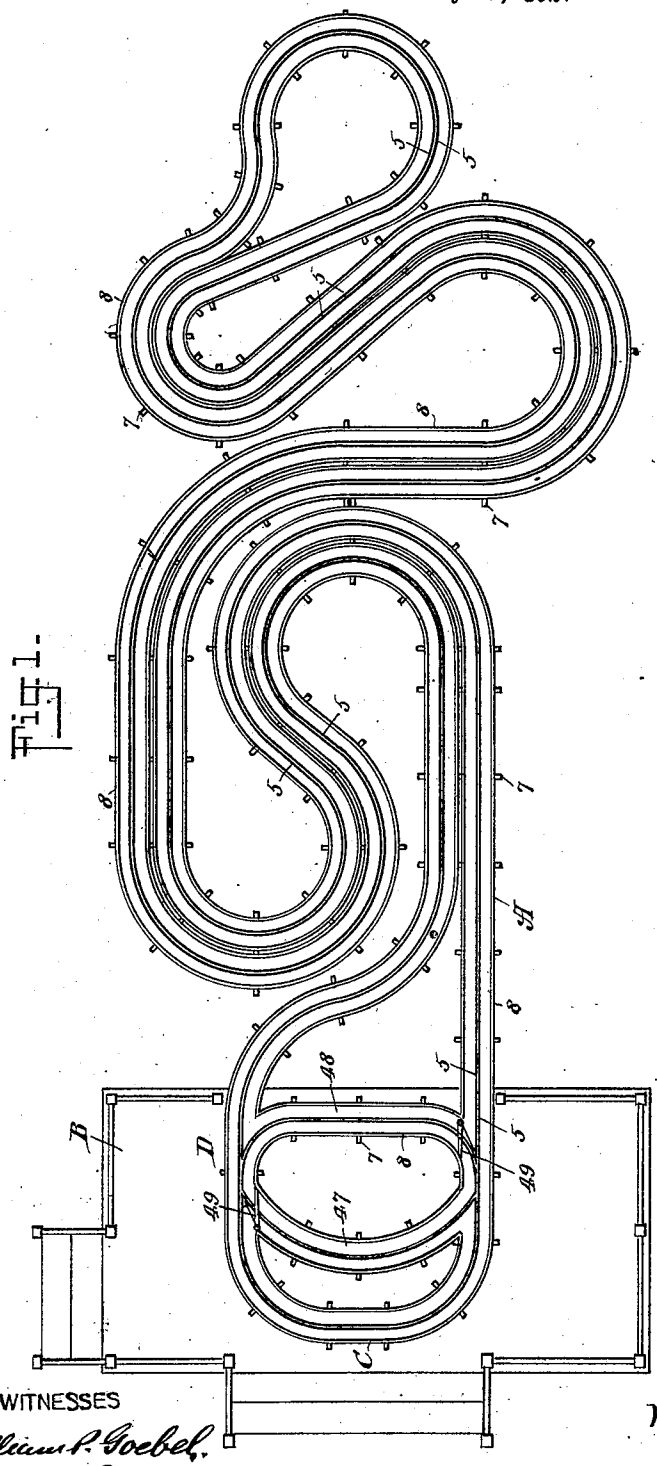
Jan. 29, 1929. 1,700,640

W. F. MANGELS

AMUSEMENT APPARATUS

Filed May 13, 1927 5 Sheets-Sheet 1.

Fig. 1.



WITNESSES

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AMUSEMENT APPARATUS

Filed May 13, 1927 5 Sheets-Sheet 2

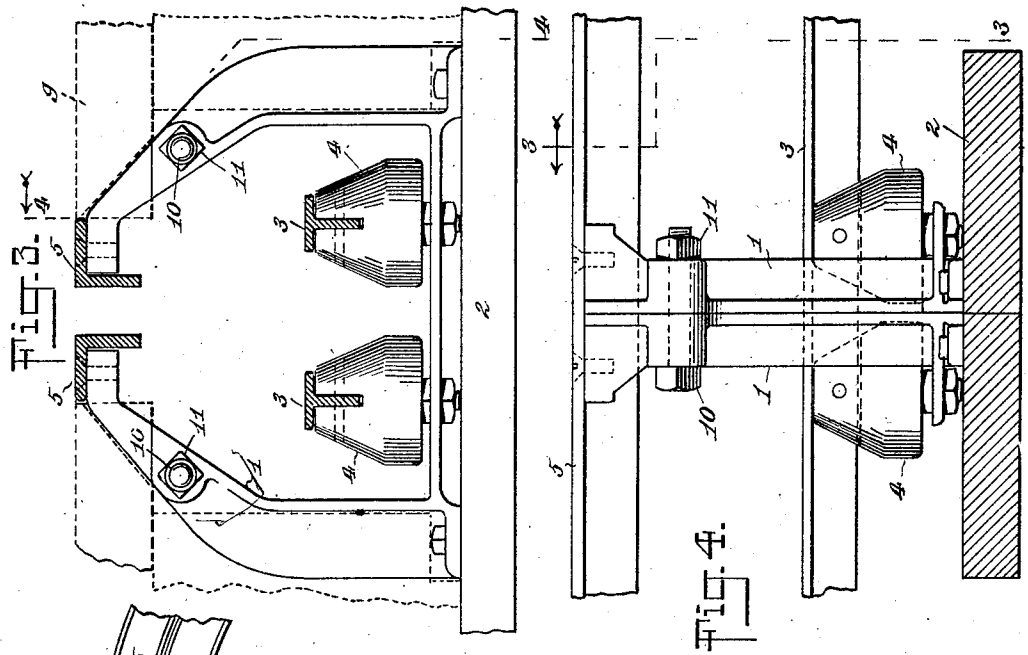

Fig. 3.

Fig. 4.

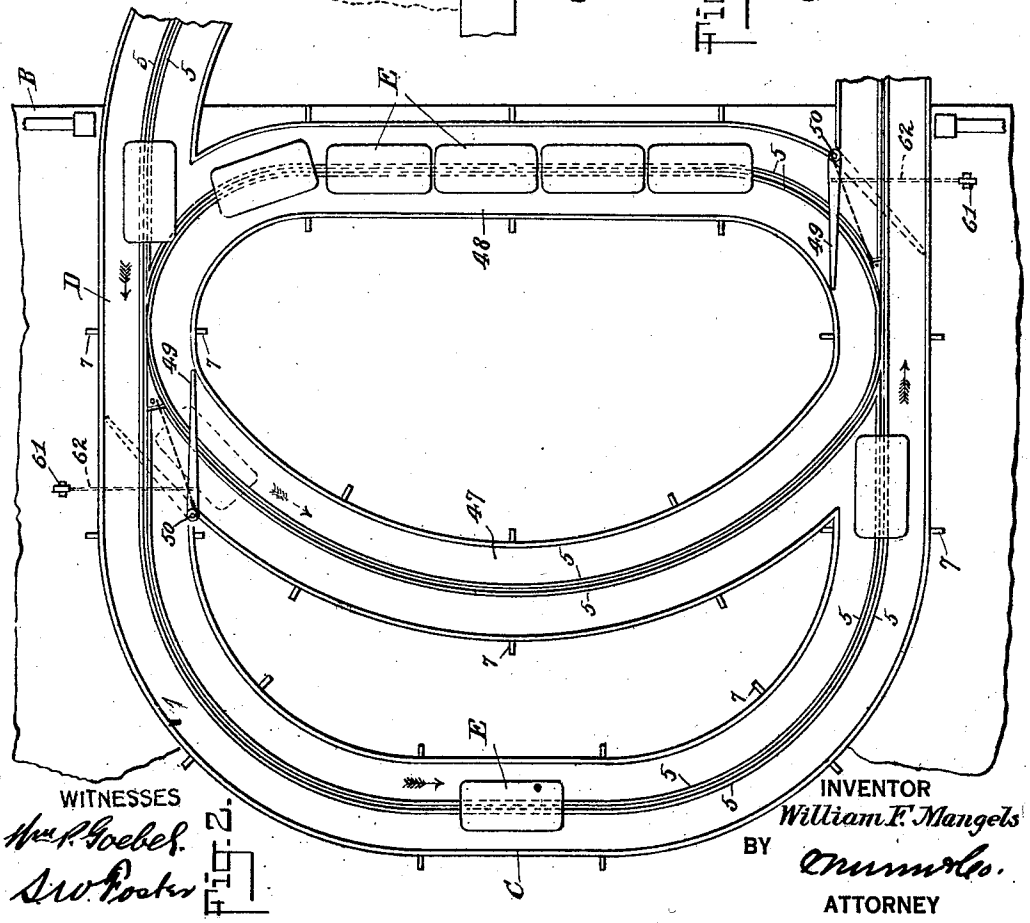

Fig. 2.

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AMUSEMENT APPARATUS

Filed May 13, 1927 5 Sheets-Sheet 3

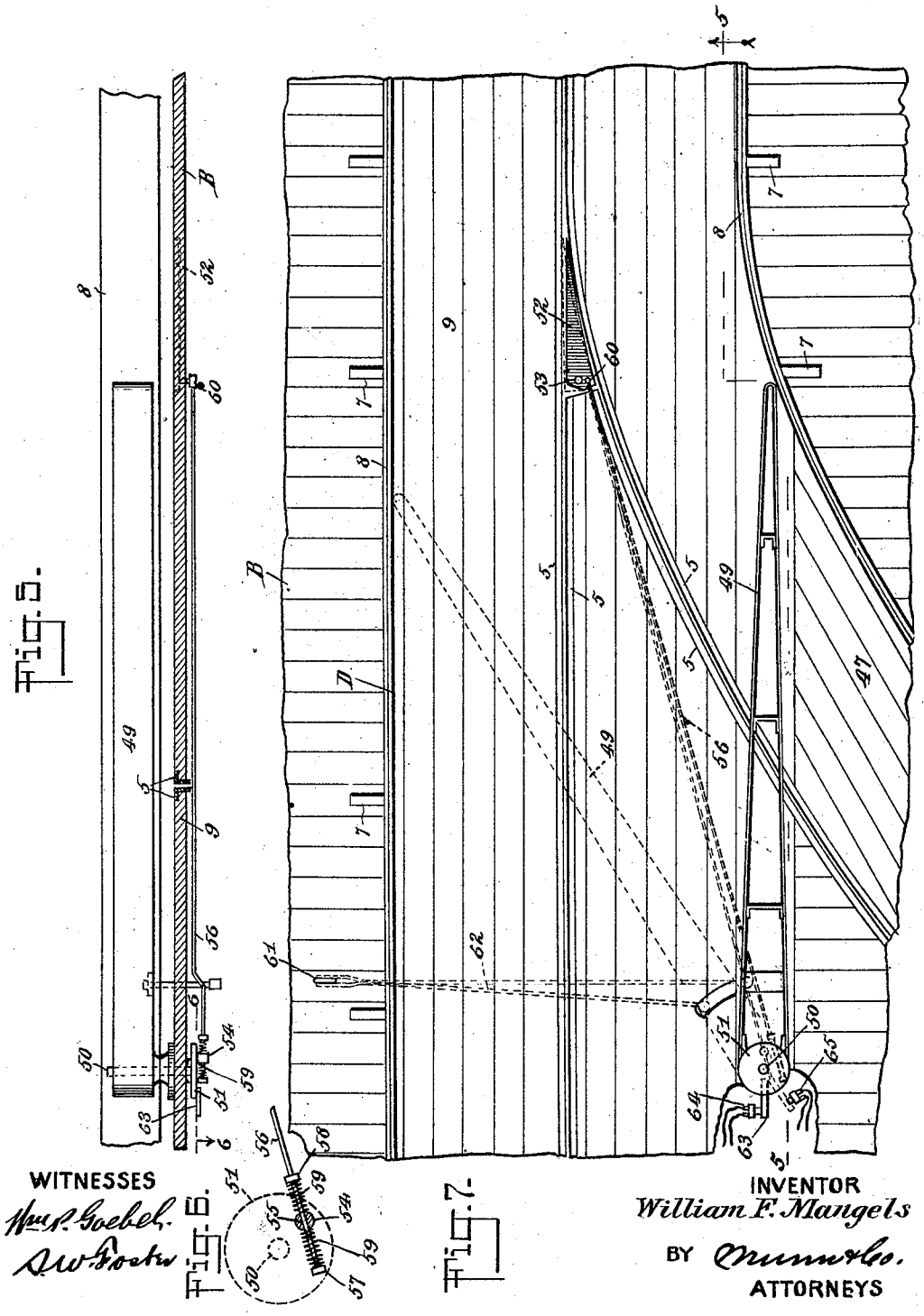

Fig. 5.

Fig. 6.

Fig. 7.

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AMUSEMENT APPARATUS

Filed May 13, 1927 5 Sheets-Sheet 4

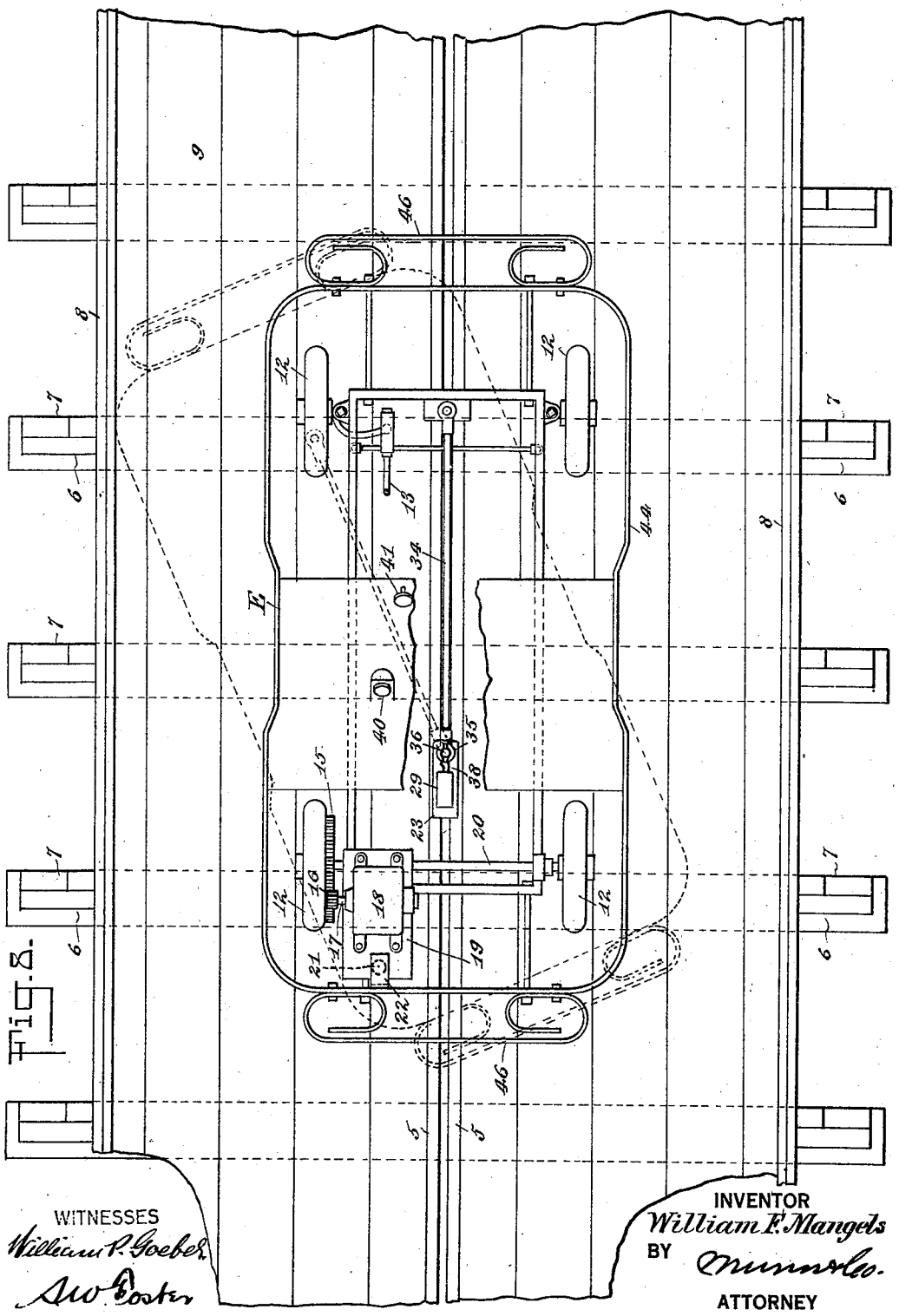

Fig. 8.

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AMUSEMENT APPARATUS

Filed May 13, 1927 5 Sheets-Sheet 5

Fig. 9.

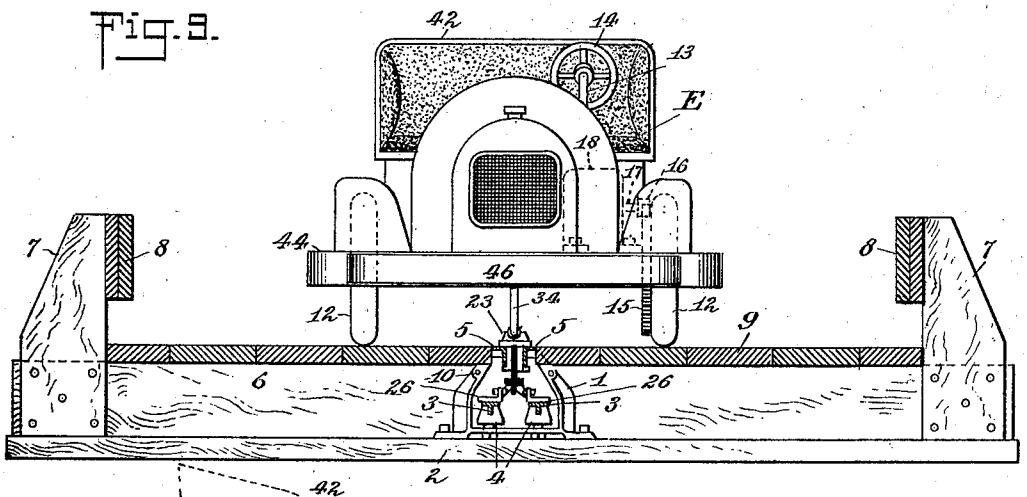


Fig. 10.

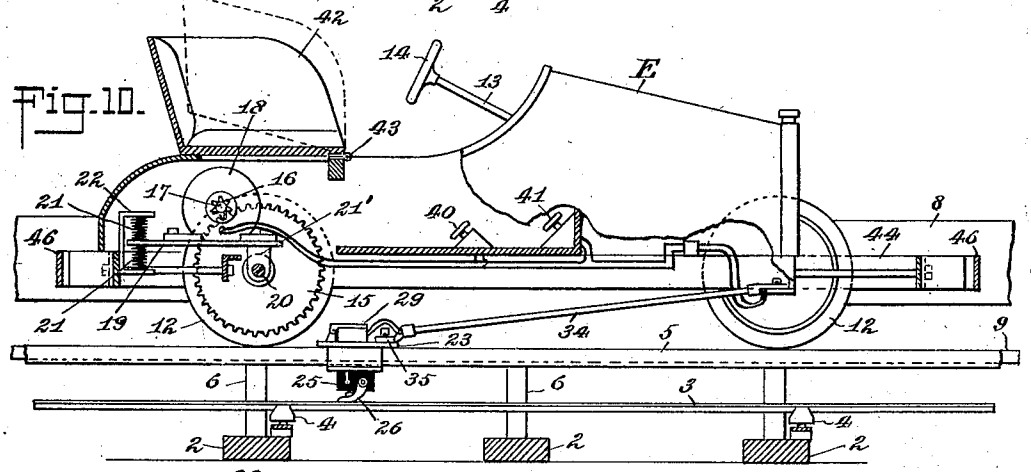


Fig. 11.

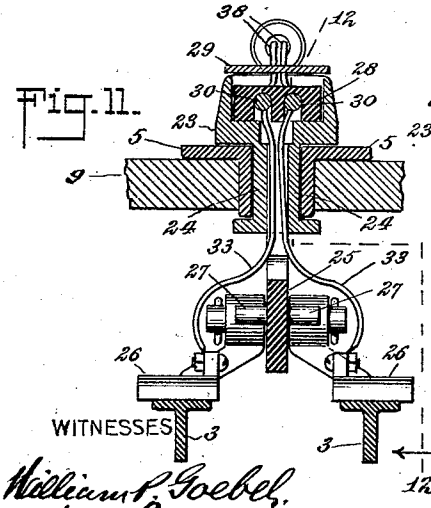
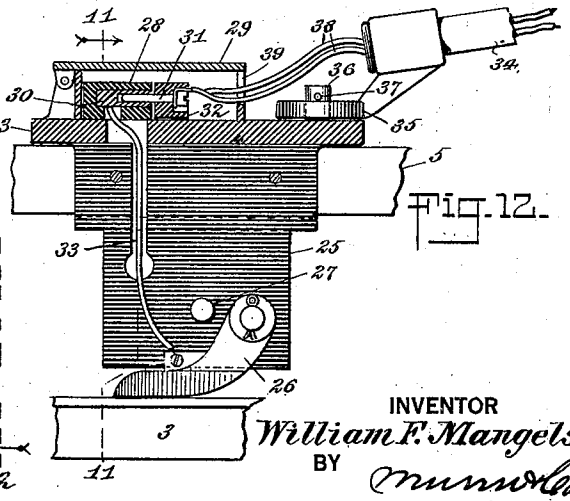


Fig. 12.



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UNITED STATES PATENT OFFICE.

WILLIAM FREDERICK MANGELS, OF BROOKLYN, NEW YORK.

AMUSEMENT APPARATUS.

Application filed May 13, 1927. Serial No. 191,186.

This invention relates to amusement apparatus.

An object of the invention is to provide an apparatus which gives the impression of driving an automobile over an endless course, having straight portions and curves therein which require some skill in steering the car to prevent the latter from bumping against the side rails which are spaced apart sufficiently to allow for considerable lateral movement of the car.

A further object is to provide an improved construction of course or track, made up of curved and straight sections interchangeable so as to permit the course or track to be of any desired length or of any desired shape or contour to conform to the ground space available.

A further object is to provide a course or track having an improved arrangement of by-pass and improved means for controlling the movement of the cars.

A further object is to provide an apparatus of this character in which the cars, simulating automobiles, are driven by electric motors carried by the cars and operatively connected to underground electric conductors mounted in an improved conduit, the parts so arranged as to permit the cars to have lateral swinging movement within certain limits.

A further object is to provide an apparatus of this character in which the possibility of accident is reduced to a minimum and which is designed to afford entertainment and amusement to adults as well as children, and which furthermore has a very important and desirable function of teaching the driver to steer an automobile.

A further object is to provide an apparatus of this character in which the cars are provided with bumpers or cushioning means at both sides as well as at the ends thereof, so that contact with the side rails or contact of one car with another is cushioned.

With these and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts which will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings—

Figure 1 is a plan view showing my improved apparatus with the cars removed;

Figure 2 is a fragmentary plan view of one end of the apparatus;

Figure 3 is a fragmentary view in transverse section through the track, the view being taken on the line 3—3 of Figure 4;

Figure 4 is a fragmentary view in longitudinal section, the view being taken on the line 4—4 of Figure 3;

Figure 5 is a view in longitudinal section through the track, the view being taken on the line 5—5 of Figure 7;

Figure 6 is a fragmentary plan view showing the manner of connecting the slot switch point operating rod with its operating disk;

Figure 7 is a fragmentary plan view of a portion of the track;

Figure 8 is a sectional plan view showing one of my improved cars on the track;

Figure 9 is a view in transverse section through the track showing one of my improved cars in front elevation thereon;

Figure 10 is a view, mainly in longitudinal section, through the track and the car;

Figure 11 is a view in transverse section through the plow and adjacent parts, the view being taken on the line 11—11 of Figure 12;

Figure 12 is a view in section on the line 12—12 of Figure 11.

A represents the track as a whole and I would have it understood that I employ this term "track" in its broadest possible sense to include a roadway, course, or any other synonymous term which defines a fixed course, although I do not use this term to define a track consisting of rails in which the wheels of the vehicle run but rather a track which confines the lateral movement of the vehicle but allows the same a certain amount of lateral movement.

B represents a platform located at entrance and exit portions C and D, respectively, of the track.

The track is made up of any desired number of straight and curved sections interchangeable and arranged to give the desired length to the curves, and as all of these sections are alike except as to their curvature the description hereinafter of one track section will apply alike to all.

By reference particularly to Figures 1, 2, 3, 4, 9 and 10 it will be noted that each section of the track A is provided, at least at its ends, with metal frames 1 supported on and secured to ties 2. These frames 1 form an open conduit in which electric rails 3 are located and supported on insulators 4, the latter

being rigidly secured to the base portions of the frames 1.

The upper ends of the frames 1 are spaced apart and have angle rails 5 secured thereto and spaced apart, forming a slot. Beams or joists 6 are secured on the ties 2 and extend laterally the desired distance and have uprights 7 secured to said joists adjacent their outer ends. Planks 8 are secured to the inner faces of the uprights 8 and floor boards 9 are secured on the joists 6, forming a support or platform on which my improved cars E, simulating automobiles, are mounted to run.

The track sections are secured together by bolts 10 projecting through adjacent frames 1 and secured by nuts 11, and as above stated these frames may be positioned in accordance with the shape and length of the track.

The cars E may of course be of any design, supported on wheels 12 and having steering posts 13, and steering wheels 14 which control any suitable mechanism by which the front wheels are employed as steering wheels.

One of the rear wheels constitutes a driver and has a large gear wheel 15 fixed to turn therewith. This gear wheel 15 is driven by a pinion 16 on a motor shaft 17. 18 is an electric motor driving the shaft 17 and mounted on a platform 19 which is pivotally supported at its forward end on the rear axle 20 by means of a bracket or brackets 21'. The rear end of this platform 19 is positioned between coil springs 21 supported in a bracket 22 which gives to the motor the necessary cushioning effect and reduces vibration to a minimum.

Each car E is provided with a plow 23 which is mounted to move in the slot between the rails 5, 5, the upper portion of said plow being larger than the slot so as to rest upon the rails 5, and said plow grooved at opposite sides, as shown at 24, receiving the rails 5 so as to hold the plow against lateral movement.

The plow 23 supports a central web 25 of suitable insulating material. This web 25 at its lower end carries a pair of pivotal shoes 26 which slide on the electric conductor rails 3. Pins 27 project laterally from the web 25 so as to limit any upward pivotal movement of the shoes.

The upper portion of the plow 23 constitutes a box or casing in which what is known in the trade as a Kleagle electric connector 28 is mounted, and a hinged connector 29 is provided on the plow which normally covers the connector 28. This connector has a pair of sockets 30 receiving a pair of pins 31 on a block 32, and wires 33 connect the socket members 30 with the shoes 26.

Each car E has a link 34 which is pivotally connected to the forward portion of the car, and at its rear end is formed with a perforated disk 35 which receives an upwardly projecting pin 36 on the plow and is held in place by a crosspin 37 projected through pin 36.

The link 34 is hollow and carries electric wires 38 connected to the respective plugs 31 and projecting through an opening 39 in the front wall. These wires 38 and 33 are included in the electric circuit with the motor 18, and a pair of switches 40, 41, respectively, is provided in the car E.

These switches 40, 41 simulate accelerator pedals, and are spaced apart so as to allow the circuit to be closed by children or adults in accordance with the lengths of their legs. The car E has a seat 42 which is hinged, as shown at 43, so that the seat may be thrown forwardly to permit access to the motor and to the other working parts whenever desired.

I deem the pivotal link 34 an extremely important feature of my invention. This link 34 not only serves to connect the plow 23 with the car E but it permits the car lateral movement. This is important as it permits the operator to steer the car within certain limits and gives the impression of driving an automobile.

Furthermore, the construction above described enables the car to be quickly disconnected from the plow in the case of a short circuit in the car or any other reason as it is simply necessary to remove the crosspin 37, lift the disk 35 off of the pin 36 and draw the block 32 out of electric engagement with the socket members 30.

The car E is provided with a spring metal bar 44, extending entirely around the same and constituting a spring frame or bumper enclosing the body of the car. Furthermore, I preferably provide spring bumpers 46 at the front and rear of the car to sustain the shock of contact of one car with another.

Referring more particularly to Figures 1, 2, 5, 6 and 7, it will be noted that the track is arranged so as to provide a by-pass 47 and a storage section 48 both of which connect with the main lines of the track.

The preferable practice is to have an operator at the exit station D controlling suitable means, which will now be described, for switching the cars through the by-pass 47 for a return ride if the passenger or passengers of the car desire to make another trip.

This shifting of the cars is brought about through the medium of a gate 49 pivotally mounted at one end, as shown at 50, with a crank disk 51 secured to turn with the pivotal connection of the gate. This gate normally extends across the entrance to the by-pass track 47, as clearly shown in Figures 5 and 7.

52 represents a switch point for the slot of the track, this switch point being pivotally secured at one end, as shown at 53. On the disk 51 a crank pin 54 is provided and the latter is made with an opening 55

therein for the reception of a rod 56. Shoulders 57 and 58 are provided on the rod 56 and spaced from the pin 54, and coil springs 59 are located on the rod between the pin and the shoulders. One end of this rod 56 is pivotally connected to the switch point 52 at one side of the pivot 53, as shown at 60.

61 represents a hand lever mounted on the platform D and connected by a link 62 with the gate 49, so that this lever may be operated manually by an attendant to swing the gate either from the position shown in Figure 7, where it closes the by-pass 47, or to the dotted line position of the same figure where it opens communication to the by-pass.

The movement of the gate, through the medium of the crank disk 51 and pin 54 and rod 56, will cause the switch point 52 to move from the full line position in Figure 7 when the gate is swung to the dotted line position in said figure to open the by-pass.

In order that accidents may be prevented due to collision between cars at the exit of the by-pass onto the main track it is desirable that the electric current be cut off from the main track at the entrance platform while the car is moving through the by-pass, and I have illustrated more or less diagrammatically in Figure 7 a circuit closer 63 carried by the crank disk 61 and adapted to engage contacts 64 and 65, respectively. This is intended to illustrate the idea that when the gate is in position to leave the main track open the electric circuit is closed throughout the main track, and when the gate is moved to the position to open the by-pass the circuit is closed through the by-pass and opened through that portion of the track which constitutes the main entrance portion, indicated by reference character C.

At the point of entrance from the main track onto the storage track 48 I provide a similar arrangement of gate, and as the structure is precisely like that above described I have employed the same reference characters to indicate like parts. It is not necessary that there be any current in the storage track 48 for the cars can be manually pushed thereon and therefrom.

It is also to be understood that I may employ any means for cutting off the current wherever desired or to applying braking action to the cars by an operator or employee to slow down the cars as they reach the end of the ride but as such apparatus is common and well known in the trade no attempt is made to illustrate such means.

The operation is as follows:

The cars are filled at the station C and the driver of the car closes either the switch 41 or the switch 40 and the current flows to the motor 18 to drive the car throughout the course. The cars are stored on the track section 48 and may be pushed out onto the main track as occasion may require, and as above explained an operator will be located at the station D so that if the passengers of the car desire to make another trip they may be shunted through the by-pass 47 without disturbing the cars at the filling or entrance station C.

While I have illustrated what I believe to be a preferred embodiment of my invention it is obvious that various changes and alterations might be made in the general form of the parts described without departing from my invention and hence I do not limit myself to the precise details set forth but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

I claim:

1. An amusement apparatus, including a track having an underground electric conductor, an electrically driven car simulating an automobile, a plow having electric connection with the underground conductor, and a pivoted link connecting the car and the plow and permitting the car a limited freedom of lateral movement on the track.

2. An amusement apparatus, including a track, having an underground electric conductor, an electrically driven car simulating an automobile, a plow having electric connection with the underground conductor, and a pivoted link connecting the car and the plow and permitting the car a limited freedom of lateral movement on the track, said link constituting a support for electric conductors and removably connected to the plow.

3. An amusement apparatus, including a track having an underground electric conductor, an electrically driven car simulating an automobile, a plow having electric connection with the underground conductor, a pivoted link connecting the car and the plow and permitting the car a limited lateral movement on the track, an electric motor on the car, electric conductors connected to the motor and extending through the link, a quickly detachable plug switch on the plow to which the conductors are connected, and a quickly detachable pivotal coupling means between the link and the plow.

4. An amusement apparatus, including a track having an underground electric conductor, an electrically driven car simulating an automobile, a plow having electrical connection with the underground conductor, a pivoted link connecting the car and the plow and permitting the car a limited freedom of lateral movement on the track, steering means on the car, and a foot operated switch on the car controlling the circuit to the motor thereof.

5. An amusement apparatus, including a track having an underground electric con-

ductor, an electrically driven car simulating an automobile, a plow having electrical connection with the underground conductor, a pivoted link connecting the car and the plow and permitting the car a limited freedom of lateral movement on the track, an electric motor on the car transmitting motion to one of the wheels of the car, and cushioning means supporting said motor.

6. An amusement apparatus, including a conduit, a pair of rails spaced apart above the conduit and forming a slot, a pair of electric conducting rails in the conduit, a plow mounted to slide in the slot and operatively connected to the electric conductors, a floor located in horizontal alinement with the slot, side bars positioned above the floor, a car adapted to run on the track and simulating an automobile, and a pivoted link connecting the car and the plow.

7. An amusement apparatus having an underground conductor, and a slot above the same, of a plow mounted to move in the slot, a central web of insulation on the plow, pivoted shoes on the web, a quickly removable switch on the plow, a box enclosing the switch, conductors connecting the switch and the shoes, a motor driven car, and a tubular link pivotally connected to the car and to the shoe and through which the electric conductors from the switch to the motor are projected.

8. In an amusement apparatus of the character described, the combination with a track, of an electrically driven car simulating in appearance an automobile, an underground trolley, a link pivotally connecting the underground trolley to the car, and said car appreciably narrower than the track whereby the car is permitted a limited lateral movement.

9. In an amusement apparatus of the character described, the combination with a track of an electrically driven car simulating in appearance an automobile, an underground trolley, a link pivotally connecting the underground trolley to the car and said car appreciably narrower than the track whereby the car is permitted a limited lateral movement, a bumper frame extending around the car, and bumpers at the front and rear of the bumper frame.

10. In an amusement apparatus of the character described, the combination with a track of an electrically driven car simulating in appearance an automobile, an underground trolley, a link pivotally connecting the underground trolley to the car and said car appreciably narrower than the track whereby the car is permitted a limited lateral movement, an electric motor on the car, and a hinged seat on the car above the motor.

11. An apparatus of the character described, including a track having an underground conductor, a car mounted to run on the track, a plow operatively connected to the conductor, a pivoted link connecting the plow and the forward end of the car, a gear wheel fixed to turn with one of the wheels of the car, a supporting plate pivotally mounted on the rear axle of the car, springs located above and below the free end of said plate cushioning the movement thereof, an electric motor mounted on the plate, and a pinion driven by the motor and meshing with the large gear wheel.

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