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(54) Toy vehicle

(57) A remote-controlled vehicle (10) for use with a slotted track (27), the vehicle comprising: a chassis (11); guide means (17) rotatably attached to the chassis about an axis substantially normal to the chassis for engagement, in use, with a slot (28) in the track (27); and biassing means (22) for rotatably urging the guide means (17) to a predetermined orientation.

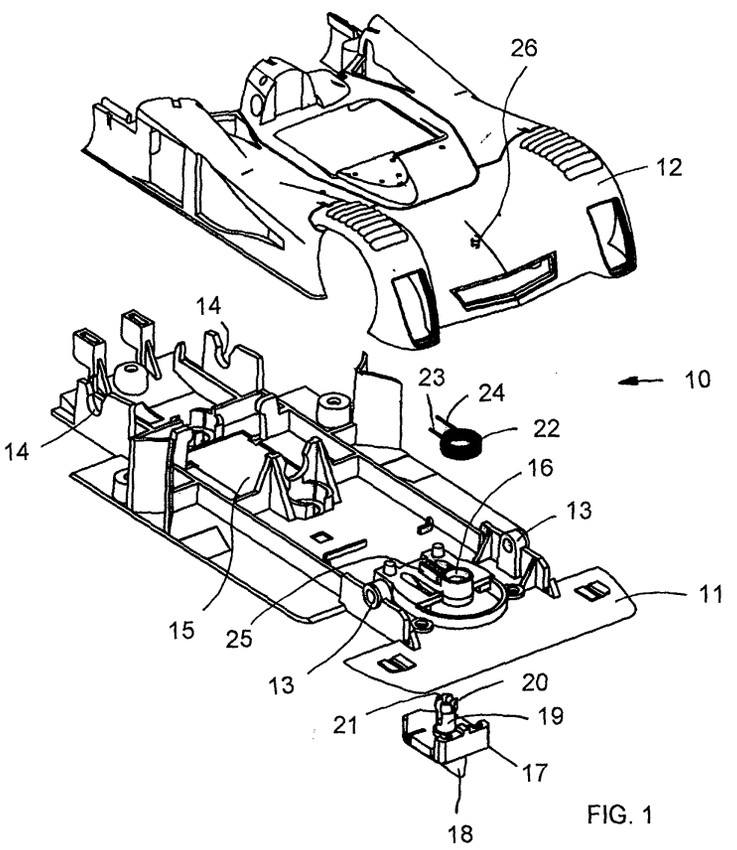

FIG. 1

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Description

[0001] This invention relates to remote-controlled toy vehicles for use with a slotted track and, in particular, to a means of guiding such a vehicle.

[0002] For a number of years, small scale slotted racing tracks, constructed out of interconnecting pieces of straight and curved track, on which racing cars, often small scale models of well known makes of car, may be driven have been widely available, the best known of these being our Scalextric®. Typically, a guide pin or the like is provided on the lower side of the vehicle and the cars travel around the track on their own course, predetermined by means of engagement of the guide pin with a slot within the track. An alternative to the guide pin is a blade which fits within the slot in the track.

[0003] Conventionally, the cars are propelled by an electrical motor mounted within the car, the motor being in electrical contact, via one or more shoes on the underside of car, with a corresponding number of electrically conducting strips on the track disposed immediately adjacent the slot. The conducting strips are connected to a power source which is normally a mains powered source, such as a transformer, but may be one or more batteries. As the car is propelled, the slot and guide means ensure that it follows the predetermined path around the track.

[0004] It is a common occurrence for the cars to be driven too quickly into and around the curves and bends on the track and, when this occurs, the guide means are prone to jump out of the slot in the track causing the electrical contact to the motor to be broken and for the car to leave the track and indeed this adds to the enjoyment of playing with the toys and skill is required to ensure that the vehicle remains on the track.

[0005] As is the usual case, when two or more people are racing against one another, it is important for the person whose car has left the track to return it as fast as possible to continue racing. This process can be delayed somewhat if the guide means cannot be located easily in the slot on the track so that electrical contact is made once again with the strips in the track such that the car can be propelled. This is a particular problem when a bladed guide means is used, as the orientation of the blade is not readily known to the player, and it can be difficult, especially for younger players, and time consuming, to locate the vehicle correctly on the track.

[0006] It is an aim of the present invention to provide a vehicle which does not suffer from the above problems.

[0007] According to the present invention, there is provided a remote-controlled vehicle for use with a slotted track, the vehicle comprising:

a chassis;
guide means rotatably attached to the chassis about an axis substantially normal to the chassis, for engagement, in use, with a slot in the track; and
biassing means for rotatably urging the guide means to a predetermined orientation.

[0008] In this way, the present invention allows the operator of the vehicle to know that the guide means will be in a specific orientation, so that it is quick and easy for the car to be replaced on the track and for racing to continue.

[0009] The guide means may be a blade or two pins arranged such that they can be inserted, in use, into the slot in the track.

[0010] Preferably, the biassing means, which is appropriately located concentric with a guide means mounting spigot attached to the guide means, comprises a coiled tension spring. In this way, the predetermined orientation of the guide means may be substantially parallel to the intended direction of travel of the vehicle, such that the guide means is "self centred" for simple replacement of the vehicle on the track.

[0011] Preferably, the biassing means comprises means for engagement with both the chassis and the guide means mounting spigot. Thus, when a coil spring is used, the spring is either wound or unwound as the guide means is turned one way or the other.

[0012] Preferably, there are means for preventing the biassing means from disengaging from the guide means mounting spigot. In most cases, the vehicle will be provided with a body shell, connected to the chassis, giving the appearance of a well known make of car. When such a body shell is provided, the means for preventing disengagement may be provided on the inner surface of the body shell. In the simplest form, this may comprise a protrusion which abuts against the biassing means. Alternatively or additionally, there may be means for engagement with or for covering the upper end of the guide means mounting spigot which are preferably mounted on the chassis.

[0013] One embodiment of the present invention is now described with reference to the accompanying drawings, in which:

Figure 1 is an exploded view of a vehicle according to the present invention;
Figure 2 is a cross-sectional view through the front end of the vehicle of Figure 1;
Figure 3 is an enlarged view of the preferred biassing means; and
Figure 4 is a perspective view of a track section on which a vehicle is being positioned for use.

[0014] As can be seen from Figures 1 and 2, a car 10 for use with a slotted track comprises a chassis 11 and a body shell 12. The chassis is provided with front 13 and rear 14 mounting points for front and rear axles respectively and on which wheels are located. The chassis 11 is provided with a section 15 in which an electric motor (not shown) is mounted in use and which engages with the rear axle (not shown) to drive the vehicle.

[0015] Towards the front end of the chassis 11, there is a bore 16, through which the guide means 17 is located. The guide means 17 includes a guide blade 18 and a guide blade mounting spigot 19, the spigot allowing the guide means 17 to pivot with respect to the chassis 11. The guide plate mounting spigot 19 extends through the bore 16 such that its upper end 20, in which a slot 21 is provided, protrudes above the upper end of the bore 16. A coiled tension spring 22 is fitted around the outer surface of and substantially concentric with the bore 16. The spring 22 has upper 24 and lower 23 arms, a respective one attached at each end of the spring, the arms extending substantially parallel to each other and away from the spring 22 such that the upper arm 24 engages with the slot 21 in the spigot 19 and lower arm 23 engages with a slot 25 on the chassis. In this way, if the guide blade 18 is displaced from the neutral position (its predetermined orientation) the coil spring 22 ensures that, once the displacing force is removed, the guide blade 18 returns to its predetermined orientation.

[0016] The body shell 12 is provided with a protrusion 26, which can be seen more clearly in Figure 2, that abuts the top of the spigot 19. The protrusion 26 prevents the upper arm 24 from becoming dislodged from the slot 21. If this were to happen, the self centring mechanism would not work.

[0017] The enlarged view of the coil tension spring 22 is shown in Figure 3 and this indicates more clearly the upper 24 and lower 23 arms which engage with slot 21 in the spigot 19 and slot 25 in the chassis 11 respectively.

[0018] Figure 4 demonstrates the positioning of a vehicle 10 on a slotted track 27. The guide blade 18 can be seen in its predetermined orientation for insertion into slot 28.

Claims

1. A remote-controlled vehicle (10) for use with a slotted track (27), the vehicle comprising:

a chassis (11);
guide means (17) rotatably attached to the chassis about an axis substantially normal to the chassis for engagement, in use, with a slot (28) in the track (27); and
biassing means (22) for rotatably urging the guide means (17) to a predetermined orientation.

2. A vehicle (10) according to claim 1, wherein the guide means (17) includes a blade (18).

3. A vehicle (10) according to claim 1, wherein the guide means (17) includes two pins.

4. A vehicle (10) according to any one of claims 1 to 3, wherein the biassing means comprises a coiled tension spring (22).

5. A vehicle (10) according to any one of the preceding claims, wherein the biassing means (22) is located concentric with a guide means mounting spigot (19) attached to the guide means.

6. A vehicle (10) according to any one of the preceding claims, wherein the predetermined orientation of the guide means (17) is substantially parallel to the intended direction of travel of the vehicle (10).

7. A vehicle (10) according to any one of the preceding claims, wherein the biassing means (22) includes means for engagement (23,24) with both the chassis (17) and the guide means (17).

8. A vehicle (10) according to any one of the preceding claims, wherein the vehicle is provided with a body shell (12) connected to the chassis (11).

9. A vehicle (10) according to any one of claims 5 to 8, wherein there are means (26) for preventing the biassing means (22) from disengaging from the guide means mounting spigot (19).

10. A vehicle (10) according to claim 9, wherein the means (26) for preventing the biassing means (22) from disengaging from the guide means mounting spigot (19) includes a protrusion (26) on the inner surface of the body shell (12).

11. A vehicle (10) according to claim 9 or claim 10, wherein the means (26) for preventing the biassing means (22) from disengaging from the guide means mounting spigot (19) includes means, mounted on the chassis (11), for engagement with or for covering the upper end of the spigot (19).

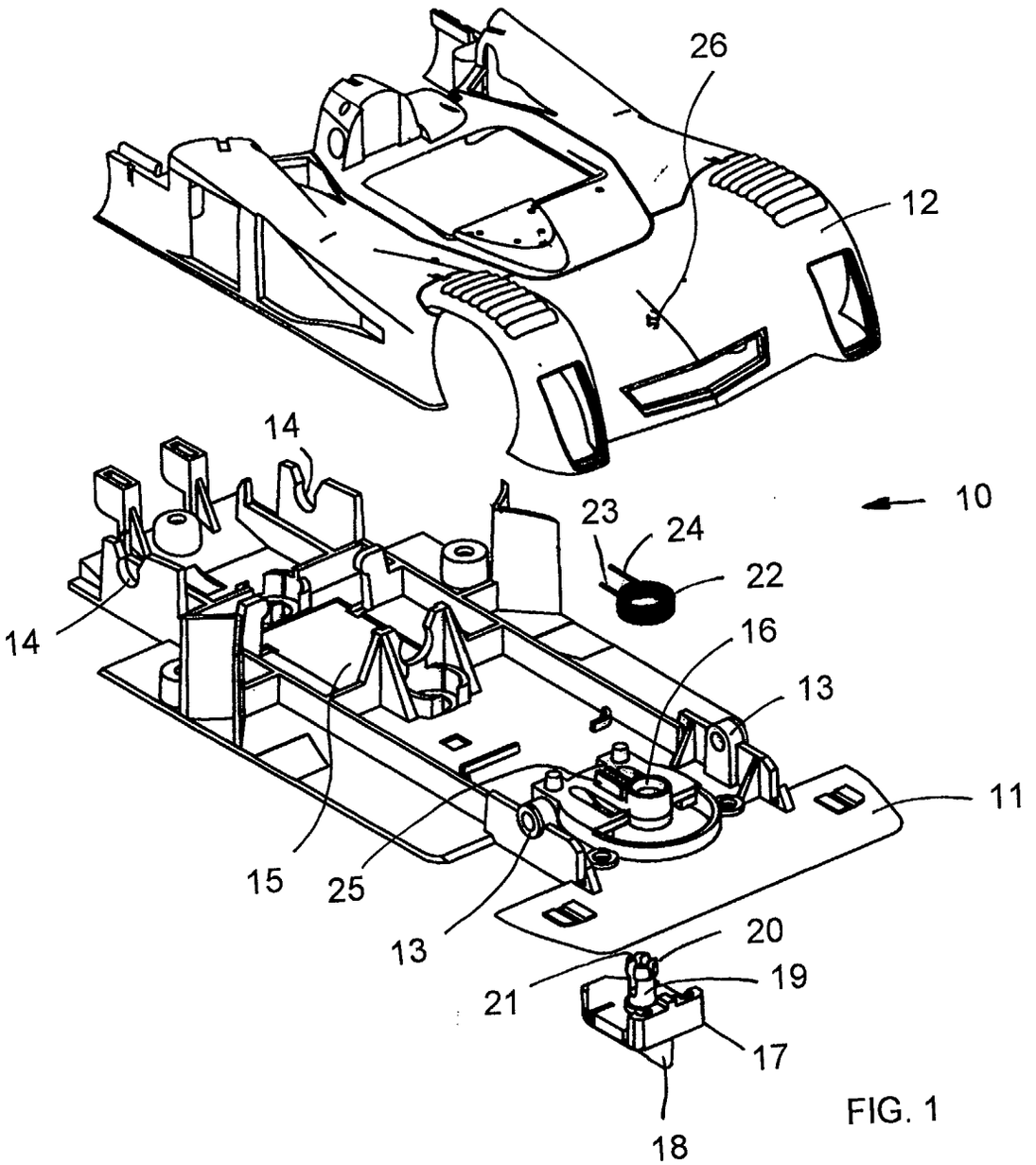

FIG. 1

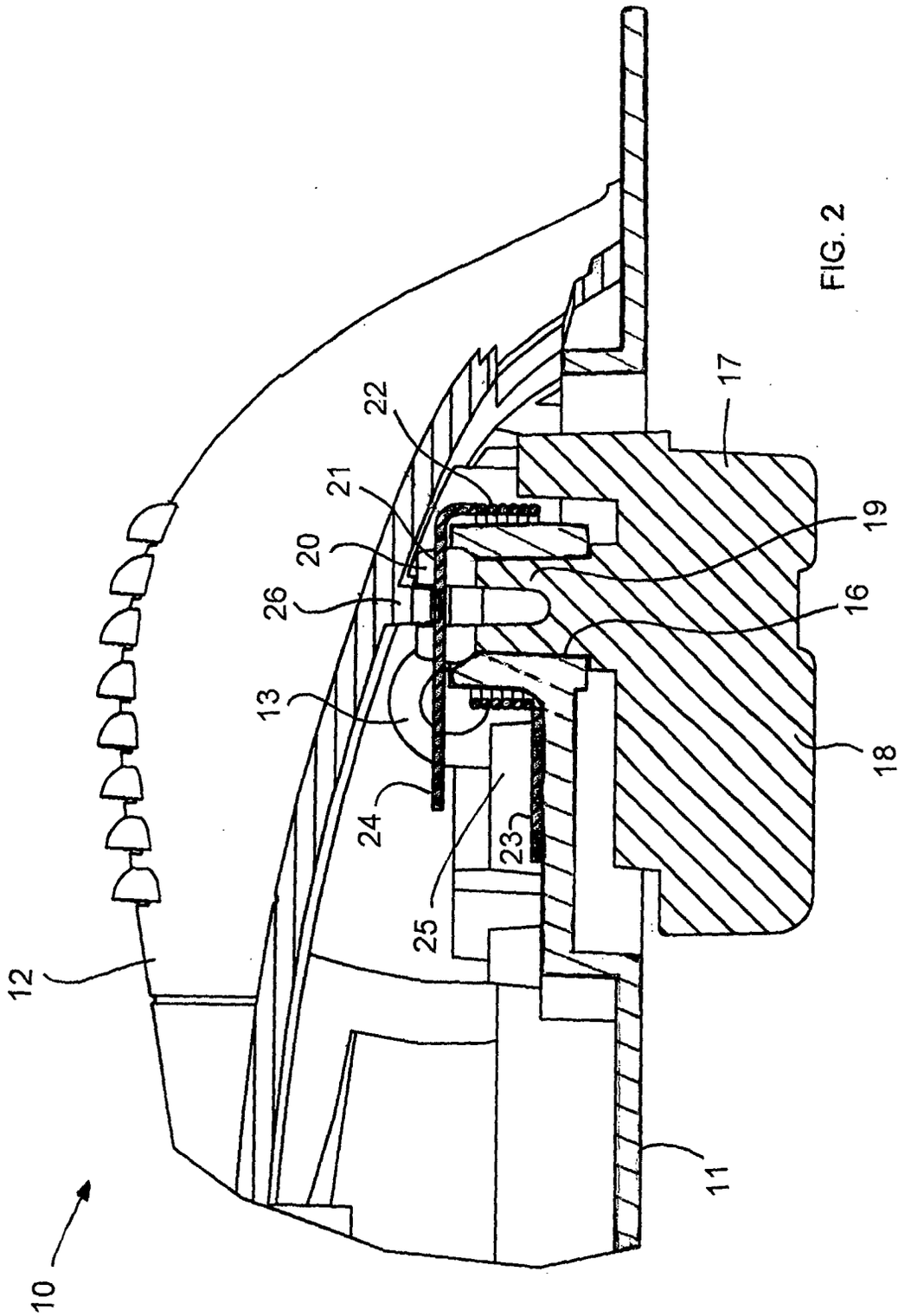

FIG. 2

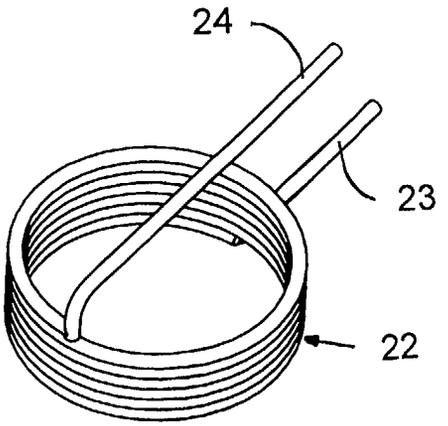

FIG. 3

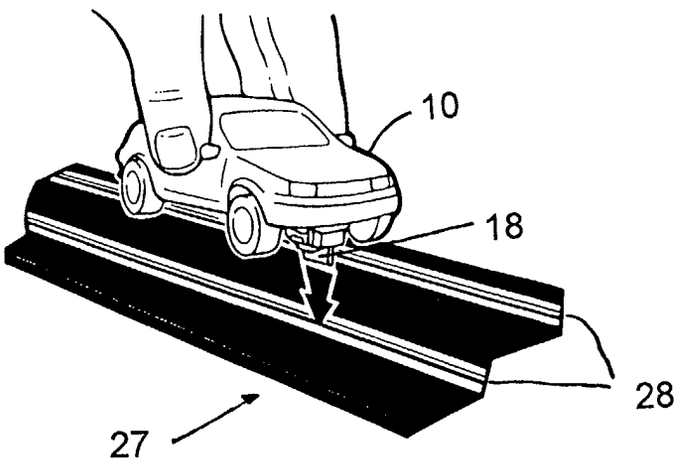

FIG. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 01 30 5933

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	US 3 159 109 A (BRAVERMAN ROBERT P) 1 December 1964 (1964-12-01) * column 5, line 16 - column 5, line 67; figures 1-3,6 *	1,2,5,7,8	A63H18/12
A	US 3 307 292 A (FILEGER EUGENE W) 7 March 1967 (1967-03-07) * column 3, line 48-61 - column 4, line 9-18; figures 1,2,6,9 *	1,2,8	
A	US 4 697 812 A (RUDELL ELLIOT A ET AL) 6 October 1987 (1987-10-06) * column 4, line 37 - column 5, line 21; figure 5 *	1,2,4	
A	US 4 295 295 A (BRAND DEREK A ET AL) 20 October 1981 (1981-10-20) * figures 1,3 *	3	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)
A63H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
MUNICH	25 January 2002	Lucas, P

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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25-01-2002

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