

[54] BOARD GAME APPARATUS

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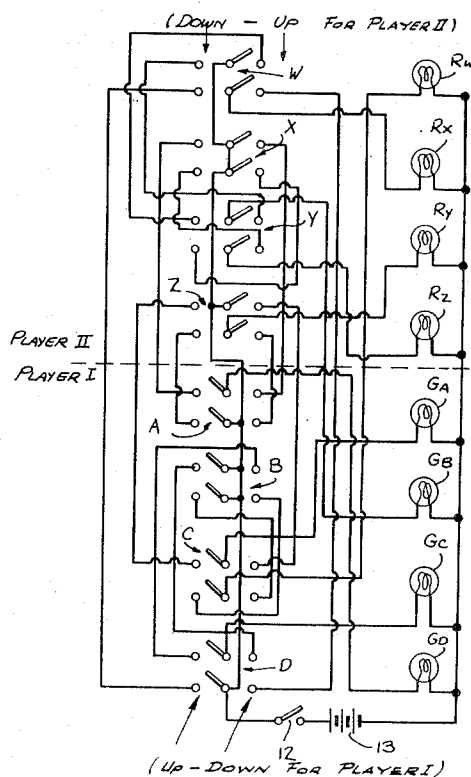
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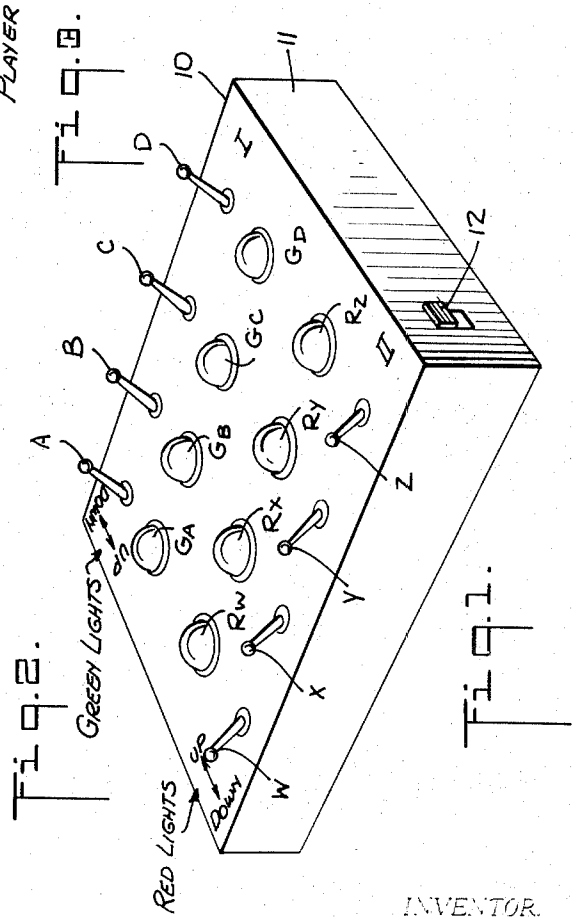
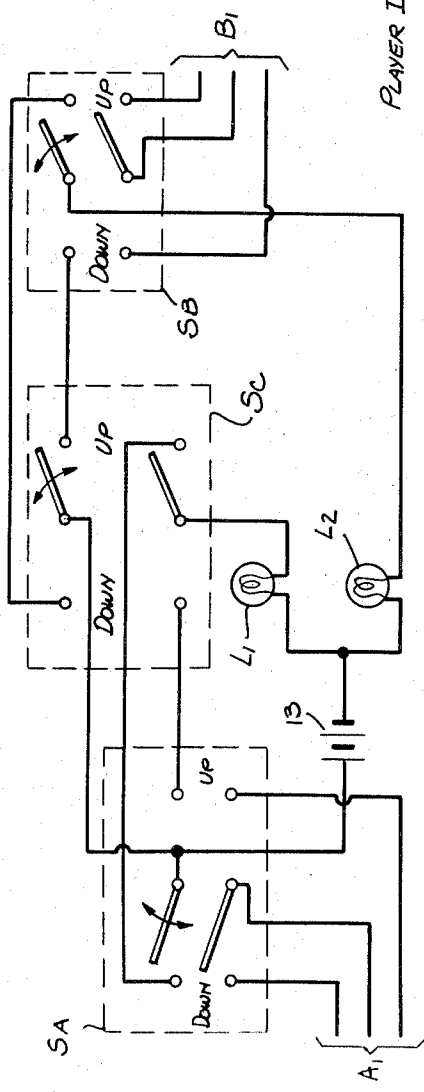
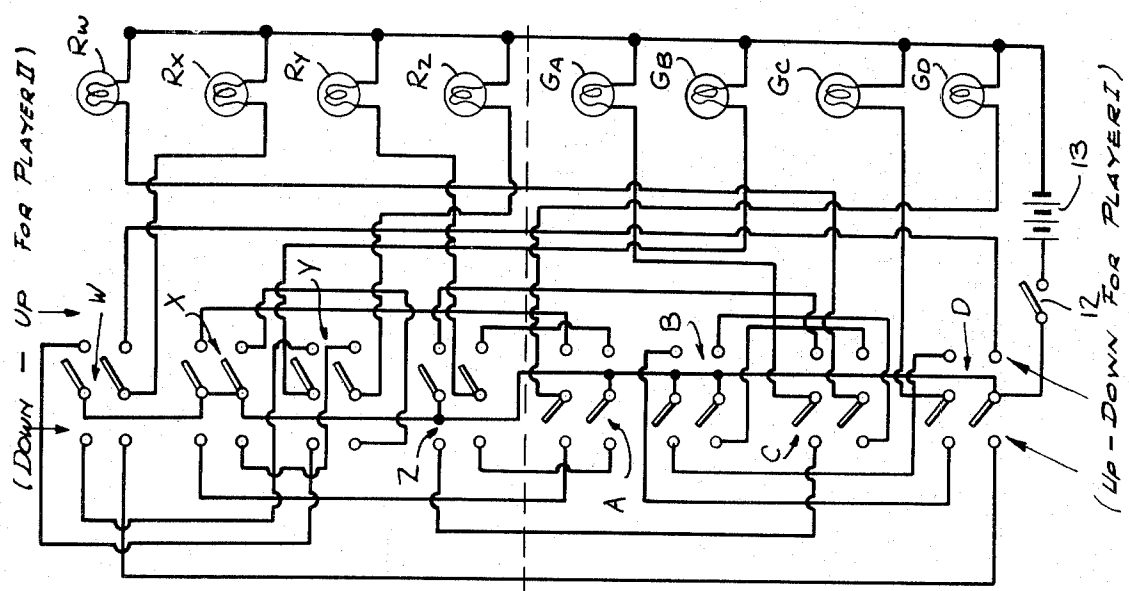
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ABSTRACT

An electrically-operated switching game wherein switches are manipulated by players to selectively activate light bulbs. Each player is provided with a like row of double-pole, double-throw switches and a series of light bulbs, the bulbs associated with the players on opposing sides differing in color. The switches and bulbs are so interconnected that each switching action, which may be either in the up or down direction, results in a change in the status of a pair of bulbs, one on each side, such that a previously lit bulb is turned off or vice versa. The outcome of the game is indicated by an unbroken series of lit bulbs on either side, or any other predetermined light pattern depending on the rules.

3 Claims, 3 Drawing Figures





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BOARD GAME APPARATUS

BACKGROUND OF THE INVENTION

This invention relates generally to electrically-operated games wherein switches are manipulated by players to selectively activate light bulbs or other indicators, and more particularly to a game involving a battle of switches whose outcome is indicated by a predetermined pattern of lights.

Various forms of electrically-operated games are known of the type in which switches function to activate lights to create light patterns. Thus games exist of the "Tic-Tac-Toe" variety, wherein the players, instead of writing zeros and X's in the squares of a playing board, manipulate switches which activate equivalent lights in the squares.

Some electrically-operated games involving switching actions are fairly complicated and entail an elaborate set of rules that are difficult for a very young player to understand, while other games are much simpler so that the child can quickly master the rules and proceed to play. But whereas a sophisticated game, if properly understood, tends to sustain the player's interest, the simple and more readily mastered game is often boring. In a simple game, once the player discovers the basic repetitive character of the switching functions and is predictably able to win, his interest in the game proceeds to wane, for it then lacks challenge.

Ideally, a switching game for a pre-school child should be so simple to play that he can almost immediately recognize the object of the game and how success is achieved; yet when played, the outcome should not be predictable, so that in the course of the game, the player is faced with unexpected actions serving to sustain his interest and to lend excitement to the play.

On the other hand, should the effect of a switching action be purely random and based on sheer chance, then the player is unable to acquire skill. Hence a switching game which produces actions that are entirely haphazard is also incapable of sustaining interest, for whether the player wins or loses is altogether beyond his control and intelligence, and is simply a matter of luck.

While the game has been analyzed in terms of its playability for children, the enjoyment of the game is not so limited, for adults may also play.

SUMMARY OF THE INVENTION

In view of the foregoing, it is the main object of this invention to provide a game involving switches manipulated by opposing players, which switches selectively activate light bulbs, the outcome of the game being indicated by an unbroken series of lit bulbs on the loser's side or by whatever other predetermined light pattern constitutes a win.

More specifically, it is the object of this invention to provide a game of the above-identified type whose purpose is readily apparent and which may be played without prior instruction other than a simple explanation that the aim of the game is to operate the switches

so as to light up all of the opponent's bulbs before he succeeds in doing likewise.

A significant feature of the invention resides in the fact that the relationship between switches and bulbs is seemingly haphazard in that the operation of any switch causes a change in the status of a particular pair of bulbs, whereby in one move the position of a switch may cause a bulb on the playing board to turn on, whereas in another move, the same switch operation may cause the identical bulb to turn off. Hence, though the game is very simple to play, success is not readily attained, for to be able to win consistently, one must master the interrelationship of the various switching actions, and this requires time and intelligence.

A game in accordance with the invention is particularly suitable for young children, for it requires little instruction to play, and yet is subject to unexpected and intriguing actions which maintain the child's interest.

Briefly stated, these objects are attained in a game including a gameboard divided into first and second playing sections, each provided with a row of double-pole, double-throw switches which may be moved either up or down, and a series of light bulbs, the bulbs in one section differing in color from those in the other.

A power source is connected to the bulbs through the switches by a circuit which is so arranged that all bulbs are off when the section switches on both sides are either all up or down, but when all but one of the switches are either all up or down, then a particular pair of bulbs, one on each side, will be activated. The relationship of the bulb pairs to the switches in the two sections is such that while no two pairs are identical, one bulb in each pair is common to one in another pair, whereby a switching action which activates a bulb already turned on by reason of a previous switching action will cause that bulb to turn off.

Since the operation of a given switch may turn the same bulb on or off, even though a predetermined relationship exists between all switches and bulbs, this relationship is difficult to deduce, so that the switching actions produce seemingly random effects. Consequently, winning becomes a matter of chance rather than skill, save for those who in time derive the relationships.

OUTLINE OF THE DRAWING

For a better understanding of the invention as well as further objects and features thereof, reference is made to the following detailed description to be read in conjunction with the accompanying drawing, wherein:

FIG. 1 is a perspective view of a "battle of the switches" game in accordance with the invention;

FIG. 2 is a schematic diagram explanatory of the action of the double-pole, double-throw switches employed in the game; and

FIG. 3 is a schematic circuit diagram of the electrical system used in the game shown in FIG. 1.

DESCRIPTION OF THE INVENTION

Referring now to FIG. 1, there is shown a game in accordance with the invention, which is arranged to be

played by players I and II on a game board 10, on which each player is provided with a like set of switches. Game board 10 is the top panel of a box-like casing 11 containing the electrical system. A main power switch 12, located at the side of the casing, serves to turn on a battery or line power, depending on which source is used. This switch is optional since all lights are off when all switches occupy an up or a down position.

Player I is provided with a set of four double-pole, double-throw (DPDT) switches A, B, C and D, arranged in a row, and a corresponding row of pilot lights which, when energized, turn green, these lights being identified as G_A , G_B , G_C and G_D . Player II has before him a like set of four DPDT switches W, X, Y and Z, and a corresponding row of pilot lights which, when energized, turn red, these being identified as R_W , R_X , R_Y and R_Z . It is to be understood that the use of four switches and lights on either side is merely by way of example, and that in practice the number may be greater.

The game involves a battle of switches wherein success is indicated when a player is able to create a predetermined pattern of lights. In one such pattern the aim is to turn on all of the opponent's lights before he succeeds in doing likewise. The players move alternately, and with each move a player is permitted to manipulate any one DPDT switch in his own row in either direction, i.e., up or down. Initially, all switches on both sides of the board are either all up or all down, in which condition all lights are off.

When player I operates any one of switches A, B, C and D, this action activates a pair of lights constituted by one green light on his side and one red light on the side of player II. A similar action takes place with respect to the switches W, X, Y and Z operated by player II.

The relationship of light pairs to the switches is seemingly random in that in no instance do the red and green lights in an activated pair lie in registration with the operated switch, and in no instance does the operation of any one switch produce the same pair as that produced by any other switch.

However, the circuit arrangement is such that a switch operation gives rise to a change in light status, that is to say, when a light bulb controlled by a given switch is already on, the operation of the switch will then turn it off. Thus the term activation as used herein is a switch action producing a change of status whereby a given bulb is turned on or off.

Because switch actions produce a change in status, a player is not, in the course of play, easily able to learn the relationship between each switch on his side and the related light pairs, for whether a switch operation will result in the lights of a pair both going on or off or one on and one off, depends on how the switches have already been operated by the other player, for these operations also affect the status of the lights.

For example, if at the outset of the game, all switches on both sides are down, and player I on his first move turns switch A up, then lights G_D and R_Y will go on, and if now player II, who makes the next move, turns switch X up, light G_D will go off and light R_Z go on, for switch X activates G_D and R_Z , and since G_D was already on, it

changes status to go off.

Hence the action produced by the manipulation of a given switch depends not only on the light pair associated with this switch, but also on the existing switch pattern on the board.

While it is possible for a clever child, who studies the relationship of the lights and switches to gain mastery over the game, this takes a fair degree of playing experience. At the outset the players are evenly matched, for neither one knows the pre-wired relationship of the switches and lights, and the light-actions appear to be a matter of chance.

Thus while the purpose of the game can be made immediately evident to the players, and the rules are extremely simple (each player in turn is allowed to shift any switch in his row up or down), the competitive nature of the game is such as to create tension and maintain interest. But as pointed out previously, it is possible for a clever player to acquire skill, so the player's interest does not flag, since he can in time always beat a less skillful player.

In order to illustrate how DPDT switches may be arranged to control the change of status of two lights, we now refer to FIG. 2, which shows DPDT switches S_A , S_B , S_C , and Lamps L_1 and L_2 energized by a battery 13 or any other suitable power source. The leads A_1 and B_1 from the lower sections of DPDT switches S_A and S_B are connected to bulbs in a circuit not shown in FIG. 2, and not necessary for this example.

It will be seen in FIG. 2 that switches S_A and/or S_C control lamp L_1 , and switches S_B and/or S_C control lamp L_2 . Switch S_C will therefore activate (i.e., change the status of) both bulbs L_1 and L_2 .

Each of the DPDT switches has upper and lower sections constituted by a movable pole and fixed contacts on either side thereof, the left position in FIG. 2 being the "down" position of the switch, and the right position the "up" position thereof. Hence in the switch positions shown (S_A — Down; S_C — Up; S_B — Up), lamp L_1 is energized through the lower section of switch S_C in the up position and the upper section of switch S_A in the down position, whereas L_2 connected to the pole of the upper section of switch S_B which is in the "up" position, is deenergized in that the circuit to this lamp is broken by the upper sections of switch S_C in the "up" position. But when switch S_C is shifted to its down position, the circuit to lamp L_2 is completed and the lamp is lit.

Since in the circuit as shown L_1 is lit and L_2 is not lit, when switch S_C is shifted from its up to its down position, lamp L_1 will be turned off and L_2 , turned on.

Referring now to FIG. 3, the actual circuit of the game shown in FIG. 1 is illustrated, the circuit comprising player-I switches A, B, C and D, and green light bulbs G_A , G_B , G_C and G_D ; and player-II switches W, X, Y and Z, and red light bulbs R_W , R_X , R_Y and R_Z . The switches, all of which are of the DPDT type, act to selectively apply voltage from battery 13 to these bulbs.

The circuit arrangement is such as to produce the following patterns 1 to 18, which depend upon whether the switches are up or down.

TABLE OF PATTERNS

Pattern	Condition of switches								Condition of lamps							
	A	B	C	D	W	X	Y	Z	G _A	G _B	G _C	G _D	R _W	R _X	R _Y	R _Z
1	ALL DOWN				ALL DOWN				ALL OFF				ALL OFF			
2	ALL UP				ALL UP				ALL OFF				ALL OFF			
3	Up..	Dn..	Dn..	Dn..	Dn..	Dn..	Dn..	Dn..	Off..	Off..	Off..	On..	Off..	On..	Off..	Off..
4	Dn..	Up..	Dn..	Dn..	Dn..	Dn..	Dn..	Dn..	Off..	Off..	On..	Off..	On..	Off..	Off..	Off..
5	Dn..	Dn..	Up..	Dn..	Dn..	Dn..	Dn..	Dn..	On..	Off..	Off..	Off..	On..	Off..	Off..	Off..
6	Dn..	Dn..	Dn..	Dn..	Dn..	Dn..	Dn..	Dn..	Off..	Off..	On..	Off..	Off..	On..	Off..	Off..
7	Dn..	Dn..	Dn..	Dn..	Up..	Dn..	Dn..	Dn..	Off..	On..	Off..	Off..	Off..	On..	Off..	Off..
8	Dn..	Dn..	Dn..	Dn..	Dn..	Up..	Dn..	Dn..	Off..	Off..	Off..	On..	Off..	Off..	Off..	On..
9	Dn..	Dn..	Dn..	Dn..	Dn..	Dn..	Up..	Dn..	Off..	On..	Off..	Off..	Off..	Off..	On..	On..
10	Dn..	Dn..	Dn..	Dn..	Dn..	Dn..	Dn..	Up..	On..	Off..	Off..	Off..	Off..	Off..	On..	Off..
11	Dn..	Up..	Up..	Up..	Up..	Up..	Up..	Up..	Off..	Off..	Off..	On..	Off..	Off..	On..	Off..
12	Up..	Dn..	Up..	Up..	Up..	Up..	Up..	Up..	Off..	Off..	On..	Off..	On..	Off..	Off..	Off..
13	Up..	Up..	Dn..	Up..	Up..	Up..	Up..	Up..	On..	Off..	Off..	Off..	On..	Off..	Off..	Off..
14	Up..	Up..	Up..	Dn..	Up..	Up..	Up..	Up..	Off..	Off..	On..	Off..	Off..	On..	Off..	Off..
15	Up..	Up..	Up..	Up..	Dn..	Up..	Up..	Up..	Off..	On..	Off..	Off..	Off..	On..	Off..	Off..
16	Up..	Up..	Up..	Up..	Up..	Dn..	Up..	Up..	Off..	Off..	Off..	On..	Off..	On..	Off..	Off..
17	Up..	Up..	Up..	Up..	Up..	Up..	Dn..	Up..	Off..	On..	Off..	Off..	Off..	Off..	On..	On..
18	Up..	Up..	Up..	Up..	Up..	Up..	Up..	Dn..	On..	Off..	Off..	Off..	Off..	Off..	On..	Off..

In the above table, patterns 1 and 2 are for a condition where the switches are either all up or all down, in which event no lights are on, and patterns 3 to 10 are for conditions in which a respective one of the eight DPDT switches is in the up position, all others being down.

It will be seen that in each of patterns 3 to 10, each switch (A to D and W to Z) is associated with a particular pair of lights one on each side (G_A to G_D, and R_W to R_Z). However, the light pairs associated with the switches are in overlapping relationship with respect to one bulb in the pair. Patterns 11 to 18 are the mirror image of patterns 3 to 10, for they give rise to the same light combinations for those operations in which all switches but one are up.

Thus when only switch A is up, lights G_D and R_Y go on, and when only switch X is up, lights G_D and R_Z go on. Therefore, if player I moves switch A up to turn on lights G_D and R_Y, and player II then moves switch X up, this will extinguish light G_D and turn on light R_Z, so that now none of the green lights are on, but two red lights R_Y and R_Z are on. If now player I moves switch B up, lights G_C and R_W will turn on, as a result of which the red lights (R_W, R_Y and R_Z) will be on, and one green (G_C). At this point if player II then moves switch W up, this causes lights R_X and G_B to turn on, as a consequence of which all red lights are on, but only two green lights, and player II loses the game.

The effect of a switch operation is therefore difficult to predict, and its consequence is seemingly random and surprising. On the other hand, if by careful observation, one player ultimately is able to memorize the effect of switching actions to a degree where he has memorized the table of patterns, he can invariably beat the other player who is unable to correlate switching causes and effects.

But while the game is very simple to play and its purpose and manner of playing may be understood almost immediately, the ability to win consistently can be acquired only after extensive practice and by careful observation so that with young players only the clever child will be able to improve his skill to a degree where the outcome of the game is no longer a matter of pure chance.

It will be appreciated that the complexity of the game may be decreased by using only three switching positions and associated lights, and may be heightened by a greater number of switches and lights in the player rows. Also, the game may be arranged for four players by providing each row with, say, eight rather than four switches. In this instance one group of four switches on each side are assigned to one player, and the other group of four on the same side to the second player. Similarly, the third and fourth players are assigned a group of four switches, each on the other side.

In practice the four players and their switch groups may be placed at the four sides of the board rather than on two sides thereof.

While there has been shown and described preferred embodiments of an electrically operated switching game in accordance with the invention, it will be appreciated that many changes and modifications may be made therein without, however, departing from the essential spirit of the invention.

For example, in lieu of light bulbs one may use light emitting diodes, gaseous discharge lamps or other known forms of indicators. The term light bulb as used herein is intended to embrace all known forms of light indicators. Though the rule of the game has been described as producing a win when the player has succeeded in putting on all of his opponent's lights, one may instead regard a win as where the player has succeeded in putting on all of his own lights or where he has succeeded in creating any other light pattern, such as two green and two red or three red and one green.

I claim:

1. An electrically-operated game comprising:

a. a gameboard divided into first and second playing sections,

b. a row of double-pole, double-throw switches and a like series of light bulbs in said first section, which bulbs when energized emit light in a distinctive color,

c. an equal row of double-pole, double-throw switches and a like series of light bulbs in the second section, which bulbs when energized emit light in another color,

d. a power source, and

e. a circuit connecting said source through said switches to said bulbs to effect selective activation thereof, said circuit being arranged to cause all of the lights in both series thereof to be off when the switches in said sections are either all up or down, and to cause a pair of bulbs to go on, one in the first section and the other in the second section, when all but one of the switches are either up or down, the relationship of the bulb pairs to the switches in the two sections being such that while no two pairs are identical, one of the bulbs in each pair is common to one of the bulbs in another pair, whereby a switching action which activates a pair including a bulb already turned on by reason of a previous switching action, will cause that bulb to turn off.

2. A game as set forth in claim 1, where said board is mounted on a box containing said circuit, and a battery constituting said power source.

3. A game as set forth in claim 1, wherein each row contains four switches and each series contains four bulbs.

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