Feb. 24, 1925.

1,527,893

W. F. MANGELS

PLEASURE RAILWAY

Filed May 6, 1921

3 Sheets-Sheet 1

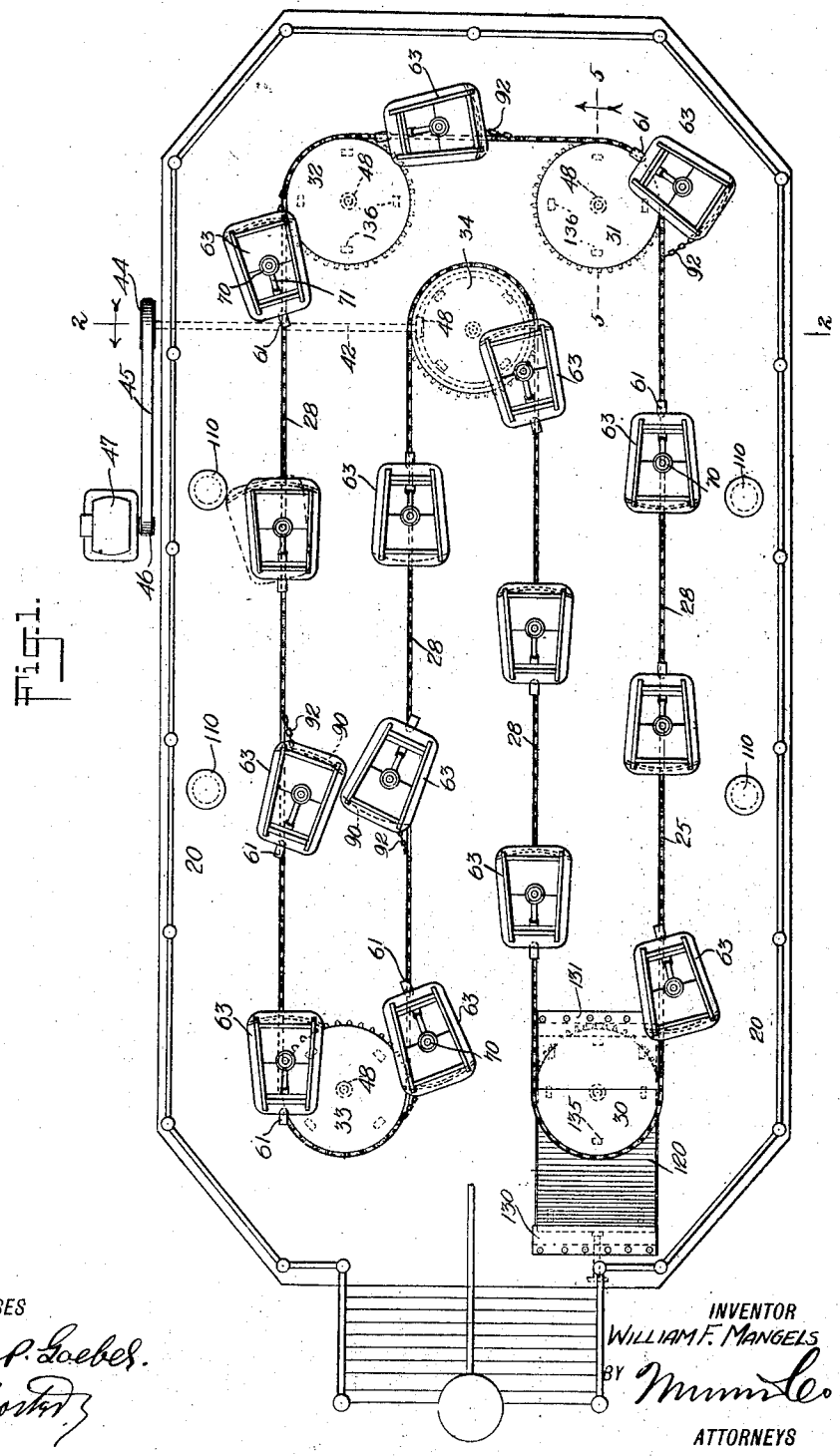


Fig. 1.

WITNESSES

William P. Goebel.

Henry Horstz

INVENTOR

WILLIAM F. MANGELS

BY Munn & Co.

ATTORNEYS

Feb. 24, 1925. 1,527,893

W. F. MANGELS

PLEASURE RAILWAY

Filed May 6, 1921 3 Sheets-Sheet 2

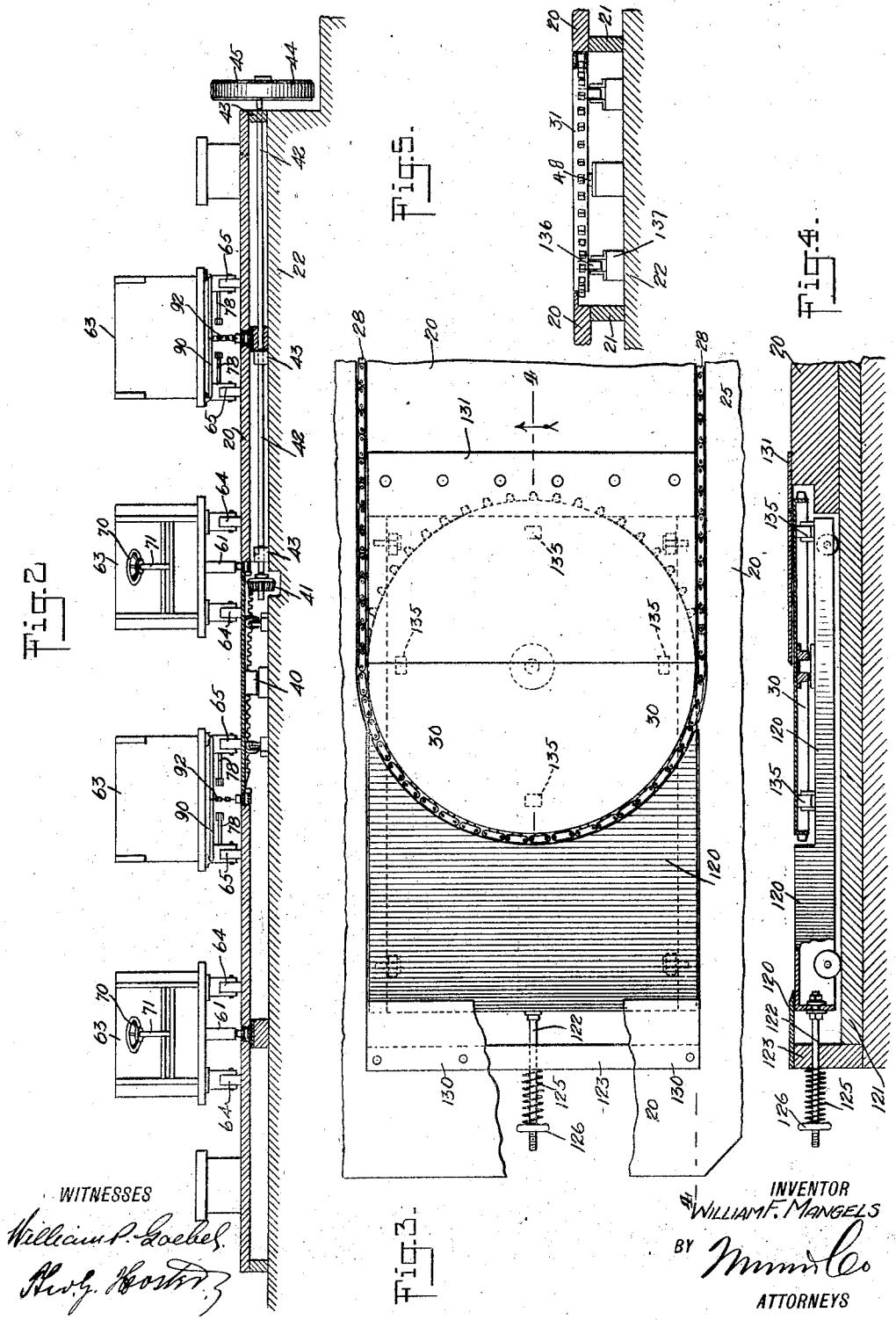


Fig. 2

Fig. 5.

Fig. 4.

Fig. 3.

WITNESSES

William P. Goebel

Rudy. Kostka

INVENTOR

WILLIAM F. MANGELS

BY Munn & Co

ATTORNEYS

Feb. 24, 1925. 1,527,893

W. F. MANGELS

PLEASURE RAILWAY

Filed May 6, 1921 3 Sheets-Sheet 3

Fig. 6.

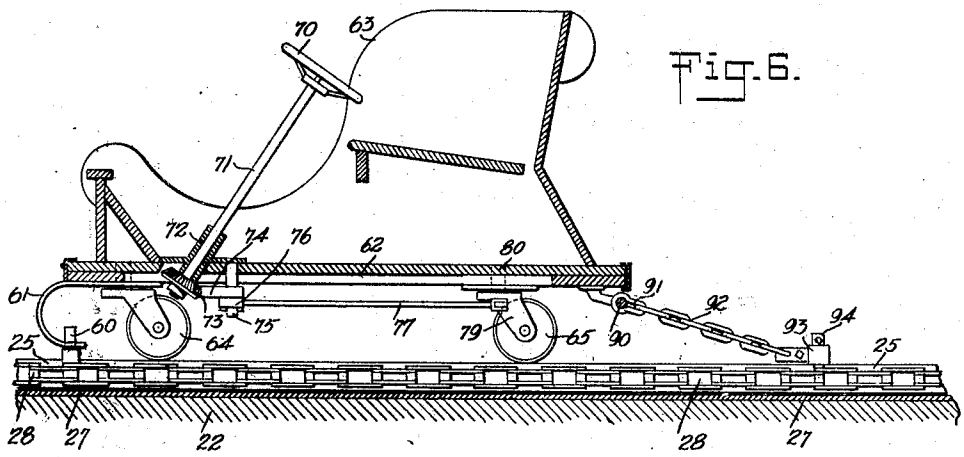


Fig. 7.

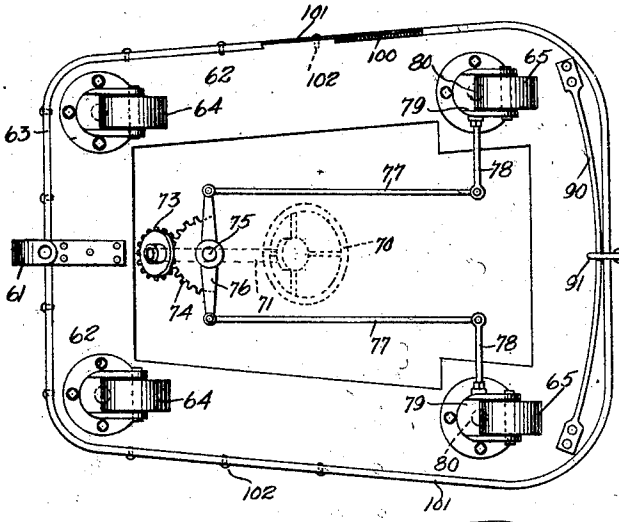


Fig. 8.

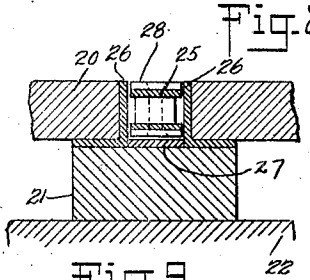


Fig. 9.

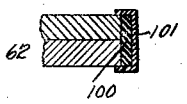
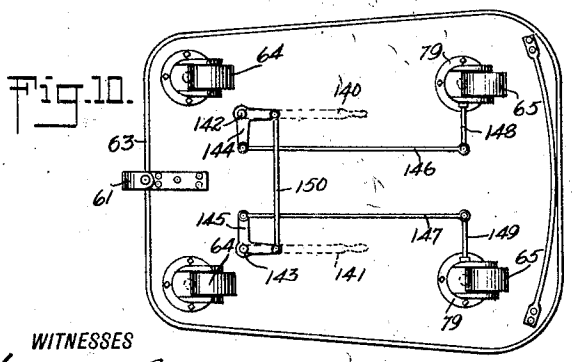


Fig. 10.



WITNESSES

William F. Goebel.

Geo. J. Hoster.

INVENTOR

WILLIAM F. MANGELS

BY Munn & Co

ATTORNEYS

Patented Feb. 24, 1925. 1,527,893

UNITED STATES PATENT OFFICE.

WILLIAM F. MANGELS, OF BROOKLYN, NEW YORK.

PLEASURE RAILWAY.

Application filed May 6, 1921. Serial No. 467,368.

To all whom it may concern:

Be it known that I, WILLIAM F. MANGELS, a citizen of the United States, and a resident of the city of New York, Coney Island, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Pleasure Railway, of which the following is a full, clear, and exact description.

The invention relates to amusement devices, such as are used in pleasure resorts, exhibition grounds, fairs, parks and other places, and its object is to provide a new and improved pleasure railway arranged to provide an exhilarating ride for the passengers and to afford considerable amusement to the passengers and to the onlookers.

Another object is to enable a passenger in charge of one car to force or avoid a practically harmless collision or bumping action with another car going in the opposite direction.

Another object is to provide a large number of cars traveling over a long course confined in a comparatively small area.

With these and other objects in view, the invention consists of certain novel features of construction, as hereinafter shown and described and then specifically pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the improved pleasure railway;

Figure 2 is an enlarged cross section of the same on the line 2—2 of Figure 1;

Figure 3 is an enlarged fragmentary plan view of a portion of the propelling chain, one of its guide pulleys, and the means for taking up the slack in the propelling chain;

Figure 4 is a sectional side elevation of the same on the line 4—4 of Figure 3;

Figure 5 is an enlarged sectional side elevation of another of the guide pulleys, the section being on the line 5—5 of Figure 1;

Figure 6 is an enlarged sectional side elevation of one of the cars and its propelling means;

Figure 7 is an inverted plan view of the same;

Figure 8 is an enlarged cross section of a portion of the platform and guideway;

Figure 9 is an enlarged cross section of the bumping rail or rim of a car; and

Figure 10 is an inverted plan view of a car provided with a modified form of the steering mechanism.

A suitably constructed platform 20 is supported by pillars 21 a short distance above the ground, floor or other support 22, and the platform 20 is provided with an endless guideway 25 mainly in the shape of a groove formed of spaced angle irons 26 and a bottom plate 27, as plainly shown in Figure 8. In the guideway 25 and resting on the bottom plate 27 thereof is arranged an endless flexible propelling member 28, preferably in the form of a chain or cable. The guideway 25 consists of a number of parallel runs extending lengthwise of the platform 20, and leading to guide wheels 30, 31, 32, 33 and 34, around which passes the endless propelling member 28. A portion of the guideway 25 is disposed transversely and extends from the guide wheel 31 to the guide wheel 32, as will be readily understood by reference to Figure 1. In case the propelling member 28 is in the form of a chain, as shown in the drawings, then the guide wheels 30, 31, 32, 33 and 34 are in the form of sprocket wheels, and one of the said guide wheels (as shown the guide wheel 34) is provided at the under side with a bevel gear wheel 40 in mesh with a pinion 41 secured on a shaft 42 journaled in suitable bearings 43 mounted on the support 22, and the said shaft extends to one side of the platform 20 and is provided at its outer end with a pulley 44 connected by a belt 45 with a pulley 46 on the shaft of a motor 47 of any approved construction preferably, however, of the electric type. It will be noticed that when the motor 47 is running, a rotary motion is transmitted by the gearing described to the guide wheel 34 to impart a traveling motion to the flexible propelling member 28 thereby causing the latter to follow the endless guideway 25 in which the propelling member is confined. It is understood that the guide wheels 30, 31, 32, 33 and 34 are disposed horizontally in corresponding openings in the platform 20 and with their upper faces flush with the platform 20, and the said guide wheels except the guide wheel 30 are mounted to turn on suitable pivots 48 rising from the support 22 (see Figure 5).

The propelling member 28 is provided

with spaced upwardly extending pivot pins 60 each pivotally connected at its upper end with a bearing 61 secured to the under side of the floor 62 of a car 63 provided with front and rear caster wheels 64, 65 traveling on the platform 20. The wheels 64 are sufficiently wide to readily pass over the guideway 25, it being understood that each car 63 is propelled along by the traveling propelling member 28, and during this forward movement it is free to swing sidewise owing to the pivotal connection with the corresponding pivot pin 60. Each of the cars 63 is preferably designed for accommodating two persons but I do not limit myself to this particular arrangement. Each car 63 is provided with a steering mechanism to enable an occupant of the car to steer the same sidewise to the right or to the left during the forward traveling of the car. For the purpose mentioned a steering wheel 70 extends within reach of an occupant of the car 63, and the steering wheel is attached to the upper end of a steering shaft 71 journaled in a suitable bearing 72 arranged on the bottom 62 of the car 63. On the lower end of the steering shaft 71 is secured a bevel gear wheel 73 in mesh with a bevel segment 74 mounted to turn on a vertically disposed stud 75 attached to the car bottom 62. On the under side of the segment 74 is secured a transverse steering arm 76 pivotally connected at its ends by links 77 with transverse arms 78 attached to the frames 79 of the rear caster wheels 65, and which frames are pivoted at 80 to the under side of the car bottom 62. It will be noticed that when the steering wheel 70 is turned, a swinging movement is given to the frames 79 of the caster wheels 65 to steer the car either to the right or to the left according to the direction in which the steering wheel 70 is turned at the time by the occupant of the car.

In order to limit the sidewise swinging movement of each car 63, the following arrangement is made: To the under side of the rear end of the car bottom 62 is secured a transversely extending radius rod 90, the center of which coincides with the center of the corresponding pivot pin 60 used for pulling the car 63 along. This radius bar 90 is slidingly engaged by a ring 91 on the forward end of a chain 92 attached at its rear end to a bracket 93 mounted to swing on a pin 94 attached to the propelling member 28 a short distance in the rear of the car 63. It will be noticed that the car 63 can be steered to either side until the ring 91 reaches the corresponding end of the radius rod 90 thus preventing the car from completely swinging around on the pivot pin 60 as the fulcrum.

In practice, the longitudinal runs of the guideway 25 are spaced apart, and the cars 63 are designed to cause two cars traveling in opposite directions on adjacent runs to bump one against the other if correspondingly steered toward each other by the occupants of the cars. The cars are preferably provided with oblique sides, that is, diverging from the front rearwardly and as the cars on adjacent runs travel in opposite directions they can be readily steered into sidewise bumping contact one with the other at points intermediate the front and rear of the cars. In order to ease the bumping contact the cars are preferably provided along the edges of the bottom 62 with bumpers 100 of rubber or other suitable resilient material, preferably protected by a rail 101 of channel iron attached to the bottom, at the front and the front side portions by fastening devices 102, thus leaving the back and the rear side portions of the rail 101 free to yield when two cars bump together. The platform 20 is provided with fixed bumping members 110, preferably in the form of posts, erected on the platform adjacent the sides thereof and extending into the path of the cars if the latter are steered outwardly during the time the cars travel along an outermost run.

In order to keep the propelling member 28 taut, the following arrangement is made: The guide wheel 30 is mounted to turn on a carriage 120 which is movable longitudinally on a suitable support 121 resting on the support 22 (see Figures 3 and 4). The front end of the carriage 120 is provided with a rod 122 extending through a bearing 123 forming part of the platform 20. On the rod 122 is coiled a spring 125 resting with one end on the bearing 123 and abutting at its other end on a nut 126 screwing on the outer threaded end of the rod 132. The spring 125 tends to pull the carriage 120 from the right to the left thus causing the guide wheel 30 to take up any slack that may occur in the propelling member 28. The front portion of the carriage 120 is flush with the top of the guide wheel 30, and the extreme forward portion of the carriage 120 is protected by a covering plate 130 attached to the bearing 123 to prevent improper traveling of the caster wheels 64 and 65 of the cars 63 at the time the latter swing around the guide wheel 30. A covering plate 131 is attached to the platform 20 and extends over the rear half portion of the guide wheel 30 to allow forward or backward traveling of the carriage 120 without producing a gap between the carriage and the platform 20 to insure proper traveling of the cars around the guide wheel 30. The carriage 120 is provided with friction rollers 135 engaged by the under side of the guide wheel 30 to insure easy rotation of the said guide wheel 30 on the carriage 120. Similar friction rollers 136 mounted

on blocks 137 provide supports for the other guide wheels 31, 32, 33 and 34.

The steering device for each car 63 instead of being manipulated by only a single occupant of the car may be arranged to be controlled by two occupants, and for this purpose the following arrangement (shown in Figure 10) is provided: Two handles 140, 141 are secured on the upper ends of steering shafts 142, 143 mounted on the car, and the lower ends of the said shafts 142, 143 are provided with bell crank levers 144, 145 connected by links 146, 147 with transverse rods 148, 149 attached to the frames 79 of the rear caster wheels 65. The bell crank levers 144 and 145 are pivotally connected with each other by a link 150 to cause the bell crank levers and consequently the steering shafts 142 and 143 and the handles 140 and 141 to move in unison with each other and likewise the rear caster wheels 65. The handles 140 and 141 are taken hold of by the two occupants of a car who may or may not manipulate the handles in unison, and if not in unison a consequent uncertain steering of the car either to the right or to the left is the result.

It is understood that when the pleasure railway is running, the cars 63 are carried along over the platform 20 by the propelling member 28 following the endless guideway 25. As the cars 63 are free to swing on the pivots 60 they can be readily steered sidewise by the occupants of the cars, and cars on adjacent runs of the guideway 25 and traveling in opposite directions can be steered so as to bump one into the other thus adding to the excitement of the exhilarating ride. It may happen that the occupant of a car in trying to avoid collision with another car on one side of the guideway is liable to bump into the car on the other side of the guideway. When two cars bump together they are liable to swing in opposite directions, owing to the bumping impact, without danger of producing any injurious effects on the occupants of the car except perhaps a slight shaking up.

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

1. In a pleasure railway, a platform provided with an endless guideway having a plurality of approximately parallel runs, a plurality of cars mounted to travel on the said platform, propelling means guided in the said guideway and pivotally connected with the front end of each car, a steering gear mounted on each car and under the control of at least one occupant of a car to steer the latter sidewise across the said guideway, a radius guide bar at the rear end of each car, and a flexible connection slidable on the said guide bar and connected with the said propelling means.

2. In a pleasure railway, a platform provided with an endless guideway having a plurality of approximately parallel runs, a plurality of cars mounted to travel on said platform over and across said guideway, propelling means provided in said guideway and movable in opposite directions in adjacent runs, said cars having only a pivotal connection at one end to said propelling means whereby the same are propelled over said platform and allowed to swing sidewise while traveling thereon, the cars on adjacent runs traveling in opposite directions and being adapted to bump one against the other when swinging about their pivotal connections, and means connecting the rear of each car with said propelling means to limit the sidewise movement of the car.

3. In a pleasure railway, a platform provided with an endless guideway in the form of a groove, guide wheels positioned at intervals about said groove, an endless propelling member in said groove and passing around said guide wheels, means for driving one of said wheels for moving said propelling member along said groove, spaced pivots projecting from said propelling member, cars mounted to travel on said platform and over said groove and pivotally connected to said pivots, and means connecting the rear of each car with said propelling member to limit the sidewise movement of the car.

4. In a pleasure railway, a platform provided with an endless guideway, guide wheels operatively associated with said guideway, means driving one of said guide wheels, an endless propelling member in said groove and passing around said guide wheels and operated thereby to move in said guideway, spaced pivots projecting from said propelling member, cars mounted to travel on said platform and pivotally connected at their front ends with said pivots, a steering gear mounted on each car to steer the latter sidewise across said guideway, and means connecting the rear of each car with said propelling member to limit the sidewise movement of the car.

5. In a pleasure railway, a platform provided with an endless guideway, a plurality of guide wheels associated with said guideway, an endless flexible propelling member movable in said guideway and around said wheels, cars mounted to travel on said platform and pivotally connected to said propelling member, a movable carriage supporting one of said guide wheels, and means associated with said carriage for yieldingly maintaining the same and said guide wheel in position to prevent slack in said flexible propelling member.

6. In a pleasure railway, a platform provided with an endless guideway, an endless propelling member movable in said guideway, a guide wheel about which said pro-

pelling member extends, cars mounted to travel on said platform and pivotally connected to said propelling member, a carriage movable longitudinally of said platform and supporting said guide wheel, and means for yieldably preventing movement of said carriage in one direction on said platform.

7. In a pleasure railway, a platform provided with an endless guideway, an endless propelling member movable in said guideway, a guide wheel about which said propelling member extends, cars mounted to travel on said platform and pivotally connected to said propelling member, a carriage movable longitudinally of said platform and supporting said guide wheel, means for yieldably preventing movement of said carriage in one direction on said platform, and a covering plate carried by said platform and extending partially over said guide wheel.

WILLIAM F. MANGELS.