No. 881,788. PATENTED MAR. 10, 1908.

E. F. GARDNER & A. J. SCHMIDT.

PLEASURE RAILWAY.

APPLICATION FILED MAY 31, 1907.

2 SHEETS—SHEET 1.

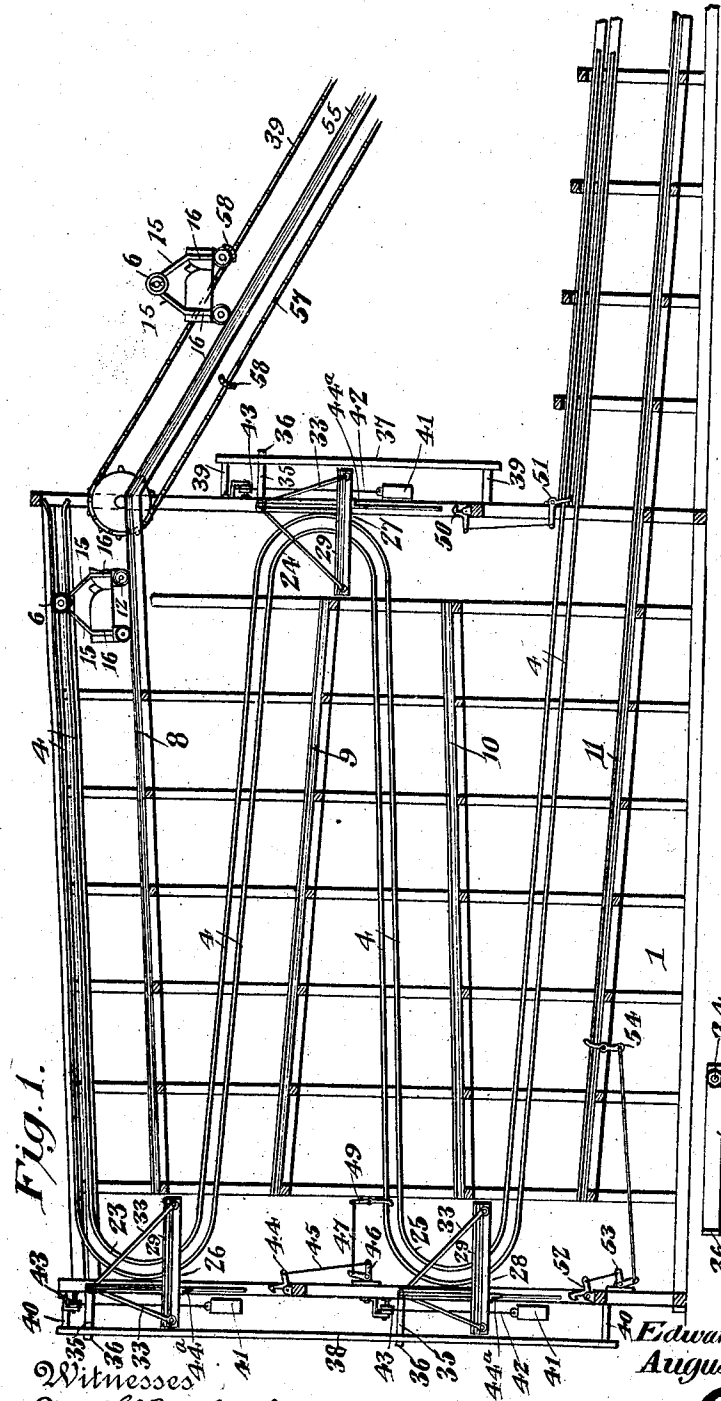

Fig. 1.

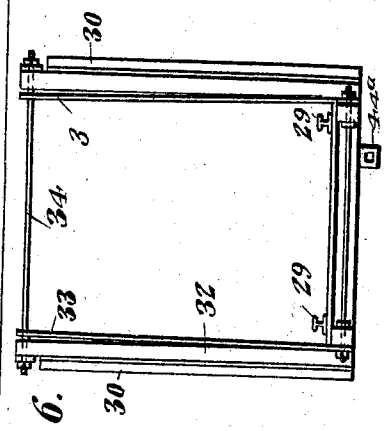

Fig. 6.

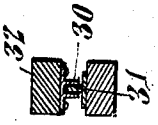

Fig. 7.

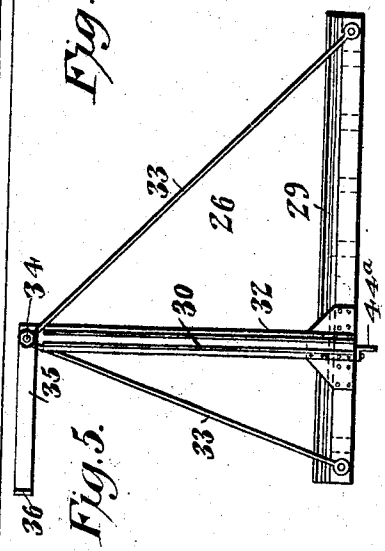

Fig. 5.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

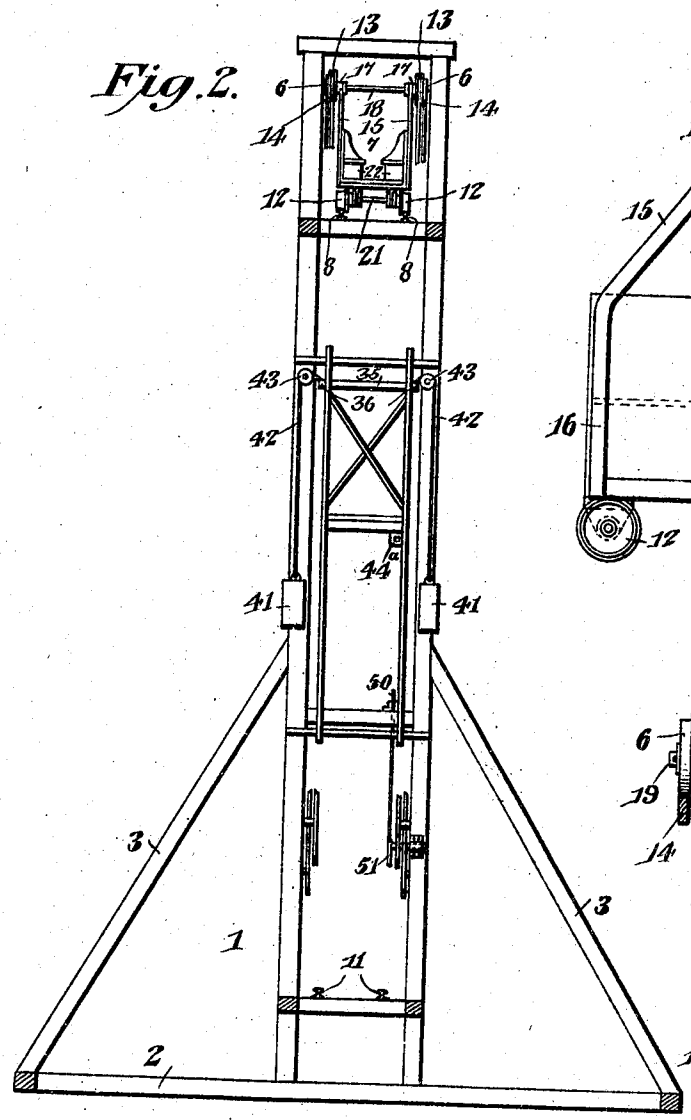


Fig. 3.

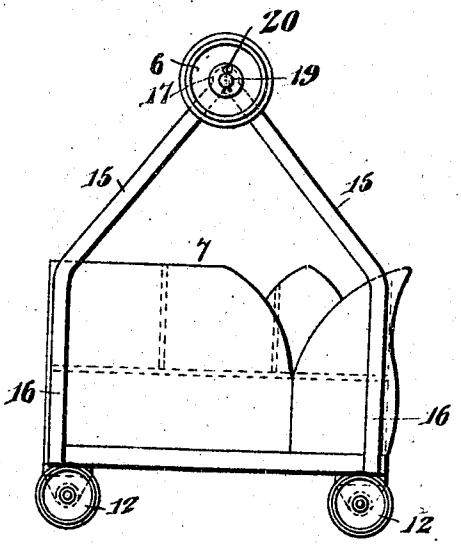
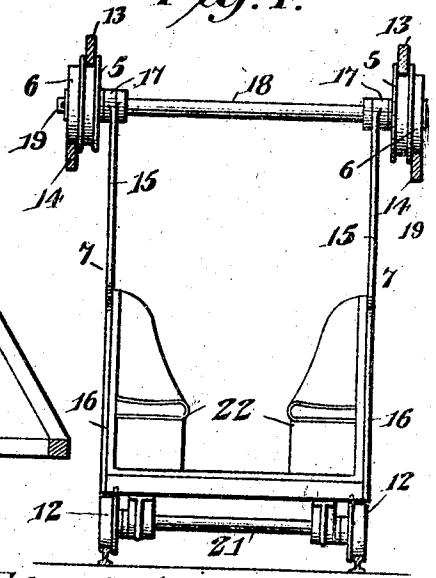


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

EDWARD FRANKLIN GARDNER AND AUGUST JACOB SCHMIDT, OF SCRANTON, PENNSYLVANIA.

PLEASURE-RAILWAY.

No. 881,788. Specification of Letters Patent. Patented March 10, 1908.

Application filed May 31, 1907. Serial No. 376,587.

To all whom it may concern:

Be it known that we, EDWARD FRANKLIN GARDNER and AUGUST JACOB SCHMIDT, citizens of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented a new and useful Pleasure-Railway, of which the following is a specification.

The invention relates to improvements in pleasure railways.

The object of the present invention is to improve the construction of pleasure railways, and to provide a simple and comparatively inexpensive pleasure railway and to enable a plurality of inclined portions to be arranged in the same vertical plane, so that the pleasure railway will occupy a relatively small amount of ground space.

A further object of the invention is to provide a pleasure railway, having means for enabling cars to travel over a circuitous track of this character, without inverting the cars while transferring them from an upper inclined section of the track to the next lower inclined section, and to provide safe means for gently transferring the cars from one incline to another.

Another object of the invention is to provide means for maintaining the cars in a horizontal position while they are traveling up an incline leading to the top of the pleasure railway, so that the occupants will not be caused to assume an uncomfortable position during such initial upward movement of the cars.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:—Figure 1 is a longitudinal sectional view of a pleasure railway, constructed in accordance with this invention. Fig. 2 is a rear elevation of the same. Fig. 3 is a side view of one of the cars. Fig. 4 is a front elevation of one of the cars, the upper and lower rails being in section. Figs. 5 and 6 are detail views of one of the elevators. Fig. 7 is a detail sectional view, illustrating the manner of slidably connecting the elevator with the sides of the frame-work.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a supporting frame or frame-work, designed to be constructed of wood, or metal and consisting of two sides and suitable connecting cross pieces. The frame-work, which may be varied to suit the size of the pleasure railway, is provided with an enlarged base 2, and is designed to be supported at intervals by inclined braces 3, extending upwardly and inwardly from the side edges of the base to the sides of the frame-work.

The frame-work is provided with a continuous circuitous double track 4 to receive inner and outer top or hanger wheels 5 and 6 of a car 7, and it has an interrupted single track, arranged in substantially the same vertical plane as the continuous double track and composed of oppositely inclined spaced sections 8, 9, 10 and 11 to receive the bottom wheels 12 of the car 7. The continuous double track 4 is composed of inner and outer rails 13 and 14, and the car, which may have a body of any preferred form, is provided at opposite sides with upwardly inclined bars 15, connected at their upper ends to form hangers. The bars 15 are provided with lower extensions 16, which are suitably secured to the body of the car and the upper connected ends of the hanger bars 15 are provided with eyes 17 for the reception of a transverse top shaft or axle 18. The top shaft or axle 18 is provided at its ends with suitable spindles 19 to receive the wheels 5 and 6, which are flanged and which are retained on the spindles of the top shaft 18 by means of keys 20, or other suitable fastening devices. The lower wheels 12 of the car are mounted on suitable axles 21, which may be connected with the body of the car in any preferred manner. In the accompanying drawings, the car is shown with side seats 22, but any other arrangement may be employed.

The continuous top or hanger rails 13 and 14 consist of oppositely inclined portions, located in the same vertical planes, and curved portions or bends connecting the proximate ends of the inclined portions of the hanger rails. The outer top wheels 6 of the top of the car are arranged to run on the outer rails 14, which are located at the bot-

tom of the double track at the first or top incline of the pleasure railway. The bottom rails of the double track sustain the weight of the car, and the top rails serve as guide rails to prevent any displacement of the top wheels. Owing to the circuitous arrangement of the hanger rails, the bottom rails of the uppermost inclined section of the hanger track become the top rails of the next lower inclined section of the hanger track, the inner and outer rails being alternately guard and supporting rails. The inclined sections 8, 9, 10 and 11, which are arranged in parallelism with the corresponding sections of the hanger rails, serve as guide rails for the body of the car, and they terminate short of the curved portions or bends 23, 24 and 25. Although in the accompanying drawings, the pleasure railway is equipped with only three inclined sections, it will be apparent that the number may be varied as desired.

The body of the car leaves the rails of the interrupted bottom track to permit the hanger wheels to travel down the curved portions or bends of the continuous track, and in order to lower the cars while they are descending from one incline to another, elevators 26, 27 and 28 are employed. Each elevator is equipped with rails 29 to receive the bottom wheels of the car, and it is provided at opposite sides with guides 30, which engage suitable ways 31 of the frame. The guides 30 are preferably composed of spaced flanges, and the ways 31 consist of a single flange, which extends between the spaced flanges, as clearly illustrated in Fig. 7 of the drawings. Any other suitable means, however, may be employed for slidably connecting the elevators with the frame for causing the former to move vertically. Each elevator consists of a frame and vertical side bars 32, to which the guide flanges are secured. The vertical bars are braced by inclined rods 33, and are connected at their upper ends by a transverse rod 34. The elevator is also provided at the top of the side bars with outwardly or rearwardly extending horizontal arms 35, which have angularly bent terminals 36, arranged to slide on vertical guide bars, short guide bars 37 being provided at the front of the frame for the single elevator, and long guide bars 38 being provided at the back of the frame to accommodate the two elevators 26 and 27. The front vertical guide bars 37 are connected at their terminals with the frame by arms or pieces 39, and the rear guide bars 38 are supported by similar arms or pieces 40.

The weight of the elevator and a car is partially counter-balanced by weights 41, secured to cables 42, or other suitable flexible connections, which extend over guide pulleys 43. The cables are secured to the sides of the elevator, and the weights, which are overbalanced by a car, cause the latter to descend slowly. When the hanger wheels reach the lower ends of the curved portions or bends of the hanger tracks, the car leaves the elevator and moves down the contiguous inclined sections of the tracks.

When the elevator 26 moves downward from the inclined track section 8 to the track section 9, it is locked against upward movement by means of a pivoted spring actuated catch 44, arranged to engage a coöperating keeper or portion 44^a of the elevator, and consisting of a bell crank lever, fulcrumed at its angle and provided at one of its arms with a head, having a beveled upper edge and provided with a lower engaged edge or shoulder. The catch is connected by a wire 45, or other suitable connection with a bell crank lever 46, and the latter is connected by a wire 47, or similar connection with one arm of an intermediately pivoted trip lever 49. The trip lever 49, which is disposed in substantially a vertical position, has its lower arm arranged to be engaged by the top shaft or axle of the car. The trip lever 49 is mounted at the third bend or curve of the hanger track, and the top elevator is released as the car enters the third elevator. The second elevator is locked against upward movement by a similar catch 50, which is connected with a trip lever 51 of bell crank form, mounted at the lower section or portion of the continuous double track and having one of its arms arranged in the path of the top shaft or axle of the car, so that the second elevator will be tripped and released as the car leaves the frame-work.

The third elevator is locked by a catch 52, which is connected by a bell crank lever 53, and the latter is connected with a trip lever 54, mounted at the upper end of the bottom track section 11 and arranged to be engaged by one of the bottom axles of the car. The trip levers may, however, be arranged at various other points and may be operated by any suitable means carried by the cars.

The pleasure railway is provided at the front with an inclined track 55, extending upwardly and connected with the uppermost track section 8. In order that the cars may, as illustrated in Fig. 1 of the drawings, be carried up the inclined track 55 in a horizontal position, a pair of endless chains 57 is employed. These chains 57 are connected at intervals by cross pieces 58, preferably curved, as shown, and arranged to receive and support the rear wheels of the car, which will cause the car to remain in a horizontal position while it is being carried up the inclined track section 55. When the car arrives at the top of the pleasure railway, the top hanger wheels take the continuous double hanger track, and the bottom wheels of the car are guided by the inclined sections of the bottom tracks. The car then travels down the uppermost incline and when it

reaches the lower end thereof, it is transferred to the second incline by the first elevator 26. This operation is repeated by each of the elevators, which are entirely automatic, in their operation. The momentum of the car will cause the elevators to descend, and the locking devices prevent the elevators from lifting the rear end of the car as it leaves the elevator should the same contain only a light load.

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent, is:—

1. In a railway of the class described, the combination of a plurality of spaced oppositely inclined track sections located at different elevations and arranged in substantially the same vertical plane, and an elevator movable vertically back and forth between the sections for transferring a car from an upper section of the track to a lower section thereof to cause the car to make a continuous passage from the top to the bottom of the railway.

2. In a pleasure railway, the combination of a plurality of spaced inclined track sections arranged at different elevations, an elevator movable vertically back and forth between the sections of the track to transfer a car from an upper section of the track to a lower section thereof to cause the car to make a continuous trip from the top to the bottom of the railway, and automatically operated means for returning the elevator from the lower section of the track to the upper section thereof.

3. In a railway of the class described, the combination of a plurality of spaced inclined track sections arranged at different elevations, an automatically operable elevator movable back and forth between the trac sections for transferring a car from an upper section of the track to a lower section thereof to cause the car to make a continuous trip from the top to the bottom of the railway, locking mechanism for holding the elevator at the lower section of the track, and means operable by the car for tripping the locking mechanism to release the elevator.

4. In a railway of the class described, the combination of a plurality of spaced inclined track sections arranged at different elevations, an automatically operable elevator movable back and forth between the track sections for transferring a car from an upper section of the track to a lower section thereof to cause the car to make a continuous trip from the top to the bottom of the railway, a catch arranged to automatically engage the elevator for holding the same at the lower section of the track, and a trip lever arranged in the path of the car and connected with the catch for releasing the elevator.

5. In a railway of the class described, the combination of a continuous hanger track provided with a plurality of portions arranged at different elevations and having connecting curves or bends extending downwardly from the upper portions of the track to the lower portions thereof, a car provided with a hanger to run on the said track, and yieldable means located at the curved portions or bends of the track and arranged to receive the car for lowering the same from an upper portion of the track to a lower portion thereof.

6. In a railway of the class described, the combination of a continuous track composed of inclined portions arranged at different elevations, and downwardly extending portions connecting the inclined portions, a car having means to run on the said track, and yieldable means arranged to lower the car from one inclined portion to another.

7. In a railway of the class described, the combination of a continuous track having upper and lower inclined portions and provided with a downwardly extending portion connecting the inclined portions, a car having means to run on the track, and an automatically operable elevator arranged to receive the car from an upper inclined portion of the track to a lower inclined portion thereof.

8. In a railway of the class described, the combination of a continuous hanger track having a plurality of inclined portions arranged at different elevations, and an interrupted bottom track provided with spaced inclined sections, a car having bottom wheels to run on the bottom track and provided at the top with a hanger to run on the continuous track, and yieldable means for transferring the car from the upper inclined section of the bottom track to the lower section thereof.

9. In a railway of the class described, the combination of a continuous hanger track having a plurality of inclined portions arranged at different elevations, and an interrupted bottom track provided with spaced inclined sections, a car having bottom wheels to run on the bottom track and provided at the top with a hanger to run on the continuous track, and an automatically operable elevator for transferring the car from the upper section of the bottom track to the lower section thereof.

10. In a railway of the class described, the combination of a continuous hanger track consisting of oppositely inclined portions located at different elevations, and curved portions or bends connecting the proximate ends of the inclined portions, a bottom track composed of spaced inclined sections corresponding to the inclined portions of the hanger track, a car having bottom wheels, to run on the bottom track provided with top wheels arranged to run on the continuous hanger

track, and automatically operable elevators located at the curved portions or bends of the hanger track for transferring the car from one inclined section of the bottom track to another.

11. In a railway of the class described, the combination of a continuous double hanger track having inclined portions and connecting portions, an interrupted bottom track composed of spaced sections, a car having bottom wheels to run on the bottom track and provided at the top with hanger wheels arranged in pairs to run on the double hanger track, and means for transferring the cars from one section of the bottom track to another.

12. In a railway of the class described, the combination of a continuous double track having inner and outer rails and consisting of inclined portions arranged at different elevations, and bends connecting the inclined portions, a car having hanger wheels arranged in pairs to run on the inner and outer rails, and means for gradually lowering the car from one inclined portion to another.

13. In a railway of the class described, the combination of a track consisting of inclined portions arranged at different elevations and having connecting bends, and means for transferring a car from one inclined portion of the track to another without inverting the car.

14. In a railway of the class described, the combination of an inclined track extending to the upper portion of the railway, and means for carrying a car in a horizontal position up the inclined track, said means embodying a conveyer arranged to support the rear portion of the car in spaced relation with the inclined track.

15. In a railway of the class described, the combination of an inclined track extending to the upper portion of the railway, and means for carrying a car in a horizontal position up the inclined track, said means comprising a pair of endless belts or chains and a cross piece connecting the belts or chains and arranged to receive the rear portion of the car for supporting the same in spaced relation with the inclined track.

16. A pleasure railway comprising a plurality of oppositely inclined interrupted track sections spaced apart and located one above the other, a continuous track composed of oppositely inclined sections extending through the space between the interrupted track sections and provided at the ends thereof with connecting bends, and a car arranged to travel on the interrupted track sections and provided with means to run on the continuous track.

17. A pleasure railway comprising a plurality of oppositely inclined interrupted track sections located in substantially the same vertical plane, a continuous track also composed of oppositely inclined sections extending through the spaces between the interrupted track sections and provided at the ends thereof with connecting bends, and a car arranged to run on the interrupted track sections and provided with means for interlocking it with the continuous track.

18. A pleasure railway comprising a plurality of oppositely inclined interrupted track sections located in substantially the same vertical plane, a continuous track also composed of oppositely inclined sections extending through the spaces between the interrupted track sections and provided at the ends thereof with connecting bends, a car arranged to run on the interrupted track sections and provided with means for interlocking it with the continuous track, and means for retarding the speed of the car at the said bends and for transferring the said car from one of the interrupted track sections to another to cause the car to make a continuous trip from the top to the bottom of the pleasure railway.

19. A pleasure railway comprising a plurality of inclined interrupted track sections spaced apart and located one above the other, a continuous track composed of oppositely inclined sections extending through the space between the interrupted track sections and provided at the ends thereof with connecting bends, a car arranged to travel on the interrupted track sections and provided with means to run on the continuous track, and a plurality of elevators arranged to receive the car transferring the same from one track section to another.

20. A pleasure railway comprising a plurality of inclined interrupted track sections spaced apart and located one above the other, a continuous track composed of oppositely inclined sections extending through the space between the interrupted track sections and provided at the ends thereof with connecting bends, a car arranged to travel on the interrupted track sections and provided with means to run on the continuous track, and a plurality of automatically operable elevators arranged to receive the car and movable backwardly and forwardly between the interrupted track sections for conveying the car from one track section to another.

21. A pleasure railway comprising a plurality of oppositely inclined track sections spaced apart and located one above the other, a continuous track composed of oppositely inclined sections extending through the space between the interrupted track sections and provided at the ends thereof with connecting bends, a car arranged to travel on the interrupted track sections and provided with means to run on the continuous track, and means for retarding the speed of the car at the said bend and for transferring the car from one of the interrupted track sections to

another to cause the car to make a continuous trip from the top to the bottom of the pleasure railway.

22. In a pleasure railway of the class described, the combination of an inclined track extending to the upper portion of the railway, and means for carrying a car in a horizontal position up the inclined track, said means embodying an endless conveyer having an upwardly moving flight or stretch located above and spaced from the inclined track, and means connected with the said upwardly moving flight or stretch for supporting the rear portion of the car in spaced relation with the inclined track.

In testimony, that we claim the foregoing as our own, we have hereto affixed our signature in the presence of two witnesses.

EDWARD FRANKLIN GARDNER.
AUGUST JACOB SCHMIDT.

Witnesses:
CHAS. E. COURSEN,
BENJ. PHILLIPS.