March 26, 1957 B. T. McMANUS 2,786,682

CHANCE DEVICE AND CONTROL MEANS THEREFOR

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Fig. 1

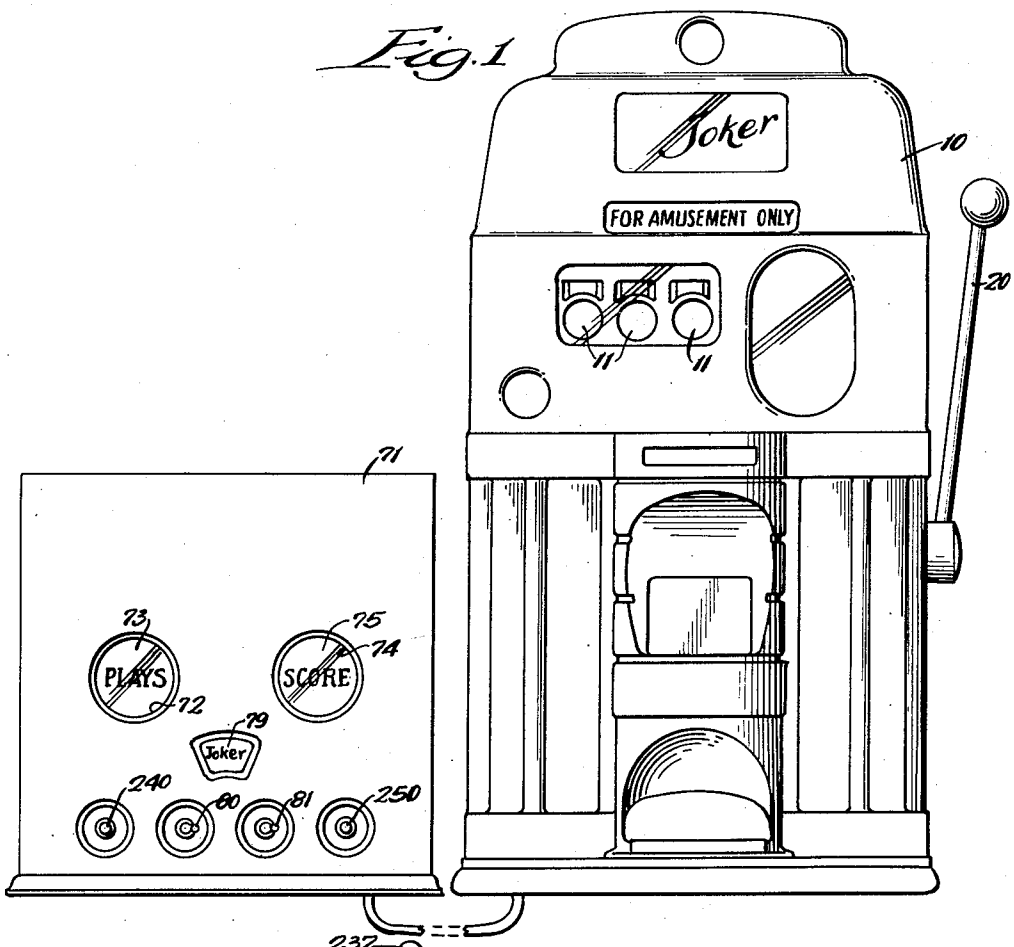
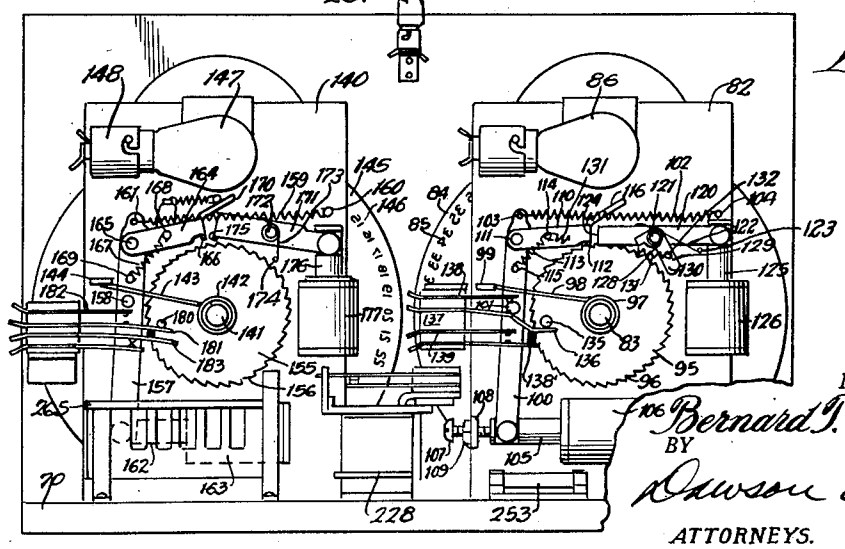


Fig. 2



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CHANCE DEVICE AND CONTROL MEANS THEREFOR

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Fig. 3

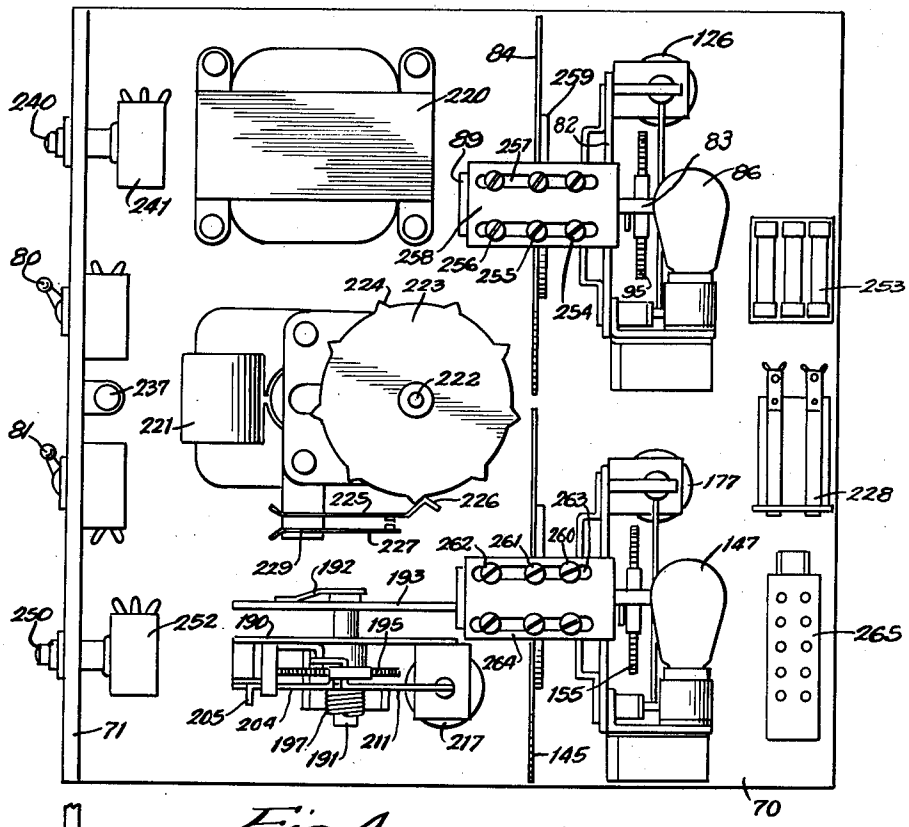
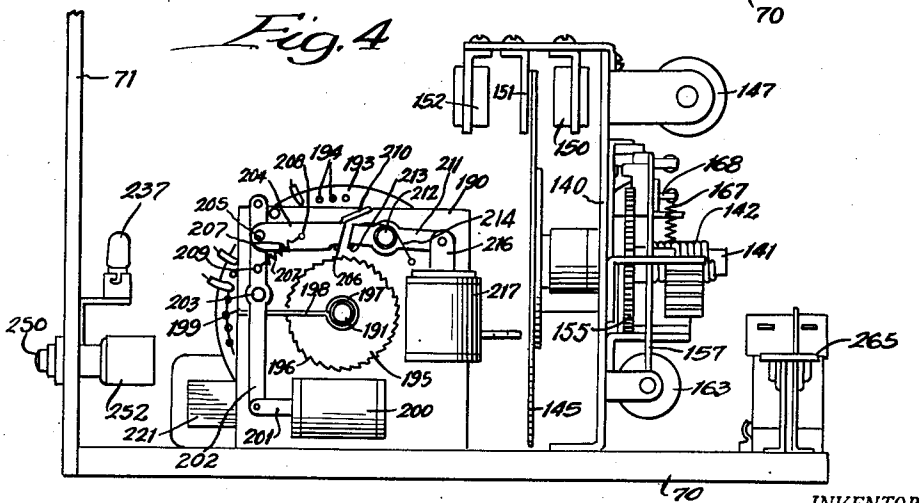


Fig. 4



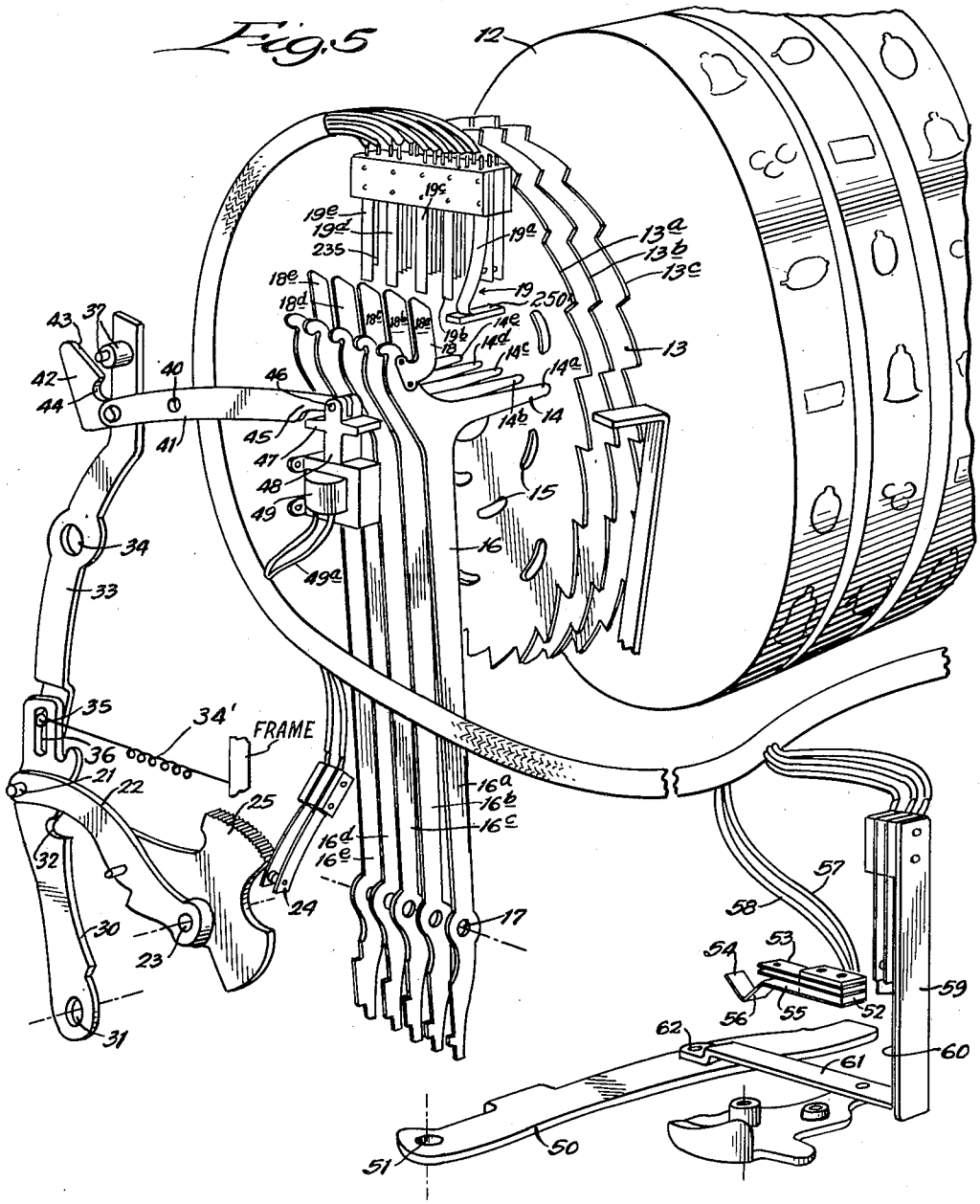
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CHANCE DEVICE AND CONTROL MEANS THEREFOR

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Fig. 5



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CHANCE DEVICE AND CONTROL MEANS THEREFOR

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Fig. 6.

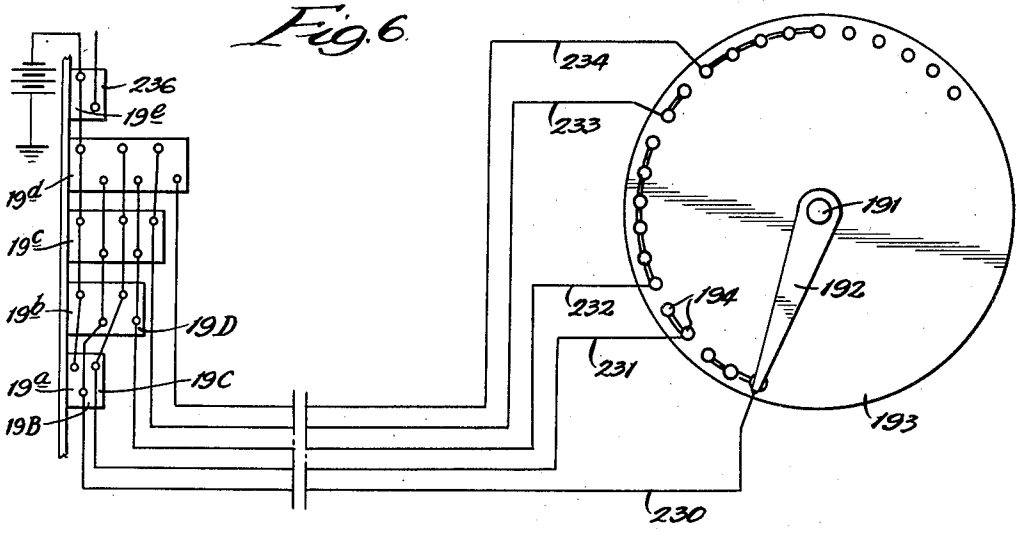
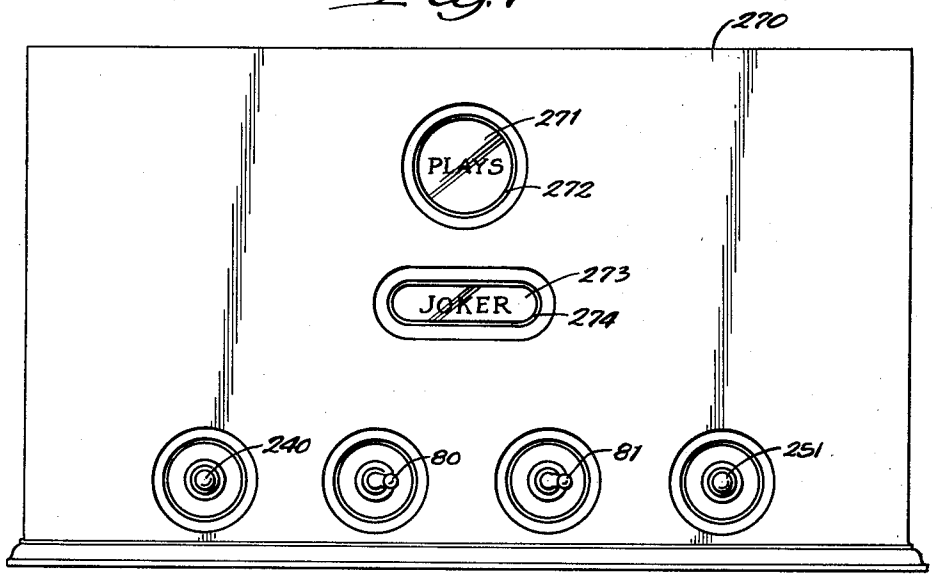


Fig. 7



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CHANCE DEVICE AND CONTROL MEANS THEREFOR

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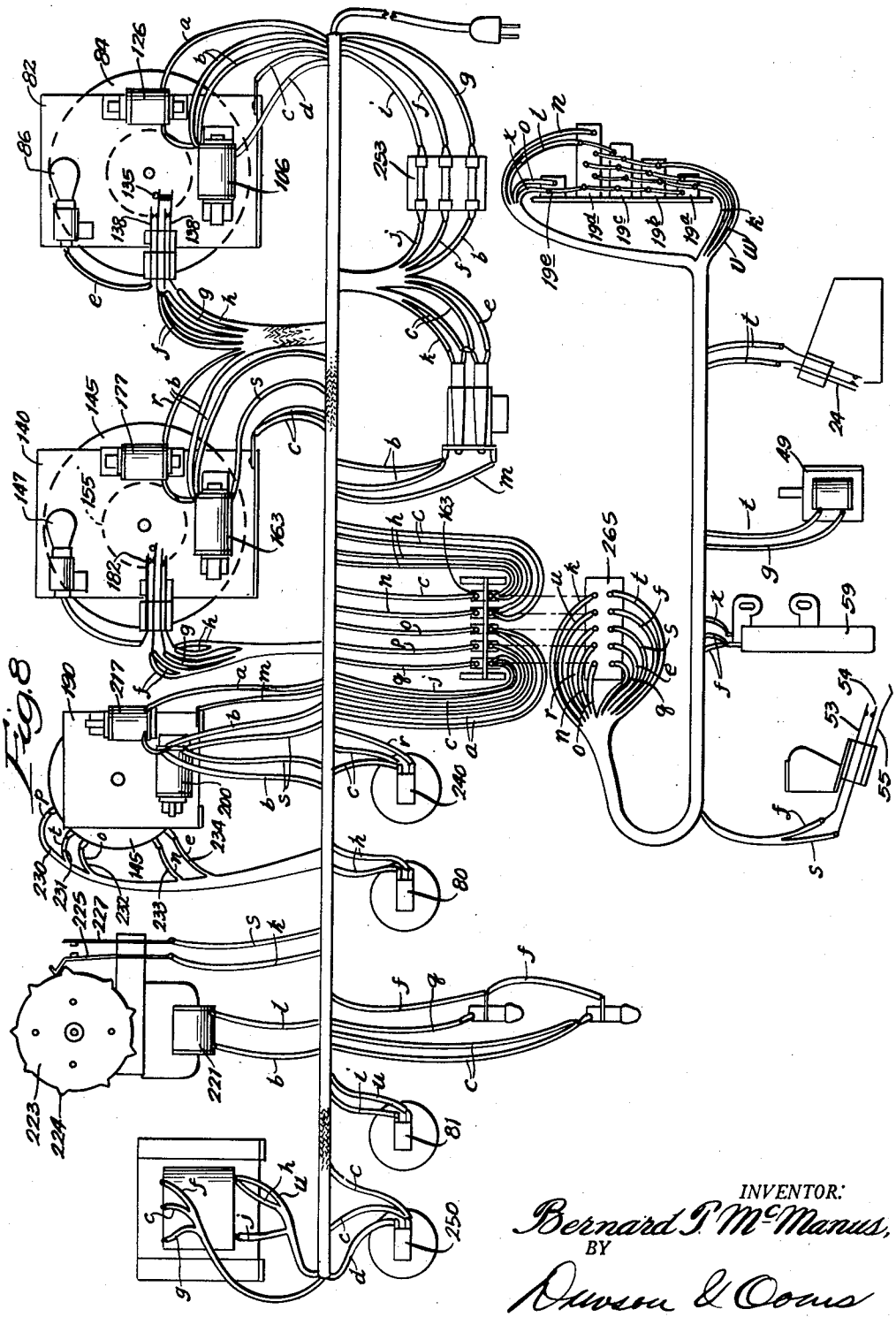


Fig. 8

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CHANCE DEVICE AND CONTROL MEANS THEREFOR

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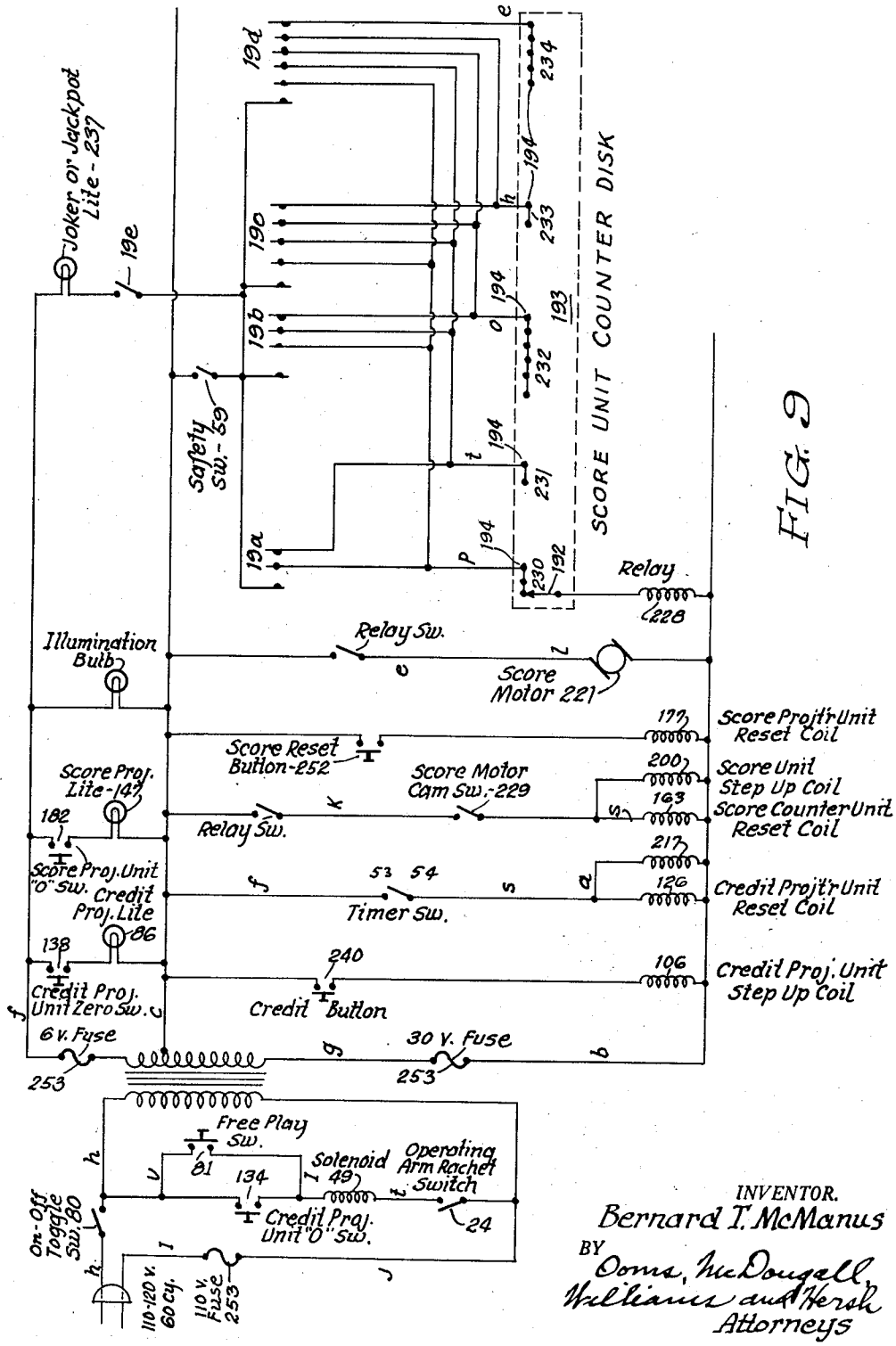


FIG. 9

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United States Patent Office 2,786,682 Patented Mar. 26, 1957

2,786,682

CHANCE DEVICE AND CONTROL MEANS THEREFOR

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Application January 26, 1951, Serial No. 208,005

7 Claims. (Cl. 273—143)

This invention relates to an amusement device and it relates more particularly to an amusement device which embodies elements of a machine of the type shown and described in the following United States Letters Patents: 1,586,455, May 25, 1926; 1,570,910, January 26, 1926; 1,677,647, July 17, 1928; 1,697,537, January 1, 1929; 1,706,896, March 26, 1929; 1,798,416, March 24, 1931.

Generally the unit comprises a plurality of drums mounted for revolving movement about a common axis and having a number of symbols on the peripheral surfaces thereof. In present practice, the drums are put into play, that is, they are given a spinning movement by actuation of an operating lever upon insertion of coins or other tokens in the machine. If the wheels come to rest with a certain combination of symbols, hereafter called a winning combination, payoff automatically occurred in coins, premiums or the like. Devices of the type described are capable of considerable amusement without the gambling feature and it is an object of this invention to produce a machine of the type described which is substantially free of the objectionable feature of coin control or operation of coin delivery for winning combinations.

Another object is to produce an amusement device of the type described which may be used exclusively for amusement, which can be played without the use of coins or other tokens, which does not pay off in coins or otherwise upon attaining a winning combination, but which records the score obtained or increases the number of plays responsive to attaining a winning combination.

A further object is to produce an amusement device of the type described which is sturdy in construction and simple in operation and which may be used for the enjoyment of young and old alike.

A still further object is to produce an amusement device of the type described adapted to be controlled and the score recorded at a station separate and apart from the portion of the machine which forms the playing part.

A still further object is to produce an amusement device of the type described which may be freely played or set for a predetermined number of plays and adapted to have the winning score separately recorded or, in the alternative, added to increase the number of plays.

These and other objects and advantages of this invention will hereinafter appear and for purposes of illustration, but not of limitation, embodiments of the invention are shown in the accompanying drawings in which—

Figure 1 is a front elevational view of the device embodying features of this invention;

Figure 2 is a rear elevational view showing elements which form a part of the control and recording unit shown in Figure 1;

Figure 3 is a top plan view of the control and recording unit shown in Figure 2;

Figure 4 is a side elevational view showing the parts of the control and recording unit;

Figure 5 is a schematic perspective view showing the

arrangement of some of the parts of the operating machine shown in Figure 1;

Figure 6 is an enlarged view of the control disc for recording the scores of the winning combinations;

Figure 7 is a front elevational view of the modified form of a control and recording device embodying features of this invention;

Figure 8 is a wiring diagram of the device embodying features of this invention, and

Figure 9 is an electrical diagram of the device embodying features of this invention.

As shown in the drawings, the device comprises the combination of a playing unit and a control and recording unit, wherein the operation of the machine is controlled and the score recorded.

The playing unit includes a housing **10** having a number of windows **11** arranged in side by side relation and corresponding in number to the drums or wheels **12** mounted therein for revolving movement. The peripheral surfaces of the drums, three of which are shown, are provided with symbols which are visible through the windows so that the operator can see the passing symbols and the combination of symbols which he has secured when the wheels or drums **12** come to rest.

The drums are mounted on separate telescoping shafts so that a separate ratchet wheel **13** may be adapted to turn with each drum. The ratchet wheels are provided with openings **15** therethrough in positions to correspond with symbols on the corresponding periphery thereof such that feelers in the form of fingers **14** projecting inwardly from a number of spring-pressed lever arms **16** may enter into one or more of the openings, in the event that the wheels have stopped in certain positions. The lever arms **16** are pivoted upon a common shaft which passes through registered openings **17** in the lower end portion thereof.

Means (not shown) are provided for rocking and holding the lever arms **16** in position away from the ratchet wheels **13** while the drums **12** and the wheels **13** are turning, but in timed relation with the stoppage of the drums and wheels, the lever arms are released and permitted to be rocked forwardly by spring members whereby the feelers or fingers **14** may enter into any openings in alignment therewith. Entrance of the fingers into registered openings of the ratchet wheels corresponding to predetermined combinations of symbols on the periphery of the drum enables the lever arms to rock forwardly a greater distance to permit operating fingers **18** on the upper ends thereof to engage and deflect contact arms **19** of a complex switch member, which will hereinafter be described, to record or otherwise indicate winning combinations.

The parts and their operation which actually make up the operating machine need not here be fully described since the parts and their operation are substantially old in the art and form no part of this invention except for modifications which will hereinafter be described to adapt the machine for use in combination with the control and recording unit, which will hereinafter be described. Suffice it to say that the parts are set and put into operation by rocking movement of the hand operated lever arm **20** which is operatively connected to pin **21** on the end of rocker arm **22**. Rocker arm **22** is pivoted at **23** upon a shaft and operable therewith is a rack sector **25** having a switch mechanism **24** positioned rearwardly and in the path thereof for engagement with the sector **25** during a portion of its rocking movement.

Means are provided for controlling rocking movement of the rocker arm **22**. Such means include an upright lever arm **30** having an opening **31** in its lower end portion for pivotal mounting upon a suitable shaft. A shoulder **32** extends inwardly from the upper portion of the

lever arm 30 in the path of a laterally extending projection on the end of rocker arm 22 so as to prevent operational swinging movement of the rocker arm 22 when the lever arm 30 is in normal position of adjustment. When the machine is adapted to be operated, as will hereinafter be pointed out, lever arm 30 is rocked in counter-clockwise direction to enable the projection to clear the shoulder 32. Counter-clockwise movement of the lever arm 30 is effected by operation from another lever arm 33 pivoted at 34 intermediate its ends. A pin 35 at the lower end of the lever arm 33 is slidable in a vertically arranged slot 36 in the upper end portion of the lever arm 30. The other end portion of the lever arm 33 is provided with a laterally extending pin 37 of large and small diameter.

Pivoted at 40 is another horizontally disposed rocker arm 41 having an upward extension 42 at the forward end provided with a cam surface 43 in the portion positioned below the pin 37. The cam surface terminates in a receiving groove 44 formed in the upper wall of the rocker arm 41. The opposite end portion 45 of the rocker arm 41 is pivotally connected between yoke 46 extending upwardly from a platform 47 fixed onto the end of the plunger 48 which forms a part of the solenoid valve 49.

It will be apparent from this description that energization of the solenoid switch through leads 49a will cause the plunger to go home whereby the rocker arm 41 will be rocked about its pivot in the clockwise direction. Such movement will cause the cam surface 43 to rise and engage the pin 37 whereby the lever arm 33 will be actuated to turn in a clockwise direction. Responsive to the operative connection between the pin 35 and the slotted portion 36 of the lever arm 33, the latter will be rocked in the counter-clockwise direction whereby the shoulder 32 will be positioned out of the path of the extension on rocker arm 22 so that it can be actuated in operational movement.

As the plunger of the solenoid 49 goes home, the larger portion of the pin 37 is adapted to seat within the receiving groove 44. In order to prevent chattering and also to minimize wear on the solenoid, the sector 25 is adapted to shift far enough as the extension clears the shoulder 32 to permit the contacts of switch 24 to break whereby the solenoid 49 is de-energized and the plunger returned to its original extended position. Coincident with clearance of the extension on rocker arm 22 of the shoulder 32 of lever arm 30, the movement of the lever arms 30 and 33 are adapted to reverse in response to action of a spring 34' so that the pin 37 is able to unseat from the grooved portion 44 and permit the rocker arm 41 to be returned to its original position of adjustment.

A horizontally disposed timing lever 50 is usually arranged in the rearward portion of the machine and is operatively connected to the rocker arm 22 so as to be swung about its pivot 51 in the counter-clockwise direction responsive to operational movement of the rocker arm 22. Although the parts thereof are not shown, the timing lever is constantly urged to return to its original position of adjustment by spring members and the movement thereof is slowed in timed relation by suitable governing means. In timed relation with the return movement of the timing lever 50, the revolving movement of the drums 12 and ratchet wheels 13 are successively stopped so that all of the elements are in position of rest before the timing lever reaches its original position of adjustment, all of which are old in the art as described in the aforementioned patents.

Positioned in advance of the free end of the timing lever is a switch 52 having one contact plate 53 in connection with reset mechanism, which will hereinafter be described, and another contact plate 54 in connection with the add and subtract mechanism, which will also be later described. The switch operating plate 55 extending forwardly below plates 53 and 54 and usually in spaced relation therewith, has a V-shaped end section 56 which extends in the path of the timing lever so that the V-shaped section 56 will be engaged by the timing lever as it is rocked in the counter-clockwise direction whereby the contact plate 55 is deflected upwardly to make the switch. Leads 57 and 58 connect the respective contact plates 53 and 54 with reset and subtract mechanisms.

Another switch mechanism 59 is positioned rearwardly of the timing lever 50. This switch has a contact arm 60 which lies in the path of a rearwardly extending arm 61 fixed, as by a rivet 62, onto an intermediate portion of the timing lever 50. As the timing lever 50 is rocked in the counter-clockwise direction, the arm 61 swings away from the switch 59 and permits the contact plate 60 to shift outwardly and break the switch. Under such conditions the mechanism for recording winning combinations becomes disconnected so that inadvertent scoring will be prevented and other parts will be inactivated to prevent additional recording of the score or a winning combination previously secured. Otherwise, vibrational movement of parts of the machine effected while the drums and ratchet wheels are rotating might cause certain contacts to be made and a score recorded when such has not actually been obtained. As the timing lever 50 returns to its normal position of adjustment, the arm 61 deflects contact plate 60 to make the switch and set the recording mechanism to score a winning combination, if such is obtained.

Since amusement devices of the type heretofore described are relatively old in the art, detailed description thereof has not been made. Description, however, in greater detail has been made of the parts which are believed to be new and which impart a new function and operation in combination with the control and recording unit which will now be described.

In the preferred embodiment, the control and recording unit comprises a base plate 70 having an upright front panel section 71 which forms a part of the enclosing housing. The front panel is provided with an opening 72 fitted with a frosted glass plate 73, marked "Plays" in the drawing. Substantially parallel therewith and laterally thereof is another opening 74 fitted with a frosted glass plate 75, marked "Score."

Located in the panel is a further opening 79 covered with a frosted glass marked "Joker" and having a light bulb disposed rearwardly thereof which becomes illuminated when the finger of the last lever arm 16e passes all the way through registered openings in the three aligned ratchet wheels 13 so that the projection 18e makes contact between the switch parts 19e, which will hereinafter be described.

Trip finger 80 located to extend forwardly from the front panel 71 connects with the power source to establish an electrical connection with all of the parts in advance of their operation. Trip finger 81 energizes solenoid 49 after finger 80 has been tripped to permit free play of the machine.

Located rearwardly of opening 72 is an upright panel 82 which rotatably mounts a shaft 83. Fixed onto the shaft forwardly of the panel 82 is a large disc member 84 formed of metal or the like having a plurality of numerals 85, such as ranging from 1–50 or more, stencilled or otherwise formed as letter openings in equidistantly spaced relation about the peripheral end portion thereof. The stencilled numeral portions in the upper portion of the shaft are adapted to be aligned with a light source in the form of a bulb 86 positioned rearwardly on the panel 82, an opening in alignment in panel 82 to permit the light rays to pass therethrough into a lens similar in construction and arrangement to the lenses 150—152 in Figure 4 which increases the intensity of the light rays which then pass through the numeral openings. The numeraled outline of the light rays is con-

fined to the uppermost numeral by a blocking plate 259 and is further intensified by an aligned lens 89 between the disc member 84 and the front panel section 71 whereby the numeral is cast onto the frosted glass so that it can be read from in front of the control and recording box.

Fixed on the front portion of the shaft 83 extending rearwardly of the panel 82 and for rotational movement with the shaft is a ratchet wheel 95 having rack teeth 96 formed all around the periphery thereof in proportion with the numeral spacing in disc 84. The ratchet wheel and shaft are constantly urged to turn in the counter-clockwise direction by a torsional spring 97 positioned to telescope over the shaft 83. One end of the spring is hooked into an eye on the rearward end portion of the shaft while the other end of the spring has a laterally extending end section 98 which hooks into a platform 99 fixed to the panel 82.

The adding and subtracting mechanism includes an upright rocker arm 100 pivoted intermediate its end upon pin 101 extending rearwardly from panel 82. A spring 102, anchored at one end into an opening 103 in the upper end portion of the rocker arm 100 and at the other end onto a post 104 fixed in panel 82, constantly urges the rocker arm 100 to turn in a clockwise direction. The other end of the rocker arm is pivoted onto the end of a horizontally disposed plunger 105 of solenoid 106, which is secured to the base. An adjustable stop in the form of a screw 107 threaded through bracket 108 and secured in its adjusted position by nut 109 is positioned in spaced relation with the plunger 105 to govern the extent of turning movement of the rocker arm 100.

A lever arm 110 is pivoted at one end upon post 111 fixed to the upper end portion of rocker arm 100. An inturned flanged pawl 112 integral with the outer end of the lever arm 110 is constantly urged into engagement with the teeth 96 of the ratchet wheel 95 by a spring 113 anchored at one end onto pin 114 intermediate the ends of the lever arm 110. The other end of the spring is anchored onto pin 115 fixed to an intermediate portion of rocker arm 100. The lever arm is also provided with a ledge 116 in the form of an extension integral with the upper outer edge portion thereof.

Another rocker arm 120 pivoted intermediate its ends upon pin 121 extending rearwardly from the panel 82 is constantly urged to rock in a counter-clockwise direction about its pivot by a torsional spring 122 telescoped about the pin 121 and having one end portion hooked over the upper edge of the rocker arm 120 to the left of the pivot while the other end of the spring extends and bears upon a post 123 fixed to the rear wall of the panel 82. The other end portion of the rocker arm 120 is located below the ledge 116 and has a turned flange 124 which operates as a latching pawl when in engagement with the teeth 96 of the ratchet wheel 95 and prevents counter-clockwise turning movement thereof. The other end of the rocker arm 120 is pivoted from the upper end of plunger 125 of solenoid 126.

A bushing rotatably positioned on the end portion of pin 121 mounts a bell crank lever 128 for rocking movement in either direction. One arm 129 of the bell crank lever has an inturned flange that is constantly urged in the direction to engage the teeth of the ratchet wheel 95 by a coil spring 131 anchored at one end onto pin 132 fixed to the arm and at the other end onto pin 114 on the lever arm 110. The other arm portion of the bell crank lever has an integral flange which extends beneath the corresponding portion of the rocker arm 120 so as to be engaged thereby during movement of the rocker arm towards position for engaging the teeth 96 whereby the pawl portion 130 of the bell crank lever is actuated against the force of the spring 131 to become disengaged from the teeth.

A rod 135 extending rearwardly from the ratchet wheel 95 at a point offset from its center is adapted to engage

contact plate 136 of a double acting switch 137. The contact plate 136 is formed of resilient metal whereby the plate is normally positioned to establish contact with plate 138 whereby circuit is established to light bulb 86. When the numbered disc 84 is in zero position, the rod 135 deflects the contact plate 136 in the downward direction and breaks the contact for the light and makes contact with plate 138' whereby plate 138' is deflected and breaks contact thereof with plate 139 which causes de-energization of solenoid 49. Thus, when the disc is in some other position than zero, indicating that a number of plays can be made, the rod 135 is out of contact with plate 136 so that the light switch is made and bulb 86 is illuminated and solenoid 49 is energized to permit the operating lever 20 to be depressed for playing the machine.

Positioned rearwardly of the score window 75 and in laterally spaced relation with panel 82 is another upright panel 140 which mounts the scoring mechanism. Panel 140 rotatably mounts shaft 141 which is constantly urged to rotate in the counter-clockwise direction by a torsional spring 142 anchored at one end into an eyelet on the shaft 141 and having a laterally extending portion 143 at the other end which anchors into bracket 144.

Fixed onto the portion of the shaft 141 extending forwardly of panel 140 is a disc member 145 having a plurality of numerals 146 ranging from 0–50 or more in the form of stencilled openings equally spaced about the outer rim portion thereof. The disc 145 is dimensioned to position the numerals which are uppermost in alignment with a light source in the form of a bulb 147 fixed in light socket 148 which causes light rays to pass through an opening in the panel and then through a lens 150 which magnifies the intensity of the light rays cast upon the disc 145 and passing through the numerals. A shield 151 is located on the forward side adjacent the disc member to confine the light rays passing through to the uppermost numeral which light rays are further intensified by a lens 152 positioned between the shield 151 and the window 75 upon which the numeral is cast.

A ratchet wheel 155 having teeth 156 about the periphery thereof in proportion to the numerals on the disc 145 is fixed onto a portion of the shaft 141 extending rearwardly of panel 140.

Mechanism for registering the score and eliminating the score is operatively associated with the ratchet wheel. Such mechanism includes a vertically disposed rocker arm 157 pivoted intermediate its ends upon pin 158 fixed onto the rear wall of panel 140. A spring 159 anchored at one end about pin 160 and at the other end onto an eyelet 161 on the end of the rocker arm 157 constantly urges the rocker arm to turn about its pivot in a clockwise direction. The other end of the rocker arm is pivoted from the end of a plunger 162 of solenoid 163.

A lever arm 164 is pivoted at one end upon pin 165 extending from the outer end portion of the rocker arm 157. A pawl 166 in the form of a flange integral with the free end portion of the lever 164 is constantly urged to rock in the direction to engage the teeth 156 of the ratchet wheel 155 by a spring 167 anchored at one end upon pin 168 intermediate the ends of the lever 165 and at the other end upon a pin 169 near the center of the rocker arm 157. A ledge 170 extends outwardly from the upper end portion of the lever arm 164.

A rocker arm 171 pivoted intermediate its ends upon pin 172, extending rearwardly from panel 140, is constantly urged to rock in the counter-clockwise direction about its pivot by a torsional spring 173 having one end hooked over the upper edge portion of the rocker arm to the left of the pivot while the other end is engaged upon a post 174 fixed onto panel 140. The outer end portion of the rocker arm 171 is adapted to be located below the ledge 170 and it is also provided with a pawl 175 in the form of a flanged member which operates to latch with the teeth 156 of the ratchet wheel 155 to pre-

vent counter-clockwise turning movement thereof during engagement. The other end of the rocker arm is engaged to permit pivotal movement by the upper end of plunger 176 of solenoid 177.

A rod 180 extending rearwardly and offset on the ratchet wheel 155 is adapted to engage and deflect breaker plate 181 to break contact with the light switch plate 182 when the disc member 145 is rotated to zero position whereby the light bulb 147 becomes extinguished. Plate 183 is adapted to stop subsequent turning movement of the disc 145, shaft 141 and ratchet wheel 155 to prevent subsequent recording in the event that the disc member has already been operated through a substantially complete revolution. When rod 180 is in other than zero position, such as when a score is made, the plate 181 is permitted to return to its normal position of adjustment and make contact with plate 182 whereby the bulb 147 is illuminated to throw light upon the numeral which is reflected upon the window 75.

The step-up mechanism for controlling the recording of the winning score in response to winning plays includes an upright plate 190 secured to the base plate 70. The plate mounts a rotatable shaft 191 having a contact arm 192 (Figure 6) fixed onto the portion extending to one side of the plate 190. The contact arm is formed of resilient metal capable of conducting electricity and the outer end portion is adapted to bear upon the surface of a stationary disc plate 193 formed of insulating material and fixed to the plate 190. A plurality of contact points or rivets 194 are arranged in spaced apart relation about the edge portion of the insulated plate 193 in position to be contacted by the end portion of the contact arm 192 as it rotates.

The portion of the shaft which extends beyond the other side of the plate 190 is provided with a ratchet wheel 195 having rack teeth 196 formed in the periphery thereof and dimensioned when the ratchet wheel is turned the equivalent of one tooth to cause the contact arm 192 to travel from one contact point 194 to the next. The shaft and the ratchet wheel and contact arm are constantly urged to rotate in the counter-clockwise direction by a torsional spring 197 which telescopes onto the shaft and has one end anchored to the shaft while the other end portion 198 extends outwardly to engage a stop pin 199 fixed to the plate 190.

A horizontally disposed solenoid 200 having a plunger 201 reciprocal therein responsive to energization or de-energization of the solenoid is fixed to the base plate. Pivotally connected onto the forward portion of the end plunger 201 is a vertically disposed rocker arm 202 pivoted intermediate its ends upon a pin 203 fixed to the plate 190.

A lever arm 204 is pivoted at one end upon pin 205 on the outer end portion of the rocker arm 202 and is constantly urged to rock in the clockwise direction to establish engagement between a pawl 206 on the end thereof with the teeth 196 of the ratchet wheel 195. The lever arm 204 is constantly urged in the described clockwise direction by a coil spring 207 anchored between pins 208 and 209 fixed onto intermediate portions of the lever arm 204 and the rocker arm 202, respectively. An overhanging ledge 210 extends beyond the end of the lever arm 204 and from the upper edge thereof.

Another rocker arm 211 pivoted intermediate its ends on pin 212, which is fixed onto the plate 190, has one end portion which is disposed beneath the overhanging ledge 210 and is provided with a pawl 213 in the form of a flange. The rocker arm 211 is constantly urged by a torsional spring 214 to turn in the counterclockwise direction for seating the pawl 213 in operative engagement with teeth 196 to prevent inadvertent turning movement of the ratchet wheel 195 and shaft associated therewith. The torsional spring 214 is located about the pin 212 and has one end looped over the rocker arm 211 to the left of the pivot while the other end is anchored to the plate 190. The other end of the rocker arm is pivotally connected to the upper end of a plunger 216 of solenoid 217.

Located inwardly between the mechanism just described and a transformer 220 for converting 110 volt circuit to 6 volts for the bulbs and 24 volts for the solenoids is a motor operated actuating mechanism which includes a small electric motor 221 adapted to cause rotation of vertically disposed shaft 222 which mounts a horizontally disposed turntable 223 formed of rigid insulating material. The turntable has a number of V-shaped ears 224 extending in equidistantly spaced apart relation from the periphery thereof. Located in the path of the ears is a switch plate 225 having a V-shaped end portion 226 which is deflected inwardly as the ear extensions 224 pass by to establish contact with plate 227 whereby the circuit is established to energize solenoid 163 for increasing the score, as will hereinafter be pointed out.

Electrical impulses picked up by the contact arm 192 from hot contact points or rivets 194 are transmitted directly to the shaft 191 which is in electrical communication with the plate 190 connected by suitable leads to a relay 228 located on the back portion of the assembly. One arm of the relay directs electrical current at the correct voltage to the motor 221 while the other arm directs current at the correct voltage to the switch mechanism 229 for energization of the solenoid 163.

The contact rivets 194 are interconnected in groups corresponding to the increasing differences between the winning scores for which the device has been set. Each group is directly connected by suitable leads to the corresponding contact plates, indicated generally by the numeral 19, located in the path of the extension 18 which is adapted to make the series of switches when one or another of the fingers 14 pass through the required registered openings 15 in the event that a winning combination of symbols exists on the stopped drums 12.

For example, if the winning plays resulting from the various combinations are in the order of 3, 5, 11, 13, 18 and the jack-pot or "joker," the first three contact rivets will be connected in series and then by a lead 230 to the second series switch plate 19^B spaced inwardly from each of the switches 19. When 19^a is deflected to make contact with 19^B, the first three rivets become hot. The next two contact points are connected by a suitable lead 231 to the third of the aligned switch plates 19^C so that when any of the hot plates 19^a are deflected to make the switches controlled by plates 19^B and 19^C the first five contact points will be hot. The next six contact points are connected in series with lead 232 so that when finger 14^c passes sufficiently far through openings in the ratchet wheels 13 stopped at a predetermined winning combination calling for a score of 11, the extension moves forwardly to make contact with the plates 19^B, 19^C and 19^D to make the switches whereby the first eleven contact points become hot and so on.

Operation

Until switch lever 80 is tripped, the described elements remain unconnected to the electrical power source. Under such conditions, shoulder 32 remains in the path of the projection on rocker arm 22 so as to prevent operation thereof. While in this position, the machine is locked against operation of any part.

When the lever 80 is tripped, as indicated in Figure 1, the machine still cannot be played until solenoid 49 is energized to retract shoulder 32 from the path of the projection of rocker arm 22. Solenoid 49 does not become energized until the rod 135 rises off of contact plate 136 responsive to clockwise turning movement of the ratchet wheel 95 to dispose a numeral of 1 or more in the line of light from bulb 86 which is coincidentally illuminated and casts reflection of the numeral upon the front screen 73.

To effect such turning movement of the ratchet wheel 95 and numbered disc 84, button 240 is depressed so as

to establish contact between leads of switch 241 associated therewith. Depression of button 240 energizes solenoid 106 which causes plunger 105 to go home and rock arm 100 in the counter-clockwise direction. Responsive to such movement, lever arm 110 is drawn in the direction to the left in Figure 2 whereby pawl 112 rides over the tooth positioned counter-clockwise thereof and is urged by spring 113 to seat in position to engage the wall of said tooth during return movement. When the button 240 is released, solenoid 106 becomes deenergized, plunger 105 returns to its normal position of adjustment and permits arm 100 to be swung by spring 116 in the clockwise direction to a position determined by the plunger and by the adjustable stop screw 107. The combined forces of the spring 116 and the plunger 105 is sufficient to drive the lever arm 110 in the direction to cause the pawl 112 to engage the facing tooth and turn the ratchet wheel 95 one segment in the clockwise direction. This brings numeral 1 of the numbered disc 84 into the line of light from bulb 86 whereby the numeral is cast upon screen 73. During such turning movement of the ratchet wheel in the clockwise direction to add on plays, the pawl 124 on the end of rocker arm 120 rides over the sloping surface of the next tooth and is urged by torsional spring 122 to seat against the face of the next adjacent tooth whereby the ratchet wheel is further held against inadvertent turning movement in the opposite direction. As soon as the ratchet wheel and the numbered disc are turned to any position higher than zero position, rod 135 becomes disengaged from plate 136 so as to make switch 133 whereby the bulb 86 becomes illuminated and to make switch 134 whereby the solenoid 49 becomes energized.

In the event that the machine is to be set for a predetermined number of plays, the push button 240 is depressed a corresponding number of times to shift the ratchet wheel in the manner described and bring the corresponding numeral on the numbered disc 84 in the line of light where it appears on the frosted window or screen 73. It will be evident that the switches for the light bulb 86 and for energizing the solenoid 49 will remain made until the number of plays are all used up and the numbered disc wheel and its associated ratchet wheel 95 returns to zero or the starting position.

When the control mechanism has thus been set for one or more plays, solenoid 49 becomes energized whereby plunger 48 goes home and rocker arm 41 is correspondingly rotated in the clockwise direction. Through operative engagement between the cam surface 43 and the pin 37, lever arm 33 is rocked in the clockwise direction and pin 37 seats within the receiving groove 44. The operative sliding connection between pin 35 and slot 36 causes conjoint swinging movement of the lever arm 30 in the counter-clockwise direction about its pivot 31 to carry the shoulder 32 out of the path of the projection on rocker arm 22 thereby to free the arm for operational movement.

Such movement can now be effected manually or otherwise by depressing the operating lever 20 which causes rocker arm 22 to swing about its pivot 23. During the initial stages of such movements, that is, after the projection has cleared the stop shoulder 32, the lever members are adapted to reverse their direction of swinging movement and free pin 37 from its seated relation in groove 44. At just about the same time, the sector 25 shifts sufficiently in the direction away from switch 24 to permit the switch to break and thereby cause deenergization of the solenoid 49 whereby the operating lever is again locked against operational movement.

Through operative connections between the rocker arm 22 and the timing lever 50, the latter is caused to swing in the counter-clockwise direction as the operating lever is depressed. As the timing lever shifts from its starting position, arm 61 moves away from contact plate 60 of switch 59 so that the switch breaks whereby the win recording mechanism becomes fully disassociated to prevent inadvertent recording of wins in event that contacts might be established by vibration or in the event that switches from previous winners might remain in the made position. By the arrangement shown, recording of any wins is prevented until the timing lever 50 returns to its original position of adjustment and reestablishes contact to deflect plate 60 and make switch 59.

As the timing lever 50 reaches the end of its forward movement, it engages the V-shaped end portion 56 of switch plate 55 to deflect the plate and make the reset and subtract switches represented by contact plates 53 and 54, respectively. When the reset switch is made, solenoid 217 becomes energized and causes plunger 216 to go home. Arm 211 is rocked in the clockwise direction about its pivot to raise pawl 213 out of contact with the teeth of the ratchet wheel 195. The free end of rocker arm 211 engages ledge 210 of lever arm 204 during its rocking movement to swing lever 204 in the upward direction and disengage pawl 206 from the teeth of the ratchet wheel 195. Thus the pawls which prevent counter-clockwise movement of the ratchet wheel 195 are all retracted so as to permit the torsional spring 197 to turn the ratchet wheel 195 to zero position. Thus provisions are made to have the contact arm 192 resting upon the first contact point 194 at the start of each play.

As the subtract switch is made, as previously described, solenoid 126 is energized to retract plunger 125. This causes rocker arm 120 to turn in the clockwise direction whereupon bell crank lever 129 swings about its pivot 121 in the clockwise direction as urged by coil spring 131 to cause pawl 130 to bear upon the toothed surface of the ratchet wheel a short distance in advance of the abutment wall portion of a tooth. Coincident with movement of pawl 130 into position to arrest rotation of the ratchet wheel, pawl 124 on the end of rocker arm 120 becomes disengaged to release the ratchet wheel which is still stopped by pawl 112 on the end of lever arm 110. As the rocker arm continues to swing in the clockwise direction, it engages the underside of ledge 116 and lifts pawl 112 out of engagement with the teeth to release the ratchet wheel. Responsive to the force exerted by spring 97, the ratchet wheel turns less than a full segment until the oncoming tooth is engaged by pawl 130.

Solenoid 126 is de-energized as the timing lever 50 starts its return movement. Plunger 125 returns to its original position of adjustment and rocker arm 120 correspondingly swings in the counter-clockwise direction. As an incidence to such movement, lever arm 110 is permitted to be rocked by spring 113 to bring pawl 112 to bear upon the periphery of the ratchet wheel in position to engage the oncoming tooth thereof in advance of the release of the ratchet wheel by pawl 130. Near the end of return movement of the rocker arm, the underside of the rocker arm 120 engages the underlying flange of the bell crank lever and rocks the lever in the counter-clockwise direction to withdraw pawl 130 from engagement with the ratchet wheel. Thus the cycle of energization and de-energization of solenoid 126 causes the ratchet wheel to shift one segment in the counter-clockwise direction to subtract one numeral from that positioned in the line of light of bulb 86.

As the timing lever reaches the end of its priming stroke, the spring forces for actuating the drums are released and the drums 12 are caused to rotate. In timed relation with the slowed return of the timing lever 50, the turning movement of the drums are successively stopped and the lever arms 16 are released as a unit near the end of its return stroke and after all of the drums have stopped so as to permit fingers 14 in alignment with openings in the ratchet wheels 13 to enter such openings and record winning plays, if any. Upon full return of the timing lever, the arm 61 deflects con-

tact plate 60 to make switch 59 whereby recording of such wins may be effected.

Description of operations which take place in the event that a winning combination is secured will now be made for a machine of the type illustrated set to record wins in the combination of 3, 5, 11, 13, 18 and what will hereinafter be referred to as the "joker" or jack-pot.

In the event that the drums stop with a combination of symbols which correspondingly permit finger 14^a to pass through registered openings 15 in ratchet wheels 13^a and 13^b, extension arm 18^a engages plate 250' to deflect switch plate 19^a sufficient to make contact with the next adjacent switch plate connected to lead 230. As a result, the first three contact rivets 194 on disk 193 become hot. Electrical current is then able to pass from contact point (1) to the contact arm 192 and then pass from the contact arm to the shaft 191 and plate 190. Suitable leads connect the plate 190 with relay 128 which in turn is connected by leads to the motor 221 whereby the table 223 turns until projection 224 deflects the V-shaped end portion 226 of contact plate 225 sufficient to make switch 229.

When switch 229 is made, solenoid 200 becomes energized and causes plunger 201 to go home, rocking arm 202 counter-clockwise about its pivot 203. This causes lever arm 204 to be retracted whereby pawl 206 overrides the tooth in the counter-clockwise direction thereof to be positioned by spring 207 to face the next tooth. As the projection passes beyond the contact plate 225, switch 229 breaks and solenoid 200 is de-energized. Arm 202 is rocked in the clockwise direction, actuating lever arm 204 in the direction to the right in Figure 4 whereby engagement between the pawl and the tooth causes the ratchet wheel to turn one increment in the clockwise direction exposed by the force of the torsional spring 197.

Coincident with the turning movement of the ratchet wheel 195, contact arm 192 is swung into contact with the second rivet 194. Since this rivet too is hot, the same operations follow whereby the contact arm successively engages the third contact point and finally ends up with the fourth which is not hot and the described operations cease.

When switch 229 is made, solenoid 163 is also energized and causes plunger 162 to go home. Arm 157 is rocked counter-clockwise from its pivot, lever arm 164 is retracted and pawl 166 overrides the tooth counter-clockwise thereof. When the switch is broken and solenoid 163 is de-energized, plunger 162 shifts out and rocks arm 157 clockwise. This actuates lever arm 164 in the direction to the right in Figure 2 whereby pawl 166 engages the next tooth and causes the ratchet wheel to turn one segment in the clockwise direction. Pawl 175 is able to override the teeth and is urged by its spring member to engage the oncoming tooth by way of securing the ratchet wheel in its adjusted position.

It will be apparent that the above cycle will take place three times in accordance with the number of hot points on the control device. The numbered disc 145 turns with the ratchet wheel 155 to position the third higher numeral on the periphery thereof in the line of light of bulb 147 for casting the numeral upon the screen 75.

When the ratchet wheel is turned to any position above its zero position, in other words, when any number is to be recorded on the screen, rod 180 no longer contacts plate 181 so that switch 182 will be made and bulb 147 illuminated.

In the event that the drums stop with a combination of symbols which place openings 15 in ratchet wheels 13^a, 13^b and 13^c in alignment with finger 14^a so that it is able to pass completely therethrough, extension arm 18^a engages plate 250' in a manner to deflect plate 19^a sufficient to make contact with the plate connected to lead 231 as well as the plate connected to lead 230.

In response to such movement, the first three rivet points connected to lead 230 and the next two rivet points connected to lead 231 are made hot. As a result, contact arm is caused successively to engage each of the points whereby the drum 223 is caused to make switch 229 five times before it is stopped, with the result that solenoid 163 is repeatedly energized and de-energized five times to add 5 to the numeral originally positioned in the line of light of the bulb 147.

In the event that the drums stop with a combination of symbols to be rewarded by an advance of 11 in the score, it will be found that openings in ratchet wheels 13^a, 13^b and 13^c will stop in alignment with finger 14^b so as to enable lever 16^b to rock forwardly to its fullest extent. Coincident with such movement, extension arm 18^b deflects contact plate 19^b positioned in advance thereof sufficient to establish successive contact with plates associated with leads 230, 231 and 232.

This renders the first group of three, the next group of two and the third group of six contact points hot so that the contact arm 192 successively engages each of these points before it reaches the twelfth cold contact point. The table 223 correspondingly turns to deflect plate 225 and make switch 229 eleven times and thereby correspondingly to advance the ratchet wheel 155 eleven segments and add 11 to the numeral originally positioned in the line of light of bulb 147.

In the event that the drums 12 stop to position openings in ratchet wheels 13^a, 13^b and 13^c in alignment with finger 14^c so as to enable the finger to pass therethrough, the extension arm 18^c will deflect contact plate 19^c an amount sufficient to make switches associated with leads 230, 231, 232 and 233. Connection of such leads with the hot line will make the first group of three, the second group of two, the third group of six, and the fourth group of two contact points hot whereby the motor will be caused to turn an amount to make switch 229 thirteen times. Thus contact arm 192 will be carried in successive steps to each of the hot points and will end up with the fourteenth contact point which is cold and simultaneously solenoid 163 will be energized and de-energized thirteen times to advance the ratchet wheel 155 thirteen segments and position the thirteenth higher numeral in the line of light of bulb 147.

In the event that drums 12 stop in position to dispose openings in ratchet wheels 13^a, 13^b and 13^c in alignment with finger 14^d so as to enable the finger to pass therethrough, extension arm 18^d will engage contact plate 19^d and deflect same sufficiently to establish contact with plates connected with leads 230, 231, 232, 233 and 234. As a result, the contact points 194 in groups of the first three, the next two, the next six, the following two and the next five will become hot so that the switch 229 will be made eighteen times to record an advance of 18 on the score cast upon the screen 75.

In the event that the drums should stop in position to enable finger 14^e to pass through registered openings in each of the ratchet wheels 13^a, 13^b and 13^c, extension arm 18^e will be advanced beyond its normal position to establish engagement between the contact plate 19^e and plate 235 connected by lead 236 to the bulb 237 located behind the window 79 so as to illuminate the bulb and indicate a jack-pot winner.

In the event that it is desired to permit the machine to be freely played while recording scores obtained, solenoid 49 may be energized independent of the position of post 135 forming a part of the add and subtract mechanism such that the operating lever 20 may be repeatedly actuated without regard to the position of the ratchet wheel 95.

It is desired to have the solenoid 49 deenergized during the major portion of the time that the machine is operating so as to reduce power consumption and rattling noises in parts associated therewith but, in order to permit successive plays when allowed in accordance with position

of post 135 off of zero or tripping of lever 81, the plunger is returned to its retracted position as an incidence to the return of sector 25 to its original position of adjustment to make switch 24.

When play has been completed and it is desired to return the score disc to zero position, such may be effected by pushing button 250 to make switch 252 associated therewith. This energizes solenoid 177 which retracts plunger 176. Rocker arm 171 is rocked in a clockwise direction about its pivot 172 to withdraw pawl 175 from engagement with teeth 156 of ratchet wheel 155. Pawl 166 is subsequently also removed when the lever arm 164 is rocked upwardly about its pivot 165 upon engagement of the lever arm 171 with ledge 170. Thus when all of the holding parts are disengaged from the teeth of the ratchet wheel, the ratchet wheel is able to turn in response to the force exerted by spring 142 until rod 180 engages and deflects switch plate 181. This determines the zero position and breaks the light switch 182 whereby bulb 147 becomes extinguished.

It will be evident from this description that the number of plays may be increased simply by depression of button 240 a predetermined number of times and that the number of plays remaining will be decreased each time that a play is made, until rod 135 engages and deflects plate 136 to break switch 139 and prevent further energization of solenoid 49 except by the free play switch 81. At the same time the light switch 138 is broken to extinguish bulb 86 to indicate that zero position has been reached and no further plays remain in the machine.

Numeral 253 indicates fuses used to protect circuits in the wiring setup of this device. Screw members 254, 255 and 256 extending through slotted members 257 in supporting plate 258 connected to panel 82 support lenses and blocking plate 259 for adjustment relative to the numbered disc 84. Similarly supporting screws 260, 261 and 262 operable in slots 263 in supporting plate 264 adjustably support lens 150, blocking plate 151 and lens 152 in position.

Numeral 265 indicates an adapter through which the leads from the machine are connected to the leads directed to various units in the control and recording device described.

By way of modification, switch 229 may be connected by suitable leads to solenoid 106 as well as solenoids 200 and 163, for adding the wins onto the number of plays yet available in the machine as well as for adding the wins onto the total original recording. For example, if the player already has a score of 24 and still has ten plays coming and if the player obtains a combination of symbols on the next play which is rewarded by a score of 11, his score will be increased in the manner described to 35 while the number of plays which has been reduced by one upon effecting the new play will then be increased by 11 to make 20 plays coming. Increase of plays in response to making the switch 229 in the manner described will correspond to the reaction of parts that take place when solenoid 163 is otherwise energized by push button 240.

It will be evident that, in this modification, simultaneous energization of solenoids 200, 163 and 106 will occur when switch 229 is made, each solenoid being operated to advance the corresponding ratchet wheels 195, 155 and 95 one segment in the manner described.

To militate against ratchet wheels 155 and 95 being operated through zero when turning in the clockwise direction, means for stopping the ratchet wheels are provided which include stops in the form of plates 183 and 136, respectively, which extend into the path of rods 180 and 135, respectively, which engage the plates on the underside to stop further rotational movement.

Instead of the modification described, another very desirable arrangement in control device may be effected wherein the scoring unit is eliminated and leads from switch 229 are connected to solenoids 200 and 106 only. The first solenoid regulates the recording of the wins and the second regulates the recording of the wins by increasing the number of plays coming by the same reaction of parts which take place when button 240 is pressed. In such modification, it is unnecessary to make use of a score or to register the initial setting of plays. As shown in Figure 7, the front panel 270 of the control device may comprise a single screen 271 in opening 272 which opening is in alignment with the light beam which travels from the light bulb 86 through the opening in the panel 82, the lens, numbered disc wheel 84, block out plate 259 and lens 89.

Screen 273 in opening 274 through which the illumination of light bulb 237 may be observed may be positioned below the opening 272. The light bulb 237 will, as previously described, be illuminated in the event that lever 18^e advances all the way as finger 14^e passes through registered openings in the ratchet wheels 13^a, 13^b and 13^c to make switch 19^e. The push buttons 240 and 250, as well as trip levers 80 and 81, are substantially the same as described in the previous modification and impart substantially the same function.

It will be apparent from the description that I have provided a new and improved amusement device capable of remote control and capable of operation without the use of coins. The device is also capable of operation in a manner accurately to record winning scores and to permit the addition of the winning score coincident to registration or independently thereof to the number of plays coming in the machine. My improved amusement device provides, when plays are not available, for locking the device against undesirable operation or selectively for permitting free play of the device without setting the play unit or without scoring.

The device produced in accordance with this invention embodies features for disconnecting the scoring unit while parts of the machine are in motion so as to militate against inadvertent scoring which might be occasioned from previous settings or by undesirable contact made by the switches as an incidence to the vibrations or to the jarring motions which might occur as an incidence to operation.

It will be further apparent that the device described embodies elements which prevent scoring unless winning switches are contacted in predetermined combinations. In other words, if switch plates connected to lead plates 231, 232, 233 and 234 are rendered hot without the switch connected to lead while switch 230 is being made, no current will pass into the first, second or third contact rivets 194 and as a result, no current will pass into the contact arm 192 or motor 221.

It will be understood that numerous changes may be made in the details of construction, arrangement and operation without departing from the spirit of the invention, especially as defined in the following claims.

I claim:

1. In an amusement device, a first unit having elements which are operated in play and stop in various combinations some of which are selected to be winning combinations of predetermined value, an operating member for putting said elements into play, means for preventing operation of said operating member, a second unit including control mechanism having a control member shiftable toward and away from zero position, means operated by said control member and cooperating with the blocking means for rendering said blocking means of the first unit ineffective when said control member is in other than zero position and for rendering said blocking means effective when said control member is in zero position to prevent plays, manually operated means for advancing said control member increments away from zero position to add to the number of plays, means responsive to mechanism actuated during each play for returning said control member one increment towards zero position, means for indicating the number of plays available corresponding to the number of increments that

the control member is away from zero position, scoring mechanism including a scoring member shiftable towards and away from zero position, and means for simultaneously operating said control member to increase the number of plays and the scoring member to increase the score in accordance with the value when the elements stop at a winning combination in play.

2. In an amusement device having elements which are operated in play and stop in various combinations some of which are selected to be winning combinations of predetermined value, an operating member for putting said elements into play, means for preventing operation of said operating member, control mechanism including a control member shiftable towards and away from zero position, means cooperating with said control member for rendering said means for preventing operation of said operating member ineffective to permit plays when in other than zero position and for rendering said means for preventing operation of said operating member effective when in zero position, means for manually advancing said control member a predetermined number of increments away from zero position for setting said member for a corresponding number of plays, means responsive to effecting each play for returning said control member one increment towards zero position, scoring mechanism including a scoring member shiftable towards and away from zero position, means for simultaneously operating said control member to increase the number of plays and the scoring member to increase the score in accordance with the value when the elements stop at a winning combination in play, and other manually operated means for separately rendering said means controlling the operation of said operating member ineffective independent of said control mechanism to permit free play.

3. In an amusement device, the combination of one unit having elements which are operated in play and stop in various combinations some of which are selected to be winning combinations of different values, an operating member for putting said elements into play and means for blocking operation of said operating member to prevent play, a second unit separate and apart from the first and including control mechanism having a control member shiftable toward and away from zero position, electro responsive means operated by said control member and cooperating with the blocking means for rendering said blocking means of the first unit ineffective when said control member is in other than zero position to permit plays and for rendering said blocking means effective when said control member is in zero position to prevent plays, manually operated means for advancing said control member increments away from zero position to add to the number of plays, means responsive to mechanism actuated during each play for returning said control member one increment towards zero position, means for indicating the number of plays available corresponding to the number of increments said control member is away from zero position, and means effective for advancing said control member increments away from zero corresponding to the value of winning combinations secured in play correspondingly to increase the number of plays available.

4. In an amusement device, the combination of one unit having elements which are operated in play and stop in various combinations some of which are selected to be winning combinations of different values, an operating member for putting said elements into play and means for blocking operation of said operating member to prevent play, and a second unit including control mechanism having a control member shiftable toward and away from zero position, electro responsive means operated by said control member and cooperating with the blocking means for rendering said blocking means ineffective when in other than zero position, manually operable means for shifting said control member increments away from zero position to set the mechanism for permitting a corresponding number of plays, means responsive to each play for returning the control member one increment towards zero position, scoring mechanism including a scoring member shiftable toward and away from zero position, means for shifting said scoring member increments away from zero position corresponding with the value of the winning combination obtained during each play, manually operated means for returning said scoring member to zero position, and means separate and apart from said control and scoring mechanism for rendering said blocking means ineffective to permit free play.

5. For use in combination with an amusement device having a number of elements which are operated in play and stop in various combinations some of which are winning combinations of predetermined value, an operating member and means for blocking operation of said operating member to prevent play, a control mechanism having a control member shiftable toward and away from zero position, means responsive and operated by said control member and cooperating with the blocking means for rendering said blocking means ineffective when said control member is in other than zero position to permit plays and for rendering said blocking means effective when said control member is in zero position to prevent plays, manually operated means for advancing said control member increments away from zero position to add to the number of plays, means responsive to mechanism actuated during each play for returning said control member one increment towards zero position, means for indicating the number of plays available corresponding to the number of increments said control member is away from zero position, a scoring member shiftable in increments toward and away from zero position, means for advancing said scoring member away from zero position in increments corresponding to the value of winning combinations secured in play, and means for returning said scoring member to zero position when play has been completed.

6. For use in combination with an amusement device having a number of elements which are operated in play and stop in various combinations some of which are winning combinations of predetermined value, an operating member and means for blocking operation of said operating member to prevent play, a control mechanism having a control member shiftable toward and away from zero position, means operated by said control member and cooperating with the blocking means for rendering the blocking means ineffective when said control member is in other than zero position to permit plays and for rendering said blocking means effective when said control member is in zero position to prevent plays, manually operated means for advancing said control member increments away from zero position to add to the number of plays, means responsive to mechanism actuated during each play for returning said control member one increment toward zero position, a scoring member shiftable in increments toward and away from zero position, means for advancing said scoring member away from zero position in increments corresponding to the value of winning combinations secured in play, means for returning said scoring member to zero position when play has been completed, means for indicating the number of increments the control member is off of zero position, and means for indicating the number of increments said scoring member is off of zero position.

7. For use in combination with an amusement device having a number of elements which are operated in play and stop in various combinations some of which are winning combinations of predetermined value, an operating member and means for blocking operation of said operating member to prevent play, a device separate and apart from the amusement device comprising a control member shiftable in increments toward and away from zero position, means operative in response to said con-

trol member for rendering said blocking means effective to prevent play while said member is in zero position and ineffective while in other than zero position to permit plays in number corresponding to the number of increments said member is away from zero position, means for manually advancing said control member in increments away from zero position, means responsive to operation of said operating member for returning said control member one increment towards zero position, a scoring member shiftable in increments toward and away from zero position, means for advancing said scoring member away from zero position in increments corresponding to the value of winning combinations secured in play, means for returning said scoring member to zero position when play has been completed, means for indicating the number of increments the control member is off of zero position, means for indicating the number of increments said scoring member is off of zero position, and other means for rendering said blocking means ineffective to permit free play independent of the position of said control member.

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