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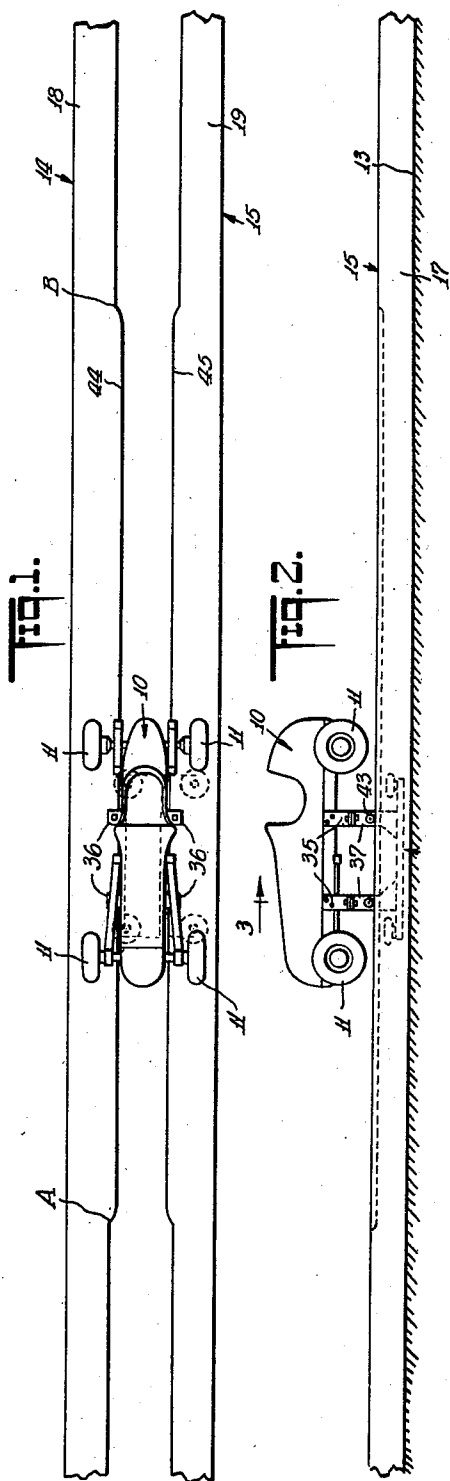
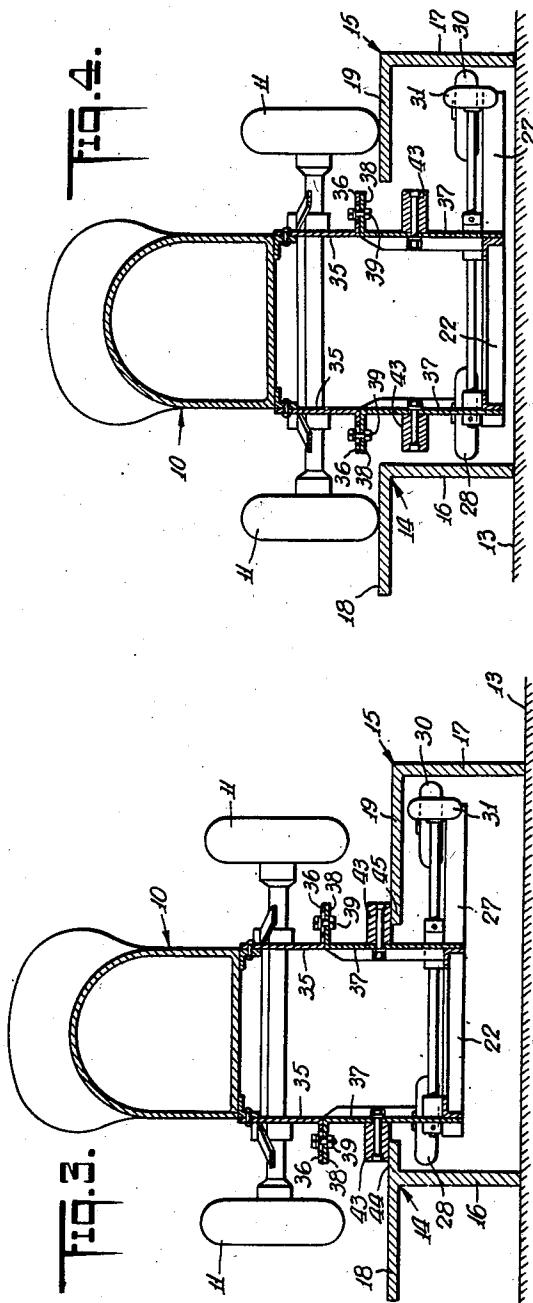
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2,306,049

MINIATURE SPEEDWAY DEVICE

Filed June 13, 1940

3 Sheets-Sheet 1



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Dec. 22, 1942.

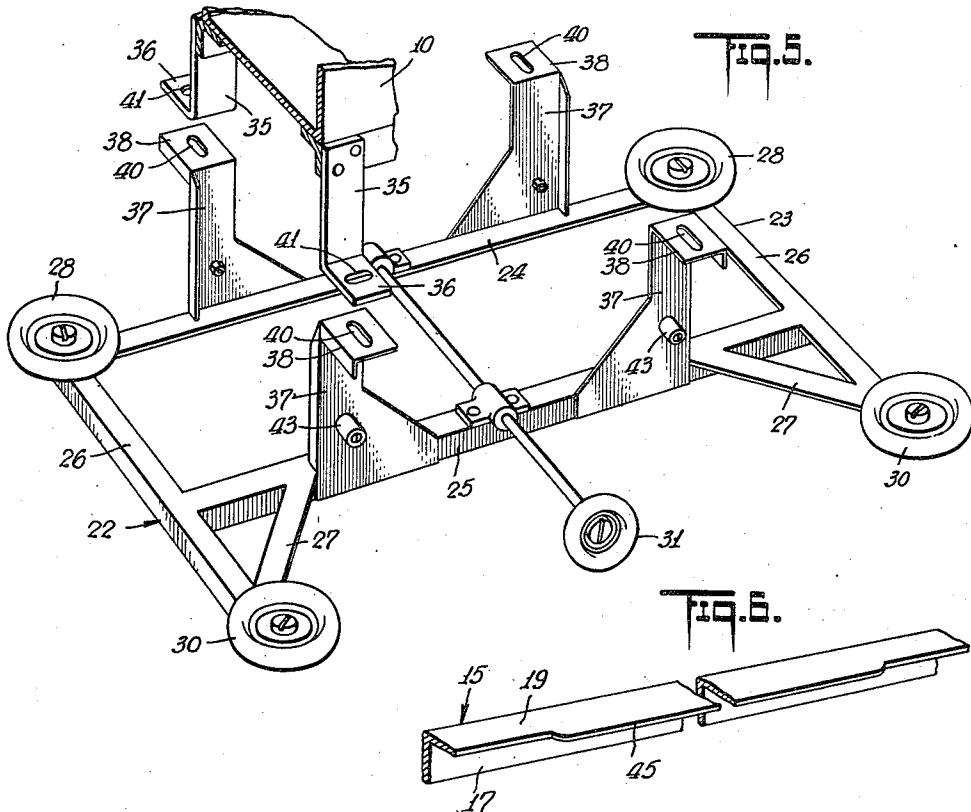
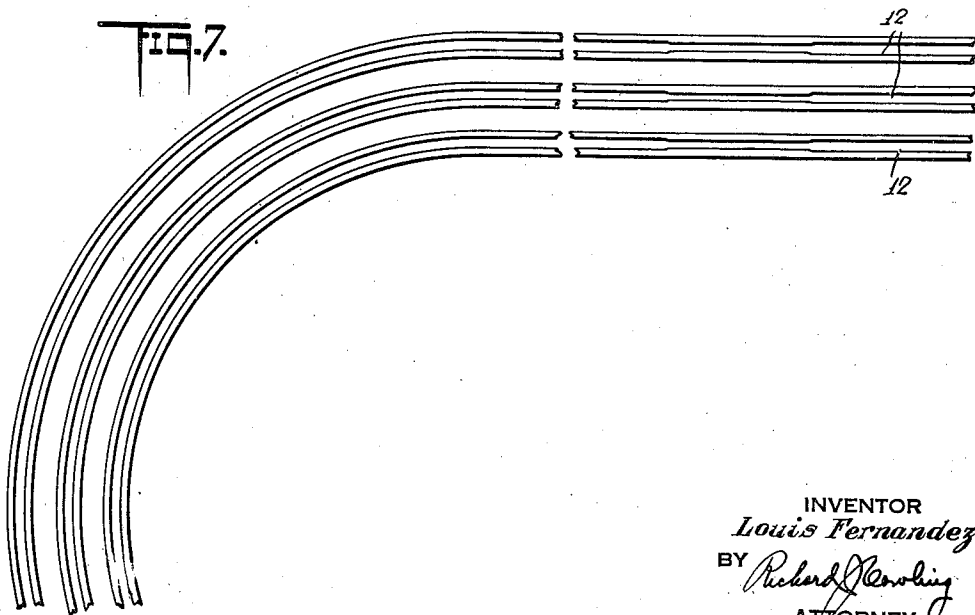
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MINIATURE SPEEDWAY DEVICE

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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

FIG. 8.

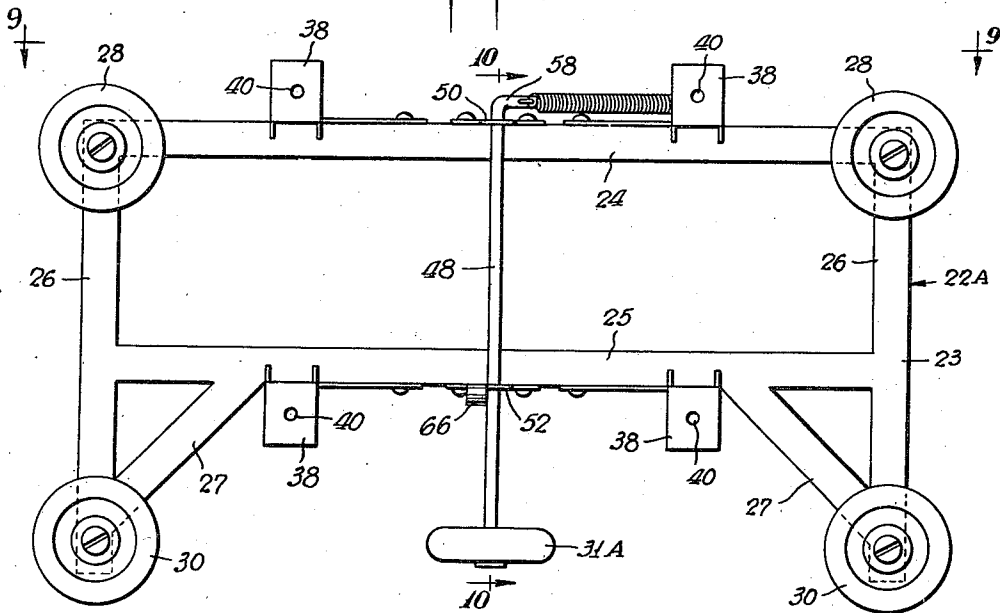


FIG. 9.

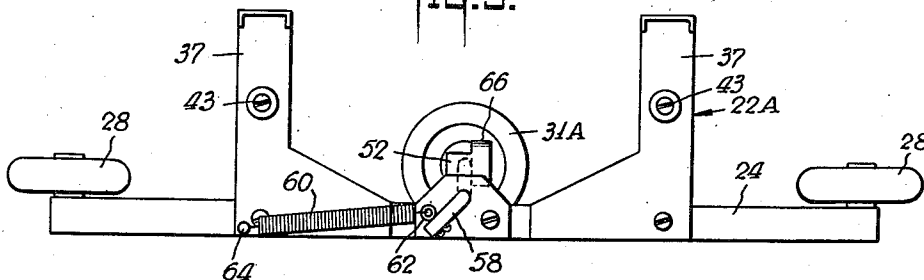
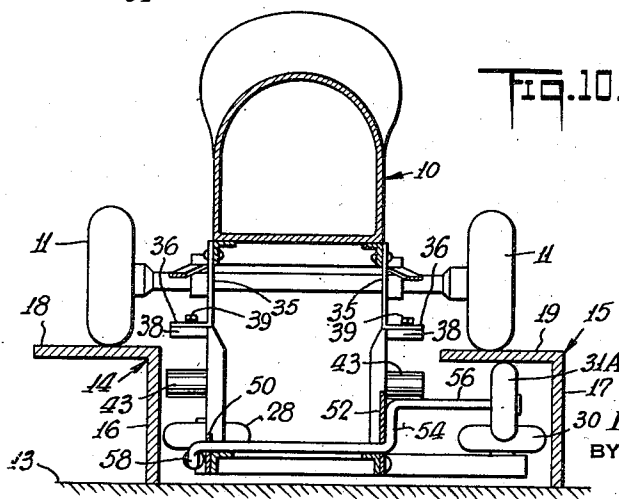


FIG. 10.



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UNITED STATES PATENT OFFICE

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MINIATURE SPEEDWAY DEVICE

Louis Fernandez, New York, N. Y.

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12 Claims. (Cl. 104—60)

The present invention relates to the art of miniature racing cars, and more particularly to a speedway device for such cars.

Hitherto most of the self-propelled miniature cars have been raced on a course, while held captive to a post in the center of said course. With this method, only one car at a time can be raced and each run must be timed independently. Since the winner of the race can be determined only after a comparison of the time records of the respective cars, the spectators miss the thrill of competition attending the simultaneous racing of the cars.

The usual miniature cars of the self-propelled type are required to be thrown, pulled or otherwise catapulted at the beginning of their run to prevent stalling of their motors. During this launching action, the car may be violently bounced and so jarred as to damage its comparatively delicate mechanism.

One object of the present invention is to provide a new and improved multiple track speedway of such construction as to permit the simultaneous racing of a number of miniature cars thereon.

Another object is to provide a new and improved speedway device, which guides the miniature racing car along a predetermined course while maintaining said car in stable equilibrium against the possibility of tilting, especially when going around curves.

Another object is to provide a new and improved speedway track device, which effectively holds the car against derailment even at high speeds, but which nevertheless permits easy and expeditious mounting of the car in operative position on the track or easy removal therefrom.

Another object is to provide a new and improved speedway device, by which the miniature racing car can be smoothly and effectively launched with a minimum of jarring action on said car.

Various other objects of the invention will be apparent from the following particular description, and from an inspection of the accompanying drawings, in which—

Fig. 1 is a top plan view of a section of the speedway device, embodying the present invention, and showing a miniature racing car in the process of being launched;

Fig. 2 is a side elevation of the construction shown in Fig. 1;

Fig. 3 is a section taken on line 3—3 of Fig. 2, but shown on a larger scale;

Fig. 4 is a section similar to that of Fig. 3,

but showing the car after being launched and while it is in tractive engagement with the track;

Fig. 5 shows a truck adapted to be attached to the racing car for guiding and launching purposes, and embodying certain features of the present invention;

Fig. 6 is a perspective of the car launching section of one of the rail members;

Fig. 7 is a top plan view of a section of the multiple track speedway course;

Fig. 8 is a top plan view of a modified form of truck adapted to be attached to the racing car for guiding and launching purposes, and embodying certain additional features of the present invention;

Fig. 9 is a side view of the modified form of truck shown in Fig. 8; and

Fig. 10 is a view similar to Fig. 4, but embodying the modified form of truck shown in Fig. 8.

The miniature car 10 used in conjunction with the speedway device of the present invention is desirably of the standard model type, self-propelled by a gasoline motor and provided with the usual tire wheels 11. For the purpose of the present invention, it is immaterial whether the car has a front wheel or rear wheel drive, since both sets of wheels are out of tractive engagement with the tracks during the launching operation as will be made apparent.

The speedway desirably comprises a plurality of parallel adjoining tracks 12 of oval or circular shape, arranged in encircling relationship as shown in Fig. 7, and supported on a suitable foundation 13. Each track comprises a pair of transversely spaced parallel rail members 14 and 15 in the form of angle irons, having depending flanges or webs 16 and 17 respectively, serving as guide rails for the car, and horizontal flanges or webs 18 and 19 respectively, serving as the traction rails. The two rail members 14 and 15 are desirably arranged to face in the same direction, so that the inside rail member 15 has its depending guide flange 17 on the inside rim of the track, and the outside rail member 14 has its guide flange 16 depending from the inner side of its traction flange 18.

The tracks 12 may be constructed preferably in sections, which are collapsible when disassembled, so as to permit packing into a relatively small compact unit that will facilitate handling and transporting from place to place where such races are to be conducted from time to time.

A truck 22 for guiding and launching the car 10 is detachably secured to the underside of said

car, and desirably comprises an open frame 23 of light metal construction such as aluminum. In the specific form shown, this frame 23 includes a pair of parallel bars 24 and 25, interconnected at their ends by a pair of transverse bars 26 to form a rigid rectangular open structure. Extending from and rigid with the inner side of this rectangular frame structure 23 at each end is a triangular truss 27. Mounted on vertical axes on the outer side of the frame 23 near the ends of the bar 24 for riding engagement with the guide rail 16 is a pair of tire wheels 28, and similarly mounted on the apices of the trusses 27 for riding engagement with the guide rail 17 is a pair of tire wheels 30. A fifth wheel 31, supported on the truck frame 23 and mounted on a horizontal axis, is desirably provided for riding engagement with the underside of the rail 19 when the car 10 is tilted in going around curves. All of the wheels 28, 30 and 31 are desirably mounted on suitable ball bearings.

In order to detachably secure the truck 22 to the underside of the car 10, said car has secured to each side of its chassis a pair of angular brackets 35, provided with horizontal foot flanges 36, and the two bars 24 and 25 of the truck frame have rigid therewith four upstanding brackets 37, which are relatively positioned to correspond to the position of the brackets 35, and which terminate at their upper ends in outwardly extending flanges 38.

In attaching the car 10 to the truck 22, the foot flanges 36 of the car brackets 35 are seated on the corresponding flanges 38 of the truck brackets 37, and are detachably secured thereto by suitable bolts 39 passing through openings 40 and 41 in said flanges. These openings 40 and 41 are desirably elongated with the upper ones extending cross-wise of the lower ones to compensate for any slight variations in the positions of the brackets 35 due to differences in the constructions of the cars.

Means are provided for supporting the car 10 in elevated position with its wheels 11 above the traction rails 18 and 19 for launching operations. This means desirably includes runners, preferably in the form of horizontal rollers 43, four being shown, mounted on and extending outwardly from the brackets 37 respectively. In order to support these rollers 43 during car launching operations, overhanging extensions 44 and 45 are provided on the traction rails 18 and 19 respectively along a straightaway section of the track to reduce the width of the space between the two rail members 14 and 15 at this section as shown in Fig. 1, and to form runways for the runners 43. The distance between the outer ends of the rollers 43 transversely of the track is greater than the width of the space between the facing edges of the traction rail extensions or runways 44 and 45, so that said rollers will ride over said extensions, while the car is being launched as shown in Fig. 3, and is less than the width of the space between the traction rails 18 and 19 along the racing or main course of the track as shown in Fig. 4 to permit said rollers 43 to drop between the rails when the car reaches said main course.

When the rollers 43 rest on the traction rail extensions 44 and 45 as shown in Fig. 3, the car 10 will be in elevated position with the wheels 11 spaced above the traction rails 18 and 19. In this position of the car, its motor will be running, and its drive wheels rotating without frictional tractive stalling interference from the traction rails 18 and 19. While in this position, the car 10

is given an impulse either by hand or through some suitable catapult device to urge the car 10 forwardly. When the car reaches beyond the end A of the overhanging or launching section of the track, the distance between the traction rails 18 and 19 is wide enough as already described to cause the rollers 43 to fall downwardly therebetween below the plane of the traction rails 18 and 19, and the car 10 is permitted to drop into the position shown in Fig. 4 with its wheels 11 resting on said traction rails. In this lowered position, the car 10, due to the catapult impulse imparted thereto, can continue its movement under its own tractive power.

After the car has made approximately one lap, the rollers 43, entering the launching section of the track at point B, will be riding below the plane of the traction rails 18 and 19 as already described, and will not interfere therefore with the continued racing movement of the car 10 under its own power for as many successive laps as is desired.

The car can be stopped by any suitable means well-known in the art. For instance, a flag at the stopping section of the track may trip a projecting ignition control lever on the car to shut off its motive power.

It should be noted that the center of gravity of the truck 22 is below the center of gravity of the car 10 and below its traction plane. The centrifugal tendency of the car to tilt counterclockwise about its left wheels 11 (Fig. 4) as it races around the curves is thereby counterbalanced by the stabilizing weight of the truck 22 in rounding said curves.

Furthermore, since the center of gravity of the truck is to the right of the center of gravity of the car (Fig. 4) due to the eccentric mounting of the two sets of guide wheels 28 and 30 with respect to the medial vertical plane of said car, this stabilizing effect of the truck 22 against centrifugal tilting of the car is enhanced.

Even assuming that the car does tilt in going around curves, the tilting will be counterclockwise about the left hand set of wheels 11 (Fig. 4). The set of guide wheels 28 will not move upwardly any substantial distance during this tilting action, while the traction rail 19, acting as a limiting stop against the upward movement of the other set of guide wheels 30 will prevent derailment of the car. If the car 10 tilts too far, the supplemental guide wheel 31 will come into play to engage the underside of the traction rail 19, and ride therealong.

In Figs. 8 to 11, inclusive, there is shown a modified embodiment of the invention, wherein the truck 22—A, which is identical in construction with the truck 22 of Fig. 5 except for the manner of mounting the supplemental or fifth wheel 31—A. In this modification, a horizontal shaft 48 is rotatably mounted in brackets 50 and 52 transversely of the frame 22—A intermediate its ends. A crank arm 54 extends at right angles from one end of the shaft 48, and has a crank shaft 56 projecting outwardly and horizontally therefrom upon which is rotatably mounted the supplemental or fifth wheel 31—A. The opposite end of the shaft 48 is provided with a crank arm 58 which extends obliquely forwardly approximately at an angle of 45° with respect to the crank arm 54. One end of a spring 60 is fixedly attached as indicated at 62, to the end of the crank arm 58 and has its opposite end secured to the bar 24 at a spaced distance forwardly thereof as indicated at 64. A stop 66 is integrally formed with the bracket 52, which limits movement of

the crank shaft 56 in one direction, which is backwardly of the truck 22—A. The spring 60 urges the crank shaft 56 against the stop 64 at all times when the wheel 31—A is not under pressure, which position is shown best in Fig. 10. When the pressure is exerted on the wheel 31—A by the engaging track 19, as when the car is rounding a curve, the wheel 31—A will be pressed downwardly against its spring urging tension so that even when the car 10 does tilt in going around curves, its tires 11 will remain at all times in contact with the tracks 18 and 19.

In the operation of the device, the guide truck 22 is first positioned between the two rail members 14 and 15. This may be accomplished by either assembling the truck 22 between the rail members 14 and 15, or if the truck is already assembled, it may be lowered obliquely between the two rail members 14 and 15 at the widened section of the track and moved onto the launching sections until the rollers 43 seat upon the overhanging rail extensions 44 and 45. The truck 22 is now ready to have the car 10 mounted thereon by seating the foot flanges 36 on the corresponding flanges 33 thereof, and attaching said flanges 36 and 38 rigidly together by suitable bolts 39. The car 10 can then be launched as already described.

As many changes could be made in the above construction, any many apparently widely different embodiments of the invention could be made without departing from the scope of the claims, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A track device for a miniature wheeled vehicle comprising a track having a launching section and a main course section along its length, means adapted to be secured to said vehicle for guiding said vehicle along said track, and means carried by said guide means for supporting said vehicle in elevated position along said launching section with the wheels thereof out of tractive engagement with said track, said guide means and said supporting means permitting said vehicle to drop to bring its wheels into tractive engagement with said track when said vehicle reaches said main course section.

2. A track device for a miniature wheeled vehicle comprising a track having a launching section and a main course section along its length, said launching track section having launching runway means therealong, and means adapted to be mounted on said vehicle for movement therewith and extending in position to ride over said runway means, to support said vehicle in elevated position along said tracking section with the wheels thereof out of tractive engagement with said track, said runway means being absent from said main course section to permit said vehicle to drop to bring its wheels into tractive engagement with said track automatically when said vehicle reaches said main course section.

3. A miniature track device for a miniature wheeled vehicle comprising a track having a launching section and a main course section along its length, said track including a pair of parallel spaced rail members, and a pair of spaced runways secured to said rail members respectively along the launching section thereof, and runners adapted to be mounted on said vehicle for

movement therewith, and in position to ride on said runways respectively to support said vehicle in elevated position along said launching section with the wheels thereof out of tractive engagement with said track, said runways terminating at the beginning of the main course section to permit said vehicle to drop to bring its wheels into tractive engagement with said track when said vehicle reaches said main course section.

4. A miniature track device for a miniature wheeled vehicle comprising a track having a launching section and a main course section along its length, said track including a pair of parallel spaced rail members, and a pair of spaced runways secured to said rail members respectively along the launching section thereof, and runners adapted to be mounted on said vehicle for movement with said vehicle, and in position to initially ride on said runways respectively when mounted thereon to support said vehicle in elevated position along said launching section with the wheels thereof out of tractive engagement with said track, said runways terminating at the beginning of the main course section to permit said vehicle to drop to bring its wheels into tractive engagement with said track when said vehicle reaches said main course section, said runners being adapted to pass under said runways when said vehicle passes over said runways with its wheels in tractive engagement with said track.

5. A track device for a miniature wheeled vehicle comprising a track having a launching section and a main course section along its length, said track including a pair of parallel spaced members provided respectively with traction rails, said rails overhanging inwardly along said launching section to form launching runways, and runners adapted to be mounted on said vehicle for movement with said vehicle, and in position to ride on said runways respectively to support said vehicle in elevated position along said launching section with the wheels thereof out of tractive engagement with said track, said runways terminating at the beginning of the main course section to permit said vehicle to drop to bring its wheels into tractive engagement with said track when said vehicle reaches said main course section.

6. A track device for a miniature wheeled vehicle comprising a track having a launching section and a main course section along its length, said track including a pair of parallel spaced rail members, each in the form of an angle iron with one horizontal flange serving as a traction rail, and the other substantially vertical flange serving as a guide rail for said vehicle, said traction rails overhanging inwardly along said launching section to form launching runways, and runners adapted to be mounted on said vehicle for movement with said vehicle, and in position to ride on said runways respectively to support said vehicle in elevated position along said launching section with the wheels thereof out of tractive engagement with said track, said runways terminating at the beginning of the main course section to permit said vehicle to drop to bring its wheels into tractive engagement with said track when said vehicle reaches said main course section.

7. A track device for a miniature wheeled vehicle comprising a track having a launching section and a main course section along its length, said track including a pair of parallel spaced rail members, each in the form of an angle iron

with one horizontal flange serving as a traction rail and the other substantially vertical flange serving as a guide rail for said vehicle, said traction rails overhanging inwardly along said launching section to form launching runways, a guide member mounted on said vehicle and having guide wheels riding along said guide rails, and runners supported on said guide member in position to ride on said runways to support said vehicle in elevated position along said launching section with the wheels thereof out of tractive engagement with said track, said runners being dimensioned to drop between said rail members when said vehicle reaches said main course section to permit said vehicle to correspondingly drop to bring its wheels into tractive engagement with said track.

8. A track device for a miniature wheeled vehicle comprising a track, having a launching section and a main course section along its length, said launching track section comprising a pair of spaced substantially horizontal runways, means adapted to be secured to the underside of said vehicle for guiding said vehicle along said track, and rollers supported on said guiding means and mounted on substantially horizontal axes, said rollers being mounted in position to ride on said runways to support said vehicle in elevated position with the wheels thereof out of tractive engagement with said track along said launching section, said runway being absent from said main course section to permit said vehicle to drop to bring its wheels into tractive engagement with said track when said vehicle reaches said main course section.

9. A track for a miniature wheeled vehicle comprising a pair of transversely spaced traction rails having inward extensions only along

a section of the length thereof to receive means adapted to support the vehicle in elevated position with its wheels out of tractive engagement with said rails for launching operations.

10. A track for a miniature wheeled vehicle comprising a pair of transversely spaced traction rails having inward extensions along only a section of the length thereof, and runners attached to said vehicle for movement therewith and positioned to ride along said rail extensions, the maximum distance between the outer sides of said runners across said vehicle being less than the distance between the rails beyond said track section, to permit said runners to drop downwardly between said rails when said vehicle reaches said section.

11. A track for a miniature wheeled vehicle comprising a pair of transversely spaced substantially parallel angle irons, each having a substantially horizontal flange defining a traction rail, and a substantially vertical flange defining a guide rail, and a runway secured to each of said irons only along a section thereof for supporting the vehicle in elevated position with its traction wheels above said traction rails for launching operations.

12. A track for a miniature wheeled vehicle comprising a pair of transversely spaced parallel angle irons, each having a substantially horizontal flange defining a traction rail, and a substantially vertical flange defining a guide rail, each of said traction rails having an inward extension along only a section of the length thereof defining a runway for supporting the vehicle in elevated position with the wheels thereof out of tractive engagement with said traction rails for launching operations.

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