May 10, 1932. D. EPSTEIN ET AL 1,857,629

AMUSEMENT DEVICE

Filed June 11, 1930 3 Sheets-Sheet 1

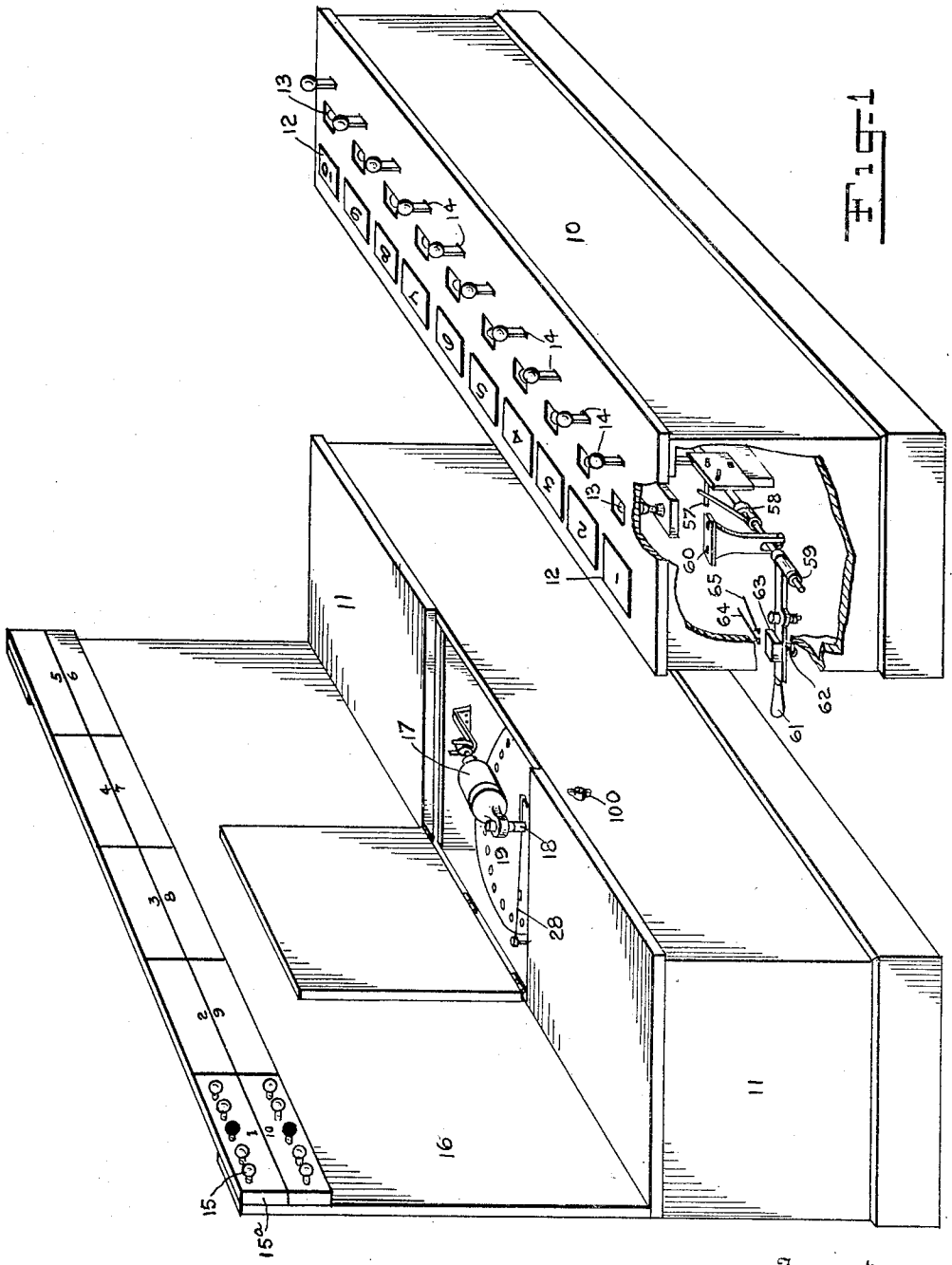


Fig. 1

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AMUSEMENT DEVICE

Filed June 11, 1930 3 Sheets-Sheet 2

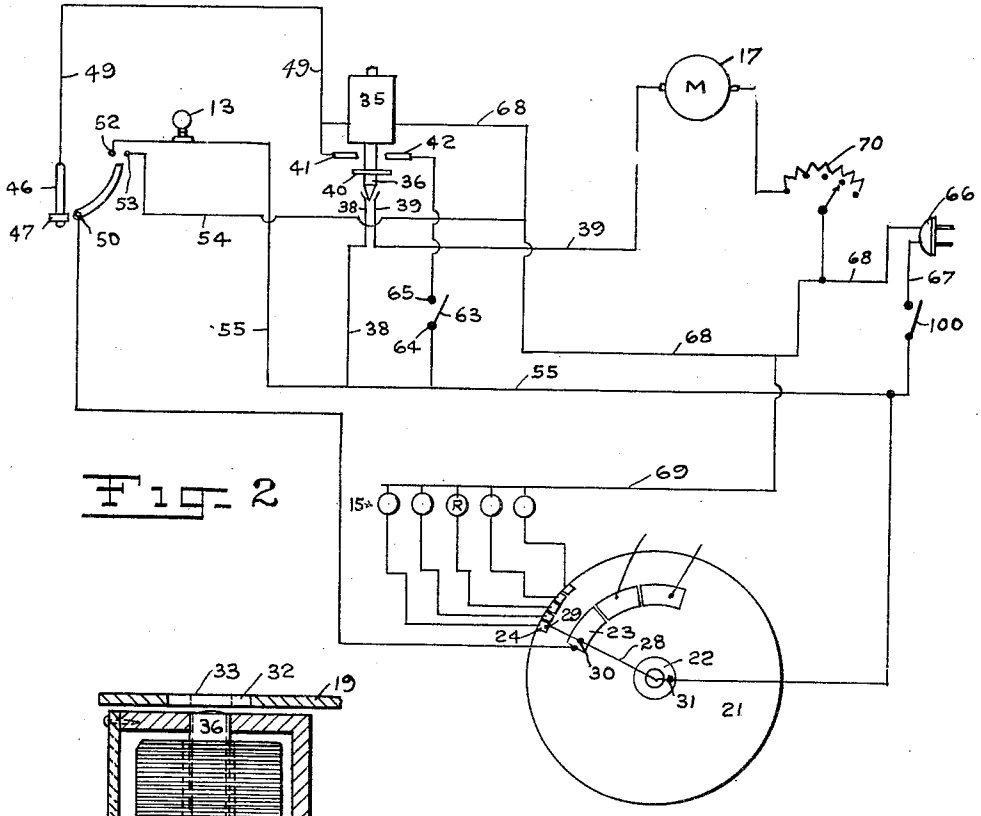


Fig. 2

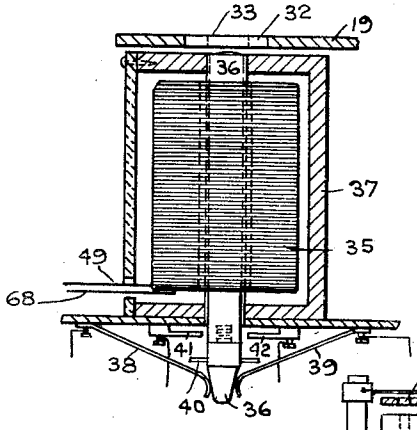


Fig. 4

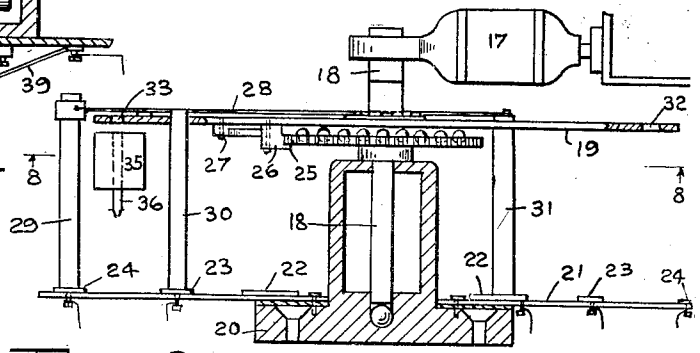


Fig. 3

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Filed June 11, 1930 3 Sheets-Sheet 3

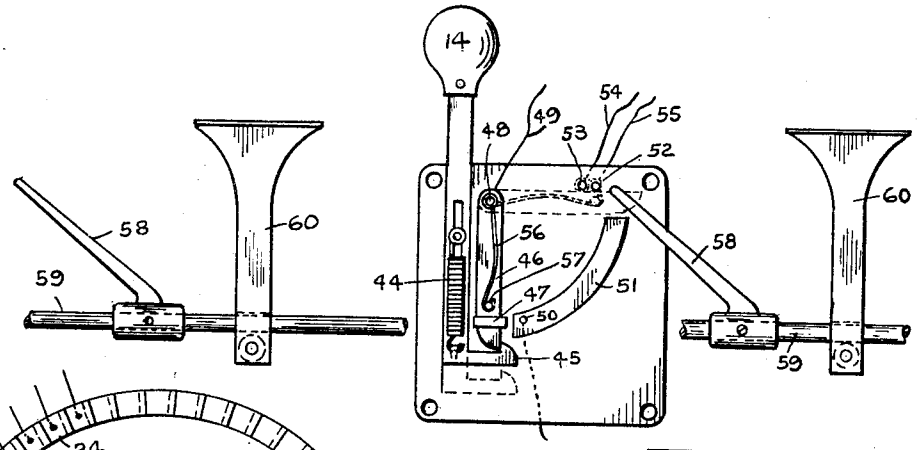


Fig. 5

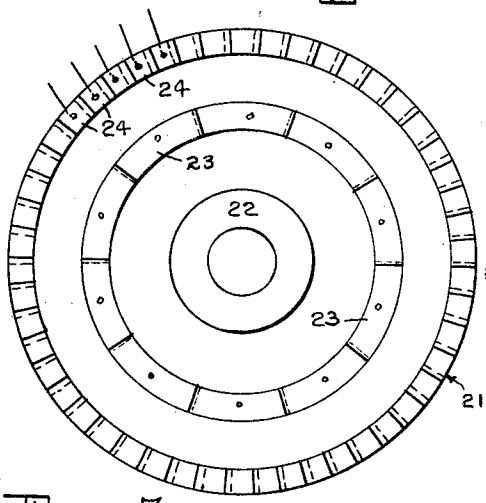


Fig. 7

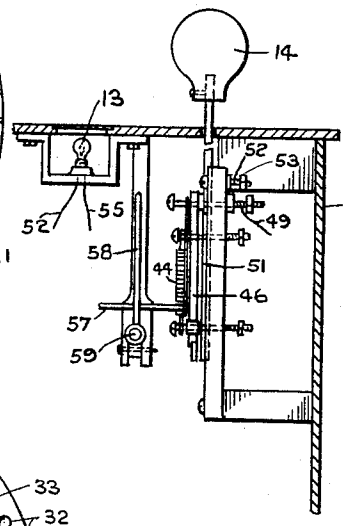


Fig. 6

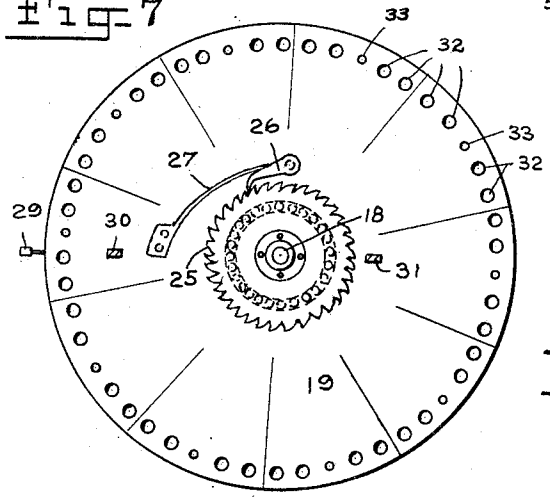


Fig. 8

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UNITED STATES PATENT OFFICE

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AMUSEMENT DEVICE

Application filed June 11, 1930. Serial No. 460,314.

The present improvements relate, in general, to amusement devices and more particularly to games of skill.

A primary object, among others of the improvements, is to provide a game wherein the players are called upon to synchronize the faculties of eyes and hands. A further object is to provide a device having a traveling target and a plurality of handles, whereby a group of players may test their skill at substantially the same time.

Another object is to provide a novel apparatus and combination of parts for affording substantially simultaneous play and without permitting one player to win for his neighbor. A still further object is to provide mechanism for accomplishing the foregoing and other objects, which may be set or released by an attendant and yet is not subject to unfair or favorable control for any one player.

Other objects include the provision of a novel disk arrangement, mechanical as well as electrical control means therefor, improved details of construction, novel elements and others as will be more apparent to those skilled in the art upon reference to the accompanying specification and drawings, in which—

Fig. 1 is a perspective of one embodiment of the amusement device, some parts being broken away;

Fig. 2 is a diagram of the electrical connections employed;

Fig. 3 is a side view of the stationary and rotary disks, some parts being in section;

Fig. 4 is a section, with some parts in elevation, illustrating a portion of the rotating disk and the stop mechanism;

Fig. 5 is a side elevation of a portion of the player's handle;

Fig. 6 is an end elevation of a portion of the counter shown in Fig. 1;

Fig. 7 is a diagrammatic plan of the stationary disk;

Fig. 8 is a bottom plan view of the rotary disk, taken on line 8—8 of Fig. 3.

Referring to the drawings, the counter 10 and cabinet 11 are positioned in spaced relation for providing room for an attendant or operator. The counter is equipped with individual pads or plates 12 numbered "1" to "10" having in alignment with each an indicator 13, which in the present embodiment, is an incandescent bulb, and a plunger 14. The elements 12 to 14 for each number constitute part of the player's equipment while the balance thereof includes the lights 15 disposed on a correspondingly numbered board 15^a mounted on wall 16 of the cabinet. Each board carries a number to correspond with that on plates 12 and is provided, in the present embodiment, with five lights, 15. The middle light of each group is preferably one color, such as red, while the remaining lights thereof are of another color, probably amber or white.

Disposed within cabinet 11 is a mechanism which may be observed by the player in front of counter 10, if desired, and this mechanism comprises a motor 17 which, through suitable connections, rotates shaft 18 which in turn causes disk or turn-table 19 to revolve. The object of the game is for the player to try his skill in arresting the rotation of the disk 19 at an appropriate time, as for example, when the light is on his board, as will hereinafter be more fully described.

As illustrated more particularly in Fig. 3, the shaft 18 is suitably journaled in member 20, which may be supported in any desired manner within the cabinet 11. A stationary disk or plate 21 is mounted in predetermined relation to shaft 18 and is preferably made of non-conducting material and is therefore insulated from the member 20 and other parts of the rotating mechanism.

The upper surface of the insulated plate 21 is provided with annular contact areas 22, 23 and 24. These contacts are spaced and therefore insulated from one another, as will be more clearly seen upon reference to Fig. 7. While the contact 22 comprises an annular ring, the contact 23 is made up of ten segments disposed to form a ring but insulated from one another, one of these segments being provided for each number on the counter. Opposite each such segment 23, the annular contact 24 is divided into smaller segments, namely, five each for the corresponding seg-

ment 23, all of these segments 24 being likewise insulated from one another and corresponding to the five lights 15 on each board 15a. Suitable wires lead from each of the contacts 22, 23 and 24.

Referring more particularly to Figs. 3 and 8, the shaft 18 is provided with a ratchet 25 which turns therewith and holds in its upper surface suitable bearings upon which rests the turn-table 19. The under surface of member 19 is provided with a pawl 26 which is held in engagement with the ratchet by spring 27 also mounted on the turn-table. Upon reference to Fig. 8, it will be seen that when the shaft 18 and ratchet 25 turn in a clockwise direction as seen from below, the disk 19 will rotate therewith, but if the shaft and ratchet stop rotating, the momentum of disk 19 may permit it to revolve a slight interval longer. The upper surface of turn-table 19 is provided with a wire or other suitable conductor 28 which carries depending contacts 29, 30 and 31, which are in the form of brushes which hang over or through disk 19 and respectively engage the contact areas 24, 23 and 22. Adjacent the periphery of turn-table 19 perforations 32 and 33 are provided. The holes 33 are flanked by a pair of holes 32, thus making ten groups comprising five holes each of which the central one 33 is the smaller. Each such group corresponds to similar groups of segments 24 and lights 15.

Means for arresting the travel of disk 19 is provided in the form of a solenoid 35 (Figs. 3 and 4) which is mounted slightly beneath member 19 with its armature 36 in alignment with the holes 32 and 33. The solenoid is suitably protected by a rigidly supported housing 37 having apertures in alignment with the armature whereby it may pass therethrough. In Fig. 4 the armature 36 is illustrated in normal position, that is, with the solenoid de-energized, in which position the lower end thereof makes contact with spring fingers 38 and 39. The armature is provided with a circuit maker and breaker 40 which is adapted to close the circuit across terminals 41 and 42. Attention is directed to the fact that the distance between circuit closer 40 and the terminals is greater than the distance between the upper end of armature 36 and the disk 19.

Referring now to the player's handle and associated parts shown in Figs. 1, 5 and 6, it is seen that the handle 14 is provided with a slot for permitting it to be depressed in the nature of a plunger. Spring means 44 is provided to return the handle to full line position. The lower portion of the handle is provided with a projecting latch 45 which normally holds the spring actuated arm 46 in vertical position. Adjacent the lower end of this arm a contact block 47 is provided. The arm itself is made of conducting material and is pivoted to revolve about terminal post 48 which carries wire 49. In line with the arc of travel of block 47, an insulated contact 50 is provided on arcuate member 51. Spaced terminals 52, 53, are provided as illustrated, for wires 54 and 55. It is thus seen that upon depression of handle 14, the arm 46 is released and travels from vertical full line position to horizontal dotted line position (Fig. 5) under the urge of spring 56. During this movement, block 47 momentarily engages contact 50 while at the end of the movement, the arm comes to rest in engagement with contacts 52 and 53, thereby closing same.

A stud 57 projects from arm 46 and is disposed in the path of arm 58 rigidly mounted on shaft 59 supported in hanger brackets 60. Accordingly, when the shaft 59 is in the full line position in Fig. 5, the arm 58 will be clear of stud 57. However, when the arm 46 and stud 57 are in the dotted line position, shaft 59 and arm 58 upon shifting movement to the left (Fig. 5), will engage the stud and return it to full line vertical position wherein arm 46 will snap into engagement with latch 45. The shaft 59 and arm 58 may be locked for holding arm 46 in vertical position, thereby preventing operation of the arm 46 upon unauthorized depression of handle 14. The attendant's lever 61 (Fig. 1) is operatively connected to shaft 59 for shifting the latter to the right or left. This handle is adapted to engage the latch 62 for holding the arm 58 locked against stud 57, as above described. A contact block 63 mounted on lever 61 is adapted to close the contacts for wires 64 and 65 when the lever 61 is moved in the direction of the arrow, namely, in a direction to unlock studs 57 and arms 46.

It is understood that the mechanism just described, Figs. 5 and 6, is duplicated along the counter 10 so that each individual handle 14 has a device of this character, all of which are under the control of the operator's lever 61.

The electrical connections between the mechanism so far described, will be readily understood upon reference to Fig. 2. In that figure, the plug 66 is adapted to be connected with a source of electric current, not shown. The line 67 having operator's line switch 100 leads to the annular contact 22 of the stationary disk 21, thence the line runs through brush 31, wire 28, brush 30 and contact 23 to contact 50 of the player's mechanism. Thence the line runs from switch 46 to the solenoid 35 and thence through line 68 to the main supply at plug 66.

The circuit for the lights 15 on boards 15a is seen to comprise line 67, switch 100, contacts 22, 28 and 24, lights 15, line 69, back to the source of supply. The circuit for the individual counter lights 13 comprises line 67, switch 100, line 55, contacts 52, 53 and

lines 54, 68. The circuit for the electric motor 17 comprises the line 68, rheostat 70, line 39, armature 36, line 38, switch 100, line 67 to the source of supply. Circuit closer 40 on armature 36 controls the line 41 passing through solenoid 35, line 68, plug 66, line 67, main switch 100, line 55, operator's lever switch 63 and thence to contact 42.

Accordingly, it will be understood, that each plate 12 numbered one to ten has the following equipment for each individual player, namely, a counter light 13, handle 14, switch mechanism Figs. 5 and 6, one segment 23, five segments 24, five lights 15, each of which is connected to one of the five segments. While there is preferably but one solenoid 35 for arresting the travel of disk 19, it is understool that each handle 14 and associated mechanism is connected with the solenoid in a manner similar to the illustration in Fig. 2, wherein for convenience the hook-up of only one handle 14 and light 13 is depicted.

Before operation, operator's lever 61 is latched in position so that the arms 58 on shaft 59 engages the studs 57 and thereby lock all switches 46 against release by handles 14. While the latter may be depressed, switches 46 cannot respond. The attendant closes switch 100 whereupon the motor circuit as well as the target light (15) circuit is closed. Motor 17 accordingly rotates disk 19 so that contacts 22, 23 and 24 are swept by their respective brushes. This rotation of the disk causes the lights 15 to successively flash as the brush 29 passes from one contact 24 to the next. During a 360° turn of disk 19 therefore, a light will travel along bulbs 15 across the entire ten boards 15^a.

Taking for example the board numbered "1", the five lights thereon will be successively lighted as brush 29 passes over the five segments 24 on stationary disk 21. During this interval, brush 30 is contacting the corresponding segment 23 which leads to the solenoid 35 and will energize same when switch 46 engages contact 50. Therefore, if handle 14 for number "1" is depressed and arm 46 released at a time when any one of the five lights on number "1" board are lighted, the solenoid will be energized. It is understood the brush 31 constantly engages endless contact 22. After the disk 19 has turned so that lights 15 on board number "2" are lighted, then the segment 23 for that number is connected with the solenoid which may be energized by depression of number "2" handle (14). The revolving disk likewise successively lights the bulbs 15 on all the boards and successively engages corresponding segments 23 therefor, thereby rendering each handle 14 successively playable.

When ready for play, any number of players up to ten, stand before the handles 14, one to each player, the disk 19 is rotating and a light is traveling around boards 15^a. The attendant releases the latched handle 61 thereby closing switch 63 and withdrawing locking arms 58 from studs 57 so that the player or players may operate their respective handles 14. As the traveling light passes over the board 1, the player may depress the handle before plate No. "1" on the counter which releases switch 46 which moves from full line to dotted line position (see Fig. 5). In describing this arc, contact 47 momentarily engages contact 50 thereby momentarily energizing the solenoid 35 causing its armature 36 to ascend towards revolving disk 19. If the upper end of the armature strikes the disk between the holes 32 and 33 therein, the disk obviously will continue rotating. Furthermore, since the energization of the solenoid is only momentary, it will be de-energized as soon as arm 46 passes beyond contact 50 with the result that armature 36 will drop back of its own weight to normal position as seen in Fig. 4. During this slight elevation of the armature, it is notable that the spring contact fingers 38 and 39 move upwardly a slight amount also so as to retain engagement with the lower portion of the armature and thereby keep the motor circuit closed during such times as the above action results. When the switch 46 reaches the dotted line position, that is the end of its travel, it engages contacts 52 and 53 thereby lighting indicator 13 on the counter opposite numbered "1". This indicates that the player at handle No. 1 has made his attempt and this bulb remains lighted until the arm 46 is returned to full line position in Fig. 5. Therefore, the player cannot assert that he has not taken a turn at the game and furthermore, no matter how often he depresses his handle no effect will be had on the solenoid.

Assuming that No. "1" player has failed to arrest the rotating disk, it is obvious that as the light travels over board No. 2 that the corresponding handle 14 may be depressed by the next player to try his skill at the game. Consequently as the light travels over all the boards each player in turn may make an attempt. There is no particular time at which the player's handles must be depressed except that results will only be attained when the traveling light is on his board. The light may make several complete rounds of the boards and if a player does not choose to make his play as the light travels over his board the first time, he may take it at any later time when the light travels thereover. However having once made his attempt he is through as far as that particular game or inning is concerned.

By exercising proper coordination of the faculties of the eye in watching the light on the board in conjunction with the appropriate depression of the handle 14, the circuit may be closed through contact 50 and switch 46 at an interval such as to energize solenoid

35 and raise armature 36 when one of the holes 32 or 33 is exactly in alignment with the armature. When such skill is exercised the armature passes through one of the holes in disk 19 and thereby stops the rotating disk. Such ascent of the armature causes the lower end thereof to be clear of spring fingers 38 and 39 (Fig. 4) thereby breaking the motor circuit so that the motor will cease operating. This provision obviously preserves the mechanism and prevents strain or stripping of the gears. Likewise, this elevation of the armature causes circuit closer 40 to engage contacts 41 and 42 which closes the solenoid maintaining circuit, thereby keeping it energized and holding the armature in elevated position through the hole in the disk 19. When a player has been successful in causing the foregoing result, the brush 29 rests on one of the segments 24 and therefore one of the lights 15 on his board corresponding to the segments 24 remains lighted. This player accordingly wins the game. To de-energize the solenoid and clear the counter handles for another game, and likewise start the motor and disk 19 for a subsequent game, the operator merely throws lever 61 thereby restoring all switches 46 to operative position and simultaneously breaking the solenoid maintaining circuit through lines 64 and 65 by withdrawing contact 63, whereupon the solenoid is de-energized and the armature drops from the hole in the disk 19 and is again restored to normal position, as shown in Fig. 4, where contact is again made through fingers 38 and 39. It is seen that the holes 32 in disk 19 are approximately twice as large as the diameter of armature 36 and therefore it is easier to pass the armature through same. When such action takes place, one of the white lights on the board is lighted. However, the holes 33 are of substantially the same diameter or slightly greater than that of the armature, so that should the latter go through one of these smaller holes, the red light on the board will be lighted. Obviously, it is more difficult to arrest disk 19 with the red lamp lighted than it is in the case of the white lights. For this and other reasons aforementioned, it is apparent that considerable skill must be exercised in the coordination of the faculties of the eye and hand so that the player's impulse to press the handle must be properly synchronized with the observations he is making of the traveling target.

When the operator has cleared the switches 46 for play, each handle 14 is "alive" so to speak, and is capable of carrying out one attempt to stop the turn-table 19. However when the handle 14 is depressed that particular handle is "dead" for any further play in the game. Should it happen that one or more players become unusually adept in stopping the disk, the attendant may change the speed of revolution thereof by appropriately actuating rheostat 70. This change in speed is accomplished between games so that the revolutions per minute of the turn-table will be the same during one entire game.

While the present improvements have been illustrated in connection with ten players' handles and light boards, it is obvious that devices with a smaller or greater number of these elements may be provided. Furthermore, it is not essential, in Fig. 4, that the armature itself engage the spring fingers 38 and 39, but the circuit closer 40 may serve the double purpose of closing these contacts as well as the contacts 41 and 42. A suitable key and key-way may be provided in the solenoid housing 37 and armature 36, respectively, to prevent rotation of the armature during its travel but without interfering with its ascent or descent. Since the member 40 may be an annular disk, such a provision will not always be necessary. At any time when it may be desirable to stop the entire mechanism, as for example, over night, the main line switch 100 may be opened for this purpose.

It is apparent that lights 15 serve as indicating means for each and all the players, while lights 13 are tell-tales as hereinbefore mentioned. Although the construction illustrated in Figs. 3 and 7 is preferable, obviously concentric tracks 22 and 23 may be disposed in closed proximity, so that a wider brush 30 may be employed for simultaneously engaging them both, thereby dispensing with brush 31. This refinement may be adopted so long as care is exercised in mounting the tracks so as to be insulated from each other.

While the disclosed embodiment illustrates but one form of the present improvements, it is obvious that various modifications thereof will be apparent to those skilled in the art and may be made without departing from the scope and purview of the invention.

We claim:

1. An electrically operated amusement device comprising a motor, a plurality of indicators, a motor circuit for said motor indicator circuits for said indicators, a plurality of means for influencing operation of said motor including a main switch, a player switch and an automatic maker and breaker for said motor circuit, and means operated by said motor for successively closing and opening said indicator circuits.

2. An electrically operated amuement device comprising a motor, a plurality of indicators, a motor circuit for said motor, indicator circuits for said indicators, means operated by said motor for successively controlling said indicator and motor circuits, mechanism for disabling said motor circuit, a circuit for said mechanism, and a player's switch in said last named circuit.

3. An electrically operated amusement device comprising a motor, a plurality of indi-

cators, a motor circuit for said motor, indicator circuits for said indicators, means associated with said indicator circuits and operated by said motor for successively controlling said indicator circuits, said means including a rotatable disk, mechanism for breaking said motor circuit and arresting rotation of said disk, a circuit for said mechanism, and a player's switch in said last named circuit.

4. An electrically operated amusement device comprising a motor, a plurality of indicators, a motor circuit for said motor, indicator circuits for said indicators, means operated by said motor for controlling said indicator circuits, said means including a rotatable disk, mechanism for breaking said motor circuit and for engaging said disk for arresting rotation thereof, a circuit for said mechanism, a main switch controlling all of said circuits, and a player's switch in said last named circuit.

5. An electrically operated amusement device comprising a motor, a plurality of indicators, a motor circuit for said motor, indicator circuits for said indicators, means associated with said indicator circuits and operated by said motor for successively controlling said indicator circuits, said means including a rotatable disk, mechanism for disabling said motor circuit and arresting rotation of said disk, primary and secondary circuits for said mechanism, a player's switch in said primary circuit, and an attendant's switch in said secondary circuit.

6. An electrically operated amusement device comprising a motor, a plurality of indicators, a motor circuit for said motor, indicator circuits for said indicators, means operated by said motor for controlling said indicator circuits, said means including a rotatable disk, mechanism for disabling said motor circuit and for engaging said disk for arresting rotation thereof, primary and secondary circuits for said mechanism, a player's switch in said primary circuit, an attendant's switch in said secondary circuit, and a main switch controlling all of said circuits.

7. An electrically operated amusement device comprising a motor, a plurality of indicators, a circuit for said motor, circuits for said indicators, means operated by said motor for controlling said indicator circuits, said means including a rotatable disk, mechanism for engaging said disk for arresting rotation thereof, a circuit for said mechanism, and a player's switch in said last named circuit.

8. An electrically operated amusement device comprising a motor, a plurality of indicators, a circuit for said motor, circuits for said indicators, means operated by said motor for successively controlling said indicator circuits, said means including a rotatable disk, mechanism for arresting rotation of said disk, primary and secondary circuits for said mechanism, a player's switch in said primary circuit and an attendant's switch in said secondary circuit.

9. An electrically operated amusement device comprising a motor, a plurality of indicators, a circuit for said motor, circuits for said indicators, means operated by said motor for controlling said indicator circuits, said means including a rotatable disk, mechanism for engaging said disk for arresting rotation thereof, primary and secondary circuits for said mechanism, said means cooperating to control said primary circuit, a player's switch in said primary circuit and an attendant's switch in said secondary circuit.

10. An electrically operated amusement device comprising a motor, a plurality of lights, a circuit for said motor, circuits for said lights, means operated by said motor for controlling said light circuits, energizable mechanism associated with said means for preventing operation thereof by said motor, a plurality of circuits for energizing said mechanism adapted for successive opening and closing by said means and players' switches for said last named circuits.

11. An electrically operated amusement device comprising a motor, a plurality of lights, a circuit for said motor, circuits for said lights, means operated by said motor for successively controlling said light circuits, energizable mechanism associated with said means for preventing operation thereof by said motor, a plurality of circuits for energizing said mechanism having contacts adapted for successive engagement by said means, players' switches for said last named circuits and a main switch for all the circuits.

12. An amusement device comprising a motor, a plurality of lights, circuits for said motor and lights, an energizable mechanism having a circuit, a plurality of contacts for said last named circuit, means operated by said motor for simultaneously closing a light circuit and engaging one of said contacts, and for successively closing said light circuits while successively engaging said contacts said energizable mechanism being positioned and arranged to render said motor operated means ineffective for such successive operation, and players' switches connected with each contact in said energizable mechanism circuit.

13. The improvements as set forth in claim 12, said energizable mechanism having a circuit maker and breaker controlling said motor circuit whereby closure of a player's switch may open said motor circuit.

14. The improvements as set forth in claim 12, said energizable mechanism having a circuit maker and breaker for said motor circuit, and a maintaining circuit for said energizable mechanism controlled by said maker and breaker whereby closure of a player's

switch may open said motor circuit and close said maintaining circuit.

15. The improvements as set forth in claim 12, said energizable mechanism having a circuit maker and breaker for said motor circuit, a maintaining circuit for said mechanism controlled by said maker and breaker and an attendant's switch in said maintaining circuit.

16. An amusement device comprising a rotatable disk, a motor for rotating same having electrical connections, a plurality of fixed contacts in proximity to said disk, a solenoid in proximity to said disk and having means for arresting rotation thereof, a plurality of indicator lights electrically connected to certain of said contacts, electrical connections between said solenoid and other of said contacts, switch means on said disk for engaging said contacts, a main switch controlling the light, solenoid and motor connections and a player's switch in a solenoid connection.

17. An amusement device comprising a rotatable disk, a motor for rotating same having electrical connections, a plurality of fixed contacts in proximity to said disk, a solenoid in proximity to said disk and having means for arresting rotation thereof, a plurality of indicator lights electrically connected to certain of said contacts, electrical connections between said solenoid and other of said contacts, switch means on said disk for engaging said contacts, means on a movable portion of said solenoid for opening and closing said motor connections, auxiliary electrical connections for said solenoid, said means also controlling said auxiliary connections, a manual switch for said auxiliary connections, a main switch controlling the light, solenoid and motor connections and a player's switch in a solenoid connection.

18. In an electrically operated amusement device, the combination with a motor, of a disk rotatable thereby, fixed annular contact-tracks associated with said disk, one of said tracks defining an endless contact, the remainder comprising spaced contact segments, said disk having spaced contact-elements engaging said contacts, annularly disposed apertures in said disk and a solenoid supported in alignment with said apertures.

19. In an electrically operated amusement device, a solenoid having a magnet, pairs of terminals in proximity to said magnet, one of said pairs electrically connected for energizing said solenoid, a circuit maker and breaker movable by said magnet adapted to engage said last named pair of terminals and normally engaging said other pair of terminals.

20. An electrically operated game of skill comprising a series of fixed contacts, indicator lights connected therewith, a movable member for successively engaging said contacts, a motor for moving said member, a second series of contacts, said movable member also successively engaging said last named contacts, an electrically operated mechanism positioned for arresting movement of said movable member, electrical connections between said mechanism and said second series of contacts and competitors switches in said connections.

21. An electrically operated game of skill comprising several series of spaced contacts, indicator lights connected with one series of contacts, a movable contactor for successively engaging the contacts of each series, a motor for operating said contactor, mechanism for engaging and arresting movement of said contactor, electrical connections between said mechanism and another of said series of contacts and a competitors switch for actuating said mechanism for stopping said contactor.

Witness our hands this 3d day of June, 1930, county of New York, city and State of New York.

DAVID EPSTEIN.
JAMES H. FOWLER.
CHARLES A. BOUFFIER.