25 by pushing same into the cabinet, thus abutting same against the lever 71 (see Fig. 4), causing the pin 73 to close the main power switch 68. At the same time the armature flap 79 engages the step 76 to lock the lever 71 in position releasably latching the switch 68 in its closed position. The magnet 82 is deenergized since its switch 113 is open.

The next step is for the player to operate the plunger 32 by pushing on same whereupon the lever 120 is swung to close the switch 115 (see Fig. 6) the latch 119 instantly serving to engage the notch 121 in said lever 120 to hold the said switch 115 releasably closed. Since switch 132 is momentarily open the magnet 117 is deenergized, as shown in Figure 6. This same movement of the plunger 32 has also pushed the bar 125 in a manner causing roller pin 127 to engage the lower end of the lever 134 and swing it about its fulcrum 133. Since the pad 135 is on the main lever 134 it also moves the auxiliary

lever 138 to the full line position shown in Figure 6. With the upper ends of levers 134, 138 swung forwardly all switches 130, 131 and 132 are now open and the piston rod 142 is pushed into the dash pot cylinder 143. With the roller 127 in the position of Figure 6 the spring 147 raises the notched end of the lever 146 up as shown in full lines to releasably lock with pin 148 to hold the lever 134 definitely cocked. When the player now releases the plunger 32, the spring 128 pulls the bar 125 forwardly so that roller 127 engages under the lever 146 and frees the lock 148, 149, whereupon the spring 136 quickly pulls the lever 134 to the dotted line position of Figure 6 thus causing the pad 135 to engage and close at this instant only the spinner switch 130. Thus a circuit from battery 150 runs through 151, 68, 152, 40, 168, 130 and wire 155 back to the battery to energize the solenoid 40.

The core 41 of this solenoid 40 is now operated to spin the ratchet wheel 50 and wiper switch arm 66 until it comes to rest on either a "Go" button 64 or a "Stop" button 65. We will assume it comes to rest, by chance, on a "Go" button 64. Since switch 131 has not yet been closed nothing happens. The dash pot 143 and its piston rod 142 serve as a timer in that the return of cocked auxiliary lever 138 is thereby delayed. As said lever 138 now returns to full line position of Figure 5, the insulator pad 139 serves to open switch 130 to deenergize the spinner solenoid 40 so that its spring 62 can retract its core 41 to a starting position again. Said pad 139 in the same movement now also closes the step up switch 131 completing a circuit (Fig. 2) from 150 through 151, 68, 152, 84, 165, 115, 162, 64, 66, 160, 131, 159 and 155 back to the battery. At this time, because the wiper 97 is on the first button 99, the first lamp 16 is in circuit through wire 156 and is lighted. The step up solenoid 84 now too is energized and operates once to swing the lever 89 to move the ratchet wheel 95 one step and thus step up the wiper switch 97 from the first contact button to the next successive button 99 and as a result the first light 16 now is turned off and the next light 17 is turned on. The gain of the ratchet wheel 95 and wiper 97 is maintained by the dog 109.

As the switch 131 was closed by the push of the lever 138, such pressure also acted through pad 140 on the switch 131 to close the switch 132, thus through wires 158, 157 which consequently the magnet 117 is energized to operate the armature flap 118 and release the lock on lever 120 to open the switch 115. Thus, one step up play has been effected and the parts are restored to the positions shown in Figure 5. The main switch 68 is still closed and consequently the plunger 32 may be operated again to repeat the play in an effort to tally another "Go" contact on the spinner to step up and turn on the lamps in succession.

In the event the wiper 66 now comes to rest on a "Stop" contact 64 the switch 131, which also serves as a releaser control switch, is closed in the way above described completing a circuit from battery 150, through 151, 68, 152, 106, 164, 65, 66, 160, 131, 159 and through 155 back to the battery, thus energizing the releaser solenoid 106. The core 107 thus flips the dog lever 109 to free the ratchet wheel 95, whereupon the spring 101 is operative to swing the switch arm 97 back to its starting position on the first button 99, as determined by the stop arm 103 and stop 104. As previously described the switch 132 is closed to

energize the magnet 117 and cause opening of the switch 115. At the same time as the releaser solenoid operated, the opposite end of the core 107 engaged and closed the final cut out switch 113 thus closing a circuit from battery 159 through 151, 62, 153, 113, 154, and back to battery causing the magnet 82 to be energized, whereupon the flap 79 is attracted and the main cut out switch 68 is opened, shutting off all entry of current into the system. Now the game cycle is definitely over, and if further play is desired the slide 25 must be coin released to close the main switch 68 for a new game cycle.

In the pin ball modification the coin slide 170 serves to close a switch 68, but the dropping of balls through holes 176 serves to close the "Go" or "Stop" switches 177 the remainder of the circuit as indicated in Figure 13 being substantially the same as that shown in Figure 2. In Figure 13 the step up solenoid and releaser solenoid are shown wired to a "Go" switch 177 and a "Stop" switch 177'.

From the disclosure it can now be seen that an improved and fascinating game has been provided which achieves the objects heretofore recited.

It is the intention to cover all changes and modifications not departing from the spirit and scope of the invention as defined in the following claims.

What is claimed is:

1. An amusement game including a cabinet carrying a plurality of electric lights to be successively lighted, said game comprising a circuit including the lights in parallel, a main switch closable to put energy into the circuit, a step up electromagnetic device in the circuit, a single releaser electromagnetic device in the circuit, a step up switch in the circuit including contacts for successively lighting the lights, said step up switch being operable by the step up device, means comprising a rotary spinner switch automatically operable when the main switch is closed and having contacts closable to cause energization of either the step up or releaser device, switch means for causing energization of either the step up or releaser device depending upon which of said rotary spinner contact switches is closed, and means for opening the main switch when the releaser device is operated.

2. An amusement game including a cabinet carrying a plurality of electric lights to be successively lighted, said game comprising a circuit including the lights in parallel, a main switch closable to put energy into the circuit, a step up electromagnetic device in the circuit, a releaser electromagnetic device in the circuit, a step up switch in the circuit including contacts for successively lighting the lights, said step up switch being operable by the step up device, rotary switch means automatically operable when the main switch is closed to cause energization of either the step up or releaser device, and means for opening the main switch when the releaser device is operated.

3. An amusement game including a cabinet carrying a plurality of electric lights to be successively lighted, said game comprising a circuit including the lights in parallel, a main switch closable to put energy into the circuit, a step up electromagnetic device in the circuit, a releaser electromagnetic device in the circuit, a step up switch in the circuit including contacts for successively lighting the lights, said step up switch being operable by the step up device, means to cause energization of either the step up or re-

leaser device, a common switch for causing energization of either the step up or releaser device, means for opening the main switch when the releaser device is operated, and means operable automatically when the releaser device is operated to restore the step up switch to an initial starting position.

4. An amusement game including a cabinet carrying a plurality of electric lights to be successively lighted, said game comprising a circuit including the lights in parallel, a step up electromagnetic device in the circuit, a releaser electromagnetic device in the circuit, a step up switch in the circuit including contacts for successively lighting the lights, said step up switch being operable by the step up device, a common switch means closable to cause energization of either the step up or releaser device, and means for automatically restoring the step up switch to an initial starting position when the releaser device is operated.

5. An amusement game including a cabinet carrying a plurality of electric lights to be successively lighted, said game comprising a circuit including the lights in parallel, a main switch closable to put energy into the circuit, a step up electromagnetic device in the circuit, a releaser electromagnetic device in the circuit, a step up switch in the circuit including contacts for successively lighting the lights, said step up switch being operable by the step up device, a switch closable to cause energization of the step up or releaser device, a switch means closable to cause energization of the releaser device, and means for automatically opening the main switch when the releaser device is operated.

6. An amusement game including a cabinet carrying a plurality of electric lights to be successively lighted, said game comprising a circuit including the lights in parallel, a main switch closable to put energy into the circuit, means urged to circuit-opening position releasably to lock the main switch in closed position, a step up electromagnetic device in the circuit, a releaser electromagnetic device in the circuit, a step up switch in the circuit including contacts for successively lighting the lights, said step up switch being operable by the step up device, means comprising other contact switches closable to cause energization of either the step up or releaser device, switch means for causing energization of either the step up or releaser device depending upon which of said other contact switches is closed, and cut out electromagnetic device to release the main switch lock whereupon the main switch opens when the releaser device is operated, the main switch being opened automatically when the cut out electromagnetic device is energized.

7. An amusement game including a cabinet carrying a plurality of electric lights to be successively lighted, said game comprising a circuit including the lights in parallel, a main switch manually closable to put energy into the circuit, means releasably to hold the main switch closed, a step up electromagnetic device in the circuit, a releaser electromagnetic device in the circuit, a step up switch in the circuit including contacts for successively lighting the lights, said step up switch being operable by the step up device, means comprising other contact switches closable to cause energization of either the step up or releaser device, switch means for causing energization of either the step up or releaser device depending upon which of said other contact switches is closed, and automatically acting

means for opening the main switch when the releaser device is operated.

8. An amusement game including a cabinet carrying a plurality of electric lights to be successively lighted, said game comprising a circuit including the lights in parallel, a main switch closable to put energy into the circuit, a step up electromagnetic device in the circuit, a releaser electromagnetic device in the circuit, a step up switch in the circuit including contacts for successively lighting the lights, said step up switch being operable in successive steps by the step up device, means to hold the gain of the step up switch, means comprising other contact switches closable by a manually actuated rotary chance device to cause energization of either the step up or releaser device, switch means for causing energization of either the step up or releaser device depending upon which of said other contact switches is closed, and means for automatically opening the main switch when the releaser device is operated and releasing the gain holding means to enable the step up switch to be returned to an initial starting position.
9. An amusement game including a cabinet carrying a plurality of electric signals to be successively operated, said game comprising a circuit including the signals in parallel, a main switch closable to put energy into the circuit, a step up electromagnetic device in the circuit, a releaser electromagnetic device in the circuit, a step up switch in the circuit including contacts for successively operating the signals, said step up switch being operable by the step up device, a common switch closable to cause energization of either the step up or releaser device, rotary means operable in a chance manner for operating either the step up or releaser device, and means for automatically opening the main switch when the releaser device is operated.
10. An amusement game including a cabinet carrying a plurality of electric lights to be successively lighted, said game comprising a circuit including the lights in parallel and a spinner mounted in the cabinet including contacts and a wiper switch, an electromagnetic device included in the circuit, means operable by the device to spin the spinner and cause its wiper switch to engage a contact thereon, a main power input switch, means to close said main switch, a step up electromagnetic device in the circuit, a releaser electromagnetic device in the circuit, a step up switch operable from the step up device including leads to cause successive lighting of the lights, a bank of three switches carried in the cabinet, manual means to cause successive closing of the said three switches, the first closed switch of the three causing energization of the spinner electromagnetic device to spin the spinner, the second switch of the three causing energization of either the step up or releaser device depending upon which spinner contact is in circuit, a step up cut out switch closable when the manual means is operated, a step up cut out electromagnetic device operable when the last of said three switches is closed to open the step up cut out switch, and means operable to open the main switch when the releaser device is energized.
11. An amusement game including a cabinet carrying a plurality of electric lights to be successively lighted, said game comprising a circuit including the lights in parallel and a spinner mounted in the cabinet including contacts and a wiper switch, an electromagnetic device included in the circuit, means operable by the device to spin the spinner and cause its wiper switch to engage a contact thereon, a main power input switch, means to close said main switch, a step up electromagnetic device in the circuit, a releaser electromagnetic device in the circuit, a step up switch operable from the step up device including leads to cause successive lighting of the lights, a bank of independent switches carried in the cabinet, manual means to cause successive closing of the said switches of the bank for causing energization of the spinner electromagnetic device to spin the spinner and for causing energization of either the step up or releaser device depending upon which spinner contact is in circuit, a step up cut out switch closable when the manual means is operated, a step up cut out electromagnetic device operable when another of said bank of switches is closed to open the step up cut out switch, and means operable to open the main switch when the releaser device is energized.
12. An amusement game including a cabinet carrying a plurality of electric signals to be successively operated, said game comprising a circuit including the signals in parallel and a spinner mounted in the cabinet including contacts and a wiper switch, an electromagnetic device included in the circuit, means operable by the device to spin the spinner and cause its wiper switch to engage a contact thereon, a main power input switch, means to close said main switch, a step up electromagnetic device in the circuit, a releaser electromagnetic device in the circuit, a step up switch operable from the step up device including leads to cause successive lighting of the lights, a bank of independent switches carried in the cabinet, manual means to cause successive closing of the said switches of the bank for causing energization of the spinner electromagnetic device to spin the spinner and for causing energization of either the step up or releaser device depending upon which spinner contact is in circuit, a step up cut out switch closable when the manual means is operated, a step up cut out electromagnetic device operable when another of said bank of switches is closed to open the step up cut out switch, and means operable to open the main switch when the releaser device is energized.
13. An amusement game including a cabinet carrying a plurality of electric signals to be successively operated, said game comprising a circuit including the signals in parallel and a spinner mounted in the cabinet including contacts and a wiper switch, an electromagnetic device included in the circuit, means operable by the device to spin the spinner and cause its wiper switch to engage a contact thereon, a step up electromagnetic device in the circuit, a releaser electromagnetic device in the circuit, a step up switch operable from the step up device including leads to cause successive operation of the signals, a bank of switches carried in the cabinet, means to cause successive closing of the said switches, one closed switch of the bank causing energization of the spinner electromagnetic device to spin the spinner, another switch of the bank causing energization of either the step up or releaser device depending upon which spinner contact is in circuit, and means operable to open the circuit when the releaser device is energized.

vice to spin the spinner and cause its wiper switch to engage a contact thereon, a main power input switch, means to close said main switch, a step up electromagnetic device in the circuit, a releaser electromagnetic device in the circuit, a step up switch operable from the step up device including leads to cause successive lighting of the lights, a bank of three independent switches carried in the cabinet, manually released operable means to cause successive closing of the said three switches, the first closed switch of the three causing energization of the spinner electromagnetic device to spin the spinner, the second switch of the three causing energization of either the step up or releaser device depending upon which spinner contact is in circuit, a step up cut out switch closable when the manually released means is operated, a step up cut out electromagnetic device operable when the last of said three switches is closed to open the step up cut out switch, means operable to open the main switch when the releaser device is energized, and means to time the order of closing of said three switches relative to each other.

12. An amusement game including a cabinet carrying a plurality of electric lights to be successively lighted, said game comprising a circuit including the lights in parallel and a spinner mounted in the cabinet including contacts and a wiper switch, an electromagnetic device included in the circuit, means operable by the device to spin the spinner and cause its wiper switch to engage a contact thereon, a main power input switch, means to close said main switch, a step up electromagnetic device in the circuit, a releaser electromagnetic device in the circuit, a step up switch operable from the step up device including leads to cause successive lighting of the lights, a bank of independent switches carried in the cabinet, manual means to cause successive closing of the said switches of the bank for causing energization of the spinner electromagnetic device to spin the spinner and for causing energization of either the step up or releaser device depending upon which spinner contact is in circuit, a step up cut out switch closable when the manual means is operated, a step up cut out electromagnetic device operable when another of said bank of switches is closed to open the step up cut out switch, and means operable to open the main switch when the releaser device is energized.

13. An amusement game including a cabinet carrying a plurality of electric signals to be successively operated, said game comprising a circuit including the signals in parallel and a spinner mounted in the cabinet including contacts and a wiper switch, an electromagnetic device included in the circuit, means operable by the device to spin the spinner and cause its wiper switch to engage a contact thereon, a step up electromagnetic device in the circuit, a releaser electromagnetic device in the circuit, a step up switch operable from the step up device including leads to cause successive operation of the signals, a bank of switches carried in the cabinet, means to cause successive closing of the said switches, one closed switch of the bank causing energization of the spinner electromagnetic device to spin the spinner, another switch of the bank causing energization of either the step up or releaser device depending upon which spinner contact is in circuit, and means operable to open the circuit when the releaser device is energized.

14. An amusement game including a cabinet carrying a plurality of electric lights to be successively lighted, said game comprising a circuit including the lights in parallel and a spinner mounted in the cabinet including contacts and a wiper switch, an electromagnetic device included in the circuit, means operable by the device to spin the spinner and cause its wiper switch to engage a contact thereon, a step up electromagnetic device in the circuit, a releaser electromagnetic device in the circuit, a step up switch operable from the step up device including leads to cause successive lighting of the lights, a bank of three independent switches carried in the cabinet, manually initiated automatically acting means to cause successive closing of the said three switches, the first closed switch of the three causing energization of the spinner electromagnetic device to spin the spinner, the second switch of the three causing energization of either the step up or releaser device depending upon which spinner contact is in circuit, a step up cut out switch closable when the manual means is operated, a step up cut out electromagnetic device operable when the last of said three switches is closed to open the step up cut out switch, means operable to open the main switch when the releaser device is energized, and timer means to prevent closing of the second and third switches in the bank until the spinner has come to a position of rest.

15. An amusement game including a cabinet carrying a plurality of electric lights to be successively lighted, said game comprising a circuit including the lights in parallel and a spinner mounted in the cabinet including contacts and a wiper switch, a solenoid included in the circuit, means operable by the solenoid to spin the spinner and cause its wiper switch to engage a contact thereon, a step up solenoid in the circuit, a releaser solenoid in the circuit, a step up switch operable from the step up solenoid including leads to cause successive lighting of the lights, a bank of switches carried in the cabinet, manually initiated automatically acting means to cause successive closing of the said switches, one switch of the bank causing energization of the spinner solenoid to spin the spinner, another switch of the bank causing energization of either the step up or releaser solenoid depending upon which spinner contact is in circuit, a step up cut out switch closable when the manual means is operated, a step up cut out electromagnet operable when another of said switches is closed to open the step up cut out switch, and means operable to open the circuit when the releaser solenoid is energized.

16. An amusement game including a cabinet carrying a plurality of electric lights to be successively lighted, said game comprising a circuit including the lights in parallel, a main power input switch, means to close said main switch, a step up electromagnetic device in the circuit, a releaser electromagnetic device in the circuit, a step up switch operable from the step up device including leads to cause successive lighting of the lights, a set of independent switches carried in the cabinet, a single means to cause successive closing of the said switches, one switch of the set causing energization of the step up device, another switch causing energization of the releaser device, and means automatically operable to open the main switch when the releaser device is energized.

17. An amusement game including a cabinet carrying a plurality of electric lights to be successively lighted, said game comprising a circuit including the lights in parallel and a set of contacts and a wiper switch, means to cause the wiper switch to engage one of the contacts, a main power input switch, means to close said main switch, a step up electromagnetic device in the circuit, a releaser electromagnetic device in the circuit, a step up switch operable from the step up device including leads to cause successive lighting of the lights, a switch carried in the cabinet, manually controlled means to cause closing of the said switch, the said switch causing energization of either the step up or releaser device depending upon which contact of the set of contacts is in circuit, a step up cut out switch closable when the manual means is operated, a step up cut out electromagnetic device operable at a predetermined time to open the step up cut out switch, and means operable to open the main switch when the releaser device is energized.

18. An amusement game including a cabinet carrying a plurality of electric lights in parallel to be successively lighted, said game comprising a set of stationary contacts and a wiper switch therefor, a step up switch including wires leading to the lights respectively, a step up electromagnetic device to step up the step up switch, gain control means for the step up switch, a releaser electromagnetic device to release the gain control means and cause resetting of the step up device, some of the stationary contacts in the set leading to the step up device and some leading to the releaser device, means to set the wiper switch in a chance manner, and switch control means serving to keep the game open for play while step up circuits are established and instantly cutting off the game for further play when a releaser circuit is established.

19. An amusement game comprising a cabinet including an electric circuit having electric lights in parallel to be successively lighted, a manually set main power input switch to control supply of energy for the circuit, manually initiated means to be operated repeatedly to light the lights one at a time and successively, rotary switch means operable in a chance manner to control the manually initiated means, a releaser means, and means to keep the game open for repeated play and continued lighting of the lights until the releaser means is operated, and means operable when the releaser means works automatically to open the main input switch.

20. An amusement game comprising a cabinet including an electric circuit having electric lights in parallel to be successively lighted, a manually set main power input switch to control supply of energy for the circuit, means including contacts for lighting the lights successively, a spinner mechanism for controlling the aforementioned means in a chance manner, means whereby the player may repeatedly operate the spinner mechanism to light the lights as mentioned, means to keep the game open for continued and repeated play so long as the spinner mechanism when operated acts to light the lights in succession, and means operable to prevent further play of the game and operation of the spinner mechanism when the latter in operation does not establish a circuit that will cause lighting of the next successive light.

CLARENCE H. HUENERGARDT.