

May 24, 1938.

P. FISCHER

2,118,037

GAME APPARATUS

Filed June 24, 1935

5 Sheets-Sheet 1

Fig. 1.

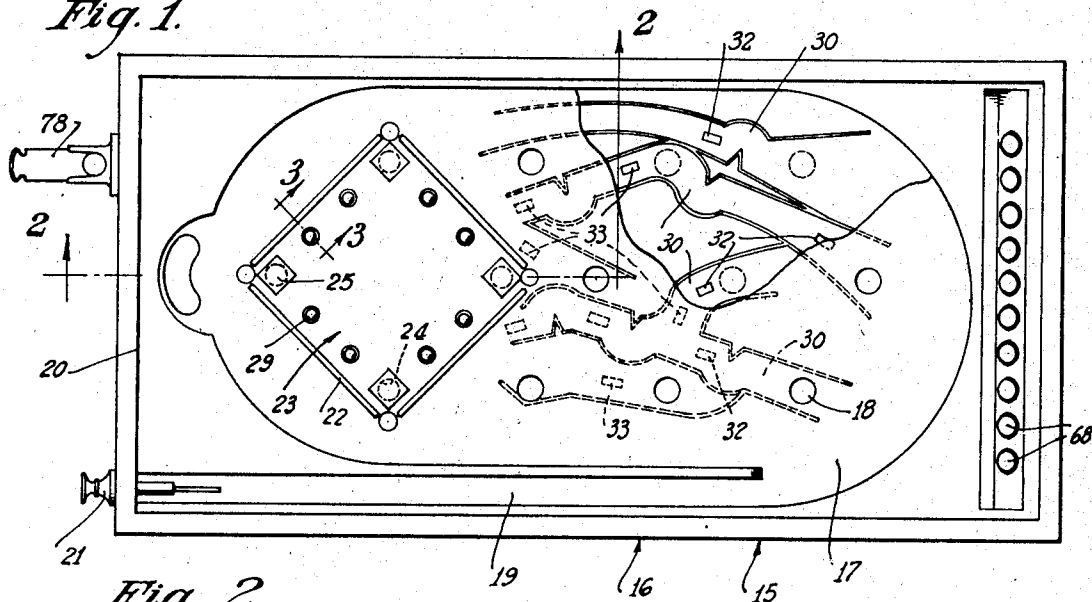


Fig. 2.

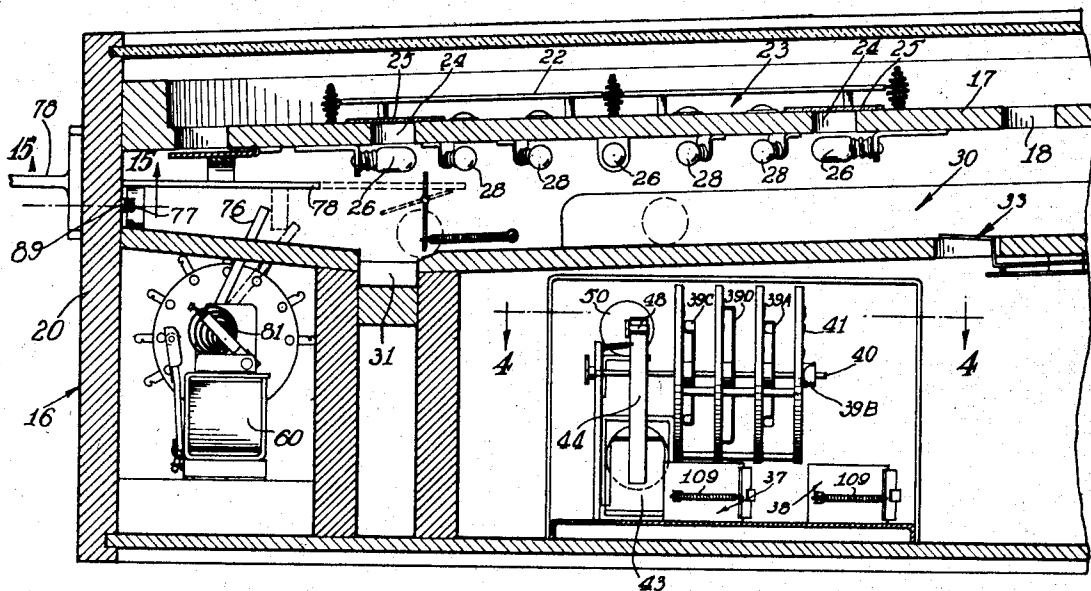


Fig. 3.

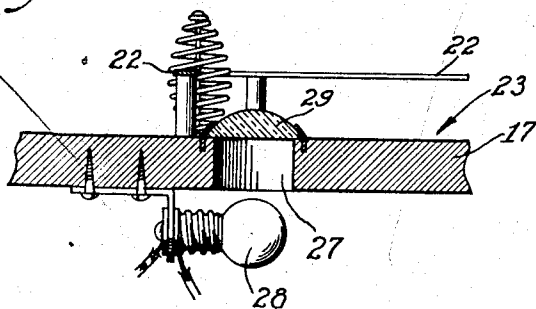
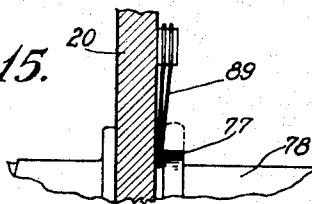


Fig. 15.



INVENTOR.

Philip Fischer

BY

T. H. G. and Cannon

HIS ATTORNEYS.

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Fig. 4.

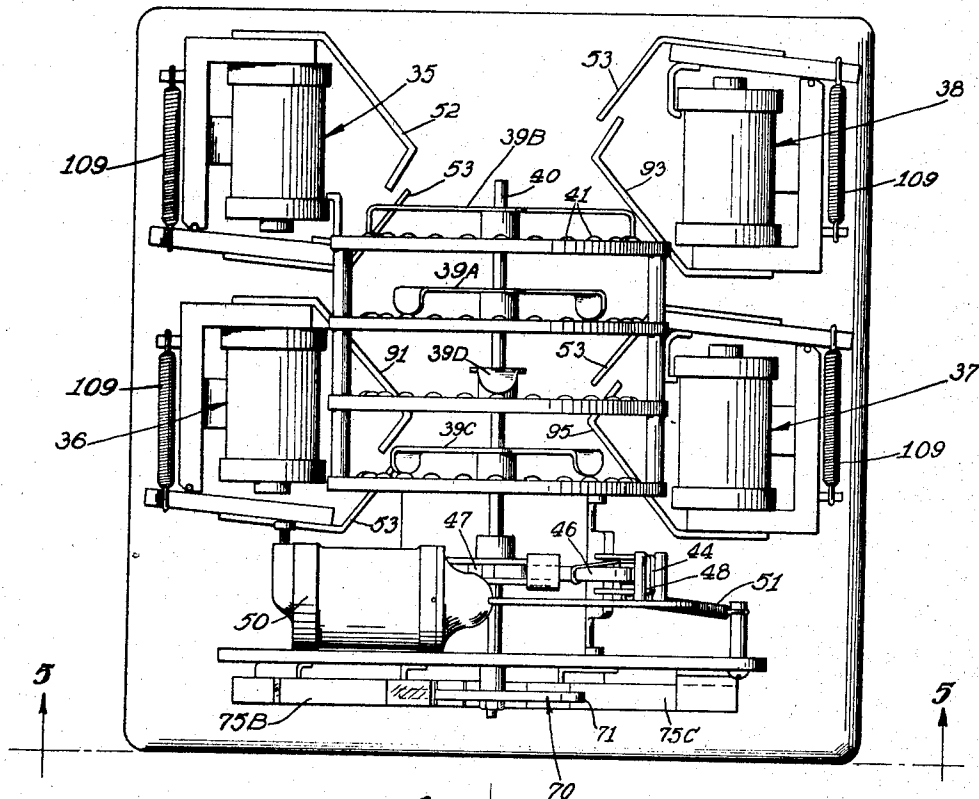
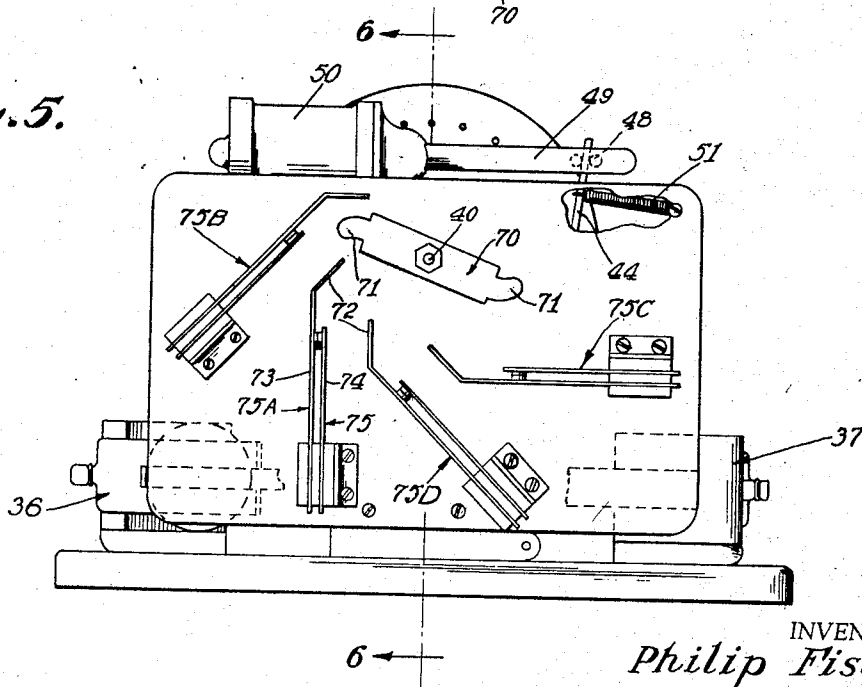


Fig. 5.



INVENTOR.
Philip Fischer
BY *Threedy and Cannon*
HIS ATTORNEYS.

May 24, 1938.

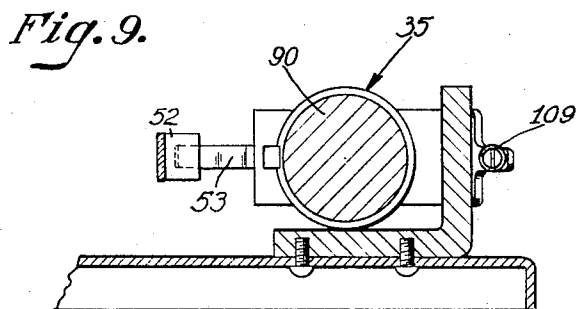
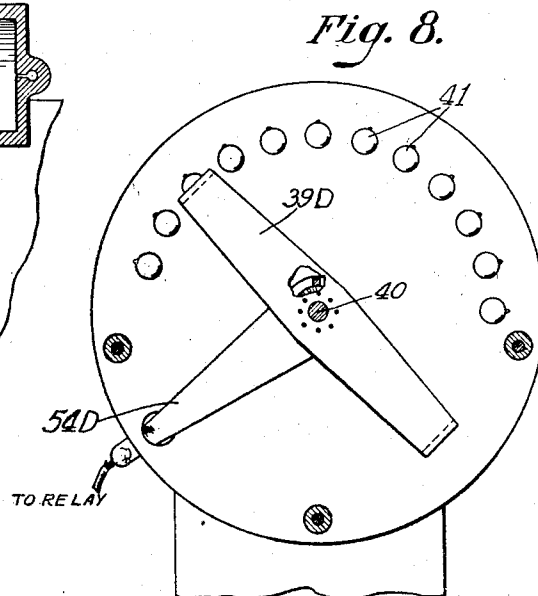
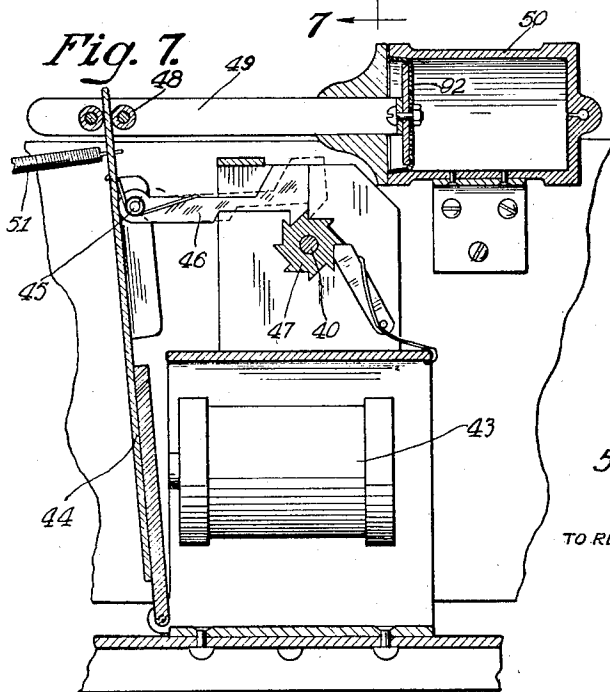
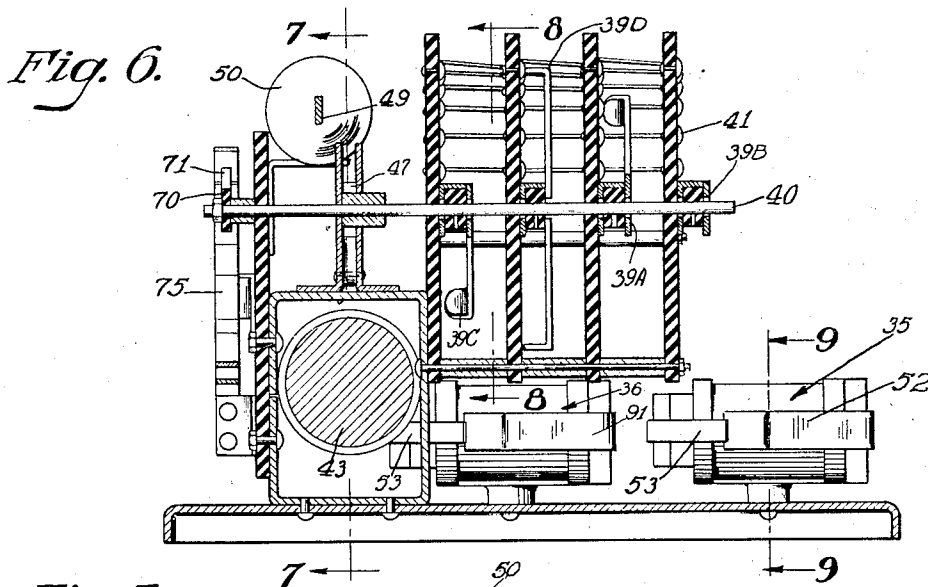
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INVENTOR.
Philip Fischer

BY *Threedy and Cannon*

HIS ATTORNEYS.

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Fig. 10.

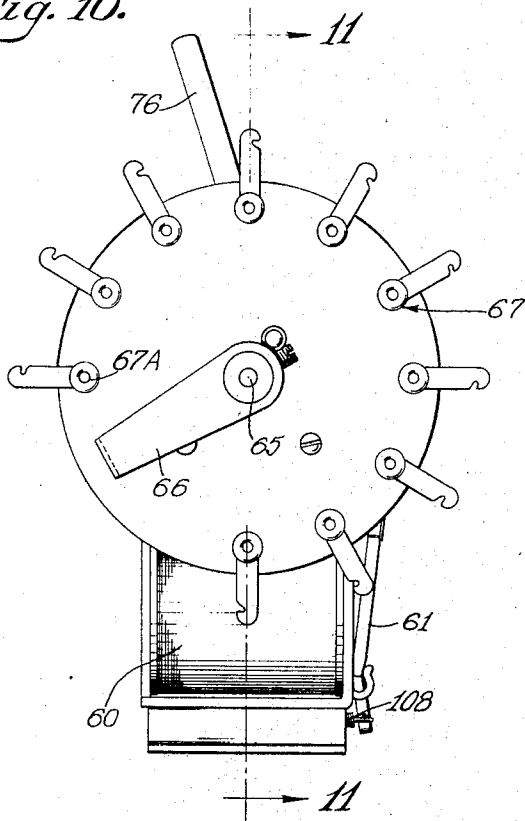


Fig. 11.

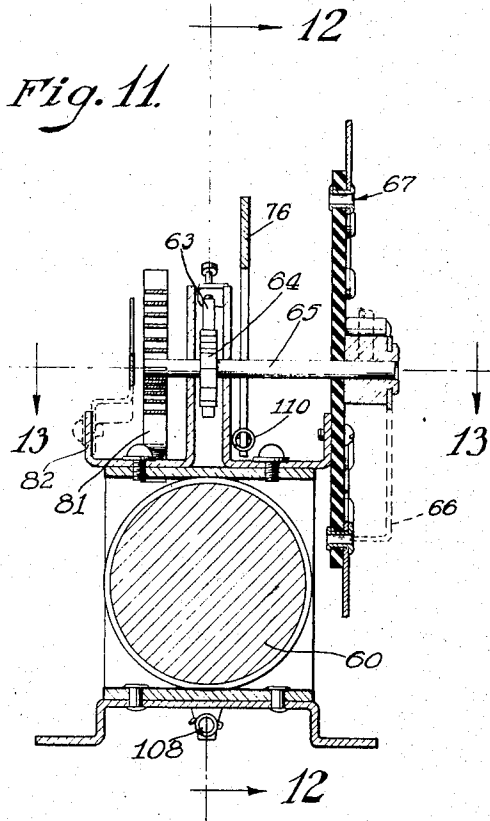


Fig. 12.

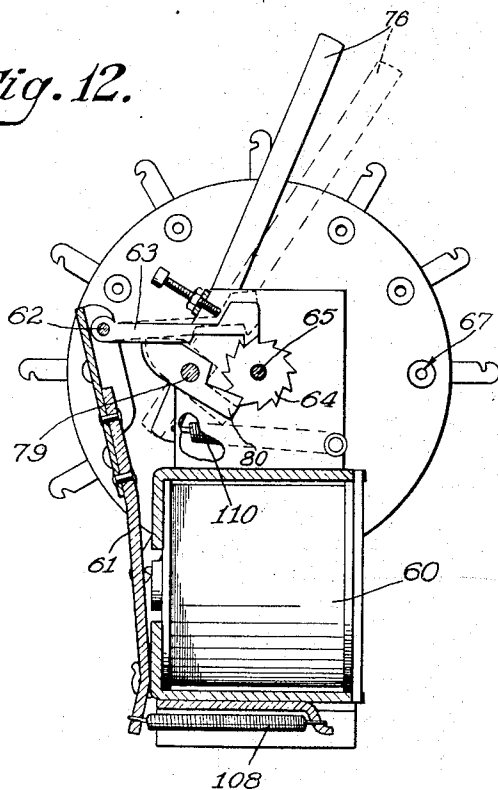
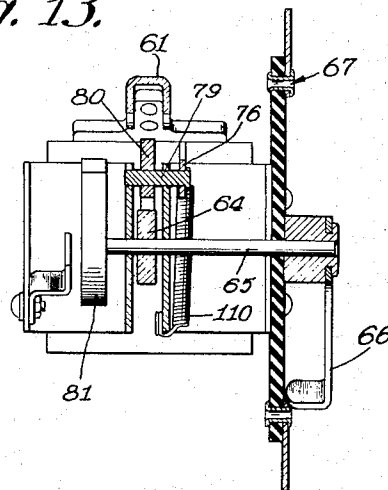


Fig. 13.



INVENTOR.

Philip Fischer

BY

Theredy and Cannon

HIS ATTORNEYS.

May 24, 1938.

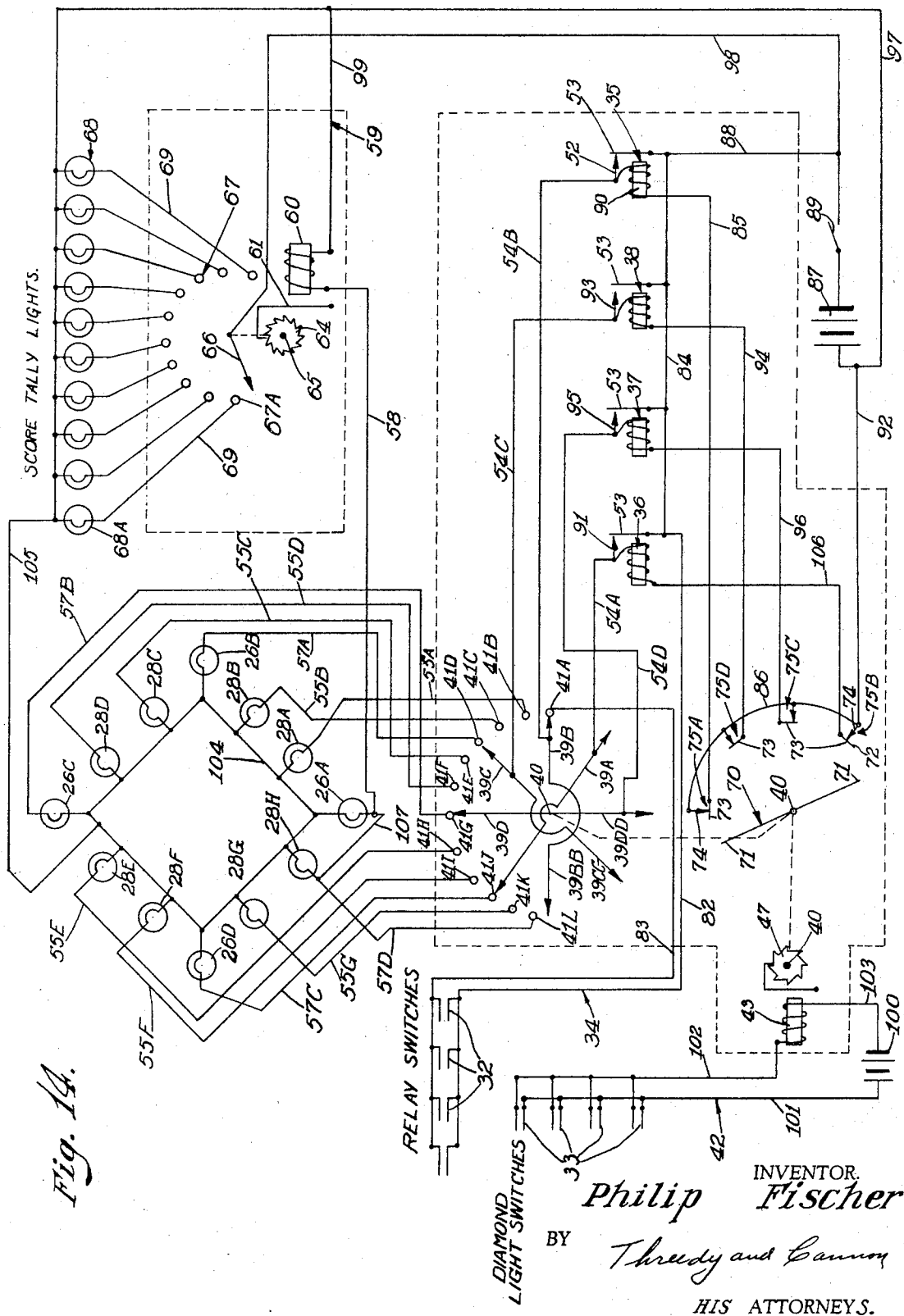
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GAME APPARATUS

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UNITED STATES PATENT OFFICE

2,118,037

GAME APPARATUS

Philip Fischer, Chicago, Ill.

Application June 24, 1935, Serial No. 28,032

15 Claims. (Cl. 273—88)

This invention relates to a game apparatus.

It is an object of this invention to provide an improved game apparatus which is relatively simple and inexpensive in construction and efficient in use.

Another object of the present invention is to provide a novel game apparatus, which is particularly adapted for use in conjunction with so-called pin and marble games, and which embodies a series or group of electric lights, visible, when illuminated, from a point above the playing surface, and arranged in the pattern of a baseball diamond, and means including a device actuated by played balls for successively closing circuit to said lights so as to represent the movement of a player around the diamond.

A further object of the present invention is to provide a novel game apparatus of the so-called pin and marble game type and which is particularly adapted for use as a baseball game or the like, said game apparatus embodying a series of electric lights arranged in the pattern of a baseball diamond, and means including a device actuated by a played ball for successively illuminating the said lights so as to simulate or represent the progressive movement of a player or players around the diamond.

An additional object of the invention is to provide a novel device for indicating or tallying the runs or scores made upon the apparatus.

A further object of the invention is to provide a novel device for resetting the score-tallying device back into its initial or zero position after operation thereof.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

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

Fig. 1 is a top plan view of a game apparatus embodying a preferred form of the present invention;

Fig. 2 is a vertical section on line 2—2 in Fig. 1;

Fig. 3 is a sectional detail view, on line 3—3 in Fig. 1, showing one of the lights which are arranged below the playing surface or diamond of the apparatus to indicate the movement of a player around the diamond;

Fig. 4 is a top plan view, on line 4—4 in Fig. 2, showing the ball-actuated relays which control the circuit to the electric lights which are arranged around and below the diamond;

Fig. 5 is an end elevational view, on line 5—5

in Fig. 4, showing the switches by means of which the circuit to the lights is opened;

Fig. 6 is a vertical sectional view on line 6—6 in Fig. 5;

Fig. 7 is a vertical sectional view on line 7—7 in Fig. 6;

Fig. 8 is a vertical sectional view on line 8—8 in Fig. 6;

Fig. 9 is a sectional detail view of one of the relays, on line 9—9 on Fig. 6;

Fig. 10 is an elevational view of the circuit-closing device for the score-tallying unit which is embodied in the present invention;

Fig. 11 is a vertical sectional view, on line 11—11 in Fig. 10;

Fig. 12 is a sectional view, on line 12—12 in Fig. 11, showing the resetting device for the score-indicating or tallying unit which is shown in Figs. 10 and 11;

Fig. 13 is a sectional view on line 13—13 in Fig. 11;

Fig. 14 is a schematic wiring diagram of the electrical circuit embodied in the present invention; and

Fig. 15 is a detail sectional view of a coin-controlled switch embodied in the present apparatus, and taken on line 15—15 in Fig. 2.

Construction

A preferred form of the present invention is shown in the drawings, is therein generally indicated at 15, and comprises a cabinet 16 which includes an inclined playing board 17, having ball exit scoring openings or pockets 18 provided therein.

Arranged upon the inclined playing board 17, at an edge thereof, is a ball runway or ramp 19 and slidably mounted in the lower end wall 20 of the cabinet 16 is a ball-propelling device or plunger 21 by means of which balls may be propelled, one at a time, up the ramp 19 onto the upper portion of the inclined playing board 17 so that they may gravitate thereover and enter into the ball exit openings or pockets 18.

Defined upon the upper or playing surface of the inclined playing board 17, by means of rails 22, is a playing field 23 which is shown as having the form of a baseball diamond, and provided in the inclined playing board 17 at the four corners or base positions of the diamond 23 are openings 24 (Fig. 2). Arranged upon the inclined playing board 17, above each of the openings 24 is a transparent plate 25, and mounted in the cabinet 16 below each of the openings 24 and transparent plates 25 is a small electric light 26 (Fig. 2); these

lights 26 being generally referred to as lights 26 and being specifically identified as lights 26A, 26B, 26C, and 26D, which represent, respectively, home base, first base, second base and third base positions (Fig. 14).

5 Provided in the inclined playing board 17, between each of the base positions represented by the lights 26A, 26B, 26C, and 26D, are openings 27 (Figs. 1 and 3) and arranged upon the inclined playing board 17, above each of the openings 27, is a transparent lens 29; and mounted in the cabinet 16 below each of the openings 27 is a small electric light 28, these lights 28 being generally referred to hereinafter as the lights 28 and being specifically identified as the lights 28A and 28B, which are arranged between home base position (light 26A) and first base position (light 26B); lights 28C and 28D, which are arranged between first base position (light 26B) and second base position (light 26C); lights 28E and 28F, which are arranged between second base position (light 26C) and third base position (light 26D), and lights 28G and 28H, which are arranged between third base position (light 26D) and home base position (light 26A) (Fig. 14).

25 Provided in the cabinet 16 below the inclined playing board 17 and each having communication with a preselected and predetermined number of the ball exit openings or pockets 18 are inclined ball return runways 30 (Fig. 2); these runways 30 communicating at their lower ends with a transverse runway 31, by means of which balls may be returned to a point adjacent the propelling device or plunger 21 and the elevating means (not shown).

35 Arranged in each of the ball return runways 30 is a relay-actuating switch 32 and arranged in each of the ball return runways 30, but at a point or points therein below the corresponding relay-actuating switch 32 are one or more switches 33 (Fig. 14).

40 The relay-actuating switches 32 are arranged in an electric circuit which is generally indicated at 34 (Fig. 14) and this circuit includes a group of relays 35, 36, 37, and 38 (Fig. 14). Each of these relays 35, 36, 37, and 38 includes an electromagnet 90, stationary contacts 52—91—95, and 93, respectively, and each of the relays 35, 36, 37, and 38 includes a movable contact 53, which is engageable with the corresponding stationary contacts 52—91—95, and 93.

50 The relatively stationary contacts 52—91—95, and 93 of the relays 35, 36, 37, and 38 are electrically connected by means of conductors 54B, 54A, 54D, and 54C, respectively, to contact arms 39B, 39A, 39D, and 39C, respectively, and these contact arms 39B, 39A, 39D, and 39C are mounted upon a rotatable horizontal shaft 40 (Fig. 4), which is arranged in the cabinet 16 below the inclined playing board 17. Associated with and engageable successively by each of the contact arms 39A to 39D inclusive is a bank or group of radially arranged stationary contacts 41A to 41L inclusive (Fig. 14).

65 The switches 33 are arranged in an auxiliary circuit, generally indicated at 42 (Fig. 14), and this auxiliary circuit 42 includes a current source 100 and an electromagnet 43. Associated with this electromagnet 43 is a pivotal member 44 (Figs. 7 and 14) and pivotally mounted upon the upper end portion of this member 44, as at 45, is a pawl 46, and this pawl 46 is engageable with a ratchet 47 which is mounted upon the horizontal shaft 40 (Fig. 7).

75 The upper end portion of the member 44 pro-

jects between a pair of guide rollers 48 which are carried by a piston rod 49 which is attached to a piston 92 and the latter is slidably mounted in a cylinder 50, this piston rod 49, piston 92 and cylinder 50 forming a dash pot or timing device for timing or controlling the operative movement or stroke of the member 44 and the pawl 46 carried thereby under the action of the resetting spring 51, this resetting spring 51 being attached to the upper end portion of the pivotal member 44 (Figs. 5 and 7).

The contact 41A is electrically connected, in the circuit 34, with one side of the relay-actuating switches 32, by means of a conductor 83 (Fig. 14), and the contact 41B is electrically connected, by means of a conductor 55A, with the light 28A which is arranged adjacent home position (light 26A) and between the latter and first base position (light 26B).

Contact 41C is electrically connected, by means of a conductor 55B, with light 28B which is arranged adjacent first base position (light 26B) and between the latter and light 28A, and contact 41D is electrically connected, by means of a conductor 51A, with light 26B which represents first base position.

The other contacts 41 are similarly connected; contact 41E being electrically connected, by means of a conductor 55C, with the light 28C which is arranged adjacent to first base position (light 26B) and between the latter and second base position (light 26C); contact 41F is electrically connected, by means of a conductor 55D, with light 28D which is arranged adjacent to second base position (light 26C) and between the latter and light 28C; and contact 41G is electrically connected, by means of a conductor 51B, with the light 26C which represents second base position.

Contact 41H is electrically connected, by means of a conductor 55E, with the light 28E which is arranged adjacent to second base position (light 26C) and between the latter and light 28F, and light 28F is electrically connected with contact 41 "I" by means of a conductor 55F.

Light 26D, which represents third base position, is electrically connected, by means of a conductor 57C, with contact 41J and contact 41K is electrically connected with light 28G by means of a conductor 55G, light 28G being arranged adjacent to light 26D (which represents third base position), and between the latter and home base position (light 26A).

Light 28H, which is arranged adjacent to home base position (light 26A), and between the latter and light 28G, is electrically connected, by means of a conductor 57D, with contact 41L, and this conductor 57D also connects with conductor 101 to light 26A, which represents home base position, and joins the same in parallel with light 28H.

When a played ball, upon passing through one of the ball exit openings or pockets 18 enters the corresponding ball return runway 30 it engages and closes the corresponding one of the switches 32, thereby closing the relay 35, and as the played ball travels further down the runway 30 it engages and closes one or more of the switches 33, thereby closing the circuit 42 to the electromagnet 43 (Figs. 7 and 14), a corresponding number of times, and when the electromagnet 43 is thus actuated it attracts the pivotal member 44 and the pawl 46 carried thereby to pivot the same (counterclockwise, Fig. 7). This motion of the pawl 46 causes the same to engage the ratchet 47 and move the latter and the shaft 40 a predetermined circumferential distance (counterclock-

wise, Fig. 7) thereby moving the contact arms 39A to 39 inclusive successively into engagement with a predetermined number of the contacts 41, as will be explained more fully hereinafter.

5 Leading from the light 26A, which represents home base position (Fig. 14), is a conductor 58 which is arranged in an auxiliary circuit 59, and this circuit 59 includes an electromagnet 60, (Figs. 2 and 10 to 14 inclusive). Associated with
10 the electromagnet 60 is a pivotal member 61 and pivotally connected to this member 61, as at 62, is a pawl 63. This pawl 63 is engageable with a ratchet 64 which is arranged upon a horizontal shaft 65, and carried by this shaft 65 is a contact
15 arm 66 which is successively engageable with a series of radially arranged stationary contacts 67. A coil spring 81 (Figs. 11 and 13) is wound about the shaft 65 and has one end portion attached thereto.

20 Associated with each of the stationary contacts 67 is a small electric score-tally light 68 (Fig. 14), the contacts 67 and the tally lights 68 being electrically connected, by means of conductors 69, (Fig. 14) and the lights 68 being,
25 preferably, arranged in a bank or row at the upper end of the cabinet 16 (Fig. 1) so as to be visible to the player from a point above the playing surface 17 of the same.

Attached to the shaft 40 at one end thereof is
30 an arm 70, (Figs. 4, 5, and 14) and the end portions 71 of this arm 70 are successively engageable with the angled end portions 72 of resilient contact members 73, each of these contact members 73 being engageable with a corresponding
35 contact 74. Each pair of these contacts 73 and 74 forms a switch 75 and these switches 75 are specifically identified and referred to herein as switches 75A, 75B, 75C, and 75D (Fig. 5).

The relatively stationary contacts 74 of the switches 75 are electrically connected, by means
40 of a conductor 86 (Fig. 14), and the resilient contact 75 of the switch 75A is electrically connected, by means of a conductor 85, to one side of the electromagnet 90 of the relay 35. Similarly, the
45 resilient contact 73 of the switch 75B is electrically connected, by means of a conductor 106, with one side of the electromagnet of the relay 36, and the contact 74 of the switch 75B is likewise electrically connected, by means of a con-
50 ductor 92, with one side of a current source 87, which may be a battery of dry cells, or the like, arranged in the cabinet 16.

In a similar manner, the resilient contact 73 of the switch 75C is electrically connected, by
55 means of a conductor 96, with one side of the electromagnet of the relay 37, and the resilient contact of the switch 75D is electrically connected, by means of a conductor 94, with one side of the electromagnet of the relay 38.

60 Mounted on a horizontal shaft 79 which is arranged in the cabinet 16 below the inclined playing board 17 is an upwardly extending arm 76 (Figs. 2, 10, and 12) and the upper end portion of this arm 76 is engageable with an arm
65 77 which depends from the coin slide 78 (Fig. 2), and likewise mounted on the shaft 79 is a latch dog 80 which is engageable with the teeth of the ratchet 64 (Fig. 12).

One side of the current source, or battery, 87
70 is electrically connected, by means of a conductor 97, to one side of each of the score-tally lights 68 (Fig. 14) and the battery 87 is also electrically connected, by means of a conductor 98, with the contact arm 66; it being noted that one side of
75 the electromagnet 60 is electrically connected, by

means of a conductor 99, to the conductor 97 which leads from the battery 87 and the other side of the electromagnet 60 is electrically connected, by means of a conductor 58, to the light 26A which represents home base position. The
5 score-tally lights 68 are electrically connected, by means of conductors 69, with the contacts 67 (Fig. 14); it being noted that the lights 26 and 28 are electrically connected to a common ground
10 104 (Fig. 14) which, in turn, is electrically connected to the conductor 97 by means of a conductor 105.

It is also noted that the conductor 84 is electrically connected to the source of energy 87 by means of a conductor 88 and 98.
15

Operation

The operation of the present apparatus will now be described as applied, in the preferred embodiment of the invention shown, to a base-
20 ball game, although it is to be understood that the present invention is not limited to use as a baseball game but may be used in conjunction with other types of coin-controlled or non-coin-controlled amusement games such, for example,
25 as football games, basketball games, and the like.

In the following example, the operation of the present game apparatus will be described with reference to the parts as the same are positioned in Fig. 14, and the first operation which
30 will be described in the following example, will be the scoring of a one base hit, thereby moving a player from home base position to first base position, that is, illuminating the light 26B which represents first base position; the illustrative example of the operation of the apparatus when, with a player at first base, that is,
35 with the light 26B illuminated, the player makes a three base hit.

Accordingly, assuming that the parts are positioned as in Fig. 14, and that the player succeeds in scoring a ball into one of the ball exit openings or pockets 18 and corresponding runways which have the scoring value of a one base hit.
45

In this event, the thus played ball will travel down the corresponding runway 30 and will engage and close the corresponding relay switch 32, thereby closing the circuit 34 to the relay
50 35, whereupon current will flow through the relay 35 as follows:

From the battery or current source 87, through the conductor 92 (Fig. 14) to the conductor 86, through the switch 75A, through the conductor 85 to one side of the electromagnet 90 of the relay 35, thence from the opposite side of the
55 coil 90 of the relay 35 into the conductor 54B which is connected to the contact arm 39B (Figs. 6, 8, and 14), the contact arm 39B being at this time disposed in engagement with the contact 41A, thence, by way of the conductor 83 to one side of the corresponding actuated switch 32, and from the opposite side of the actuated switch 32 back to the current source or battery 87 by way of the conductors 82, 84, 88, and 98, thereby actuating the relay 35 and causing the movable
60 contact 53 thereof to be attracted into engagement with the corresponding stationary contact 52 of the same; it being noted that the particular one of the relays 35, 36, 37, and 38 which will
70 be actuated by the action of a ball traveling down one of the runways 30 over the corresponding switch 32 therein is determined by the relative positions of the contact arms 39A to 39D inclusive; and that the relay which is thus ac-
75

tuated by the action of a ball passing over one of the switches 32 is the relay which is at this time electrically connected with the contact 41A by means of the corresponding conductor 54A, 54B, 54C, or 54D and the corresponding contact arm 39A, 39B, 39C, or 39D.

As the played ball travels further down the runway 30, it will engage and close one of the switches 33 (Fig. 14), (it being noted that the particular runway 30 which is referred to in the present example has only one of the switches 33 disposed therein and corresponds to a one base hit), thereby closing the auxiliary circuit 42 to the electromagnet 43, whereupon current will flow from the battery or current source 100, by way of the conductor 103, to one side of the electromagnet 43, thereby actuating the latter, and thence through the electromagnet 43 and conductors 102, switches 33 and 101 back to the other side of the current source or battery 100.

When the electromagnet 43 is thus actuated it attracts the pivotal member 44 (Fig. 7), thereby pivoting the member 44 and the pawl 46 (clockwise, Fig. 7), thus tensioning the spring 51, and when the played ball passes over the actuated switch 33 and the auxiliary circuit 42 to the electromagnet 43 is opened, the tensioned spring 51 will act upon the member 44 to pivot the latter and the pawl 46 carried thereby (counterclockwise, Fig. 7). This movement of the pawl 46 rotates the ratchet 47, the shaft 40, and the contact arms 39A to 39D inclusive, which are carried by the shaft 40, a predetermined circumferential distance (counterclockwise, Fig. 14), this circumferential movement of the contact arms 39A, to 39D inclusive being equal to the circumferential distance between the contact 41A and the contact 41D (Fig. 14).

When the contact arms 39A to 39D inclusive are thus rotated a circumferential distance corresponding to the distance between the contacts 41A and 41D (Fig. 14), the contact arm 39B moves out of engagement with the contact 41A and successively into engagement with the contacts 41B, 41C, and 41D and, in the present example, comes to rest or stops in engagement with the contact 41D.

When the contact arm 39B engages the contact 41B circuit is closed to the light 28A which is arranged adjacent to home base position (light 26A), and between the latter and first base position (light 26B), it being understood that at this time the relay 35 is closed, whereupon current will flow as follows: From the battery 87, through the conductors 98 and 88, into the movable contact 53 of the relay 35, which contact 53 is at this time disposed in engagement with the contact 52 of the relay 35, thence through the conductor 54B to the contact arm 39B, through the latter and contact 41B and conductor 55A to the one side of the light 28A, the other side of the light 28A, being electrically connected, by means of the conductors 104, 105, and 97 (Fig. 14) to the other side of the battery 87.

When the light 28A is thus illuminated it indicates or represents that a player is moving from home base position, (light 26A) toward first base position (light 26B), and when the contact arm 39B during this movement, continues to move (counterclockwise, Fig. 14, from the position in which it is shown in Fig. 14, in engagement with the contact 41A to a position wherein it is disposed in engagement with the contact 41D) engages the contact 41C, the light 28B is illuminated, this light 28B being arranged adjacent to

first base position (light 26B) and between the latter and the light 28A; whereupon current will flow through the light 28B as follows: From the battery 87, through the conductors 98 and 88 into the movable contact 53 of the relay 35, which contact 53 is, at this time, disposed in engagement with the contact 52 of the relay 35, thence through the conductor 54B, through the latter into the contact arm 39B, through the contact 41C and conductor 55B to one side of the lamp 28B; and thence through the lamp 28B and by way of the conductors 104, 105, and 97 back to the other side of the battery 87, thereby illuminating the lamp 28B and indicating the progressive movement of the player from home base position (lamp 26A) to first base position (lamp 26B).

At the end of its movement, in this present example, that is, when the contact arm 39B moves from its position as shown in Fig. 14, wherein it is disposed in engagement with the contact 41A, to a position wherein it is disposed in engagement with the contact 41D, the lamp 26B, which indicates or represents first base position, is closed, so as to indicate that the player has made a one base hit and has traveled from home base position (light 26A) to first base position (light 26B), and at this time, that is, when the contact arm 39B is disposed in engagement with the contact 41D, current will flow through the lamp 26B (which represents first base position) as follows: From the battery 87 by way of the conductors 98 and 88 into the movable contact 53 of the relay 35, which contact 53 is at this time disposed in engagement with the corresponding contact 52, thence through the conductor 54B to the contact arm 39B, through the latter and thence through the contact 41D and conductor 57A to one side of the lamp 26B (which represents first base position), then through the lamp 26B and by way of the conductors 104, 105, and 97 back to the other side of the battery 87, thereby illuminating the lamp 26B and thus indicating that the player has made a one base hit and has moved from home base position (lamp 26A) to first base position (lamp 26B).

The lamp 26B, which represents first base position, and which has been thus illuminated, will remain lit, so as to indicate that a player is disposed on first base, until the player of the present game apparatus plays another ball into one of the ball exit scoring openings or pockets 18 in the inclined playing board 17; and, for the purpose of better and further illustrating the operation of the present game apparatus, it will now be assumed, that the player makes a three base hit and advances the player who is disposed at first base (as indicated by the illumination of the lamp 26B) to home base position, which will be indicated by the illumination of the lamp 26A, and illuminates lamp 26D which represents third base position, it being understood that to effect a three base hit a ball must be played through one of the ball exit openings 18 which are provided in the inclined playing board 17 into one of the runways 30 in which there are arranged not only one of the relay switches 32 but also three of the switches 33 (Fig. 14).

Assuming, therefore, that the parts are positioned as hereinbefore described, that is, assuming that the player has made a one base hit and that the relay 35 is closed, that the contact 39B is disposed in engagement with the contact 41D, thereby illuminating the light 26B which represents first base position, and that the contact 39A

is disposed in engagement with the contact 41A,— and that the player then succeeds in playing a ball into the ball exit opening 18 which represents or has the scoring value of a three base hit.

5 The ball thus played into a ball exit opening 18 which represents a three base hit will, upon dropping through the latter and into the corresponding runway 30, travel down the runway 30 and engage and close the corresponding relay switch 10 32, thereby closing circuit to relay 36, it being understood that at this time the contact arm 39A is disposed in engagement with the contact 41A, rather than being disposed in the position in which it is shown in Fig. 14, whereupon current 15 will then flow from the battery 87, through the conductors 92, through the switch 75B, and thence through conductor 106 and relay 36, thereby actuating the latter, thence through the conductor 54A and contact arm 39A to contact 20 41A, through the latter and conductor 83 to the corresponding relay actuating switch 32, and thence by way of the conductors 82, 84, and 88 and 98 back to the other side of the battery 87.

Accordingly, when the played ball, upon travel- 25 ing further down the runway 30, passes successively over and closes the three switches 33 therein (it being recalled that the player in the present example is considered as having made a three base hit), it closes the circuit 42 and actuates the electromagnet 43 (Fig. 14) three suc- 30 cessive times. Each time the electromagnet 43 is thus actuated the ratchet 47, shaft 40 and contact arms 39A to 39D inclusive will be moved, as explained hereinbefore, a predetermined circumferential distance (counterclockwise, Fig. 14), this 35 distance corresponding to the circumferential distance between three adjacent contacts 41 that is, for example, between the contacts 41A and 41D, as hereinbefore explained, and this move- 40 ment of the contact arms 39A to 39D inclusive (counterclockwise, Fig. 14) will move the contact arm 39B which, in the foregoing example, is at this time disposed in engagement with the contact 41D, successively into engagement with the con- 45 tacts 41E, 41F, 41G, 41H, 41I, 41J, 41K, and 41L, thereby successively illuminating the lights 28C, 28D, 26C, 28E, 28F, 26D, 28G, 28H, and 26A, respectively, and thus indicating that the player who was originally disposed at first base (as indi- 50 cated by the illumination of the lamp 26B) has moved around the diamond 23 and has crossed home base, as indicated by the illumination of the lamp 26A.

As the player disposed on first base starts to 55 advance around the diamond 23, when the next succeeding player makes a three base hit, that is, when the contact arm 39B, in the present example moves out of engagement with the contact 41D and successively into engagement with the con- 60 tacts 41E, 41F, 41G, 41H, 41I, 41J, 41K, and 41L, the lamps 28C, 28D, 26C, 28E, 28F, 28G, and 28H will be successively illuminated, respectively as follows: (For the lamp 28C): From the battery 87, through the conductors 98 and 88, contacts 53 and 52, of the relay 35, conductor 54B, contact 65 arm 39B, contact 41E, conductor 55C, lamp 28C and thence by way of conductors 104, 105, and 97 back to the battery 87; (For the lamp 28D): From the battery 87 through the conductors 98 and 88, contacts 53 and 52 of the relay 35, con- 70 ductor 54B, contact arm 39B, contact 41F, conductor 55D, light 28D, and thence by way of conductors 104, 105, and 97 back to the battery 87; (For the lamp 26C which represents second base 75 position): From the battery 87, through conduc-

tors 98 and 88, contacts 53 and 52 of the relay 35, conductor 54B, contact arm 39B, contact 41G, conductor 57B, lamp 26C, and thence by way of conductors 104, 105 and 97 back to the battery 87; (For the lamp 28E): From the battery 87, through 5 conductors 98 and 88, contacts 53 and 52 of the relay 35, conductor 54B, contact arm 39B, contact 41H, conductor 55E, lamp 28E, and thence by way of conductors 104, 105 and 97 back to the battery 87; (For the lamp 28F): From the 10 battery 87, through conductors 98 and 88, contacts 53 and 52 of relay 35, conductor 54B, contact arm 39B, contact 41 "I", conductor 55F, lamp 28F, and thence by way of conductors 104, 105, and 97 back to the battery 87; (For the 15 lamp 26D which represents third base position): From the battery 87, through conductors 98 and 88, contacts 53 and 52 of relay 35, conductor 54B, contact arm 39B, contact 41J, conductor 57C, lamp 26D, and thence by way of conductors 20 104, 105, and 97 back to the battery 87; (For the lamp 28G): From the battery 87, through conductors 98 and 88, contacts 53 and 52 of relay 35, conductor 54B, contact arm 39B, contact 41K, conductor 55G, lamp 28G, and thence by way of 25 conductors 104, 105, and 97 back to the battery 87; (For the lamp 28H): From the battery 87, through conductors 98 and 88, contacts 53 and 52 of relay 35, conductor 54B, contact arm 39B, contact 41L, conductor 57D, lamp 28H, and thence 30 by way of conductors 104, 105, and 97 back to the battery 87; and when the lamp 28H is thus illuminated the home base light 26A is also illuminated to indicate that the player who was originally disposed on first base has now crossed 35 home plate, it being noted that the lamp 26A, which represents home base position and the lamp 28H are connected in parallel by means of a conductor 107; current flowing from the conductor 57D, through the lamp 26A, by way of the 40 conductor 107, and thence by way of the conductors 104, 105 and 97 back to the battery 87.

When, in the foregoing example, the player makes a three base hit with a man on first base, that is, expressed in other terms, when the played 45 ball passes over three successive switches 33 and thereby moves the shaft 40 a predetermined circumferential distance (clockwise, Fig. 5), thereby moving the contact arm 39B out of engage- 50 ment with the contact 41D, and successively into engagement with the contacts 41E to 41L inclusive, and as the contact arm 39B moves out of engagement with the contact 41L into a position wherein it is disposed diametrically opposite 55 to the position in which it is shown in Fig. 14, one end portion 71 of the arm 70 (Figs. 5 and 14) engages the angled portion 72 of the contact 73 of the switch 75A and thereby moves the same out of engagement with the corresponding contact 74 60 of the switch 75A, thus opening the circuit 87—92—86—75A—85—35—52—53—88—98, thereby opening the circuit to the coil 90 of the relay 35, whereupon the tensioned spring 109 of the relay 35, will urge the movable contact 53 of the relay 35 (clockwise, Fig. 4), out of engagement with 65 the contact 52 of the relay 35, thereby opening the circuit to the diamond lights 26 and 28 and, at the same time, positioning the opposite end portion 39BB of the contact arm 39B in engagement with the contact 41A, and thus arranging 70 the parts in a position wherein the foregoing cycle of operations may be repeated.

When the lamp 26A, which represents home base position, is illuminated, as in the foregoing 75 example, thereby indicating that the player who

was originally on first base has crossed home plate and has scored a run, current will flow from the conductor 57D, by way of the conductors 107 and 58 to the electromagnet 60, and thence by way of the conductors 99 and 97 back to the battery 87, thus actuating the electromagnet 60.

When the electromagnet 60 is thus actuated, it attracts the member 61 (clockwise, Fig. 12), thereby tensioning the spring 108, and when the contact arm 39B passes out of engagement with the contact 41L, and thereby opens the circuit 97—92—75A—35—54B, 39B, 41L, 57D, 107, 58, 60, 98, 97 through the electromagnet 60, the tensioned spring 108 acts upon the member 61 to pivot the same and the pawl 63 carried thereby (counterclockwise, Fig. 12). This movement of the pawl 63 moves the ratchet 64, the shaft 65, and contact arm 66 carried thereby a predetermined circumferential distance (counterclockwise, Fig. 12, clockwise, Fig. 14), thereby moving the contact arm 66 into engagement with the contact 67A (Fig. 14), whereupon current will flow through the score tally lamp 68A, thereby illuminating the same and thus indicating that the player has made a run or score,—as follows: From the battery 87, through the conductor 98, contact arm 66, contact 67A, conductor 69, tally light 68A, and thence by way of conductor 97 back to the battery 87.

The foregoing movement of the ratchet 64 and shaft 65 (counterclockwise, Fig. 12, clockwise, Fig. 14), which moves the contact arm 66 into engagement with the contact 67A to illuminate the score tally light 68A, tensions the resetting spring 81; and the tally light 68A will remain illuminated to indicate that the player has made one run or score, until the coin slide 78 is again operated, whereupon the depending arm 77 of the coin slide 78 will engage the upper end portion of the arm 76 and move the same (clockwise, from full to dotted line position, Fig. 12), against the action of its resetting opening 110. This movement of the arm 76 (clockwise, from full to dotted line position, Fig. 12) moves the shaft 79 which is fixed to arm 76, and the latch dog 80 which is fixed to the shaft 79 (Fig. 12) a predetermined circumferential distance (clockwise, Fig. 12), thereby moving the latch dog 80 out of latching engagement with the ratchet 64, and thus raising the pawl 63 from full to dotted line position (Fig. 12) or, in which position the pawl 63 is disposed out of engagement with the ratchet 64, whereupon the tensioned resetting spring 81 will move the shaft 65 and the contact arm 66 carried thereby back into their initial positions (clockwise, Fig. 12), into the position in which they are shown in Fig. 12, thereby moving the contact arm 66 out of engagement with the contact 67A and thus opening the circuit 87—98—66—67A—69—68A—105—97 to the score tally light 68A.

When, in the foregoing example, the player makes a three base hit with a man on first base, that is, translated into the terms of the parts shown in Fig. 14, when a ball engages one of the relay switches 32 and closes the circuit 34 to the relay 36, and then upon passing further down the corresponding runway 30 engages and closes successively three of the switches 33, the circuit 42 to the electromagnet 43 is closed three successive times, thereby moving the ratchet 47, shaft 40, and contact arm 39A, a predetermined circumferential distance (counterclockwise, Fig. 14). This movement of the shaft 40 and the contact arm 39A carried thereby moves the contact arm 39A from a position wherein it is disposed in engage-

ment with the contact 41B into a position in which it is disposed in engagement with the contact 41J, thereby successively closing circuit to the lamps 28A, 28B, 26B, 28C, 28D, 26C, 28E, and 26D, and thus indicating that the batter has made a three base hit and is now disposed at third base,—circuit to the lamps 28A, 28B, 26B, 28C, 28D, 26C, 28E, and 26D being closed as follows: (For the lamp 28A): From the battery 87, through conductors 98 and 88, contacts 53 and 52 of the relay 36, conductor 54A, contact arm 39A, contact 41B, conductor 55A, lamp 28A, and thence by way of conductors 104, 105 and 97 back to the battery 87; (For the lamp 28B): From the battery 87, through conductors 98 and 88, contacts 53 and 52 of relay 36, conductor 54A, contact 39A, contact 41C, conductor 55B, lamp 28B, and thence by way of conductors 104, 105 and 97 back to the battery 87; (For the lamp 26B, which represents first base position): From the battery 87, through conductors 98 and 88, contacts 53 and 52 of relay 36, conductor 54A, contact arm 39A, contact 41D, conductor 57A, lamp 26B, and thence by way of conductors 104, 105 and 97 back to the battery 87; (For the lamp 28C): From the battery 87, through conductors 98 and 88, contacts 53 and 52 of relay 36, conductor 54A, contact arm 39A, contact 41E, conductor 55C, lamp 28C, and thence by way of conductors 104, 105 and 97 back to the battery 87; (For the lamp 28D): From the battery 87, through conductors 98 and 88, contacts 53 and 52 of relay 36, conductor 54A, contact arm 39A, contact 41F, conductor 55D, lamp 28D, and thence by way of conductors 104, 105, and 97 back to the battery 87; (For the lamp 26C, the illumination of which indicates that the player who has made a three base hit in this present example is passing second base position): From the battery 87, through conductors 98 and 88, contacts 53 and 52 of relay 36, conductor 54A, contact arm 39A, contact 41G, conductor 57B, lamp 26C, and thence by way of conductors 104, 105, and 97 back to the battery 87; (For the lamp 28E): From the battery 87, through the conductors 98 and 88, contacts 53 and 52 of relay 36, conductor 54A, contact arm 39A, contact 41H, conductor 55E, lamp 28E, and thence by way of conductors 104, 105, and 97 back to the battery 87; (For the lamp 28F): From the battery 87, through conductors 98 and 88, contacts 53 and 52 of relay 36, conductor 54A, contact arm 39A, contact 41I, conductor 55F, lamp 28F, and thence by way of the conductors 104, 105, and 97 back to the battery 87; (For the lamp 26D, the illumination of which indicates that the player who, in this present example, has made a three base hit has now arrived at third base): From the battery 87, through conductors 98 and 88, contacts 53 and 52 of relay 36, conductor 54A, contact arm 39A, contact 41J, conductor 57C, lamp 26D, and thence by way of conductors 104, 105, and 97 back to the battery 87,—thereby indicating that the player who, in this present example, has made a three base hit, is now disposed at third base position; it being noted that this lamp 26D, which represents third base position, will remain lit until the player again scores a ball into one of the ball exit or scoring openings 18 and thereby advances the contact arm 39A out of engagement with the contact 41J (counterclockwise, Fig. 14); or, until such time as the coin slide 78 is moved inwardly, whereupon the depending arm 77 of the coin slide 78 will disengage and open the coin-operated switch 89 (Figs. 2, 14, and 15) thereby moving all of the relays 35

to 38 inclusive back into their initial or ineffective positions.

It is to be noted, in connection with the operation of the present apparatus, as described in the foregoing example, that when the batter makes a three base hit with a man on first base, thereby moving the contact arm 39A successively into engagement with the contacts 41A to 41J inclusive, the lights 28A, 28B, 26B, 28C, 28D, 26C, 28E, 28F, and 26D are successively illuminated but that when the end portion 39DD of the contact arm 39D, following the contact arm 39A, (counterclockwise, Fig. 14) successively engages the contacts 41A to 41G inclusive the lights 28A, 28B, 26B, 28C, 28D, and 26 are not illuminated because of the fact that at this time the relay 37, which is associated with the movable contact arm 39D, is positioned with the movable contact 53 thereof disposed out of engagement with the stationary contact 95 of the same; and the same is true of the end portion 39CC of the contact arm 39C, which will not illuminate the lights 28A, 28B, and 26C, as it successively engages the contacts 41A, 41B, 41C, and 41D, since at this time the relay 38, which is associated with the contact arm 39C, is open, that is, the movable contact 53 thereof is disposed out of engagement with the stationary contact 93 of the same.

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

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

1. In a game apparatus, an arrangement of lights for representing the progress of the game, a first means for illuminating said lights in a predetermined order, a second means actuated by an instrumentality used in playing the game and operable to condition said first means to illuminate a particular group of said lights, and a third means also actuated by said instrumentality but subsequently to the actuation of said second means, for operating said first means to effect illumination of said particular group of lights for the purpose aforesaid.

2. A game apparatus including runways down which balls move, an arrangement of lights illuminable to simulate the progress of a game, a plurality of rotary sequence switches each provided with stationary contacts connected with selected lights and each having a movable contactor for said stationary contacts, together with a common driving means for said movable contactors, relay means for connecting said movable contactors in a power circuit to energize said lights, a first control switch means for actuating said relay means and arranged in said runways for operation by a ball therein, a second control switch means in said runways and also operable by said ball subsequently to the operation of said first control switch means for actuating said common driving means, release switch means operated by said common driving means intermittently to render said relay means momentarily inoperative, and manually operable switch means arranged in said power circuit for deener-

gizing said apparatus and restoring the same to an initial condition.

3. In game apparatus, a light system for simulating the progress of a game, a master sequence switch connected with said lights and operable to illuminate the same in a predetermined order, relay means operably controlled by an instrumentality used in playing the game apparatus for connecting said sequence switch variously with a source of power whereby certain lights may be energized and kept lighted in a certain order, control switch means also operated by said instrumentality for actuating said master switch, and release switch means operably controlled by said master switch for periodically rendering said relay means ineffective whereby said certain lights may be extinguished in a desired sequence.

4. In a game apparatus, the combination of: a cabinet including a member providing a ball playing surface provided with a ball exit opening or pocket; a plurality of electric lights in said cabinet, visible, when illuminated, from a point above said playing surface and arranged to represent a baseball diamond; a relay in the said cabinet; a ball return runway in the said cabinet below, and in communication with, the said ball exit opening or pocket; a switch in the said ball return runway closed by the action of a ball traveling therealong for actuating said relay; and means including a second switch arranged in the said runway closed by the action of a ball traveling therealong and coacting with the said relay when the latter is actuated for successively illuminating the said lights so as to represent the various progressive movements of a player from one base position to another upon the said diamond.

5. In a game apparatus, the combination of: a cabinet including a member providing a ball playing surface provided with a ball exit opening or pocket; a plurality of electric lights in the said cabinet, visible, when illuminated, from a point above said playing surface and arranged to represent a baseball diamond; a relay in the said cabinet; a ball return runway in the said cabinet below and in communication with the said ball exit opening or pocket; a switch in the said ball return runway closed by a ball traveling therealong for actuating said relay; and means including a series of switches arranged in the said ball return runway successively closed by a ball traveling therealong and coacting with the said relay when the latter is actuated for successively illuminating the said lights so as to represent the various progressive movements of a player from one base position to another upon the said diamond.

6. In a game apparatus, the combination of: a cabinet including a member providing a ball-playing surface provided with a ball-receiving pocket or exit opening; a plurality of electric lights in said cabinet, visible, when illuminated, from above said playing surface and arranged to represent the various positions of a ball or player in an amusement game; a ball return runway in the said cabinet having communication with said ball exit opening or pocket; a relay in the said cabinet; a switch arranged in the said ball return runway and closed by the action of a ball traveling therealong for actuating the said relay; and means including a second switch arranged in the said ball return runway and actuated by the action of a ball traveling therealong and coacting with the said relay when the latter is actuated for successively illuminating

the said lights so as to represent the various movements of a ball or player from one position to another in said amusement game.

7. In a game apparatus, the combination of:
 5 a cabinet including a member providing a ball-playing surface provided with a ball-receiving pocket or exit opening; a plurality of electric lights in said cabinet, visible, when illuminated, from above said playing surface and arranged
 10 to represent the various positions of a ball or player in an amusement game; a ball return runway in the said cabinet having a communication with said ball exit opening or pocket; a relay in the said cabinet; a switch arranged in
 15 the said ball return runway closed by the action of a ball traveling therealong for actuating said relay; and means including a series of switches arranged in the said ball return runway and successively actuated by the action of a ball travel-
 20 ing therealong and coacting with the said relay when the latter is actuated for successively illuminating said lights so as to represent the various movements of a ball or player from one position to another in said amusement game.

8. In a game apparatus, the combination of:
 25 a cabinet including a member providing a ball-playing surface provided with a ball-receiving pocket or exit opening; a plurality of electric lights in said cabinet, visible, when illuminated, from above said playing surface and arranged
 30 to represent the various positions of a ball or player in an amusement game; a ball return runway in the said cabinet having communication with said ball exit opening or pocket; a relay in the
 35 said cabinet; a switch arranged in the said ball return runway closed by the action of a ball traveling therealong for actuating said relay; and means including a second switch arranged in the said ball return runway and actuated by a
 40 ball traveling therealong and coacting with said relay when the latter is actuated for successively illuminating said lights so as to represent the various movements of a ball or player from one position to another in said amusement game.

9. In a game apparatus of the type having a play field on which a ball is played and ball run-
 45 ways down which a played ball may roll, a plurality of electric lights arranged so as to represent, when illuminated, various positions of a player in an amusement game, control means comprising: a relay, a first switch means for
 50 operating said relay and arranged in one of said runways for operation by a ball moving therein, a master switch operable in steps to illuminate said lights in a predetermined order, a second
 55 switch means arranged in said runway for operation by said ball after the same has actuated said first switch means to operate said master switch a predetermined number of steps, said
 60 master switch and relay coacting to successively effect illumination of said lights so as to represent the various movements of a player from one position to another.

10. Control apparatus in accordance with claim
 65 9 and further characterized by the provision of release switching means cooperable with said master switch for periodically effecting release of said relay from operated condition, whereby certain of said lights may be repeatedly and
 70 successively illuminated and darkened to duplicate certain simulated movements of another player.

11. In an amusement apparatus of the type including means for moving a ball over a sur-
 75 face provided with ball exits, and runways down

which balls pass from said exits, indicating means including an arrangement of lights to represent the progress of a game, a main switching means for illuminating said lights in a predetermined order and of a type which can be electrically con-
 5 ditioned for operation to illuminate a particular light upon a predetermined number of operations of said main switching means, relay means co-operable with said main switching means to con-
 10 dition the latter electrically as aforesaid, a first control means arranged in said runways for operation by a ball to operate said relay means for the purpose aforesaid, and other control means also arranged in said runways for operation by a
 15 ball after operation by said ball of said first control means to operate said main switching means, and means cooperable with said main switching means for periodically and momentarily disconnecting one of said relays from cooperative rela-
 20 tion with said main switching means.

12. In a game apparatus, an arrangement of lights for simulating the progress of a game, an electrically operable switch device for effecting illumination of said lights in a predetermined sequence, relay means cooperable with said switch
 25 device to condition the latter to illuminate a certain number of said lights when said switch device is operated, control means arranged in said apparatus for engagement and operation by an instrumentality used in playing the game to
 30 actuate said relay means for the purpose aforesaid, and other control means similarly arranged for actuation by said instrumentality but after said first-mentioned control means has been actuated, to operate said switch device, and means
 35 for automatically restoring said switch device and relay means to an initial condition with said lights extinguished after a particular one of the lights has been illuminated.

13. In a game apparatus, including an ar-
 40 rangement of lights simulating a baseball diamond and illuminable to represent the progress of the game, rotary switch means for illuminating said lights sequentially to represent the move-
 45 ment of base runners, and including a plurality of contactors each connected with relay means operable to connect the same with a source of power, said relays being provided with a locking circuit to hold the same in operated condition, said relays being initially operated by operation
 50 of said rotary switch, such that said contactors may be energized to illuminate certain base lights with which said energized contactors connect by said operation of the rotary switch, a first control switch means in said apparatus and operable by
 55 an instrumentality used in playing the game to operate corresponding relays for the purpose aforesaid, and a second control switch means also operable by said instrumentality but subsequently to the operation of said first control switch
 60 means, for operation of said rotary switch, and selectively operable switch means for effecting a restoration of said apparatus to an initial condition with said lights extinguished.

14. The device of claim 13 in which there is
 65 further provided releasing switch means connected with said locking circuit and cooperable with said rotary switch for effecting release of said relays to disconnect each of said contactors from operative condition in sequential order at
 70 certain intervals of operation of said rotary switch.

15. The device of claim 13 in which there is
 75 further provided releasing switch means con-

5 nected with said locking circuit relays and co-
operable with said rotary switch for effecting
release of said relays to deenergize each of said
contactors in sequential order upon a predeter-
mined number of operations of said rotary switch,
together with tally indicating means and tally

switch control mechanism therefor and actuated
by said rotary switch whenever the latter effects
illumination of a particular one of said lights
corresponding to home plate position.

PHILIP FISCHER.