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F. PRINA ET AL

ELECTRIC AMUSEMENT DEVICE.

Original Filed March 5, 1920

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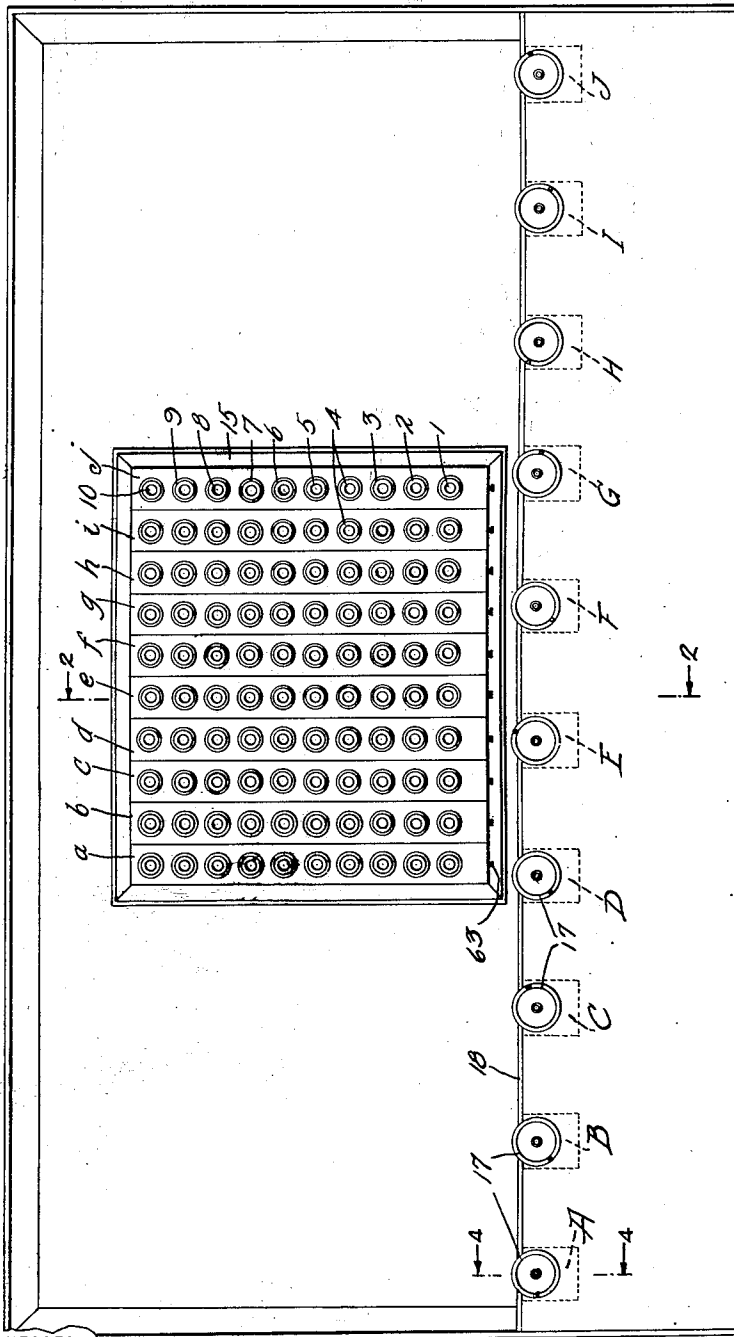


Fig. 1.

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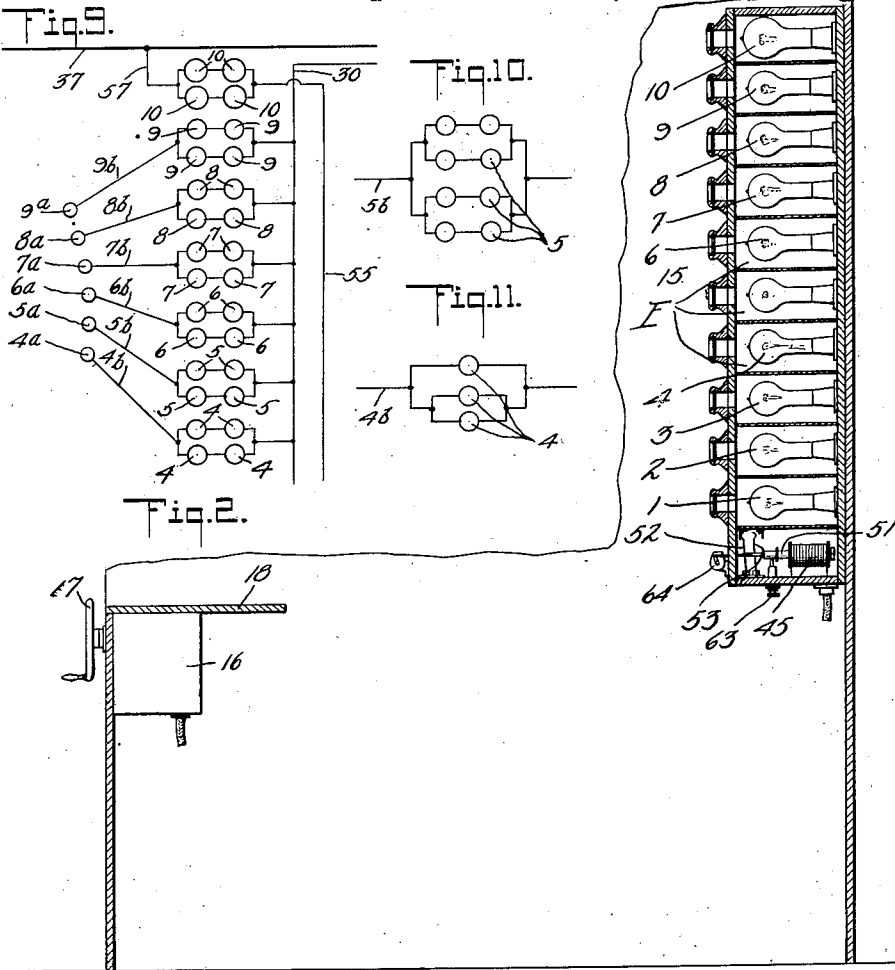
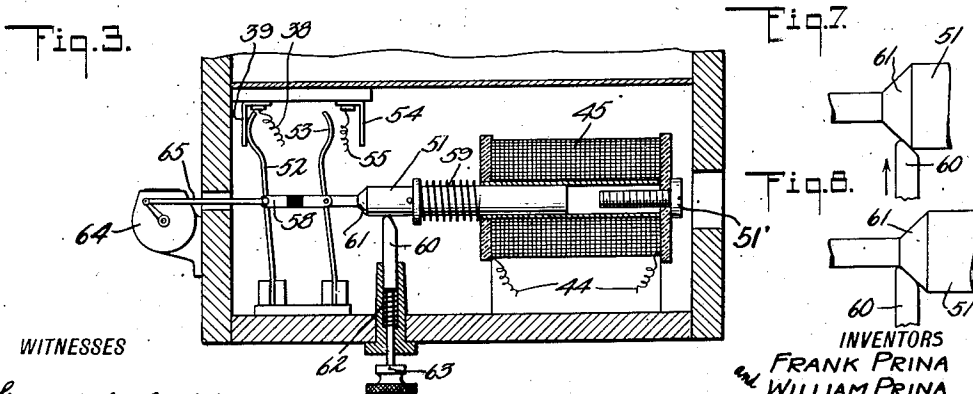
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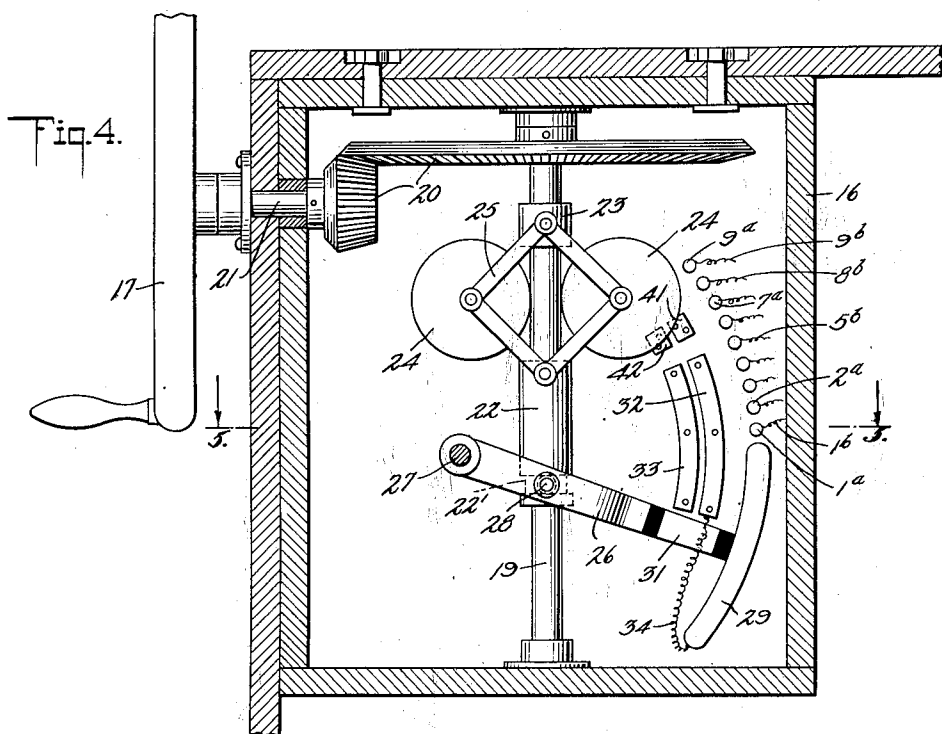
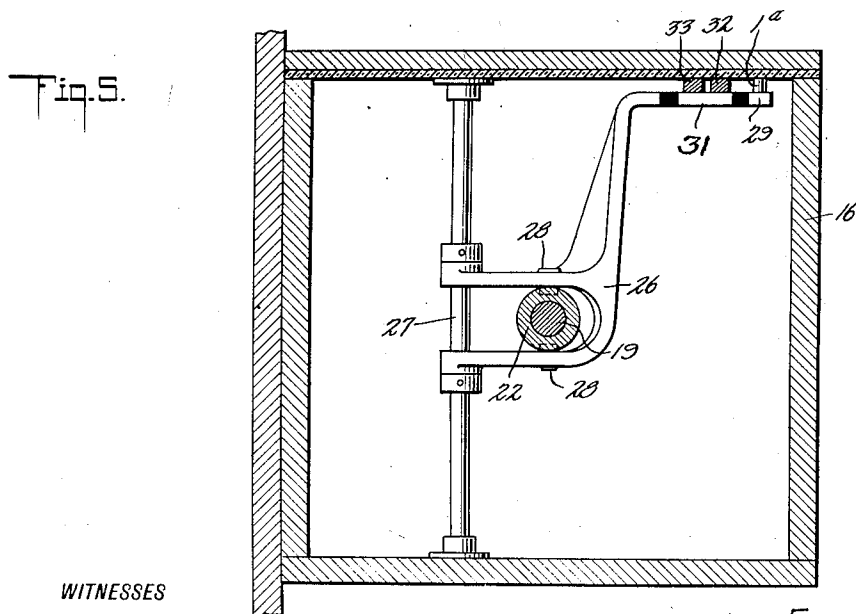
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4 Sheets-Sheet 3



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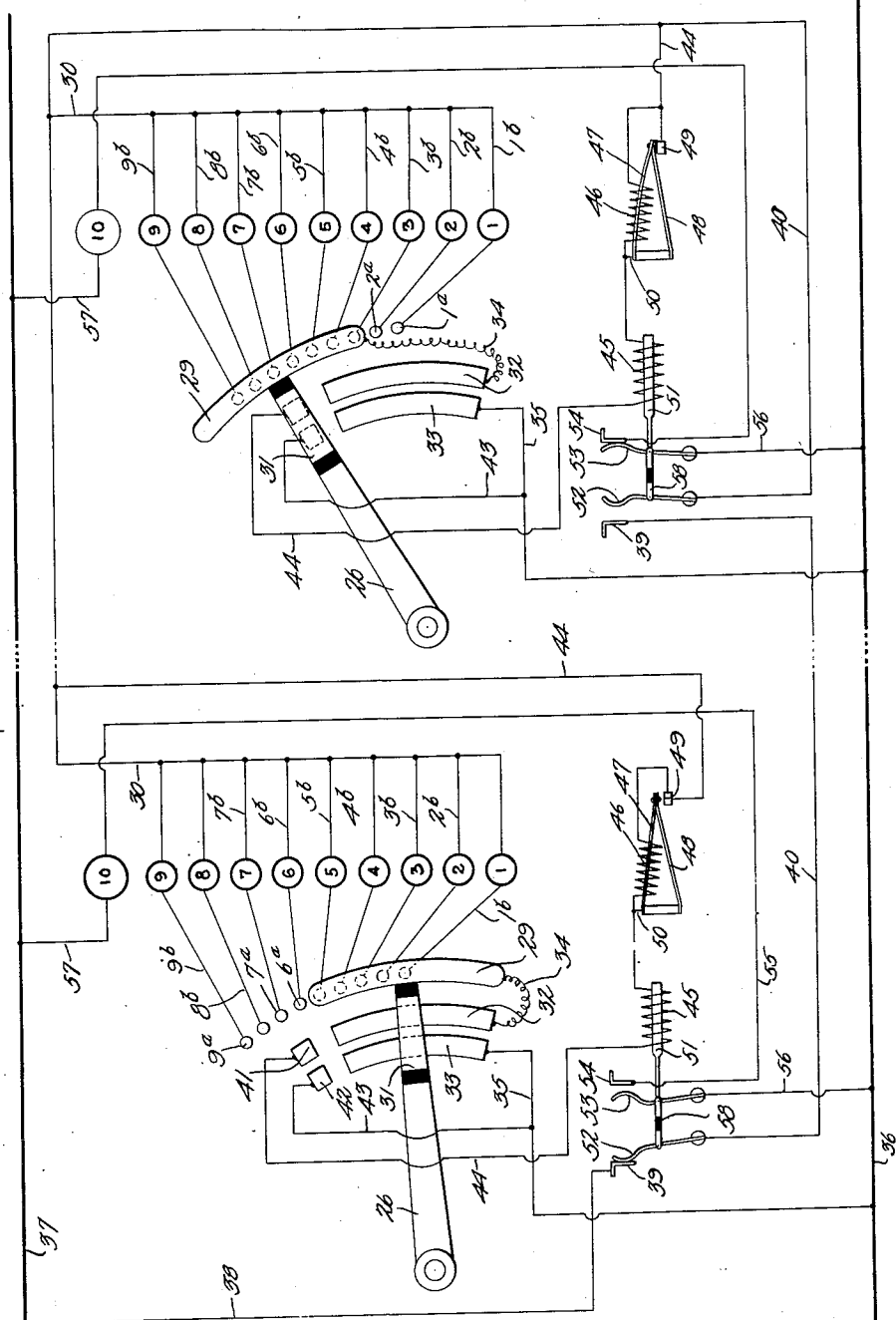
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4 Sheets-Sheet 4

Fig. 6.

J

A



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UNITED STATES PATENT OFFICE.

FRANK PRINA AND WILLIAM PRINA, OF JERSEY CITY, NEW JERSEY; SAID WILLIAM PRINA ASSIGNOR TO SAID FRANK PRINA.

ELECTRIC AMUSEMENT DEVICE.

Application filed March 5, 1920, Serial No. 363,457. Renewed May 31, 1922. Serial No. 564,847.

To all whom it may concern:

Be it known that we, FRANK PRINA and WILLIAM PRINA, citizens of the United States, and residents of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and Improved Electric Amusement Device, of which the following is a full, clear, and exact description.

This invention relates to mechanical and electrical amusement apparatus and has particular reference to that general class of amusement devices in which there are provided a number of competitive units.

Among the objects of the invention is to provide an apparatus of the character set forth in which the several players stationed in proximity to the several units of the apparatus will operate certain mechanism when the signal is given or the time for starting the game is announced, and the results of the operations of these several mechanisms will be made manifest along a visible field and preferably by means of a progressive series of lamps for each unit, the goal striven for by the several players being the illumination of the last lamp in each player's series.

Another object of the invention is to provide an amusement apparatus involving a plurality of units and each unit including a progressive series of lamps, the last lamp of the series being the goal, and the mechanism being so arranged that in order to reach the goal and win a game the winning player must operate his mechanism with a gradual acceleration up to about the time that the last lamp is mechanically reached and thereafter he must maintain for a predetermined length of time a uniform speed in order to cause his winning lamp to be lighted.

A further object of the invention is to provide mechanism whereby the lighting of the winning lamp in any series will automatically and instantly cause the cutting out of any lamps that may be glowing in the remaining series.

A still further object of the invention is to provide means under the control of the operator for maintaining the winning lamp lighted until such time as the operator wishes to restore the mechanism to normal or inactive position, it being borne in mind that so long as the winning lamp remains lighted no other lamps of the mechanism can be caused to glow.

The term "operator" as used herein will be understood as being applicable to the person in charge of the apparatus, and so such party will be distinguished from the players, or patrons of the amusement device.

With the foregoing and other objects in view the invention consists in the arrangement and combination of parts hereinafter described and claimed, and while the invention is not restricted to the exact details of construction disclosed or suggested herein, still for the purpose of illustrating a practical embodiment thereof reference is had to the accompanying drawings, in which like reference characters designate the same parts in the several views, and in which—

Figure 1 is a front elevation indicating in a somewhat diagrammatic manner the general arrangement and relation of the players' stations and the display or indicator field.

Fig. 2 is a vertical transverse section on the line 2—2 of Fig. 1.

Fig. 3 is an enlarged detail view corresponding to the lower portion of the signal means shown in Fig. 2.

Fig. 4 is a vertical transverse sectional detail on the line 4—4 of Fig. 1.

Fig. 5 is a horizontal section on the line 5—5 of Fig. 4.

Fig. 6 is a diagram of the electrical features covering two of the units and indicating the action of all of the units.

Figs. 7 and 8 are detail views indicating progressive steps in the action of the solenoid operated switch.

Figs. 9, 10 and 11 are detail diagrams indicating variations in arrangement of lamps.

Referring now more specifically to the drawings for a practical embodiment of our invention we show at 15 an upright field having a plurality of vertically arranged series of indicators such as electric lamps. We show ten of such series lettered *a* to *j* inclusive, the same corresponding to a series of players' units *A* to *J*. It is to be understood however that the number of lamps in each series as well as the number of units may be greater or less in any installation than as indicated herein.

For each unit or series of lamps we provide a switch box 16 with which is associated an actuating member in the form of a hand wheel 17, the several hand wheels being arranged in a vertical plane within

convenient reach of the players who may be stationed along a counter 18 or the like. with sufficient space between adjacent wheels to accommodate the several players. The operator will be stationed within the enclosure afforded by the counter 18 and within easy reach of the signal field 15 for the control of certain features soon to be described.

In each switch box 16 is a vertical shaft 19 having high speed beveled gear connections at 20 with the shaft 21 to which the wheel 17 is attached. 22 is a sleeve mounted for free sliding movement upon the shaft 19. 23 is a collar fixed to the shaft above the sleeve. Between the sleeve and the collar are centrifugal weights 24 connected by links 25 to the collar and sleeve whereby when the speed of the shaft 19 becomes sufficient to overcome the effect of gravitation on the weights 24, said weights will be thrown outward and upward from the shaft toward the large gear 20 causing the lifting of the sleeve 22. As will be understood the rate of speed of the shaft 19 will determine the degree of elevation of the weights 24, or in other words for any predetermined rate of speed of the shaft the weights and the sleeve will be lifted to a corresponding predetermined degree of elevation.

26 indicates a switch arm in the nature of a yoke spanning the sleeve 22. Said yoke is pivoted on a horizontal support 27 fixed within the switch box. The yoke carries a pair of oppositely arranged studs 28 which project within a groove 22' in the sleeve, hence the free end of the yoke or arm 26 describes an arc of an angle proportionate to the rise of the sleeve 22. Said free end of the arm 26 comprises an arc shaped contact shoe 29 adapted to engage in succession a series of contacts 1^a to 9^a inclusive, from which conductors 1^b to 9^b respectively lead through signaling members such as lamps 1 to 9 inclusive, all of said conductors on the opposite sides of the lamps being connected to a conductor 30. Adjacent to the shoe 29, but insulated therefrom is a contact bridge 31 adapted to pass over and bridge two bus bars 32 and 33 also arranged in an arc of which the support 27 is the center and hence parallel to the shoe 29 and series of contacts 1^a to 9^a. A flexible connection 34 connects the shoe 29 to the bar 32 and a conductor 35 leads from the other bar 33 to a main line 36. From the other main line 37 a conductor 38 leads to and through a normally closed switch 39 at the first player's station and thence through other similar conductors 40 and other switches 39 throughout the entire series of players' stations and switch boxes. Since the switches 39 are all normally closed and are all arranged in series, any one or more of the lamps 1 to 9 in any of the series *a* to *j* may be caused

to glow according to the length of the shoe 29 or the relative position thereof over the several contacts 1^a to 9^a in the several switch boxes. It is to be understood that we do not propose to be limited unnecessarily to any particular arrangement or design of the several series of signal devices or lamps. That is to say, they may be arranged in any other manner than in straight lines as shown and the successive contacts 1^a to 9^a may be coupled with lamps in any desired sequence, although for the most satisfactory practical purposes the lamps are caused to glow in succession when arranged in a row corresponding to the advent of the shoe into engagement with the successive contacts arranged in a row. In the diagram of Fig. 6 we show two units the first of which shows the shoe 29 in position to light the first five lamps, while the other shows the tenth lamp lighted. The normally closed switch 39 in the latter case is open as a result of the lighting of the 10th lamp, and the breaking of the circuit at any switch 39 serves to break the circuit throughout all of the units, and hence the cutting out of all lamps 1 to 9 in all of the units. So far as the operation of the shoe 29 is concerned in each of the units the operation of the game apparatus may be briefly set forth as follows: With the apparatus idle and with the switches 39 all closed, as many players as may be stationed at the stations A to J will at the proper time or signal begin rotation of their respective wheels or actuators 17. With the turning of these wheels with an accelerated speed the action of the weights 24 will be to cause the switch shoes 29 to be moved over their respective contacts as above described and cause thereby the lamps connected thereto respectively to glow in succession. If the shoe 29 is short enough each lamp 1 to 9 may be caused to glow only momentarily while the shoe is passing over its respective contact, or with the shoe made longer more than one lamp may be made to glow at the same time. We have found, however, that for the highest degree of amusement all nine of the lamps should be arranged to glow at the same time after they have been lighted in succession as they have already been described. These first nine lamps in each series may be of the same character although as to this we do not wish to be limited for they may be of different colors or otherwise different in character, but the tenth lamp is of a distinctive character such as of greater power or of different color, and is to be regarded as the winning lamp.

After the necessary speed of rotation of the actuator is attained to cause the ninth lamp to be lighted a higher degree of speed of rotation must be attained in order to cause the winning lamp 10 to be lighted.

As will be understood from Fig. 4 the bridge 31 as a result of higher speed and a greater lift of the weights 24 will leave the bars 32 and 33 and may engage and bridge two auxiliary contacts 41 and 42, the latter of which is connected through a conductor 43 to the conductor 35. The contact 41 is connected through a conductor 44 to the conductor 30. Interposed in this conductor 44 is a time switch device comprising a solenoid 45, and associated with the solenoid is a high resistance coil 46 with which is used a thermostat having a bar 47 adapted to be heated and expanded by the coil 46 and another bar 48 outside of the coil. Initially the current passing through the wire 44 will serve to heat the coil 46, but because of the resistance will not be sufficient to energize the solenoid to make it operative. When in time the bar 47 is sufficiently heated to cause it to bend, contact will be made at 49 causing the current to pass directly through a branch connection 50 from the wire 44 cutting out the coil 46. With the closing of the circuit at contact 49, the solenoid 45 will be energized and so will actuate its armature 51, the throw of which may be delicately regulated or varied by any means such as a screw 51' fitted in one end of the coil spool.

Attached to the armature 51 are two movable switch points 52 and 53, the former being a part of the switch 39 and the latter being adapted to engage a fixed contact 54 from which a conductor 55 leads to the lamp 10. The movable switch blade 53 is connected through a line 56 to the main line 36, and since the lamp 10 is connected to the other main line 37 through a wire 57, it follows that when the circuit is closed at the switch 54 the lamp 10 will glow. The movement of the switch blade 53 toward the contact 54 will be accompanied with the breaking of the circuit at the switch 39 since the movable blade 52 is connected through the insulated link 58 to the armature connection with the switch blade 53. The breaking of the circuit at any of the switches 39 serves to cut out all of the lamps 1 to 9 in any of the series that may be lighted.

It will be noted that the energizing of the solenoid 45 upon which the breaking of the circuit at 39 and the making of the circuit 54 are predicated is dependent upon a closed circuit through all of the lines 38, 40, and 30, and hence to prevent the failure of the solenoid to make a sufficiently long stroke of the armature to cause the throwing of the movable switch blade 53 into contact with the contact 54, against the force of a spring 59, we provide a peculiarly arranged dog 60 the point of which co-operates with a beveled shoulder 61 formed on the armature. As will be understood from Figs. 3, 7 and 8 the normal position of the dog 60 is

on the main portion of the armature close enough to the shoulder to insure that the solenoid will be functioned by virtue of the energy received through the switches 39, to cause the tapered shoulder 61 to be brought into position to be engaged by the dog. The dog is acted upon by a spring 62 the force of which is superior to that of the spring 59, whereby the spring 62 may act alone to drive the dog from the position of Fig. 7 to that of Fig. 8, thereby completing the throw of the armature and the completing of the circuit at the contact 54. By this time the contact will have been broken at 39. The proper action of the dog 60, as described, is dependent upon the precise throw of the core 51. As above intimated with the breaking of any of the contacts at 39 throughout the series of units, all of the lamps 1 to 9 in all of the series will be cut out. By a slight variation in arrangement of the contacts adjacent to the switch arm 26 the lamps 1 to 9, or any desired number of them, may be continued to glow along with the lamp 10 of the same series so that the winner of the game may have the added satisfaction of having any number of his lamps remaining lighted while all of the other lamps on the field 15 are extinguished. Obviously with the lighting of the winning lamp 10 and the breaking of the main initial circuit through the switch 39 the thermostat and solenoid coils of all the other units are instantly disabled and therefore it is impossible for any other lamp 10 to be caused to light.

Another important function of the dog 60 is to hold the switch blade 53 in contact with the contact 54 and thereby maintain the winning lamp lighted until the operator of the game releases the dog as by pulling downward upon the knob 63 at which time the spring 59 will act to throw the armature back to normal position as shown in Fig. 3. Therefore the manipulation of any of the actuators 17, a circumstance that is liable to happen when dealing with a crowd of amusement seekers, can have no effect upon the signaling devices or lamps because the main or feeding circuit is held open.

We prefer to associate with each armature 51 a counter or tallying device of any suitable structure as suggested at 64, the connection being through a link 65 with the link 58. Consequently an inspection of the several counters which are arranged in plain view of the operator or proprietor will enable him to ascertain the number of times each armature has been actuated and also the number of times that all of the lamps 10 have been lighted, a matter of considerable importance considering that the game apparatus may be under the control of subordinates.

From what has been set forth above the

remaining portion of the operation may be briefly described as follows: After one or more of the actuators have been operated with a sufficiently high and accelerated speed to bring the shoe 29 up to the point of bridging the contact 9^a, the number of lamps of such series being lighted at such time depending upon the length of the shoe, a further acceleration of the speed of the actuator will cause the further lifting of the arm 26 to bring the bridge 31 into contact with the contacts 41 and 42. Whether the bridge 31 will have left the bus bars 32 and 33 by this time will of course depend upon the gap between the bus bars and the other two contacts. If and when the bridge 31 leaves the bus bars, or one of them, the first nine lamps will be cut out so that there may be a time of material duration, and which to the player may seem a long time during which the bridge 31 will lie in contact with the contacts 41 and 42 or near to them, either above or below, before the tenth lamp will be lighted and after the other lamps have become dark. When however the actuator is rotated at a sufficiently high speed which is kept substantially constant for a time, long enough for the circuit passing through the solenoid and thermostat coil to expand the bar 47 and close the contact at 49, the solenoid will be energized and cause the shifting of the double blade switch, at least the initiation of such shifting, and so bring the dog 60 into action to complete such shifting and the closing of the circuit at 53 and 54, lighting the winning lamp. Since the circuit is broken at 39 at the shifted switch all the lamps of the other series of lamps will be disabled because it will be impossible for any other player to close either of the circuits pertaining to his series, the circuit being broken by the breaking of any one switch 39 will prevent the actuation of the solenoid at any other unit because the solenoids are all dependent upon the primary circuit including the switch 39 as a source of energy. Hence after the winning lamp is lighted it will be impossible for any other winning lamp to be lighted, even though the unsuccessful players might continue the movement of their actuators at favorable speeds.

Among the various modifications or variations in arrangement of the structure it is to be noted that the lamps or indicators instead of being arranged singly and in series as in Fig. 6 may be connected electrically in parallel or series parallel and either connected with each of the single indicators at the various stations or instead of said single indicators. For example in Fig. 9 we show an arrangement wherein there are four lamps connected in series parallel at each station. These lamps may

be in series, parallel, or series parallel. There may be only single lamps at all stations, say from 1 to 9, and then any number of lamps at station 10 arranged either in series, parallel, or series parallel. Or as indicated in Figs. 10 and 11 the lamps may be arranged in pluralities and either in series or in parallel, or in any other desired combination of such arrangements, so that the electrical effect may be varied to a very great extent to thereby increase the interest and amusement and accordingly the value of the equipment.

It is to be observed that in the playing of this game the operation of the apparatus is not dependent upon being provided a player at each of the stations A to J, for the apparatus will operate perfectly even though any number of players less than may be accommodated are present and participating. The several signaling devices at the field 15 obviously will remain idle in accordance with the stations that are not occupied by players.

We claim:

1. In an amusement device, the combination of a plurality of series of indicator devices, a corresponding plurality of actuators for players pertaining to the respective series of indicator devices, connections between the indicator devices and the actuators whereby successive indicators in the several series will be made manifest in accordance with the actuation of the actuators, and means serving to cause all other indicator devices to become idle when a certain one of the indicator devices of one of the series is made manifest.

2. In an amusement device, a series of indicators, an actuator adapted for different characters of movement, connections between the indicators and the actuator serving to cause a portion of the indicators to be made manifest progressively in accordance with an accelerated movement of the actuator, and other means auxiliary to said connections serving to cause another indicator to be made manifest as a result of a movement of the actuator different from the accelerated movement above set forth.

3. In an amusement device, the combination of a series of signal means, an actuator for the player, connections between the signal means and the actuator serving to cause a predetermined portion of the signal means to be made manifest progressively as a result of a changeable rate of speed of movement of the actuator, auxiliary signal means, and connections between said auxiliary signal means and the actuator to cause a different indication to be made manifest as a result of the movement of the actuator at a speed different from that already set forth.

4. In an amusement device, the combination of a series of lamps, an actuator for the

player, electric connections between the actuator and the lamps whereby certain of the lamps may be caused to glow, an auxiliary lamp, and electric connections including a time switch between said auxiliary lamp and the actuator whereby said auxiliary lamp may be caused to glow after the lamps aforesaid have been caused to glow and as a result of a material predetermined lapse of time.

5. A device of the nature set forth in the preceding claim in which the first portion of the lamps are caused to glow as a result of a continually variable speed of the actuator.

6. A device of the nature set forth in claim 4 in which the remaining lamp is caused to glow as a result of the movement of the actuator at a speed differing from the speed necessary to cause the first portion of the lamps to be lighted.

7. An amusement device of the nature set forth in claim 4 in which the first portion of the lamps are caused to glow as a result of an accelerated rate of movement of the actuator, while the remaining lamp is caused to glow as a result of a uniform rate of speed of the actuator.

8. In an amusement device, the combination of a series of lamps, an actuator for the player, electric connections between the actuator and the lamps whereby certain of the lamps may be caused to glow, an auxiliary lamp, and electric connections between said auxiliary lamp and the actuator whereby said auxiliary lamp may be caused to glow after the lamps aforesaid have been caused to glow and as a result of a material predetermined lapse of time, said first portion of the lamps being caused to glow as a result of an accelerated rate of movement of the actuator, while the auxiliary lamp is caused to glow as a result of the operation of the actuator at a uniform rate of speed higher than when operated for the first mentioned lamps.

9. In an amusement device, the combination of a series of signal devices of the same character, an actuator, connections between the actuator and the signal devices whereby said signal devices may be made manifest in succession from the actuation of the actuator, an auxiliary signal device, and other connections between it and the actuator serving to cause the aforesaid series of signal devices to be rendered idle coincident with the manifestation of the auxiliary signal device.

10. In an amusement device, the combination of a series of lamps, a player's actuator, connections between the actuator and the lamps whereby a portion of the lamps may be caused to glow in succession, and auxiliary connections between the remaining portion of the lamps and actuator, the latter mentioned connections serving to cause the

latter portion of the lamps to glow as a result of a movement of the actuator in a different manner from the movement necessary to light the first portion of the lamps.

11. In an amusement device, the combination of a plurality of series of indicating devices, a corresponding plurality of actuators pertaining to the respective series of indicating devices, connections between the indicating devices and the actuators whereby successive indicating devices in the several series will be made manifest in accordance with the actuation of the actuators, and means serving to cause all other indicating devices of all other series to become idle when a certain one of the indicating devices of one of the series is made manifest.

12. In an amusement device, the combination of a series of lamps, an actuator for the player, electric connections between the actuator and the lamps whereby a certain portion of the lamps may be caused to glow in succession, and other electric connections between another lamp of the series and the actuator whereby said other lamp of the series may be caused to glow after those previously mentioned have been caused to glow, said other electric connections including means made functional only through a material lapse of time.

13. A device of the character set forth in claim 12 in which said other electric connections include a thermostatic switch which is closed as a result of the passage of a current through a high resistance coil.

14. In an amusement device, the combination of a plurality of series of indicating devices, a corresponding plurality of actuators pertaining to the respective series of indicating devices, connections between a portion of the indicating devices and the actuators whereby certain indicating devices in the several series will be made manifest in accordance with the actuation of the actuators, and means serving to cause all other indicating devices to become idle when a certain other portion of the indicating devices of one of the series is made manifest.

15. The combination of a plurality of series of lamps, a corresponding plurality of actuators pertaining to the respective series of lamps, connections between the lamps and the actuating means whereby successive lamps in the several series will be made to glow in accordance with the actuation of the actuators, and means serving to cause all other lamps to become idle when a certain one of the lamps of one of the series is made to glow.

16. The combination of a plurality of series of lamps, a corresponding plurality of actuators pertaining to the respective series of lamps, electric connections between the lamps and the actuating means whereby successive lamps in the several series will

be made to glow in accordance with the actuation of the actuators, and means serving to cause all other lamps of all other series to become idle when a certain one of the lamps

5 of one of the series is made to glow.

17. The combination of a series of lamps, an actuator adapted for different characters of movement, connections between the lamps and the actuator serving to cause a portion
10 of the lamps to glow progressively in accordance with an accelerated movement of the actuator, and other means auxiliary to said connections serving to cause another lamp to glow as a result of a movement of
15 the actuator different from the accelerated movement above stated.

18. The combination of a series of lamps, an actuator, electric connections between the lamps and the actuator serving to cause a
20 predetermined portion of the lamps to glow progressively as a result of a change in the rate of speed of movement of the actuator, and auxiliary connections between another lamp and the actuator to cause a different
25 lamp to glow as a result of the movement of the actuator at a speed differing from the changed speed above set forth.

19. The combination of a plurality of series of electrically operated signals, a corresponding plurality of actuating means pertaining to the respective series of signals, connections between the signals and the actuating means whereby successive signals in the several series will be operated in accordance
30 with the actuation of the actuators, and means serving to cause all other signals to become idle when a certain one of the signals of one of the series is made to operate, said connections including a shiftable double
35 switch member for each series of signals.

20. The combination of a series of electrically operated signals, an actuator adapted for different characters of movement, connections between the signals and the actuator
40 serving to cause a portion of the signals to operate progressively in accordance with an accelerated movement of the actuator, and other means including a solenoid auxiliary to said connections serving to cause another
45 signal to operate as a result of a movement of the actuator different from the accelerated movement before stated.

21. A device of the nature set forth in claim 20 in which the auxiliary means includes, in addition to the solenoid, a thermostat to control the time of action of the solenoid.

22. The combination of a series of lamps, an actuator, electric connections between the
50 actuator and the lamps whereby a certain portion of the lamps may be caused to glow in succession and other electric connections between another lamp of the series and the actuator whereby said other lamp of the
55 series may be caused to glow after those

previously mentioned have been caused to glow, said other electric connections including a shiftable double switch and a time controlled solenoid to shift the switch.

23. A device of the nature set forth in claim 22 in which there is employed an electrically operated thermostat in circuit with the solenoid.

24. A device as set forth in claim 1 in which one of the indicator devices in each
75 series is designated as the winner and is of a different character from the other indicators of the same series.

25. A device as set forth in claim 2 in which the indicator last mentioned is of a
80 distinctly different character from those made manifest by the accelerated movement of the actuator.

26. In an amusement device, the combination of a plurality of series of signal devices, a plurality of actuators pertaining to the several series of signal devices respectively, connections between the several actuators and the signal devices pertaining thereto whereby certain signal devices may be made manifest
85 in succession from the movement of the actuators, one signal device in each series being designated as the winner, said connections being so arranged that when the successful winner indicator is made manifest
90 all of the other indicators will be rendered idle.

27. Mechanism as set forth in claim 26 in which the connections between the actuators and the indicators are so arranged that
100 when the successful winner indicator is made manifest it is impossible for any other winner indicator of the other series to be made manifest.

28. Mechanism as set forth in claim 26 in which each series of indicators comprises one designated as the winner which is of a distinctly different character from the other indicators of the same series and in which the connections between the actuators and the indicators are so arranged
110 that when the winner indicator of any series is successfully manifested it is rendered impossible for the winner indicator of any other series to be made manifest.

29. In an amusement device, the combination of a series of indicators, an actuator, connections between the actuator and the indicators whereby a certain portion of the indicators may be caused to be made manifest
120 in succession, and other connections between another indicator of the series and the actuator whereby said other indicator may be caused to be made manifest after those previously mentioned have been made
125 manifest, said last mentioned connections including means made functional only through the operation of the actuator at a predetermined rate of speed throughout a material lapse of time.

30. In an amusement apparatus, the combination with a series of indicators, of a player's actuator, and connections between the actuator and the indicators whereby they are capable of being made manifest in a predetermined order, said actuator mechanism comprising a hand operated member adapted for relatively high speed, a member movable therefrom at relatively low speed, and other devices movable according to a predetermined law as a result of the acceleration of said low speed member and actuated therefrom.

31. A device of the nature set forth in claim 30 in which the high speed member is a hand wheel having a pinion and the low speed member is a large gear meshing with said pinion and mounted upon an upright shaft, and the other devices include an arm movable in an arc of a circle adjacent to said shaft, a member attached to said arm for moving it, and centrifugally operated means carried by the shaft and connected to the member associated with the arm for operating the arm in accordance with the rate of speed of the hand member and gears.

32. In mechanism as set forth in claim 30 in which the actuator includes a vertical shaft and means for rotating it at variable speeds, centrifugally operated means carried by the shaft, an arm mounted on a horizontal pivot adjacent to the shaft, and connections between the centrifugally operated means and the arm including a sleeve movable along the shaft, whereby the arm is swung upward according to the rate of speed of the shaft.

33. An actuator mechanism for hand operated electrical indicator devices, the same comprising a shaft, means for rotating the shaft at variable rates of speed, centrifugally operated means attached to the shaft, an arm pivoted at one end adjacent to the shaft on an axis at right angles to the shaft and constituting a lever of the third class, slidable connections between the arm intermediate of its ends and the centrifugally operated means whereby the arm is drawn toward the same according to the increase of speed of rotation of the shaft, and a series of electric contacts co-operating in succession with a portion of the arm according to the extent of movement thereof.

34. An actuator mechanism for hand operated electrical indicator devices, the same comprising a shaft, means for rotating the shaft at variable rates of speed, centrifugally operated means attached to the shaft, an arm pivoted adjacent to the shaft on an axis at right angles to the shaft, slidable connections between the arm and the centrifugally operated means whereby the arm is drawn toward the same according to the increase of speed of rotation of the shaft,

and a series of electric contacts co-operating in succession with a portion of the arm according to the extent of movement thereof, said series of contacts being arranged in an arc of a circle whose center is the axis of movement of the arm, and there being provided other contacts auxiliary to the series aforesaid, the arm including a plurality of spaced bridging members for co-operation with the several sets of contacts.

35. An actuator mechanism for hand operated electrical indicator devices, the same comprising a shaft, means for rotating the shaft at variable rates of speed, centrifugally operated means attached to the shaft, an arm pivoted adjacent to the shaft on an axis at right angles to the shaft, slidable connections between the arm and the centrifugally operated means whereby the arm is drawn toward the same according to the increase of speed of rotation of the shaft, and a series of electric contacts co-operating in succession with a portion of the arm according to the extent of movement thereof, there being provided a pair of bus bars arranged concentric with the axis of the arm and with which a bridging member carried by the arm is adapted to co-operate.

36. An actuator mechanism for hand operated electrical indicator devices, the same comprising a shaft, means for rotating the shaft at variable rates of speed, centrifugally operated means attached to the shaft, an arm pivoted adjacent to the shaft on an axis at right angles to the shaft, slidable connections between the arm and the centrifugally operated means whereby the arm is drawn toward the same according to the increase of speed of rotation of the shaft, and a series of electric contacts co-operating in succession with a portion of the arm according to the extent of movement thereof, there being provided a pair of bus bars concentric with the axis of the arm and a pair of auxiliary contact members being arranged opposite one end of the bus bars and spaced therefrom, and the arm including a bridging member adapted to co-operate with the bus bars and the auxiliary contacts in succession.

37. Mechanism as set forth in claim 33 in which there are provided indicators, a series of contacts in electrical connection with a portion of the indicators and the arm includes a contact member adapted to bridge certain or all of said contacts according to the speed of rotation of the actuator shaft, in which there are provided also a pair of spaced contacts for co-operation with other bridging means carried by the arm for making manifest the remaining portion of the indicator devices after the first portion had been made manifest, said pair of contacts being included in an auxiliary circuit with which is associated a time switch demand-

ing thereby a lapse of a material amount of time to make the last mentioned signal device manifest.

38. Mechanism as set forth in claim 1 in which each series of indicators comprises a number of members which are made manifest and then become idle when another one of the members becomes manifest.

39. In an amusement device, a plurality of indicators, an actuator operative at variable rates of speed, and connections between the indicators and the actuator serving to cause said indicators to be made manifest one after another, said connections including means dependent for manifestation of the indicators upon an accelerated movement of the actuator.

40. In an amusement device, a plurality of indicators, an actuator operative at changeable rates of speed, and connections between the indicators and the actuator whereby the indicators may be made manifest one after another, said connections including means dependent for manifestation of the indicators upon a continual change of speed of movement of the actuator.

41. In an amusement device, a series of indicators, an actuator, and connections between the indicators and the actuator serving to cause the indicators to be made manifest one after another, all the indicators except the last being made manifest as a result of an accelerated rate of movement of the actuator, while the connections including a time device serving to cause the last indicator to be made manifest only after a lapse of time following the preceding indicators.

42. Mechanism as set forth in claim 40 in which there is provided an auxiliary indicator and a time device serving to cause the auxiliary indicator to be

made manifest from the actuation of the same actuator after the lapse of a predetermined length of time.

43. Mechanism as set forth in claim 2 in which means is provided to cause the indicators to be made manifest in accordance with a continually variable rate of speed of the actuator for a part of the series and thereafter a motion of the actuator different from said continually variable rate of speed is essential through a predetermined time for the manifestation of the last indicator.

44. In an amusement device, the combination of a plurality of indicators, the last of which is distinguished as the winner, an actuator, and connections between the actuator and the indicators, said connections being so arranged that the rate of speed of the actuator essential for making manifest the winning signal is different from the rate of speed thereof while any other indicator is being manifested.

45. Mechanism as set forth in claim 44 in which the winning indicator is made manifest as a result of the operation of the actuator at a uniform speed.

46. Mechanism as set forth in claim 44 in which the winning indicator is made manifest as a result of the operation of the actuator at a uniform rate of speed for a predetermined length of time.

47. Mechanism as set forth in claim 44 in which the winning indicator is made manifest as the result of the continued movement of the actuator at a uniform rate of speed, while the other indicators have previously been manifested as a result of a variable rate of speed of the actuator.

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