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RACING GAME APPARATUS

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FIG. 1.

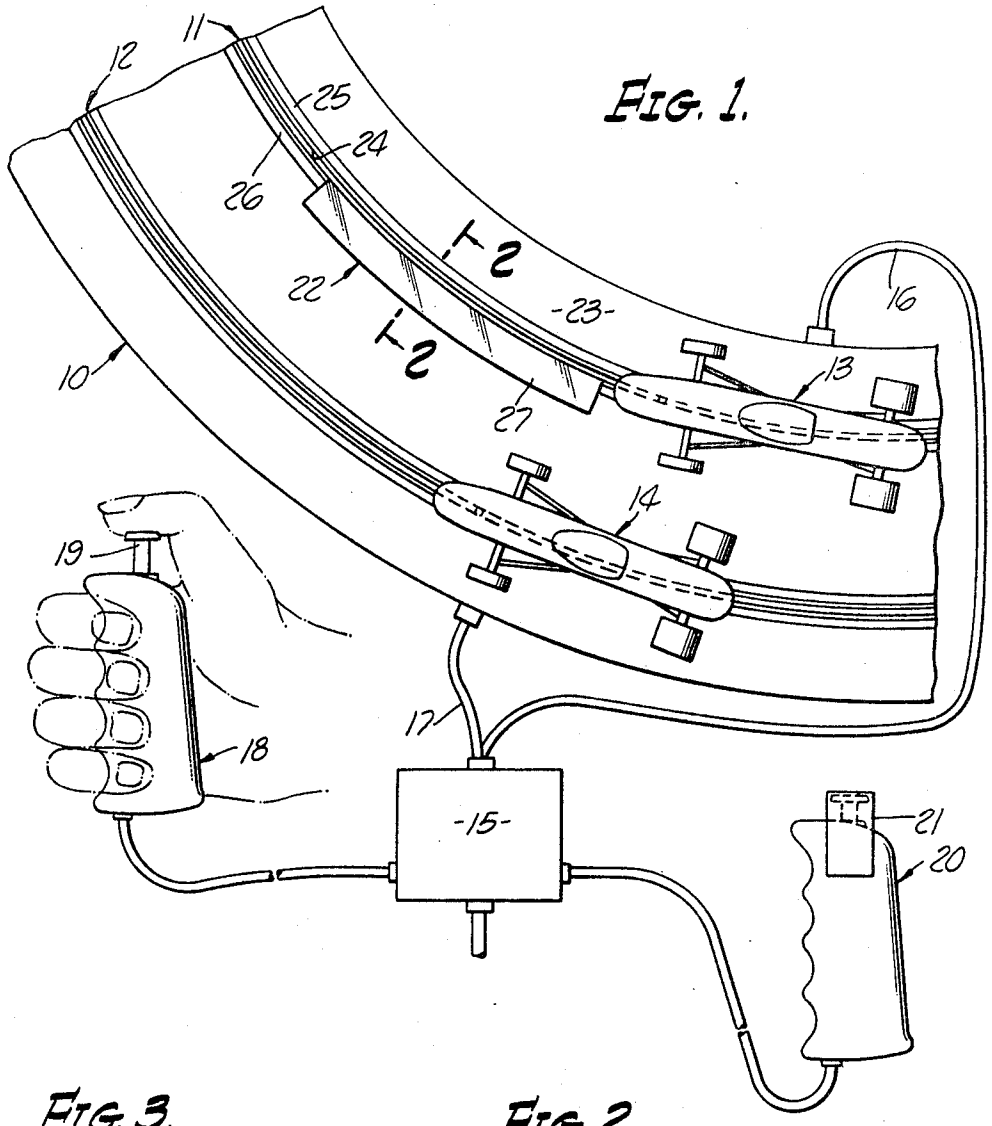


FIG. 3.

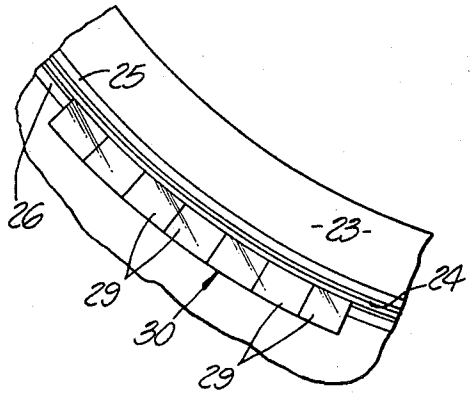
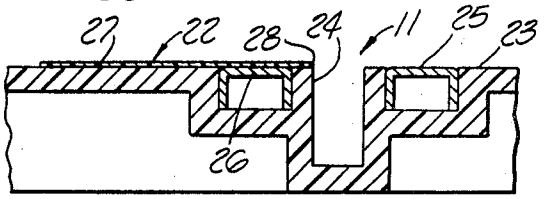


FIG. 2.



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RACING GAME APPARATUS

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ABSTRACT OF THE DISCLOSURE

A portion of the conductive rail for one track of a slot car racing track is covered with a thin insulative layer at the entrance portion to a curve. A car, against which other cars are to be raced, is disposed on this track and has its controller set for a high rate of speed. As the car moves into the curve at the high rate of speed, its motor is temporarily disconnected by the insulative layer which reduces the car's speed sufficiently to prevent it overturning on the curve. Cars on the other tracks race against the preset-speed car under the control of conventional hand controllers.

The present invention relates generally to racing game apparatus, and, more particularly, to model car racing apparatus in which one or more model cars are selectively controllable to race at various speeds against another car that is moving at a fixed rate of speed.

BACKGROUND OF THE INVENTION

In recent years considerable interest has been shown in model car racing or so-called "slot car" racing in which model cars provided with individual electric motors are caused to race around a track, the speed of each car selectively controllable by one of the participants in the sport. More particularly, the slot cars are driven along metallic tracks of predetermined configuration and by which electricity is provided to the car with the voltage applied to a given car being under individual control of a hand-held potentiometer or other transforming apparatus.

It has been the practice in the past to provide a number of such tracks in side-by-side relation, each track accommodating a single slot car whereby a number of participants can race one another. The speed of the cars and the structure of the tracks are such that a car has to be driven. That is, a car cannot be merely provided full power at all times since the speed in the straightaway would be too great to allow for negotiating a turn.

Moreover, since a primary ingredient of the sport is the competitive aspect, in the past this has necessitated at least two participants at all times. It would, therefore, be desirable to be able to race "solitaire" when another participant is not available. Also, in demonstration displays where slot cars and associated equipment are sold, solitaire racing can be a useful sales device.

It is therefore a primary aim and object of the present invention to provide a multitrack slot car racing apparatus in which one car is set to run at an optimally maximum velocity while the other cars remain under selective and individual speed control.

A further object is the provision of means for automatically controlling the speed of a slot car driving on a track having curved portions to maintain a substantially maximum speed.

SUMMARY OF THE INVENTION

The above objects and aims of the present invention are achieved by selectively modifying the electrical characteristics of one of the conductor tracks such that a slot car driving along the track will be provided with a constant electric driving power except for those places

which have been modified. At the modified track portions, the electric power to the motor is temporarily disconnected, allowing the car to slow down until it once again reaches a place where electrical connection between the conductor track and the car is resumed.

The car travelling on the modified track is the one that sets the pace for the other cars, and will be referred to frequently herein as the "rabbit" car. Cars on adjacent tracks are manually controlled by the participants in the sport and they race against the "rabbit" car.

In particular, the means by the speed of the "rabbit" car is automatically controlled is to provide an insulating means over extended lengths of the conductor track in the entrance region to the curves. Thus, when the controller of a rabbit car is set for maximum speed and it enters the modified curved track portion, upon encountering the insulating means electrical connection is broken, and the car then is driven entirely by inertia until is passes over the insulated portion and reestablishes electrical connection with the power source.

Other objects and advantages of the invention will be apparent to those skilled in the art upon reference to the following description when taken in connection with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWING

FIGURE 1 is a plan, perspective, partially fragmentary view, of a slot car race track illustrating the conductor track modifying feature of the present invention.

FIGURE 2 is a sectional, fragmentary, greatly enlarged view of the track taken along line 2—2 of FIGURE 1.

FIGURE 3 is a perspective plan view of a curved portion of the track as in FIGURE 1 showing a modified form of the invention for retarding car speed.

DESCRIPTION OF PREFERRED EMBODIMENTS

With reference now particularly to FIGURE 1, there is shown a portion of a model or slot car raceway **10** having a pair of tracks **11** and **12** along which slot cars **13** and **14** can be driven. By means conventional to the art, electric power from a remote source (not shown) is connected via power distribution means **15** and separate sets of lines **16** and **17** to tracks **11** and **12**, respectively, for providing electric power to energize the driving motors of the cars **13** and **14**.

It is also conventional to provide individual controlling means or "controllers" **18** that are held in the hand as shown, with regulation of the power to the car **14** effected by variable depression of the thumb actuator **19**. A similar controller **20** is shown strapped-down by means **21** applying a constant amount of power via the lead lines **16** to the car **13**. By a special speed control means **22**, the detailed structure of which will be described below, the car **13**, although driven with a constant amount of power in the straightaway, as it approaches a curve has its speed reduced sufficiently to prevent overdriving the curve.

The general principles of operation of the present invention are somewhat similar to those of driving a full-size car on a racetrack having fairly straight portions coupled by curved portions. That is, in the straightaway sections of the track, the auto can be driven at a high rate of speed, whereas on coming to the curved sections, speed must be reduced in order to stay on the track. In the case of the present invention, the car **13**, or "rabbit" car, throughout the straightaway of the track is maintained at a constant speed since the controller **20** is preset to provide continuously energizing voltage to the car motor. Upon entering a curved section of the track, however, the speed reducing means **22** disconnects power to the car **13** causing it to reduce its speed a sufficient amount

to transverse the curve section. Upon leaving a speed reducing section **22**, the car once again resumes its speed under the constant application of power of the controller **20**.

In the sectional view shown in FIGURE 2, the track **11** of the raceway **10** is seen to comprise an electrically insulative body having a generally flat upper surface **23** in which is formed a groove or slot **24**. This slot accommodates a resilient guide member caried by the model car to keep the car on the track. At each side of the slot **24** there are provided conductive rails **25** and **26** of generally U-shaped cross-section having an upper exposed surface that is substantially coterminous with the plane **23** of the raceway **10**. These conductive rails **25** and **26** are connected, respectively, to the two sides of a power supply via leads or cable **16**. Brushes (not shown) carried by the slot car **13** project from the lower surface of the car to contact the conductors **25** and **26** as the car traverses the track to receive energizing power.

According to one form of this invention, an elongated, relatively thin sheetlike member **27** made of a good electrical insulation material is disposed over and along the track **11** at the entrance to a curved track section. More particularly, the insulative layer **27** is a relatively thin, flexible plastic material having a cementitious material provided on its underside such that when applied to the upper surface **22** and over the conductive rail **25**, it will adhere to the surfaces of both, providing a smooth upper surface that will not disturb the car **13** as it passes thereover.

It is also important that the inner edge of the insulative layer **27**, identified as at **28**, does not project into the slot **24**, since this could contact the guide member of the car **14** and disturb its motion, perhaps even throwing the guide member out of the track and overturning the car. For this reason, the insulative strip **27** has its inner edge **28** either flush with slot wall or recessed slightly from the wall.

Where the insulative strip is constructed in a single piece, as depicted in FIGURE 1, it is important that the material from which it is made be able to stretch slightly along the convex portion of its periphery without buckling along the inner side in order to prevent the formation of raised portions or wrinkles that could interrupt the movement of the car **13** as it passes by. Excellent results to date have been obtained with the use of so-called masking tape, plastic electrical tape and other "stretch-type" elastic tapes. The cellophane tapes have not been found to stretch satisfactorily, nor lie flat on the curves, and instead tend to buckle and interfere with the car.

The exact length of insulating material to be applied on a given curve may have to be determined empirically. That is, depending upon the type of track, the bank of a curve, the extent of the straight run coming into a curve, and the like, more or less speed reduction will be required to keep the car on the track and yet provide optimally maximum speed.

As an alternate form of the invention, instead of providing the insulating layer in a single elongated strip, it may be constructed from a plurality of shorter pieces **29**, as is shown in FIGURE 3, abutting against one another or slightly overlapping. For the same track conditions, the total length of the strip **30** will be the same as for that in the first described embodiment. This form of the invention is advantageous in that it permis the use of insulative tapes which are not inherently elastic, such as, for example, the so-called friction tapes or cellophane

base tapes. A further feature of this embodiment of the invention is that in the event of power reduction from the source, causing the "rabbit" car to stop on the tape, a small section **29** of the insulating layer **30** may be quickly removed, thereby shortening the insulation path and raising the speed of the car in that curve.

I claim:

1. In a multitrack slot car raceway having a continuous closed-path slot for each track for receiving appropriately shaped members of a slot car therein and guiding the car as it is driven, conductive rails disposed at each side of the slot for carrying electric power to be transferred to brush means on the car, power to the conductive rails being under the control of selectively variable means, the improvement comprising, in combination: securing means associated with the selectively variable means for one of said tracks to maintain the power to the associated rails at a preset level; and an insulative layer disposed in covering relationship to a section of one of the conductive rails of the track to which constant power is being provided, said insulative layer being located generally adjacent the entrance portion to a curve on the raceway.

2. In a multitrack slot car raceway as in claim **1**, in which the insulative layer extends longitudinally of the conductive rail such amount that the car arriving at the layer will be decelerated such amount as to prevent its leaving the track due to excess speed.

3. In a multitrack slot car raceway as in claim **1**, in which the insulative layer includes a plurality of individual strips adhered to the surface of the conductive rail, said strips arranged in abutting relation so that the brush means carried by a car passing thereover will be fully insulated from the underlying conductive rail.

4. In a multitrack model car racing apparatus in which electric power is provided via individual conductive rails to each of the cars, the improvement comprising: an insulative layer including a strip of flexible insulation having a cementitious material on one surface that adheres the strip to the conductive rail and which disconnects distribution of power to a car driven thereover to reduce the speed of said car while passing thereover to some value greater than zero.

5. In multitrack model car racing apparatus in which electric power is provided via individual conductive rails to each of the cars, the improvement comprising: an insulative layer comprising a plurality of strips of insulation with an adhesive surface, said strips applied to the rail in a side by side arrangemnet extending longitudinally of the rail and disconnecting distribution of power to a car driven thereover to reduce the speed of said car while passing thereover to some value greater than zero.

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