Jan. 7, 1958 M. M. SCHIFFMAN 2,819,083

RACE GAME APPARATUS

Filed Aug. 21, 1956 2 Sheets-Sheet 1

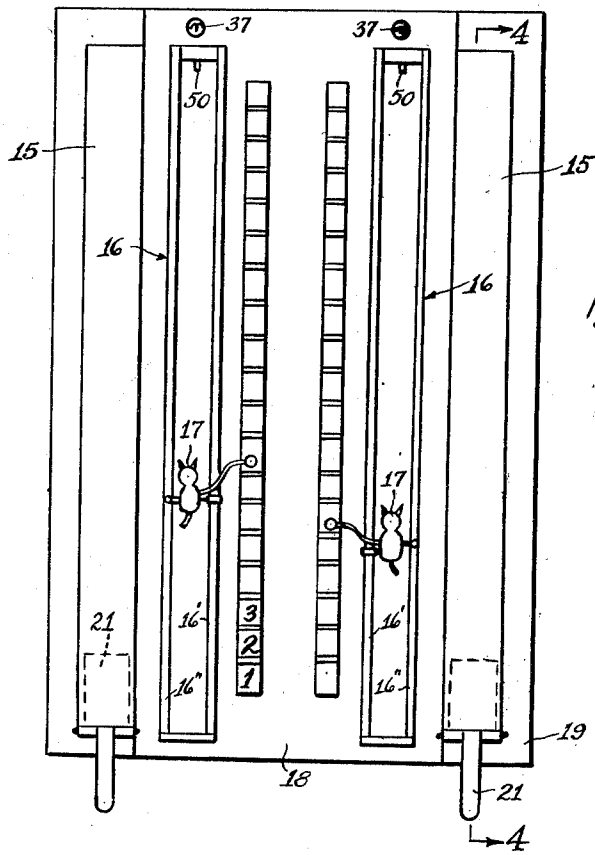


Fig. 2.

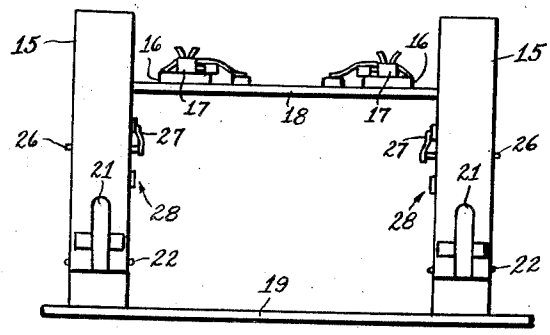


Fig. 1.

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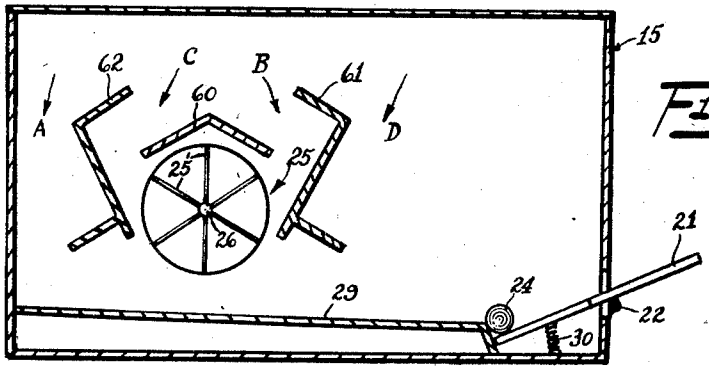


Fig. 4.

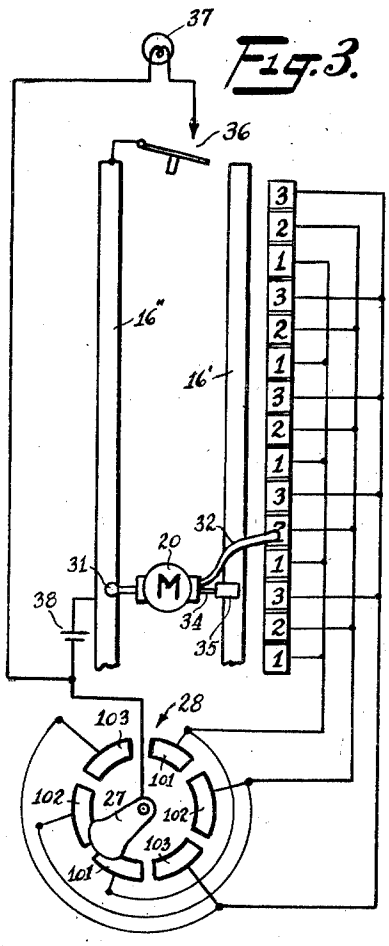


Fig. 3.

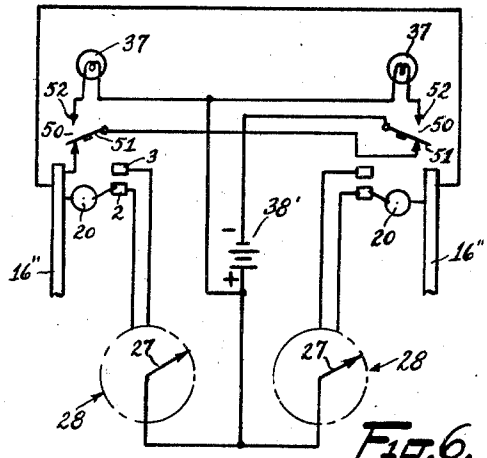


Fig. 6.

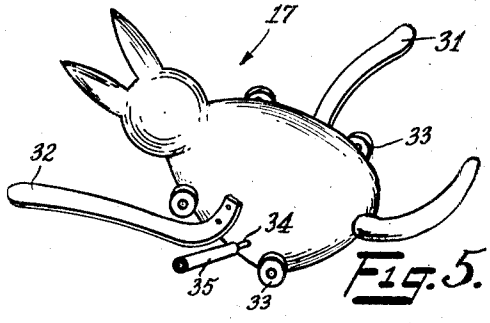


Fig. 5.

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RACE GAME APPARATUS

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Application August 21, 1956, Serial No. 605,246

7 Claims. (Cl. 273—86)

The present invention relates to a race game apparatus.

The principal object of this invention is to provide a novel and improved game apparatus having electrically-propelled objects which may present the forms of rabbits, horses, automobiles or other entities which are to engage in a race. Also for each player, there is a ball-propelling means which is manually operated to throw the ball into various cavities. Ball movements are of course speculative. Movement of the racing objects depends upon ball movement and for certain ball movements, the racing objects will not move at all. Initially, all racing objects are at the starting position in their respective tracks, and as the apparatus is manipulated by each player in succession, the racing object reaching the goal position first, wins.

Another object thereof is to provide a novel and improved game apparatus of the nature set forth, which is reasonably cheap to manufacture, easy to use and efficient in carrying out the functions for which it is designed.

Other objects and advantages will become apparent as this disclosure proceeds.

For the practice of this invention, one form it may assume, may comprise two sets of parallel tracks, at least one track of each set being of electrically conductive material. These tracks are all on a board between two narrow and rather tall boxes. This is for a two-player game. In each box is a paddle wheel on a horizontal shaft respectively. Each such shaft carries a laterally extending contact brush arm for successively contacting conductive segments arranged in the manner of a commutator on a wall of each box respectively. Along each set of tracks, there is a series of closely spaced conductive segments. A rabbit or other hollow form carries an electric motor therein whose shaft extends horizontally therefrom for frictional contact with one of the tracks. There are of course two such rabbits, one for each track. Each such rabbit form is on four wheels so it can ride between a set of tracks and has two contact arms to serve as brushes to bring power to the motor. One such brush arm rides over and contacts the conductive rail while the other rides over and contacts the segments of the series along the tracks. Each brush associated with conductive segments along the track and with the commutator, is of a width to bridge two adjacent segments in its travel. The electrical connections are such that upon movement of the paddle wheel in one direction, the rabbit will be caused to advance one segment along the track and upon movement of the paddle wheel in the other direction, the rabbit will advance two steps. In each box mentioned there extends a lever on which a ball is rested. Each player manually manipulates his own lever to propel the ball towards the paddle wheel in the box of his unit. Deflector plates within the box lead the ball to either side of the periphery of the paddle wheel or away therefrom

When the ball hits a vane of the paddle wheel, it will cause such wheel to turn the distance of one commutator segment. If the propelled ball, whose motion is of course

speculative, falls clear of the paddle wheel, the rabbit will remain at rest. The floor of each box is inclined so that the ball will return to its rest position on the lever. The rabbit which reaches the goal position along its track or path first, wins. The rules of play may of course be varied. Each goal end of the paths along which the rabbit contestants move, may have a switch device to actuate a lamp when the goal position is reached. If desired, provision can be made that upon a contestant reaching the goal position, all motor circuits are opened. The boxes may of course, be remote from the track or path structures. The wheels on the contestant may be omitted and reliance had on its sliding along the pathway between the tracks. The paddle wheel may be on a vertical axis if properly positioned to be activated by the ball in its movement.

In the accompanying drawings forming part of this specification, similar characters of reference indicate corresponding parts in all the views.

Fig. 1 is a front elevation of a game apparatus embodying the teachings of this invention.

Fig. 2 is a top plan view of Fig. 1.

Fig. 3 is a diagrammatic showing of one player's apparatus and the electrical wiring diagram therefor.

Fig. 4 is a section taken at lines 4—4 in Fig. 2, showing a section through the box and its appurtenances.

Fig. 5 is a perspective view of a rabbit form housing a motor and provided with the necessary contact arms in this embodiment.

Fig. 6 is a fragmentary diagrammatic showing of the apparatus for two players and the electrical wiring diagram therefor whereby the entire apparatus is operated by a single source of electrical energy and light signals are provided at each goal end; the winning rabbit opening the motor circuit when it reaches its goal and operates the light at its goal.

In the drawings showing one form this invention may assume, the unit apparatus for each player consists of a ball propelling means and other appurtenances housed in or carried on a closed box structure **15**, one wall of which is preferably transparent so that ball movement may be observed and a track means **16** with various appurtenances thereto including a miniature electric-motor-propelled vehicle which may be in the form of a rabbit **17** or other suitable form to simulate a race contestant, set to ride along the track **16**. Description of one such unit apparatus will therefore suffice for all. In the embodiment illustrated, there are two such units. The tracks **16** may be on a raised floor **18** spanned between the boxes **15** which are mounted on a base board **19**. The electric motor housed within the rabbit form vehicle **17**, is denoted by the numeral **20**.

Extending through the front wall of the box **15**, is a lever **21** pivoted on a horizontal axis **22** on such wall. The end of the lever within the box, is for holding a ball **24** of suitable weight so that if it falls on and strikes a vane of the paddle wheel **25**, it will cause such wheel to be turned part of a revolution. This paddle wheel is of course within the box, extends close up to both sides walls of said box, and the shaft on which it is secured extends outwardly of the casing or box **15** and is denoted by the numeral **26**. Such shaft carries a laterally extending brush contact arm **27** for contacting successively the conductive segments which are arranged on the exterior surface of the box, around said shaft **26**, in the fashion of a commutator structure **28**. Various partition deflector members **60**, **61**, **62** are across the side walls of the box **15** to direct or obstruct the ball. When the outer end of the lever **21** is struck to move downward sharply, the ball **24** will be propelled and its movement to the paddle wheel region and whether it will fall in a direction of any of the arrows "A," "B,"

"C" or "D," will be speculative. The ceiling of the box 15, of course, also acts as a deflector for the ball.

If said ball 24 falls at the arrow "C," it will cause the paddle wheel 25 to be shifted a partial turn in counter-clockwise direction. If the ball falls at the arrow "B," it will cause the paddle wheel to be turned a partial turn in clockwise direction. If the ball falls at either of arrows "A" or "D," the paddle wheel will of course remain at rest. In all events, the ball reaches the forwardly downwardly inclined floor 29 of the box 15 and rolls back onto the lever 21, whose inward end is returned to downward normal rest position, either by gravity or by a tensioned coil spring as at 30.

The terminals of the motor 20 are electrically connected respectively to the brush contact arms 31 and 32 which are insulated from each other and extend from the animal form or vehicle 17. The motor shaft may be arranged to drive the wheels 33 directly, or said shaft 34 as shown in Fig. 5, may extend and have a rubber sleeve 35 for frictional contact with track 16'. The track 16'' is electrically conductive and is contacted by the brush contact arm 31, while the contact arm 32 rides on the row of spaced, conductive segments marked 1, 2, 3, which are along the track 16' in the embodiment illustrated. At the goal end of the track, there is a normally open switch 36, adapted to be closed by the vehicle 17 when it reaches the goal end, to operate the circuit of a lamp 37 or other signal device.

For the embodiment shown, the number of segments constituting the commutator 28 is a multiple of three and the spacing of the vanes 25' of the paddle wheel 25 should be such that the shifting of said wheel by movement of the ball 24, shall be one complete segment of the commutator in length; the commutator contact segments 101, 102, 103 being identical and equi-spaced; the width of the brush arm 27 being such that it can be in contact with any two successive commutator segments simultaneously. The contact segments 1, 2, 3 along the track, are preferably equal in length; the width of the contact arm 32 being such that it can be in contact with any two consecutive segments of these, simultaneously.

Referring to the electrical system shown in Fig. 3, it will be noted that all contact segments 1 and 101 are electrically connected, that all segments 2 and 102 are electrically connected and that all segments 3 and 103 are electrically connected, respectively. The terminals of a battery 38 or other current supply, are respectively connected to the commutator brush arm 27 and the conductive track member 16''. The mentioned switch 36 which is at the goal end of the track, is interposed in the circuit of the lamp 37 arranged to be powered by said battery 38.

When the contestant 17 is at the starting position on the track 16, the brush contact arm 32 is on the segment 1 which is nearest the starting line while the contact arm 27 overlaps a pair of commutator segments which are in succession and numbered 102, 103.

Say that the paddle wheel 25 has been caused to turn (a one-sixth turn in this embodiment) clockwise. The contact arm 27 will then overlap the commutator segments 101 and 103, whereupon the motor will get current and the contestant will move until the contact arm 32 is off the first segment 1 and on the segment 2 next to it. The motor circuit is now open. The contestant 17 has advanced one division along the track. Say that now the paddle wheel is caused to shift a step counter-clockwise. This will bring the contact arm 27 to overlap the commutator segments 102, 103. The contact arm 32 being on the first segment 2, the motor circuit will be closed and the contestant 17 will travel until said contact arm 32 is off the first contact segment 3 and will be onto the second segment 1 along the track. Said contestant will have advanced in the second play, two steps along the track. It will be noted that in the electrical control system shown, for each shift of the paddle wheel clockwise, the contestant will advance one position along the track and for each counter-clockwise shift, there will be an advance of two positions along the track.

The traction and inertia characteristic of the contestant 17 should be made so that with the low starting speed of this motor 20, the contestant shall not overrun the contact segment along the track where the motor circuit is open.

Without further illustration, it is evident to those versed in the art that other amounts of advance of the contestant 17 up its track or path can be accomplished with systems where the segments along the track and the commutator segments are arranged instead of in sets of three as illustrated, that they should be in sets of four or other number. Of course, in such modifications, the scope of movement of the paddle wheel should be made to suit.

At least two units as shown in Figs. 1 and 2, constitute a game apparatus having two separately operated contestants. The wiring diagram for both such units combined for operation from a single energy source 38 is shown in Fig. 6, where also there are included signal lamps 37, one for each of the raceways to be operated by the contestants respectively.

If we disregard for the moment, the signal lamps 37 and their connections to the circuits respectively, each of the game units are electrically connected in Fig. 6, in the same manner as shown in Fig. 3, except that both units in Fig. 6 are in parallel with respect to the energy source 38'.

To provide switch means for the contestants 17 to operate respectively at the goal position, so that the proper lamp 37 will be lit and current cut off from the motors 20, such switch means 50, are each of the single pole, double throw type in normal position as shown in Fig. 6. When a contestant shifts the blade 51 of either switch 50 to contact with a pole 52, then the associated lamp 37 will light up and the negative side of the battery 38' will be disconnected from the motor circuits. The lamps 37 may be of contrasting color or other signal means may be substituted in their stead as for instance electric buzzers of different tone.

To play this race game, the contact arms 27 are manually set in their initial required position where each bridges the related commutator's segments 102 and 103 symmetrically. The box walls near the commutators 28 may be suitably marked to facilitate such setting. The contestants 17 are now set at the starting position in their respective paths 16 whereby the contact arms 32 will contact the first segment marked 1 along such paths respectively. Each player now operates the ball-propelling lever 21 of his unit, each time his ball 26 falls into position as shown in Fig. 4 at a time when his contestant 17 is at rest. The contestant reaching the goal position first wins. When a contestant reaches the goal position, it will operate the associated switch and its lamp 37 will become lit. The contestants 17 are now brought back to the initial starting position and the contact arms 27 are again manually shifted to their required start position as mentioned, and the apparatus is now ready for the next race to be played.

This invention is capable of numerous forms and various applications without departing from the essential features herein set forth. It is therefore intended and desired that the embodiment shown herein shall be deemed illustrative and not restrictive and that the patent shall cover all patentable novelty herein disclosed; reference being had to the following claims rather than to the specific description and showing herein to indicate the scope of this invention.

I claim:

1. In a race game device, the combination with a member presenting a path, a member carrying an electric motor

and serving as a contestant in such game; said contestant being positioned for movement along said path and arranged to move therealong upon actuation of said motor, a plurality of sets of successively spaced electrically conductive segments arranged successively along the path, a first electrically conductive arm carried by the motor-carrying member, in contact always with one of the segments along said path and capable of being in contact with any two successive segments along the path, at least one set of successive spaced electrically conductive segments arranged successively in the form of a commutator, a rotatable shaft, a second contact arm arranged to be moved by said shaft; said second contact arm being electrically conductive and in contact always with one of the segments of the commutator and capable of being in contact with any two successive segments of said commutator; one of said contact arms, at every rest position thereof, being in contact with two adjacent segments of those segments it is associated with; the number of segments in each of the mentioned sets being identical and all correspondingly positioned segments of all the sets being electrically connected respectively, a source of electrical energy, means electrically connecting one terminal of said energy source with a terminal of the motor; the other terminal of the energy source being electrically connected to the second contact arm; the other terminal of the motor being electrically connected to the first contact arm and means operable by an element which is adapted to be propelled in speculative fashion, for turning said shaft in either direction whereby the second contact arm is moved along the commutator a distance equal to the length of one commutator segment; the length of each commutator segment being substantially equal.

2. The race game device as defined in claim 1, wherein the means operable by the propelled element comprises a wheel having vanes; said wheel being arranged to drive the mentioned shaft; said wheel being adapted to be turned by the propelled element, when such element assumes prescribed movements.

3. The race game device as defined in claim 1, wherein the propelled element is a ball and including mechanism adapted when actuated when the ball is in a prescribed position thereon, to propel said ball towards the mentioned means which is operable by a propelled element.

4. The race game device as defined in claim 3, including means positioned in possible paths of the ball, for changing its course.

5. The race game device as defined in claim 1, wherein the means electrically connecting the first mentioned terminal of the motor to the energy source comprises an electrically conductive member along the path and a third contact arm carried by the motor-carrying member; said third contact arm being electrically conductive and electrically connected to the first terminal of the motor and in constant contact with said electrically conductive member along the path.

6. The race game device as defined in claim 1, wherein the path has a goal end, a normally opened electrical switch having an operating member positioned near the goal end of said path; the motor-carrying member being adapted to contact and move said operating member when such motor-carrying member reaches the goal end, whereby said switch is set into closed condition, a signal device and an operating electrical circuit therefor; said switch being interposed in such circuit of the signal device.

7. The apparatus as defined in claim 6, including another identical apparatus and means comprising electrical switches interposed in the circuits of the motors whereby upon closing of any one of the switches controlling the signal means respectively, the motor circuits will be opened; the switches controlling the motor circuits and the signal means having the same operating member in each apparatus respectively.

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