United States Patent

[11] **3,565,430**

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[73] Assignee **Republic Tool & Manufacturing Corporation**

[54] **DRAG STRIP RACE GAME**
1 Claim, 10 Drawing Figs.

[52] **U.S. Cl.** **273/86**
[51] **Int. Cl.** **A63f 9/14, A63h 30/02**
[50] **Field of Search** 273/86 (2), 86

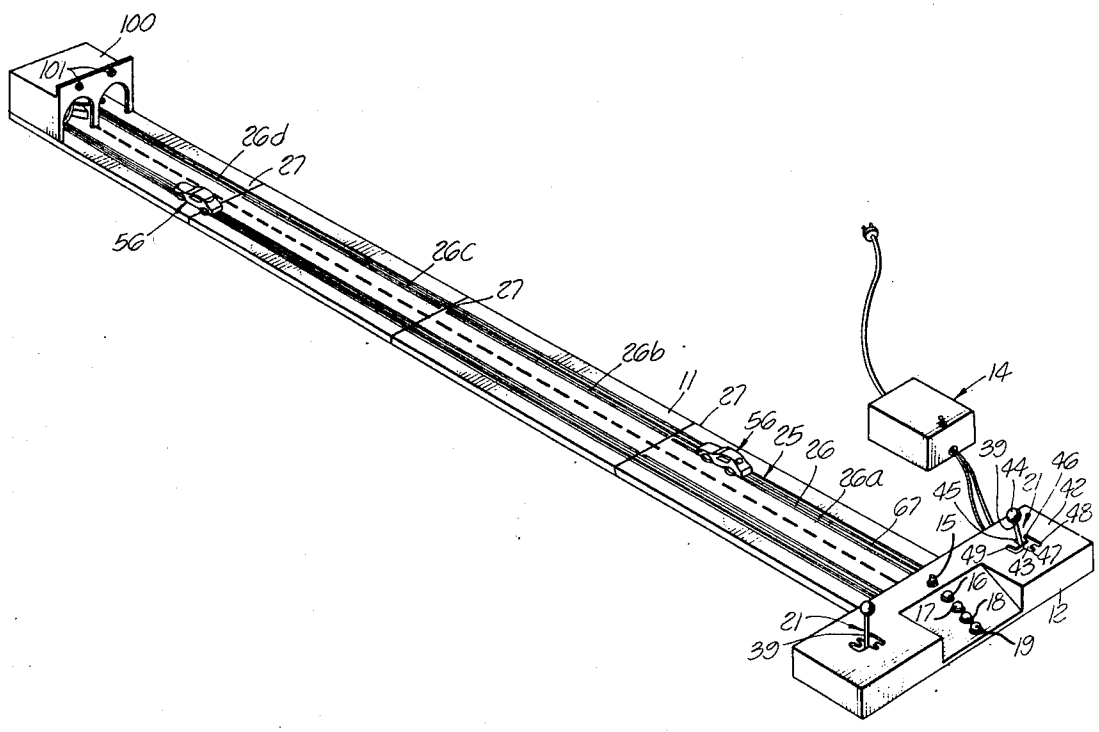
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ABSTRACT: A drag strip race game in which a pair of contestants race miniature cars against each other, including tracks for each car, each track being divided into four sections and each section of each track being energized by electrical circuits. Associated with each track and for each contestant is a simulated gear shift, including an operating switch having a movable switch element or gear shift stick for selectively closing an electric circuit to each one of the track sections, whereby by moving the gear shift stick through positions representing gears one to four of a transmission, may successively energize the track sections and propel the car along the track from starting position to finish position. Starting means are provided for starting the drag race and for preventing false starts, win indicating means are provided for indicating the winner of the race and reversing means is provided for returning the cars to starting position.



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SHEET 1 OF 6

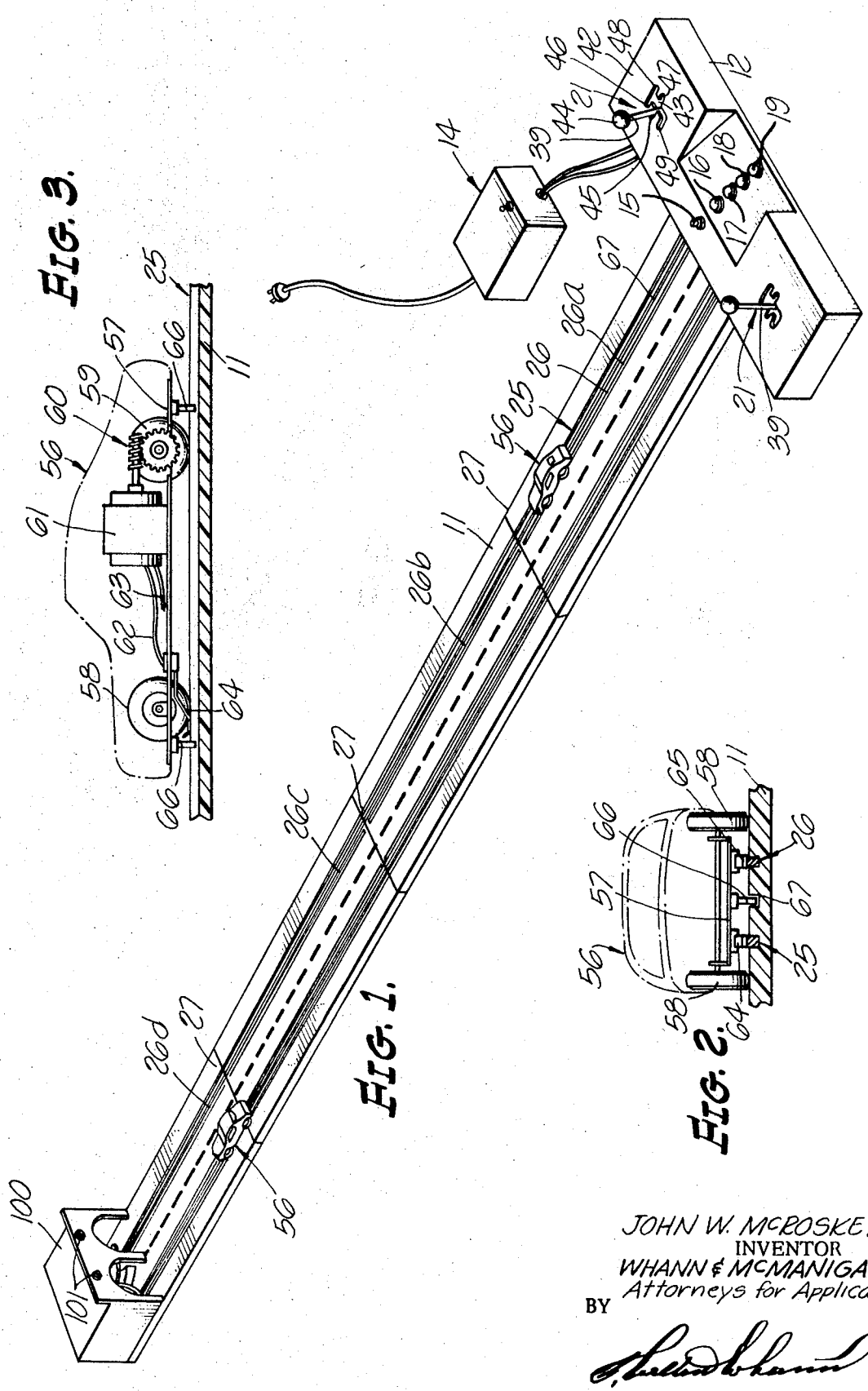


FIG. 1.

FIG. 3.

FIG. 2.

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FIG. 4.

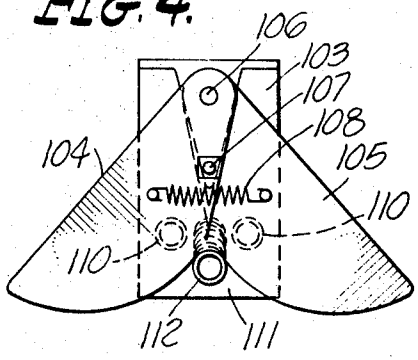
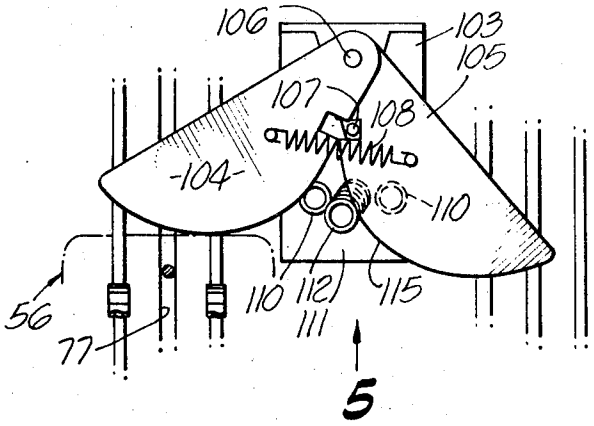


FIG. 6.



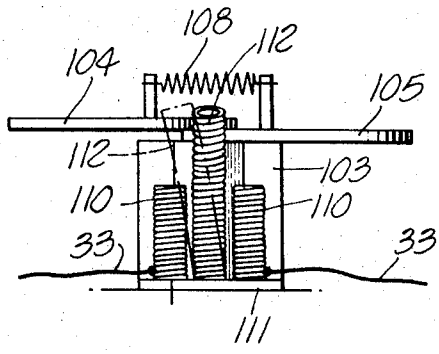


FIG. 5.

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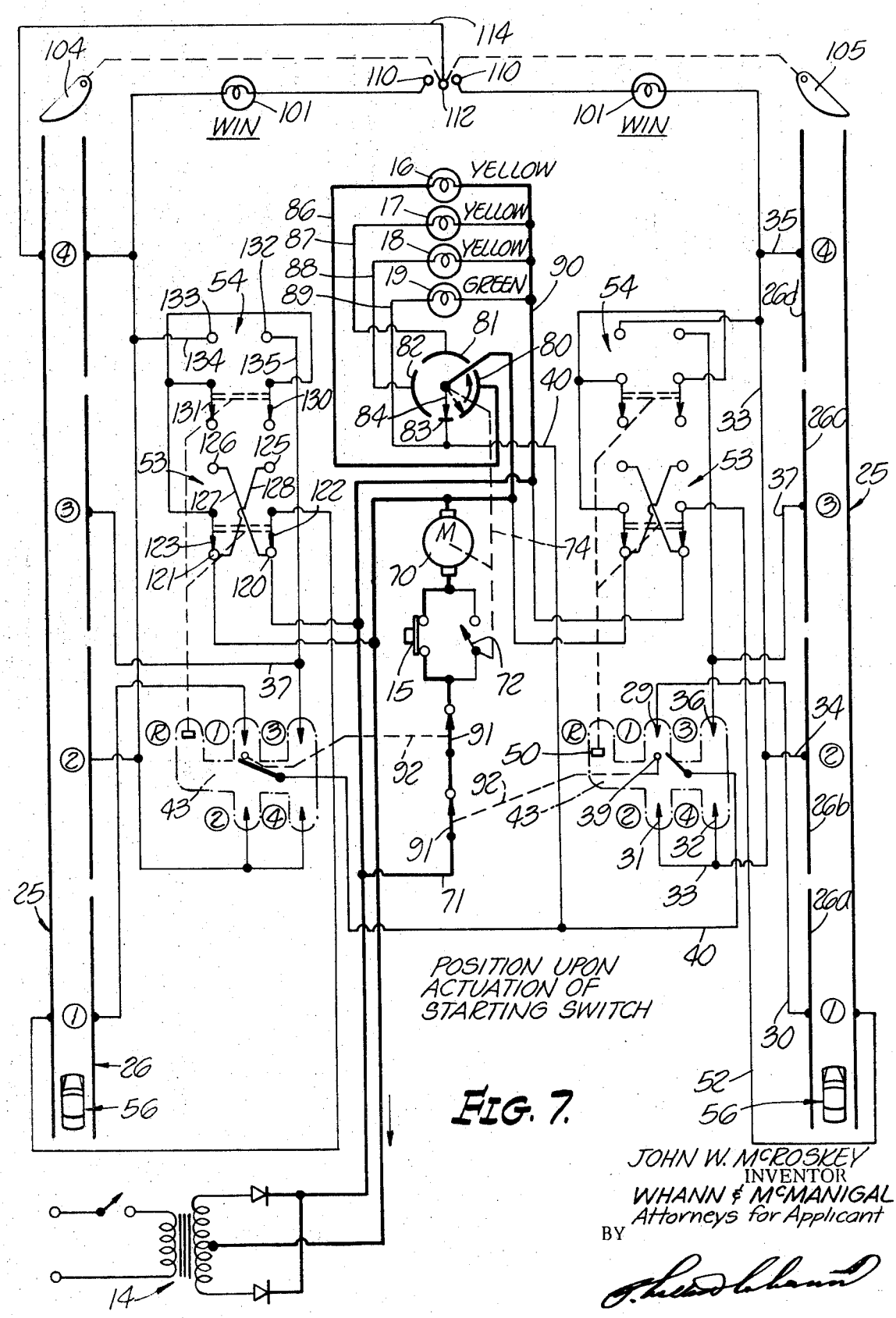


FIG. 7.

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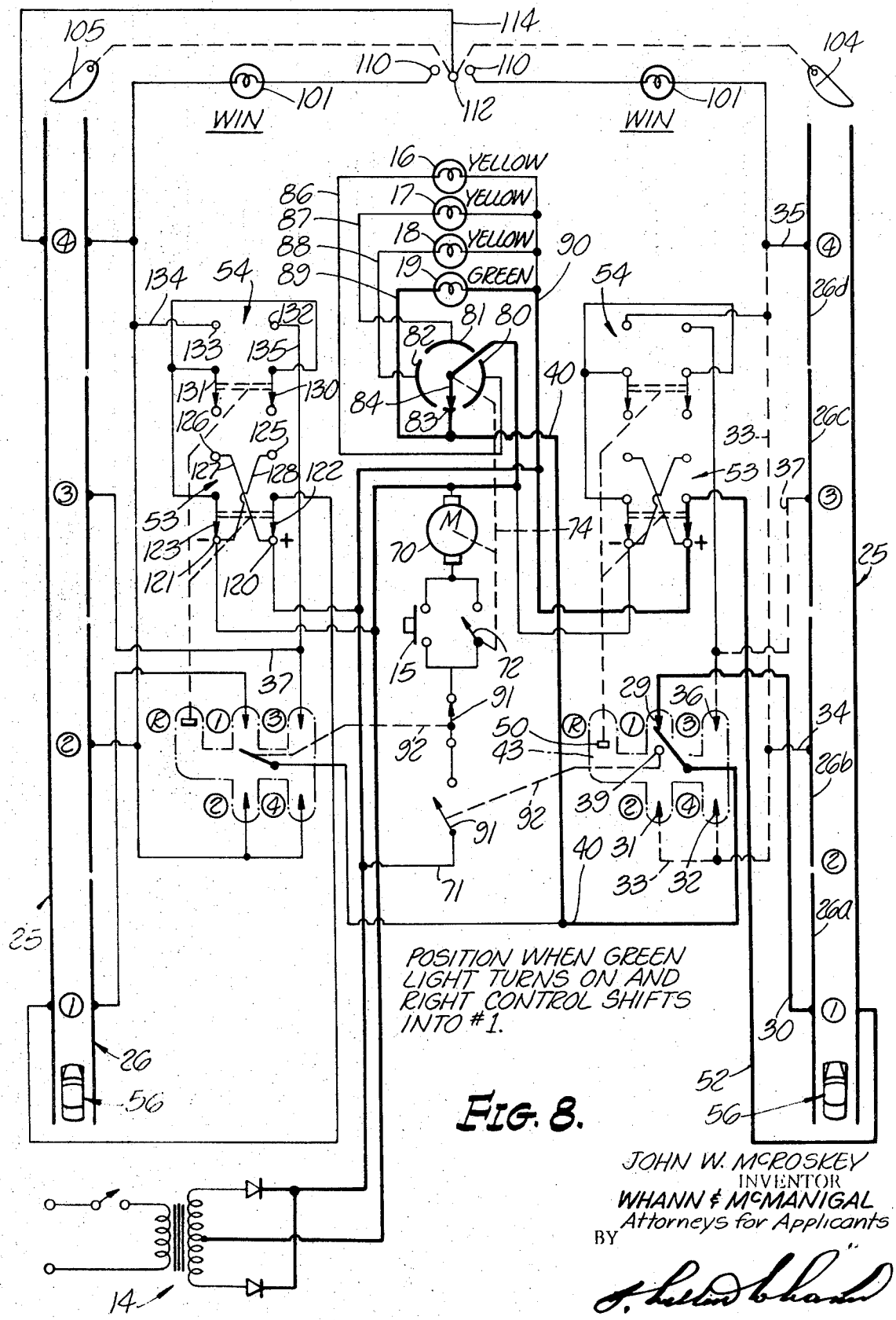


FIG. 8.

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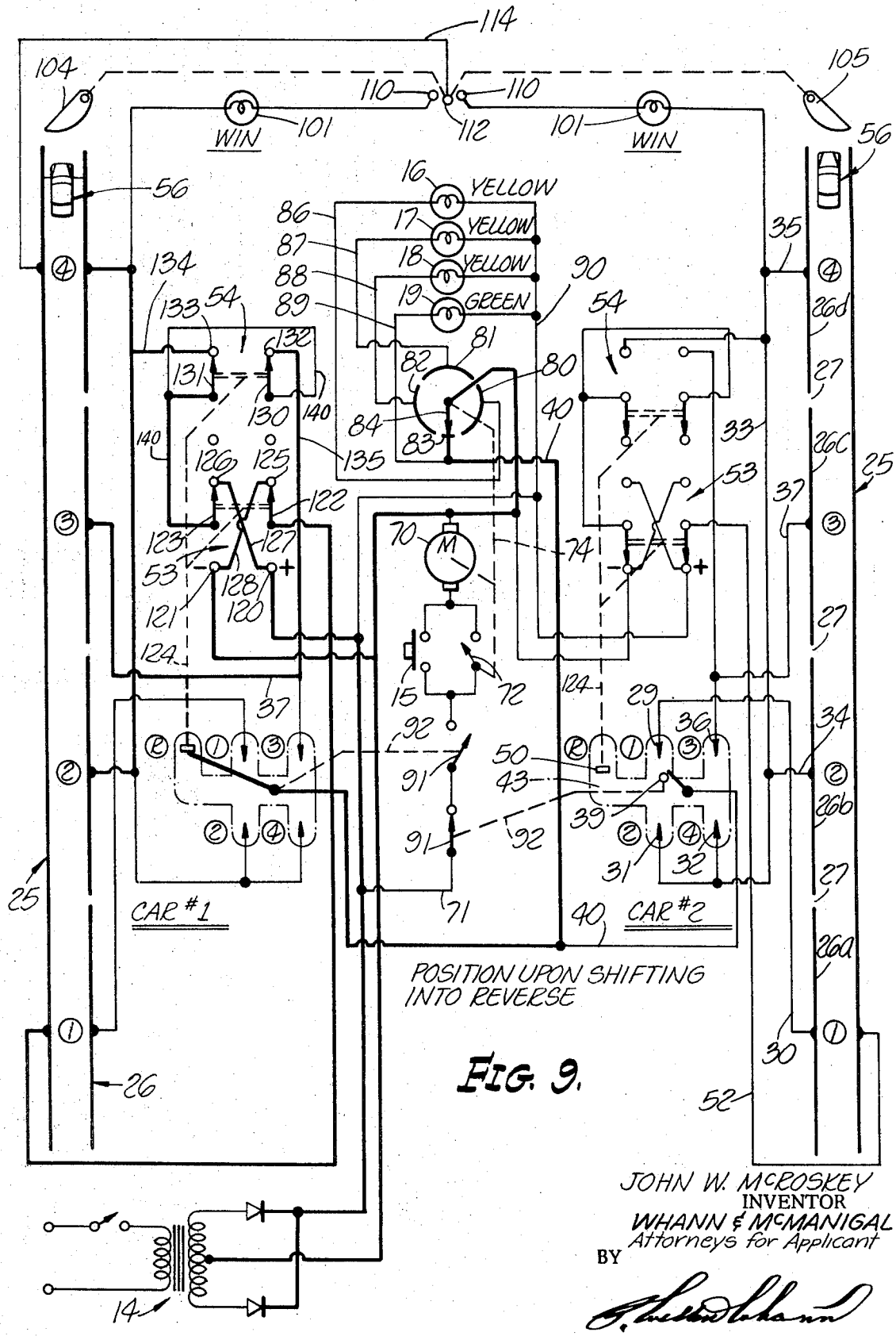


FIG. 9.

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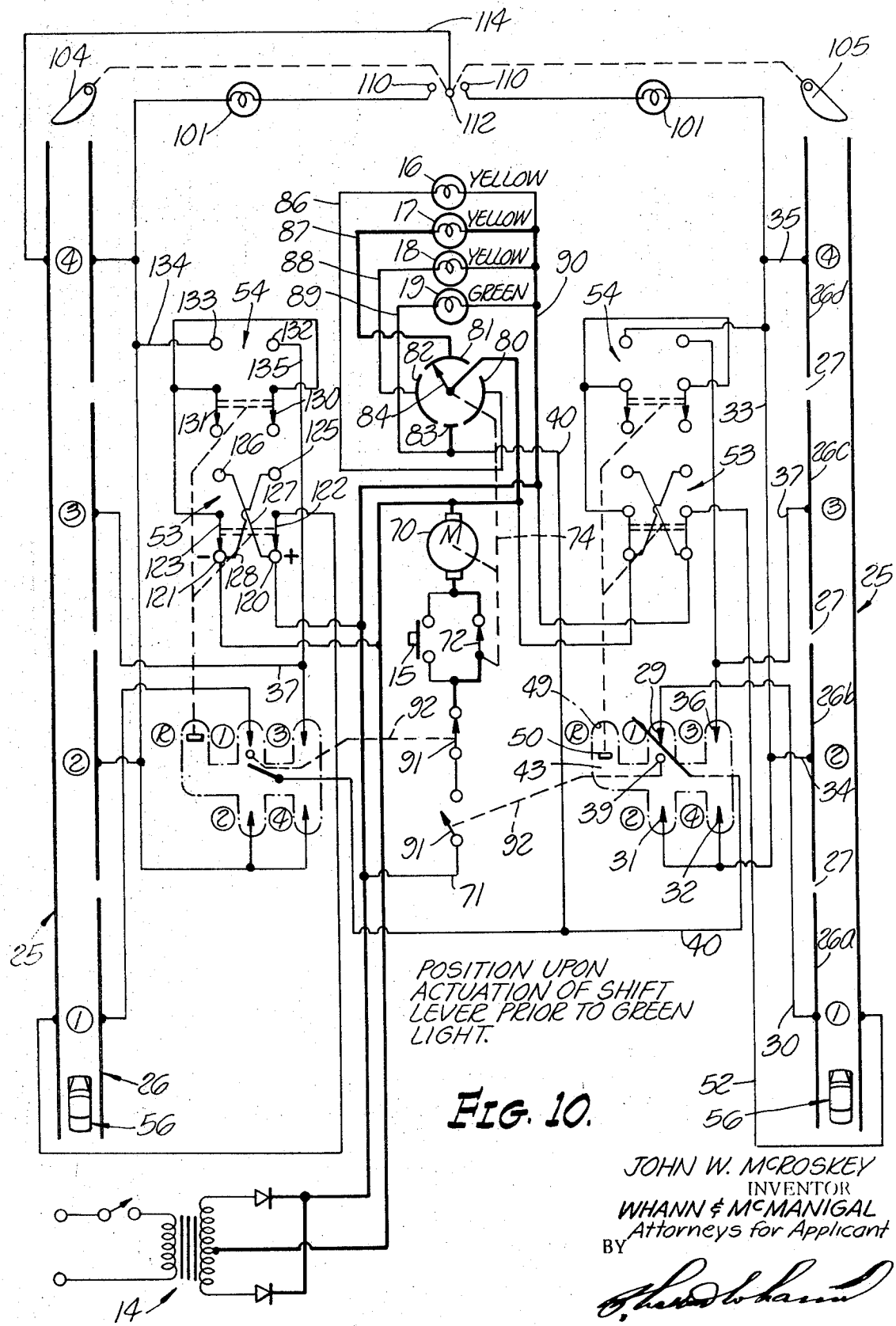


FIG. 10.

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DRAG STRIP RACE GAME

DESCRIPTION OF THE INVENTION

Drag strip races with full-sized cars have become popular. The race strip or drag strip is usually straight. The contesting cars start from a standing start and the drivers shift gears, using their best judgment and skills as to when the shifting through in order to reach the finish line in as short a period as possible.

My invention is a miniature drag strip game with miniature electrical driven cars running on a track and in which there is a simulated gear shift for operating each car. The tracks are provided with rail sections insulated from each other and each having an electric circuit for energizing each rail section. The "gear shift" has a lever or stick which may be moved into slots representing gears one to four. Each track has four track sections and the circuits for track sections one to four are associated with gear shift positions one to four respectively. With the stick in neutral position no power is supplied to any track section. In first gear position power is supplied to the first section, in the second gear position power is supplied to the second section, in the third gear position power is supplied to the third position, and in the fourth gear position power is supplied to the fourth position. At a given signal the "race driver" or contestant shifts the stick into first gear and then successively into second, third and fourth gear, using his judgment and skill in making the shift from one gear (electrical circuit) to the next simultaneously with the car passing over the insulation gaps between the track sections. The driver who is able to do this more skillfully and accurately will supply electrical energy to his car for a greater period of time and will, therefore, win the race. If the shift is made before the car reaches the end of the track section it will leave the car without a power source in the track section in which it is then operating. If the shift is made too late it will leave the car without power in the track section which it has just entered.

BRIEF SUMMARY OF THE INVENTION

It is an object of my invention to provide a game which may be participated in by a contestant in which the contestant assumes the role of a race driver and experiences the thrill of shifting through a series of gears, using his judgment and skill to make the gear shifts at the right time in order to propel his car to the finish line before his contestant.

It is an object of my invention to provide a drag strip race game of the character referred to in which the car which reaches the finish line first operates a win signal and renders inoperative win signalling means for the other car.

It is an object of my invention to provide a miniature drag strip game in which after the race has been completed the stick may be operated to reverse the direction of movement of the car and return it to starting position.

It is a further object of my invention to provide such a game in which there is a timer for starting the race and means for preventing false starts.

BRIEF DESCRIPTION OF DRAWINGS

In the drawings which form a part of this application I have disclosed a preferred form of my invention. Referring to the drawings:

FIG. 1 is a perspective view illustrating a preferred form of my invention;

FIG. 2 is a cross-sectional view through a track section of a track showing the manner in which the car is supported and guided;

FIG. 3 is a longitudinal sectional view further illustrating the manner in which the car is supported and guided and also showing the motor means for driving the car;

FIG. 4 is a plan view illustrating the two signal switching means;

FIG. 5 is an elevational view taken in the direction of the arrow 5 of FIG. 6;

FIG. 6 is a view showing the win signal switch being actuated by a winning car to close the switch and signal a win;

FIG. 7 is a schematic view showing the circuitry in a game provided for two contestants. It should be understood, of course, that there may be three or more contestants, if desired, by providing additional track, car and gear shift assemblies. In FIG. 7 I have shown in heavy lines the circuits which are energized upon actuation of the starting switch;

FIG. 8 illustrates the circuitry which is energized when the green light, which is the starting light, is turned on and the circuit is completed to the operating switch or gear shift mechanism. Heavy lines represent the circuit completed with the right gear shifting mechanism in first gear. Heavy dotted lines represent the circuits completed with the gear shift lever or stick in gear shift positions two, three and four;

FIG. 9 is a similar schematic view of the circuitry in which heavy lines represent the circuits which are completed when the left gear shift stick is in reverse position in which position the car is returned to starting position; and

FIG. 10 is a similar schematic view of the circuitry in which heavy lines represent the circuits which are completed when the right contestant moves the gear shift stick into number one gear shift position, before the contact 84 has reached the green light contact 83.

DETAILED DESCRIPTION

In FIG. 1 I have shown a perspective view of a board 11 which may be made in sections, as shown, having a console 12 at one end which is fed with electrical energy through a transformer and rectifier 14. The console at its central portion includes a start switch 15 and lights 16, 17, 18 and 19, which are yellow, yellow, yellow, and green, respectively.

The console or starting post also includes a gear shift or operating switch 21 for each track. Each track, car and gear shift mechanism is identical and, therefore, only one such combination will be described. However, identical parts shall have identical numbers applied to them and it is to be understood that the construction and the operation of each track, car and gear shift assembly operates in the same way.

Each track means consists of a pair of contact rails 25 and 26. The rail 26 is divided into four sections 26*a*, 26*b*, 26*c* and 26*d*, representing track sections one to four inclusive. Each of the track sections are separated from each other by an insulation gap 27. Each rail section is connected by a separate electric wire or electric circuit to individual contacts of the operating switch means or gear shift. Section 26*a* is connected to contact 29 of the gear shift by wire 30. Sections two and four, numbered 26*b* and 26*d* are connected to contacts 31 and 32 of the gear shift by electric wire 33, having branches 34 and 35 connected to track sections 26*b* and 26*d* respectively. Because the track sections two and four are separated from each other by track section 3, simultaneous energization of track sections two and four will not interfere with the operation of the game; and this arrangement will effect a simplicity in construction. Separate circuits for track sections two and four could be provided if desired.

Track section three, numbered 26*c*, is connected to contact 36 by electric wire 37. The stick or movable contact 39 is connected through wire 40 to the source of energy 14. The timer 41 is incorporated in this portion of the circuit but it will be described later.

The gear shift has a top plate 42 which may comprise the top plate of the console 12 and has an opening 43 through which the gear shift 39 extends, the gear shift having a manually engageable ball handle 44 at its upper end. The opening has recesses 45, 46, 47 and 48, which represent gear shift positions into which the stick 39 may be moved. Contacts 29, 31, 36 and 32 respectively are placed in the slots 45 to 48 inclusive. In addition, there is a reverse gear slot 49 in which there is located a reverse switch shifting element 50 engageable by the stick 39 when it is shifted into slot 49 for the purpose of reversing the car on the track, which reversing switch and associated circuitry will be described later.

The track 25 is connected by an electric wire 52 to the source of electrical power 14 so that when anyone of the electric contacts in the gear shift is contacted by the movable contact or stick 39 current will flow through the desired section of the track means. Included in the portion of the circuitry comprising the wire 52 is a first reverse switch 53, which functions in conjunction with a second reverse switch 54 to reverse the car on the track. These parts, however, will be described later.

Referring now to FIGS. 1 to 3, on each pair of tracks 25 and 26 there is a miniature car 56, each car 56 has a chassis 57 supporting front wheels 58 and rear wheels 59. The rear wheels are driven through shaft and gears represented by the numeral 60, which are, in turn, actuated by a motor 61 having leads 62 and 63 connected to sliding contacts 64 and 65 which are engageable with the tracks 25 and 26 respectively. Guide pins 66 project downwardly from the chassis 57 into a longitudinal groove 67, which extends between and parallel to the tracks 25 and 26.

When the contacts 64 and 65 both engage the tracks and the gear shift is in a position to close one of the track energizing circuits, the motor 61 is energized and the car is propelled towards the finish line.

When the car moves to a position that the contact 65 engages an insulation gap 27 or engages a successive section of the track, the motor 61 will be deenergized until the gear shift is moved to close the circuit to the track on which the car has just moved.

As previously stated, the contestant or driver shifts gears as close to the time that the wiper contacts 65 reach the insulation gap in order that power will be supplied to the motor 61 with the shortest possible time interruption.

The starting post timer arrangement, which is energized by the start switch 15 and which includes the lights 16, 17, 18 and 19, includes a motor 70 which is in a circuit 71 connected across wires 40 and 52. Upon pushing the start switch 15 the motor 70 is energized and a holding switch 72 is closed to complete the circuit even though the start switch may be released. The motor drives rotating contact 84 through a shaft diagrammatically represented by the numeral 74.

Circumferentially arranged arcuate contacts 80, 81, 82 and 83 are adapted to be engaged by rotating contact 84, depending upon the rotational position of the contact 84. Contacts 80, 81, 82 and 83 are included in circuits 86, 87, 88 and 89, which have in them the yellow, yellow, yellow and green lights 16 to 19 inclusive. The branch circuits 86 to 89 are connected to a wire 90 which is connected to the electric wire 52 as is clearly shown by the heavy lines in FIG. 8. The movable contact 84, as well as the stationary contact 83, when in the position shown in FIG. 8, completes the circuit comprising the wire 40, and when the timer is in this position energy is supplied to the gear shifting stick 39.

When the circuit 71 is completed by closing of the switch 15 or 72 the contact 84 is rotated in counterclockwise direction so that contacts 80, 81, 82 and 83 successively engage the contact 84. By this action the first yellow light 16 is lighted for a period of time, then the second yellow light 17 is lighted, the third yellow light 18 is lighted, and finally the green light 19 is lighted, which is the signal for the start of the race and is an indication that the gear shifting mechanisms may now be operated. In this position, as previously stated, the circuit wire 40 forms a complete circuit to the sticks 39.

In the circuit 71 below the start switch, is a switch 91 for each gear shifting mechanism. Whenever the stick 39 is in a neutral position the switch 91 is closed. Whenever the stick is in a position to complete number one gear of the circuits, operating mechanism diagrammatically illustrated by the part 92 will open its associated switch 91 and break the circuit to the timer motor 70. This prevents false starts. If a driver, as illustrated in FIG. 10, moves into the first gear shift position before the green light is illuminated the motor stops and will remain stopped until the stick is again moved into a neutral position, at which time the circuit to the motor will be completed and the contact 84 will thereafter continue to rotate until it reaches a position where contacts 83 and 84 are in an engagement. At this time the sticks 39 are energized through the wire 40 and the switches 91 may then be opened without interfering with the further operation of the various switches and a playing of the game.

As shown in FIG. 1, there is a finish line housing 100 at the far end of the tracks, which includes a win light 101 for each car. The car reaching the finish line first will actuate a win switch and light the proper light.

One or the other of the win lights 101 is actuated by the switch shown in FIGS. 4 to 6. As shown in these FIGS. there is a bracket 103 having a pair of actuating plates 104 and 105 mounted on a vertical pivot 106 and held against a stop 107 by spring 108 connected to each of the actuating plates. Each light 101 is connected in an extension of a circuit wire 33, which extends to a spring contact switch element 110 secured to a bottom plate 111 which is made from an electrical insulation material of the bracket 103. There is a central movable switch element 112 which is flexible and is in the form of a coil spring as shown. This movable switch element extends upwardly between the two stationary contacts 110, and when the actuating plates 104 and 105 are in nonactuated position, as shown in FIG. 4, the upper end of the spring contact 112 is flexed away from both of the stationary contacts 110 and out of contact therewith. The movable contact is connected to each track element 25 by a wire 114 so that when there is engagement between the movable contact and one of the stationary contacts, one of the lights 101 will be lighted. As shown in FIG. 6, car 56 on the left track or roadway has reached win position and has swung plate 104 into an actuated position, which has allowed the movable contact spring 112 to slide along the surface 115 of the actuating plate 105 into engagement with the left stationary contact 110. This will light the light showing that the left car has won the race. This movement places an additional pull on the spring 108 and when the second car reaches the finish line the plate 105 is blocked from movement. Therefore, the right-hand light 101 will not be lighted. When the cars are reversed from finish line position the parts return to the position shown in FIG. 4.

In order to reverse the cars and return them to the starting line the gear shifting sticks 39 are moved into the slots 49 to engage the reverse switch actuator 50 and to move it to cause the operation which will now be described. As shown in FIG. 9, the left gear shift has been actuated so that the stick 39 has moved the actuator 50 and moved switches 53 and 54 from the positions shown on the right side of FIG. 9 into a position in which a reverse current will be supplied through the track elements to the car, running the motor in a reverse direction and returning it to starting position.

Switch 53 has stationary contacts 120 and 121 which are engaged by movable contacts 122 and 123 respectively when the switch 53 is in its normal nonreversing position. Actuation of the actuator 50 through linkage or lever means indicated by dotted lines 124 moves the contacts 122 and 123 into engagement with contacts 125 and 126. Stationary contacts 120 and 126 are connected together by an electric wire 127 and stationary contacts 121 and 125 are connected together by an electric wire 128. The second switch 54 has movable contacts 130 and 131 which are moved from nonreversing position as shown on the right side of FIG. 9, into reversing position in which stationary contacts 132 and 133 are engaged as shown. Stationary contact 133 is connected to circuit wire 33 by a wire 134, which wire 33 is connected to track sections two and four, numbered 26*b* and 26*d* respectively.

Contact 132 is connected to circuit wire 37 by wire 135, which wire 37 is connected to track section three, numbered 26*c*. Movable contact 123 is connected by wires 140 to the hinged ends of contacts 130 and 131. When the parts are in the position shown at the left in FIG. 9, the current flows in a reverse direction through that portion of the circuit which is in dark lines. With the car in finish line position reverse current will energize the motor to run in a reverse direction and move the car along track sections four, three and two under power to track section one. Track section one, however, is not ener-

gized and when the car reaches track section one it will then coast to substantially starting position and may be manually moved to the exact starting spot.

In the foregoing I have described one form of my invention. It will be understood, however, that various modifications may be made without departing from the spirit and scope of the invention as defined in the appended claims and their mechanical equivalents.

I claim:

1. A drag race game in which at least a pair of contestants may race miniature vehicles against each other, comprising:

A. at least a pair of roadway means on which a vehicle is adapted to run;

B. a vehicle for each of said roadway means adapted to run therealong;

C. electrical circuit means whereby each of said vehicles may be energized to run along said roadway means;

D. a simulated automobile gear shift for each of said roadway means provided with a handle representative of a vehicle gear shift lever and being movable from a neutral position to at least one operative position to control one of said electrical circuit means for moving one of said vehicles along its roadway means;

E. start timing signal means operable to render the operation of said simulated gear shift means ineffective to energize its associated electrical circuit means until a start signal is given; and

F. means for terminating the operation of said start timing signal means should either one of the gear shift levers be moved from its neutral position into said one position prior to the start signal.