

F. R. & R. B. FAGEOL.
PLEASURE RAILWAY.

APPLICATION FILED FEB. 10, 1908. RENEWED MAY 22, 1909.

927,517.

Patented July 13, 1909.

4 SHEETS—SHEET 1.

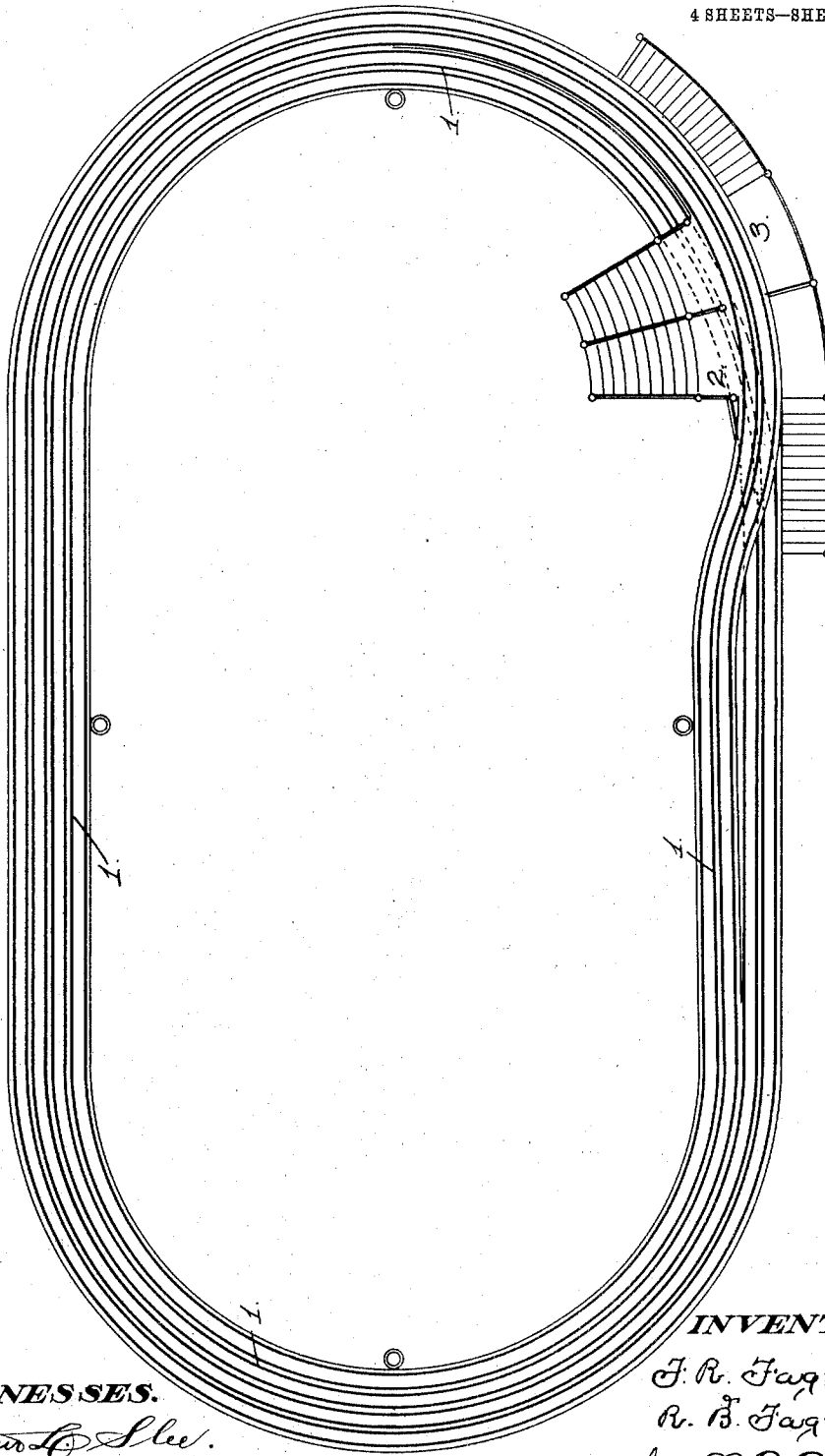


Fig. 1.

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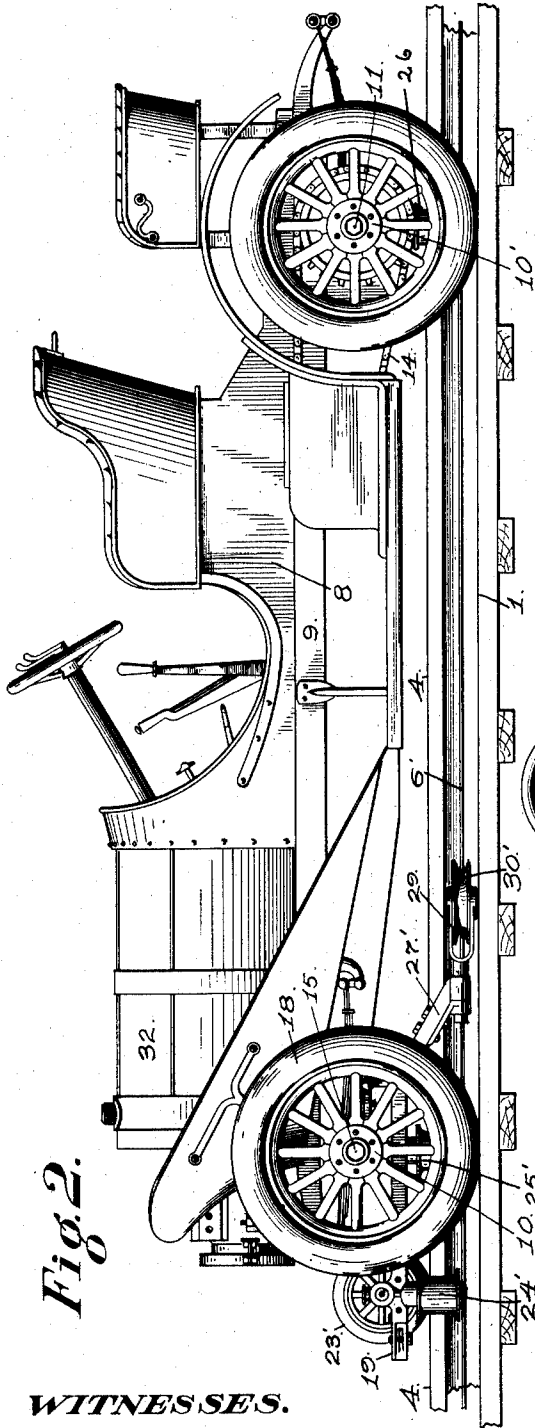


Fig. 2.

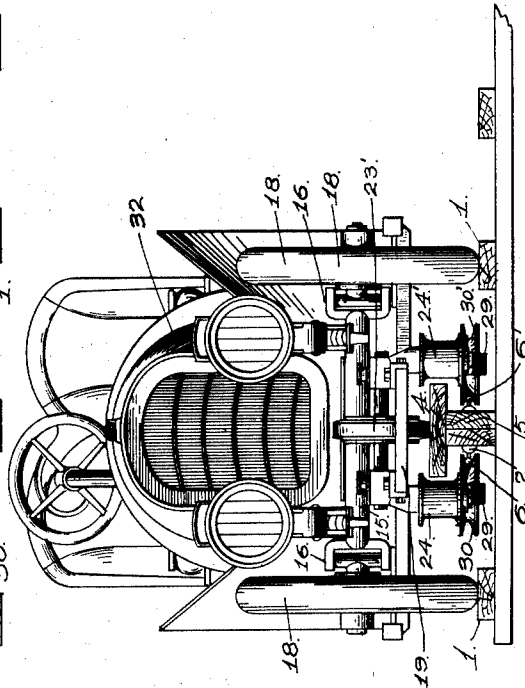


Fig. 3.

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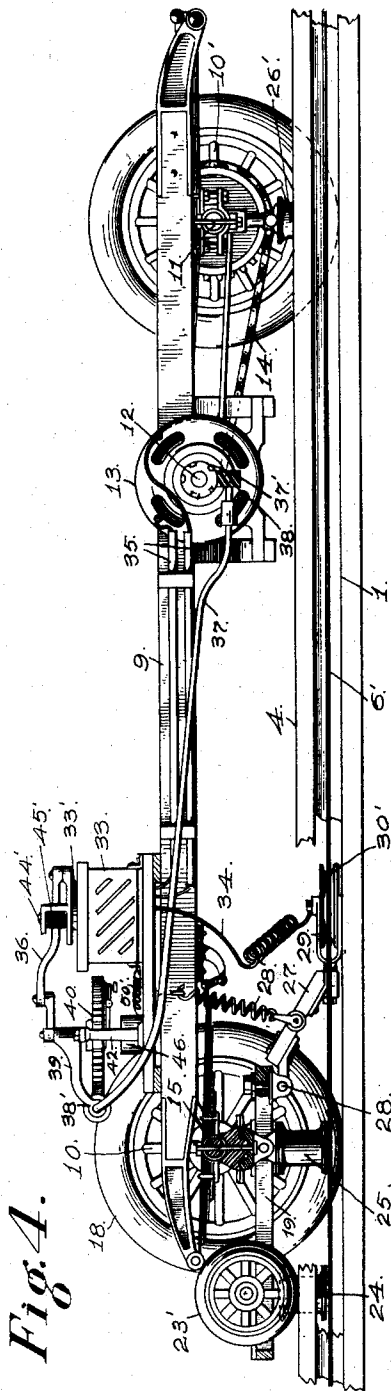


Fig. 4.

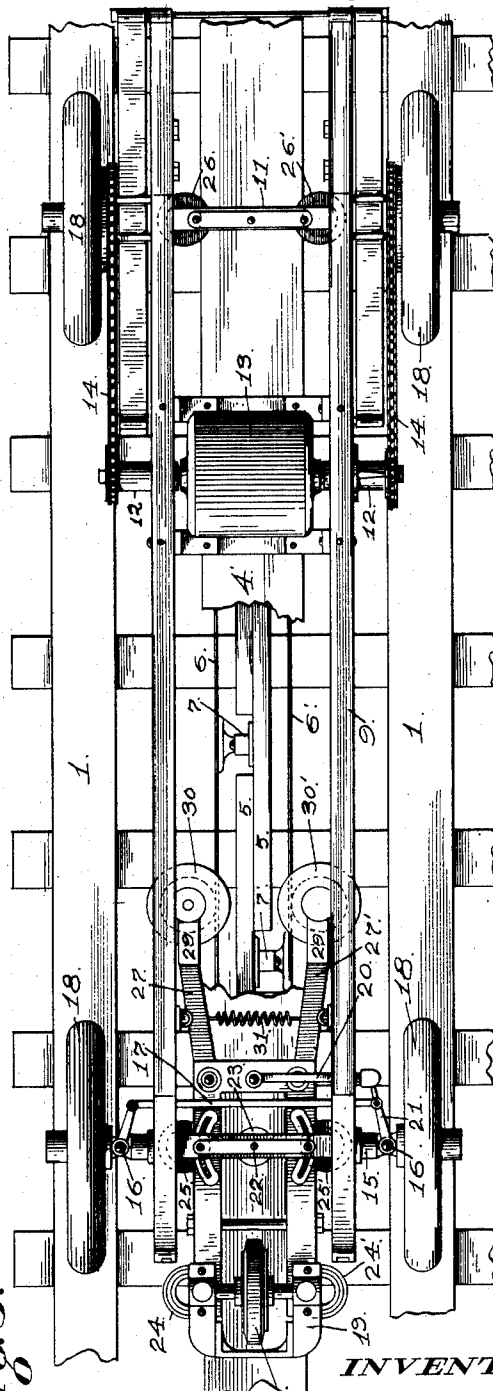


Fig. 5.

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4 SHEETS—SHEET 4.

Fig. 6.

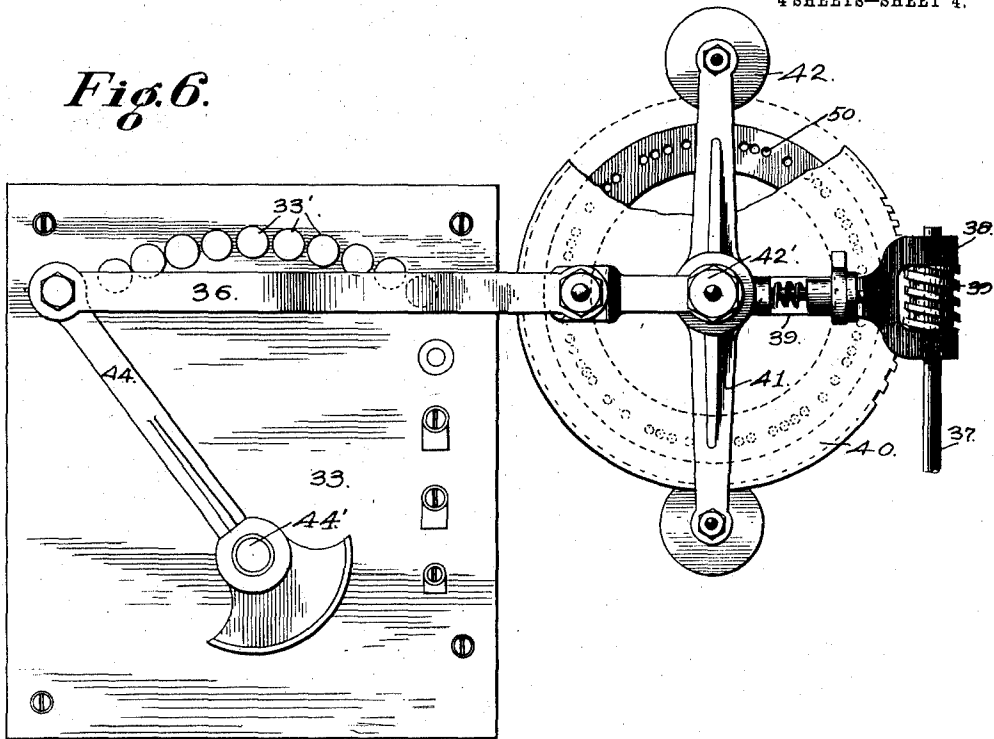
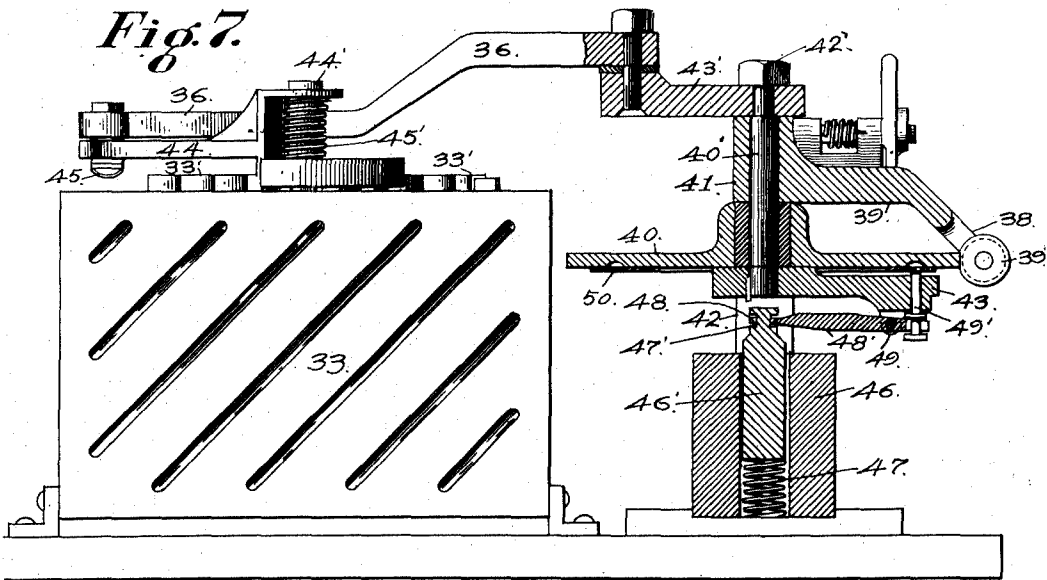


Fig. 7.



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UNITED STATES PATENT OFFICE.

FRANK R. FAGEOL AND ROLLIE B. FAGEOL, OF OAKLAND, CALIFORNIA.

PLEASURE-RAILWAY.

No. 927,517.

Specification of Letters Patent.

Patented July 13, 1909.

Application filed February 10, 1908, Serial No. 415,203. Renewed May 22, 1909. Serial No. 497,719.

To all whom it may concern:

Be it known that we, FRANK R. FAGEOL and ROLLIE B. FAGEOL, citizens of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Pleasure-Railways, of which the following is a specification.

The hereinafter described invention is designed for use more particularly in connection with amusement parks, and relates to a pleasure railway wherein is employed a series of propelled racing figures or objects, one object thereof being to utilize a series of racing figures—as for instance automobiles—which are propelled around a plurality of tracks constituting the raceways, each racing automobile being provided with means for automatically varying its speed during the racing movement thereof, whereby the automobiles gain and lose relatively to each other during travel around the respective raceways.

Another object of the invention is to provide automatic steering mechanism for the racing machines, whereby the same are guided or the direction as to the movement thereof changed in accordance with variations relative to the curvature of the trackways, and in providing of safety means for preventing the automobiles while traveling at a high rate of speed jumping the tracks.

A further object is the providing of means thrown into action on the establishment of an electric circuit whereby the controller handle of the rheostat is automatically actuated throughout the racing movement of the automobile in order to vary the speed of the same during its travel around the raceway.

To comprehend the invention reference should be had to the accompanying sheets of drawings, wherein—

Figure 1 is a plan view partly broken away of one form of a course or raceway. Fig. 2 is a broken side view of the trackway with one of the racing automobiles positioned thereon for travel. Fig. 3 is a front view in elevation of one of the racing automobiles positioned on its trackway. Fig. 4 is a longitudinal sectional view of one of the racing automobiles with its body removed, the same being illustrated on its trackway, which trackway is partly broken away in order to disclose the connection of one of the trolley wheels carried by the automobile with its current sup-

ply wire. Fig. 5 is a plan view of the features disclosed by Fig. 4 of the drawings. Fig. 6 is a detail plan view of the rheostat or starting box, its controller handle, and the drive means for throwing the controller handle into action during the racing movement of the automobile. Fig. 7 is a side view in elevation of the features contained in Fig. 6 of the drawings, the actuating mechanism for the controller handle being shown in vertical section.

In the drawings the numeral 1 is used to designate a series of tracks of suitable shape to form the desired racing course or trackways, which, in the present case, are illustrated as extended from a common inclined receiving station or starting point 2, and terminating at a common discharge station 3, arranged below the inclined receiving or starting station 2. The arrangement of the series of trackways is such that the rails or tracks pass beneath the receiving or starting station 2, so that the propelled objects make two circuits of the respective trackways or raceways for a single trip, thus extending the course or raceway and prolonging the ride for the occupants of the propelled objects, while permitting a greater number of such objects being placed into action at the same time. However, such an arrangement of the tracks is optional with the constructor of the pleasure railway, for where the course is of sufficient length, a single circuit of the raceways will suffice for the purpose of the invention. The inclined receiving or starting station is not essential, although preference is given thereto, due to the fact that a gravity start may be given to the objects to be propelled around the race course or circuit.

For the purpose of illustrating the invention, we have shown the propelled objects as comprising accurate representations of the standard types of automobiles, the object being to provide dummy models of different makes of automobiles as the racing objects, which form of racing objects will not only serve to familiarize the patrons of the pleasure railway with the various existing types of automobiles, but add materially to the interest taken in the said railway, and, also serve as an advertising medium for the manufacturers of automobiles.

Between the rails or tracks 1, of each raceway is arranged a central guide-rail, which, in the present case, comprises a tread 4, held a slight distance above the surface of the

ground by means of the support 5. This central guide-rail extends entirely around the course of each raceway, and corresponds to the shape thereof and to the rails or tracks 1, being situated midway between the said rails or tracks 1 of each raceway, Figs. 1 and 3 of the drawings. The tread 4 of the central guide-rail overhangs the central support 5, and beneath the said overhanging portions 10 of the said tread 4, the current supply wires 6—6' are located, which wires are held to the central support 5 by means of the usual bracket hangers 7.

The body 8 of each automobile employed 15 as a racing figure or object rests on a suitable frame 9, which is supported by the forward and rear wheels 10—10', which wheels travel on the rails or tracks 1. In all details so far as concerns external appearances, the said 20 figures or objects are exact counterparts of existing automobiles of the standard types. The rear wheels 10' which work on the axle 11, are driven from the shaft 12 of the electric motor 13, by means of the sprocket drive chains 14, while the forward wheels 10 are 25 connected to the fixed or stationary front axle 15 by means of the knuckles 16, which are connected by the connecting rod 17. The supporting wheels 10—10' of the automobile 30 are illustrated as equipped with rubber tires 18. During the travel of the automobiles around the trackways, the forward wheels 10 are automatically turned or guided to adapt themselves to changes in the curvature 35 or direction of the rails or tracks 1, by means of the steering frame 19, which frame, at its rear end portion carries the steering rod 20. The outer end of the said rod is connected to a lower crank arm 21 of one of the knuckles 40 16, so that as the steering rod is moved inward and outward by the swinging action of the steering frame, it actuates one of the knuckles 16, and, through the medium of the connection of said knuckle with its opposing 45 knuckle, turns the forward wheels 10 in the desired direction, or in accordance with the curvature of the rail or tracks 1.

The steering frame 19 is pivoted by the king-bolt 22 to the fifth wheel 23 of the automobile frame, so that the steering frame 19 is free to swing or turn on its king-bolt as a center of oscillation, the said steering frame having its outer end portion sustained by means of the supporting wheel 23'. This 55 supporting wheel bears or rides on the tread 4 of the central guide-rail, its axle working in bearings of the forward end of the steering frame.

The lateral movement or play of the steering frame 19 is effected by means of the flanged guide-rolls 24—24', secured on axles depending from the forward portion of the said frame, and at each side thereof. These guide-rolls bear against the side edges of the 65 tread 4 of the central guide-rail, conse-

quently follow the curvature of the said rail, which corresponds to that of the rails or tracks 1. As the central guide-rail departs from a straight line, the guide-rolls 24—24' will act thereagainst, and swing the steering 70 frame 19 in accordance with such change, the movement of which steering frame being transmitted by the steering rod 20 to operate the connection 17 to turn the forward wheels 10 of the automobile to accordingly change 75 its direction of travel.

Owing to the high rate of speed attained by the propelled objects during their course of travel, it is deemed advisable as a safety precaution that means be provided to prevent the racing automobile jumping the tracks or rails. A simple manner of accomplishing this end is by the employment of the forward keeper rolls 25—25', and the rear keeper rolls 26—26'. These keeper rolls 85 work on axles depending from the frame or bed of the racing cars or automobiles, and they straddle the tread 4 of the central guide-rail. Should the automobile swerve suddenly outward, the inner keeper rolls 25—26 90 bear against the inner edge of the tread 4 and hold the machine from jumping the tracks, while in case the machine tends to swing inwardly, it will be held onto the tracks by means of the keeper rolls 25'—26' bearing 95 against the outer edge of the said tread 4 of the central guide-rail. The racing car or machine is thus positively held to the tracks or rails, and accidents due to the car or machine jumping the track is avoided. 100

To the steering frame 19, the rearwardly extended trolley rods 27—27' are pivoted to swing in a vertical plane, the said rods being pivoted to the hinge connections 28. The trolley rods 27—27' are held in adjusted position by means of the springs 28', which connect the same to the bed of the machine. These trolley rods are extended at a downward inclination, and to the same are turnably secured respectively the hangers 110 29—29', which carry the trolley-wheels 30—30'. The said trolley-wheels travel beneath the overhanging portions of the tread 4, at each side of the central support 5 of the central guide-rail, and make contact respectively with the current supply wires 6—6' 115 being held in contact with said wires by the tension of the connecting spring 31, which spring connects the trolley-rods 27—27' laterally. 120

Within the hood 32 of each racing automobile is located the rheostat or starting box 33, the resistance coils of which connect in the usual manner with the contacts 33'. The rheostat is connected with the trolley-wheels 125 30—30' by means of the insulated wires 34, so that the current passes from the wires 6—6' through the trolley-wheels 30—30' to the rheostat. Inasmuch as the said rheostat, controller or starting box is of the usual con- 130

struction, detailed description thereof is not necessary for an understanding as to the working thereof. By means of the insulated wires 35, connection is made between the rheostat and the electric motor 13.

Ordinarily the controller or rheostat handle 36 is moved forward and backward across the face of the rheostat by hand, to increase or decrease the current for actuating the drive motor 13. In the present case, we propose to operate the said handle automatically throughout the racing movement of the automobiles, so that the speed thereof will be constantly varied with respect to each other during their course of travel, so that, where a plurality of racing automobiles are operating at the same time, the series of racing objects will continually throughout the travel thereof gain and lose in speed relative to each other. Inasmuch as such variation in the speed of the racing automobiles is entirely automatic and not under the control of an operator, there is no certainty as to which of the series of automobiles will terminate the racing course or field in advance of the other, thus creating an interest in the race and adding materially to the pleasure of the occupants of the racing machines.

For automatically varying the speed of the racing machines independent of each other, there is extended from the drive motor 13 of each machine into the hood 32 thereof, a flexible shafting 37, which is driven by means of a gear 37' on the shaft of the motor 13 meshing with a pinion 38 on the said shafting. The opposite end portion of the flexible shaft 37 works in bearing 38' of the bracket 39, located within the hood 32. On this end portion of the flexible shaft 37 is secured a pinion 39', which meshes with a gear wheel 40, loosely mounted on a vertical spindle 40', extended through a yoke 41, within the said hood 32. The bracket 39 is carried by the yoke 41, which yoke is supported by the pillars 42, the vertical spindle extended through the said yoke being held in place by the nut 42'. On the lower end of the spindle 40' is secured a crank arm 43, while on the upper end portion of the said spindle is secured the crank arm 43'. The crank arm 43' is connected to one end of the controller or rheostat handle 36. The opposite end of the said handle 36 is pivoted to an arm 44, hinged to the stud 44', projecting from the top of the rheostat, controller or starting box 33. The said handle 36 is normally held back its full distance to clear its contact-spring 45 of the first contact 33' of the series of graduated contacts of the rheostat 33, by means of the tension of the spring 45', which spring is coiled on the stud 44'. One end of the said tension spring is fastened to the stud 44', while its opposite end bears onto the arm 44, loosely fitted or hinged to the stud 44

Immediately below the loose gear-wheel 40, is located a hollow magnet 46, within which is fitted the vertically movable metallic core 46', which is normally held upwardly by the pressure of the spring 47. This core piece 46' is grooved circumferentially at its outer or upper end, and within the groove 47' thus formed is fitted the inner forked end 48 of the lever 48', which lever is fulcrumed near its outer end between the ears 49 depending from the crank arm 43. The outer end of the said fulcrumed lever 48' engages the lower end of the vertically movable lock-pin 49', which pin extends through the head of the crank arm 43, and moves into locked engagement with one of the series of pin openings 50, in the under face of the driven gear wheel 40, which wheel is continuously driven during the operation or travel of the racing automobile by its engagement with the pinion 39'. Although the said gear wheel 40 rotates loosely on the spindle 40', still, the moment the lock pin 49' moves into locked engagement with either of the openings 50 of the series of openings in the under face of the said gear wheel 40, the crank arm 43 will be locked thereto and be carried around by the rotation thereof, and, as the said crank arm is locked to the vertical spindle 40', the rotary motion of the said gear wheel will be imparted to the vertical spindle 40' to rotate the crank arm 43', which arm, through its connection operates the controller handle 36, to reciprocate the same forward and backward across the face of the rheostat or controller 33, causing the contact spring 45 to make and break contact successively with each of the contacts 33', of the series of contacts, so that the speed of the motor 13 for the driving of the racing machine is gradually raised on the forward stroke of the controller handle 36, and gradually reduced on the return stroke thereof. The automatic change in the speed of the drive motor results in the machine gradually gaining and losing as to speed, with results, where a plurality of racing automobiles or other racing objects are employed, in the racing machines gradually gaining and losing in respect to each other throughout the entire course of travel.

The magnet 46 is connected to the rheostat 33 by the connection 50', so that the moment the circuit is closed between the trolley-wheels 30—30' and the rheostat 33, the magnet 46 is energized to retract or draw inward the core 46', the downward movement of which throws the outer end of the fulcrumed lever 48' upwardly to raise the lock pin 49', and position the same to engage with the first of the series of openings 50 which is brought into line with the lock pin 49' by the rotary travel of the gear-wheel 40. Just so long as the parts stand thus positioned, the rheostat or controller handle 36 will be reciprocated across the face of the

rheostat or controller box 33, and its contact spring 45 will successively make and break contact with the series of contacts 33' throughout the reciprocating stroke of the handle 36, gradually raising and lowering the speed of the racing automobile.

Briefly stated, the operation of the racing object is as follows: Where the gravity inclined receiving station is employed, the series of racing automobiles are permitted to descend by gravity from an alined position. The moment the bottom of the incline is reached, the trolley-wheels 30—30' make contact with the current wires 6—6', which start from such portion of the race course, and establish a circuit with the rheostat 33 and motor 13, actuating the motor to drive the automobile through the medium of the drive chains 14, while at the same time imparting rotation to the drive gear wheel 40, which is driven, as stated, by the rotation of the flexible shaft 37, the worm pinion 38 of which meshes with the teeth of the gear wheel 40. By the electrical circuit established, the magnet 46 is energized to retract the core 46', the downward movement of which actuates the fulcrumed lever 48' to raise the lock-pin 49' clear of the head of the crank arm 43, so as to position the same to enter the first opening 50 of the series of openings in the under face of the gear wheel 40. The moment the lock-pin 49' moves into engagement with the gear-wheel 40, the crank arm 43 will be locked thereto, and the rotary motion of the said gear wheel imparted to the vertical spindle 40', and to the crank arm 43' secured to the upper end thereof. The motion or rotation of the crank arm 43' is in turn transmitted to the controller handle 36, the reciprocating motion imparted to the said handle causing the same to move forward and backward across the face of the rheostat or controller box 33, so as to place the contact-spring 45 of the handle successively in contact with the series of contacts 33'. As the contact-spring 45 is carried across the first contact of the series of contacts 33', the current to the motor 13 will be increased, which will be gradually raised as the contact-spring of the controller handle moves successively across the range of the contacts 33', and the speed at which the automobile is driven correspondingly increased. When the limit of the outward stroke of the controller handle 36 is reached, the same is moved inwardly to return to its starting point or position, the current supply to the motor 13 being gradually reduced, and the speed of the propelled machine correspondingly lowered. The racing machine thus gains and loses as to speed during its travel around the prescribed course of travel, or until it reaches the discharge station 3, at which point the trolley-wheels disconnect from the current supply wires 6—6',

so as to destroy the circuit to the motor 13. The moment the circuit is destroyed, the magnet or solenoid 46 is deenergized, when the pressure of the spring 47 exerts itself to raise or lift the core 46', actuating the fulcrumed lever 48' to depress the lock-pin 49 and move the same out of engagement with the gear wheel 40, so as to cause the spindle 40' to come to a state of rest. The tension of the spring 45' acting onto the controller handle 36, the same is thrown inward until its contact-spring 45 clears the first of the contacts 33' of the series of contacts with which the resistance coils of the rheostat or controller connect with.

Inasmuch as the lock-pin openings 50 of the series of openings in the under face of the gear wheel 40 are differently spaced in each machine or racing automobile, the same will be placed into action at the base of the gravity incline at different moments, dependent on which lock-pin 49' of the respective machines moves into locked engagement with the rotating gear wheel 40. Although one automobile may and undoubtedly will start the race in advance of the other racing automobile, still such a slight start at the commencement of the race does not insure that the machine so leading will be the winner of the race. This is due to the fact that the racing machines are gradually gaining and losing with respect to each other during the racing movement thereof. The race may terminate with the second machine to start, in advance of the one which led at the commencement of the race, for the position of the controller handle 36 relative to the graduated contacts 33' of the rheostat of such car may be such that it is traveling at a higher rate of speed than the opposing car or machine, the controller handle of which car may be on its return stroke to reduce the speed of the machine. Thus the winning or losing of the race between the automobiles is not dependent in any manner as to the starting position of the machines, but solely as to the rate of speed at which they are traveling relative to each other by reason of the position of the controller handle 36 of the respective machines.

While we have illustrated and described automobiles as the racing objects in connection with the pleasure railway, it is not our intention to limit the invention to the employment of such described type of machines, for it is obvious that any suitable form of wheeled objects may be utilized. Where the word car is hereafter used in connection with the claims, it is to be understood as referring to any wheeled object for movement on the tracks of the railway.

Having thus described the invention what is claimed as new and desired to be protected by Letters Patent is—

1. In a pleasure railway, the combination

with a plurality of tracks, of a central guide-rail arranged between the said tracks, current supply wires held by the central guide-rail, a car having movement over the tracks, an electrically operated drive motor on each of the cars and receiving energy from the current supply wires, trolley wheels carried by the cars, a rheostat mounted on each car and connected to take its current from the supply wires through the trolley wheels, a controller handle for the rheostat, and of mechanism carried by the car and thrown into action during the movement thereof for automatically operating the controller handle to gradually vary the speed of the said car relatively to the other cars throughout the racing movement thereof.

2. In a pleasure railway, the combination with a plurality of tracks, of current supply wires, cars having movement over said tracks, trolley wheels carried by the cars for cooperating with the current supply wires, an electric motor carried by each car, connection between the motor and the trolley wheels, a steering frame pivotally connected to each car for changing its direction of travel in accordance with changes in the line of tracks, and means carried by each car for automatically controlling the supply of energy to the drive motor to vary the speed of the car gradually relatively to the other cars during the travel of the cars over the tracks.

3. In a pleasure railway, the combination with a plurality of tracks, of cars having movement over said tracks, electrically controlled means carried by each car for operating the same over the tracks, current wires for supplying energy to said operating means, and mechanism carried by each car for automatically regulating the energy to the controlling means to vary the speed of the car during its movement relatively to the other cars.

4. In a pleasure railway, the combination with a plurality of tracks, of electrically operated cars propelled over the said tracks, of steering mechanism carried by each car for guiding the same in accordance with changes in the line of tracks, and means carried by each car for continuously varying its speed relatively to the other racing cars throughout the racing movement thereof.

5. In a pleasure railway, the combination with a plurality of tracks, of cars propelled over said tracks, electrically controlled mechanism carried by each car for operating the same independent of the other racing cars, of current supply wires cooperating with said mechanism, and means on each car for automatically varying the energy supplied to its electrically controlled mechanism to gradually increase and decrease its speed relatively to the other racing cars throughout the racing movement thereof.

6. In a pleasure railway, the combination with a plurality of tracks, of racing cars having movement over said tracks, an electric motor carried by each car for imparting travel thereto, current wires for supplying energy to the said motor, a rheostat on the car for regulating the current supplied to the motor, a controller handle for the rheostat, and of means on the car automatically thrown into action for imparting continuous reciprocating motion to the controller handle during the racing movement of the car to vary the current to the motor for gradually increasing and decreasing the speed of the car relatively to the other cars throughout the racing movement thereof.

7. In a pleasure railway, the combination with a plurality of tracks, of racing cars having movement over said tracks, a central guide rail arranged between the series of tracks, a steering frame pivoted to each racing car, guide rolls carried by the steering frame which cooperate with the central guide rail to swing the steering frame in accordance with changes in the line of tracks, and connection between the swinging steering frame and the wheels of the racing cars for guiding the wheels correspondingly with the movement of the steering frame.

8. In a pleasure railway, the combination with a plurality of tracks, of racing cars having independent movement over said tracks, of electrically controlled mechanism carried by each car for imparting movement thereto, a central guide rail arranged between each of the plurality of tracks, current supply wires secured to each of the guide rails, of means carried by the cars cooperating with the current wires for supplying energy to the electrically controlled mechanism of the cars, devices on each car for automatically varying the energy supplied to the controlling mechanism continuously during the racing movement of the car so as to gradually vary the speed of the car relatively to the other cars throughout the racing movement thereof, said devices being automatically thrown into action during the movement of the car, a steering frame pivoted to each racing car, and connection between said steering frame and the wheels of the car to which it is pivoted for guiding the wheels in accordance with the movement of the steering frame.

9. In a pleasure railway, the combination with a plurality of tracks, of racing cars having independent movement over said tracks, of means carried by each car for automatically varying the speed thereof relatively to the other racing cars during the racing movement thereof, and of devices carried by the car and thrown into action during its movement for continuously actuating said speed controlling means throughout the movement of the cars.

10. In a pleasure railway, the combination with a plurality of tracks, of racing cars having independent movement over said tracks, a central guide rail located between each of
5 the plurality of tracks, current supply wires secured to the said central guide rail, a motor on each of the racing cars for imparting motion thereto, connection between the said motor and the current wires for supplying
10 energy thereto, means carried by each car for controlling automatically the energy to the motor for varying the speed thereof to gradually increase and decrease the speed of its car relatively to the other racing cars during
15 their racing movement, and devices suspended from each car for coacting with the guide rail of its tracks to prevent the jumping of the car.

11. In a pleasure railway, the combination
20 with a plurality of tracks, of an inclined gravity starting station within the tracks, racing cars having movement over the said tracks, automatically operated means carried by each car for continuously varying its speed
25 relatively to the other racing cars throughout their racing movement, a central guide rail between each of the plurality of tracks, and devices carried by each racing car coacting with the said central guide rail to prevent the

car jumping the tracks when traveling at a
30 high rate of speed.

12. In a pleasure railway, the combination with a plurality of tracks, of racing cars having movement over the said tracks, an electrically operated motor on each car, a rheostat on each car for supplying energy to the
35 said motor, of current supply wires, trolley connections cooperating with said wires, a shaft driven by the motor, a gear wheel actuated by said shaft during the racing movement of the car, a controller handle for graduating the current supply from the rheostat to the motor of the car, and devices automatically thrown into action during the movement of the car for imparting continuous
40 reciprocating motion to the controller handle for gradually controlling the energy supplied to the motor to vary the speed of the car relatively to the other racing cars throughout the racing movement thereof. 50

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

FRANK R. FAGEOL.
ROLLIE B. FAGEOL.

Witnesses:

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A. C. FOSTER.