LA MARCUS A. THOMPSON.

PLEASURE RAILWAY.

APPLICATION FILED FEB. 21, 1913.

1,070,081.

Patented Aug. 12, 1913.

3 SHEETS—SHEET 1.

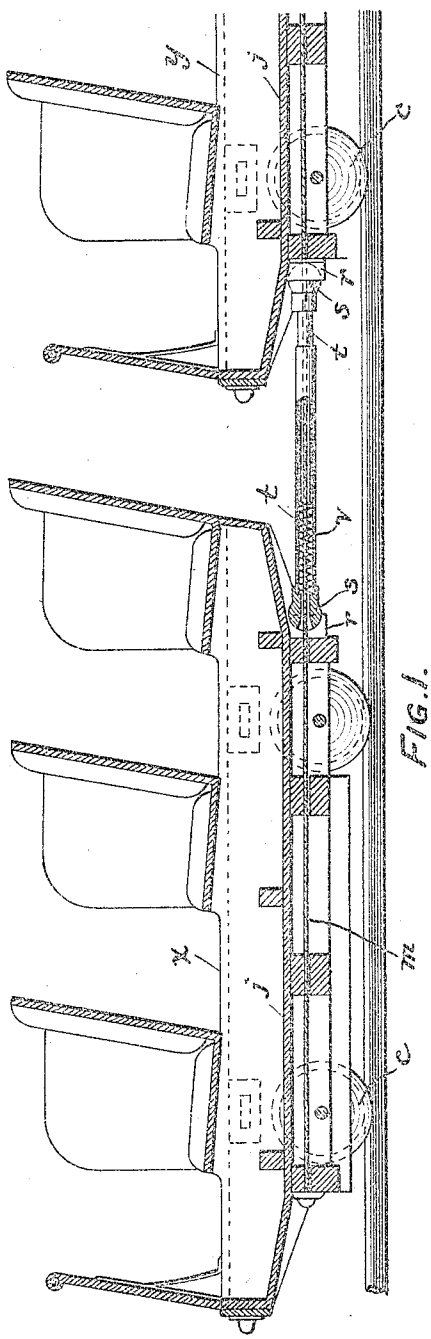

FIG. 1.

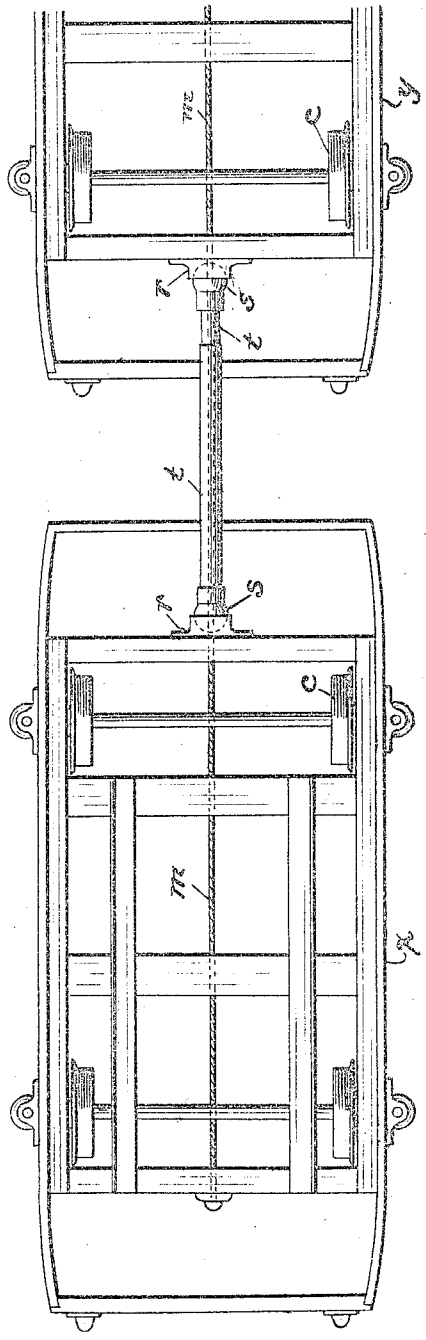

FIG. 2.

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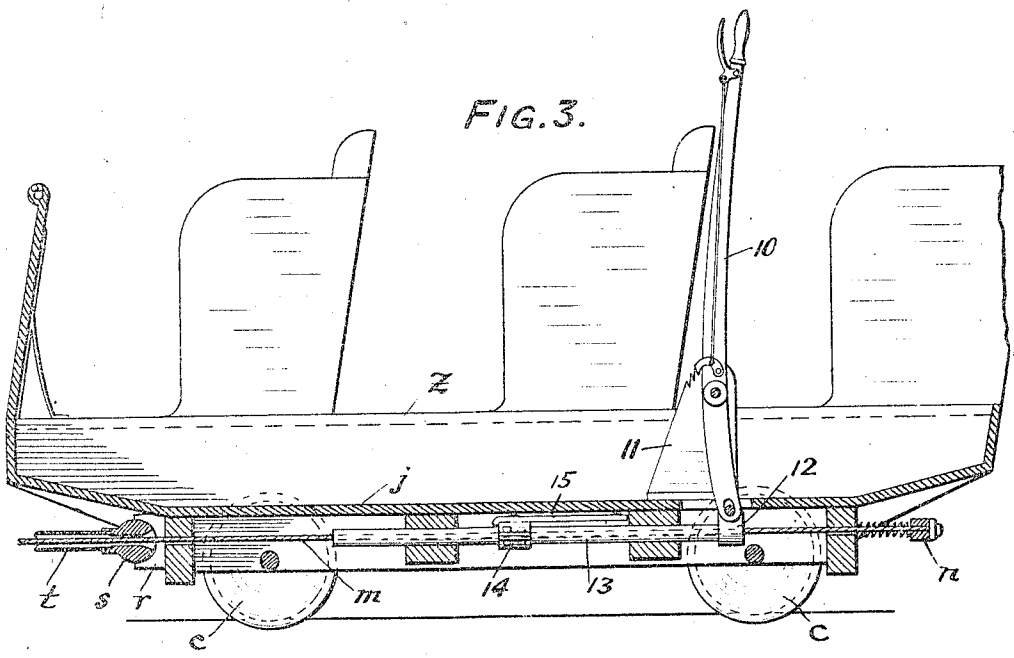
3 SHEETS—SHEET 2.

FIG. 3.



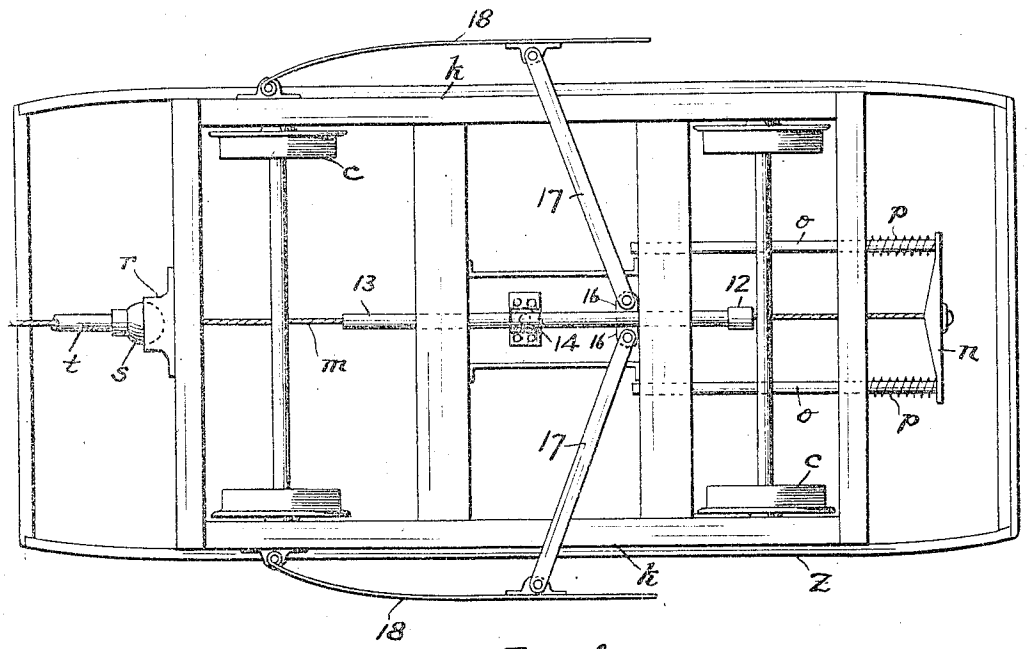




FIG. 4.

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3 SHEETS—SHEET 3.

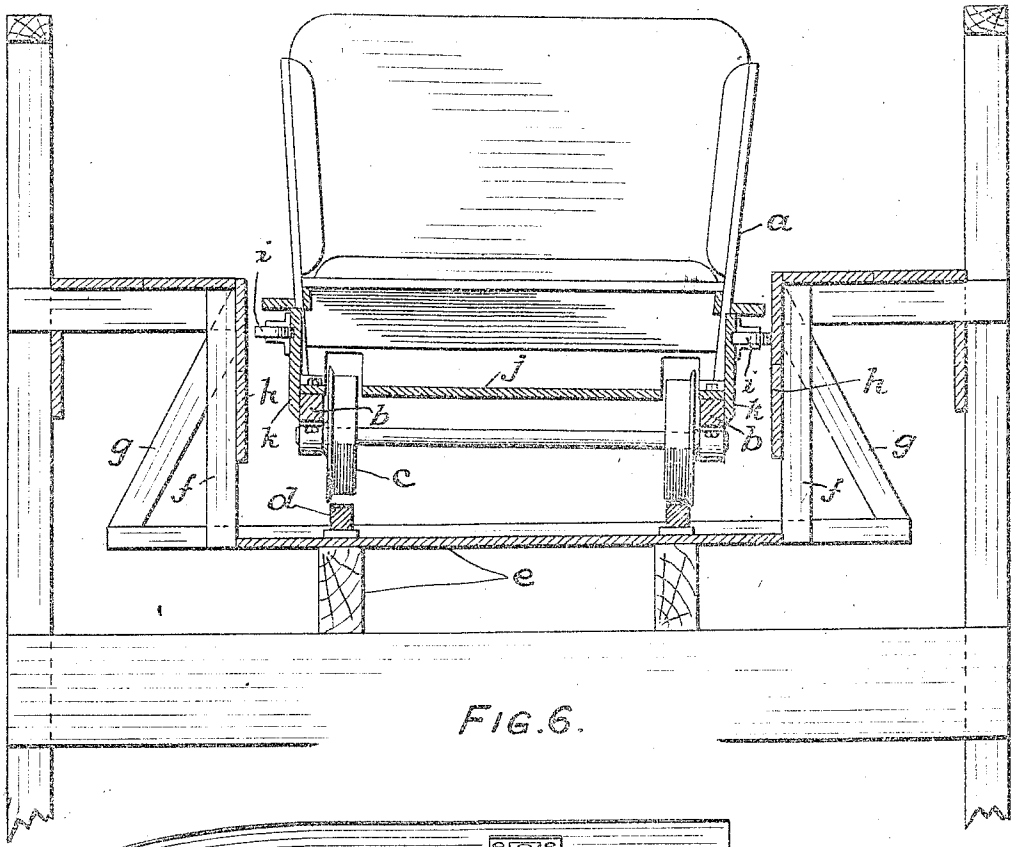


FIG. 6.

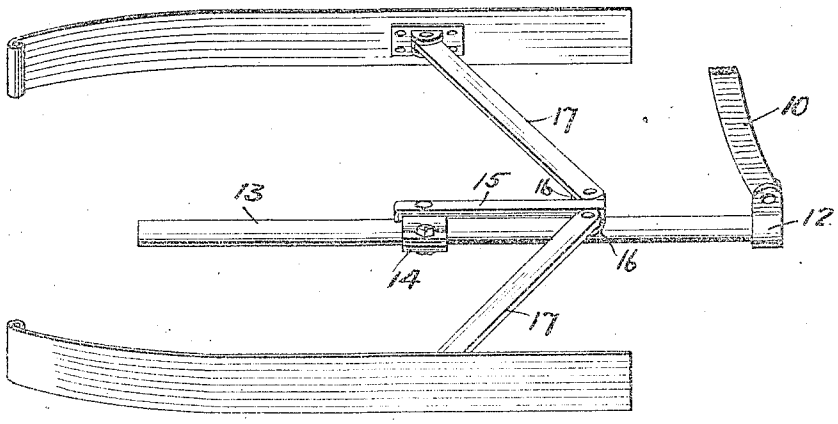


FIG. 5.

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# UNITED STATES PATENT OFFICE.

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## PLEASURE-RAILWAY.

1,070,081. Specification of Letters Patent. Patented Aug. 12, 1913.

Application filed February 21, 1913. Serial No. 749,305.

*To all whom it may concern:*

Be it known that I, LA MARCUS A. THOMPSON, a citizen of the United States, residing at New York city, county of New York, and State of New York, have invented a new and useful Improvement in Pleasure-Railways, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to pleasure railways.

The object of my invention is to so construct the railway, and particularly the cars, the connections between them when a plurality are operated together as a train, the brake mechanism and the road bed, as to enable the cars to be operated with a maximum of comfort and safety.

As is well known, the road bed of an ordinary pleasure railway is very undulating and irregular, being purposely provided with excessively steep grades and sharp curves so as to afford the excitement and thrills which are the chief inducement for the patronage of the public. These features, studiously avoided by ordinary passenger railroads because of their manifest danger, must necessarily be preserved in pleasure railways. Naturally, serious accidents have occurred from time to time. The danger of accident is enhanced in that type of pleasure railways known as the racing coaster. The usual methods of connecting together the several cars of a train is also unsatisfactory, in that there is pronounced racking of the cars back and forth, up and down, and sidewise, resulting in excessive wear and tear on the cars, abnormal strain on the mechanism connecting the cars, and danger of the cars becoming separated or derailed.

My invention has been evolved after long experience in the building of pleasure railways and after careful inquiry into the causes of all accidents, and my invention consists in the structural features, in both their broad and specific aspects, hereinafter described and shown in the drawings in which—

Figure 1 is a side elevation, partly in section, of the front car, the car adjacent thereto, and a portion of the car-connecting mechanism; Fig. 2 is an inverted plan of the same; Fig. 3 is a side elevation, partly in section, of the rear car; Fig. 4 is an inverted plan of Fig. 3; Fig. 5 is a perspective view of the brake mechanism; Fig. 6 is a cross-section through the road-bed and side guide and one of the cars, drawn to show the impossibility of derailment.

Referring to all the figures, and particularly to Fig. 6: *a* represents the car body, *b* the car truck, *c* the wheels, *d* the rails, *e* the road bed, *f* the side uprights, *g* the braces reinforcing the side uprights, *h* the side guides, and *i* horizontal rollers carried by each car and adapted, in case of abnormal tilting of the car sidewise, to contact with the side guides. The floor *j* of the car is raised some distance above the lower edges of the side pieces *k* of the car body, and the longitudinal bolsters of the truck *b* are spaced such a distance apart that the car body may be placed on the truck so that the floor *j* will rest on the bolsters while the side pieces *k* abut against the outer faces of the bolsters. The floor is then secured to the bolsters by bolts. This construction permits the car body to be readily placed upon, or removed from, the truck.

In describing the invention it may be conveniently assumed that three cars *x*, *y* and *z* are connected together to form the train, although any number of cars may be connected together without necessitating any modification of the connecting mechanism. In my invention the cars are connected together by a single cable extending from the first car, through the intermediate car or cars, to the last car. This cable *m* must not be confused with the running or propulsion cable which, in many pleasure railways, extends along sections of the track and which is engaged by an automatic or manually operated grip on one or more of the cars to convey the cars from lower to higher levels. In my invention the cable *m* is simply a connecting cable. The front end of the cable extends through the front cross-piece of the car truck of the front car *x*, and is clamped to the front face of the cross-piece (see Figs. 1 and 2); while the rear end of the cable is secured to a cross-head *n* at the rear of the last car *z* (see Fig. 4). The cross-head *n* carries forwardly extending rods *o*, *o*, which slide in guides in the two rear cross-pieces of the truck of the car *z*. Coil springs *p*, *p*, surround the rods *o*, *o*,

and are confined between the rear cross-piece of the truck and the cross-head *n*.

Referring again to Figs. 1 and 2, I will now describe the connections between each two adjacent cars. Secured to the rear of the truck of car *x* is a plate *r* having a socket to receive a ball *s*. The ball *s* carries a collar within which is screwed a rearwardly-extending tube *t*. A similar ball-and-socket and tube construction is secured to and extends forwardly of the front of the truck of car *y*. The two tubes *t* telescope one within the other, and a spring *v* is confined between the end of the inner tube and the ball carrying the other tube. Cars *y* and *x* are connected in the same manner. Each ball-and-socket joint is orificed to allow the cable *m* to extend through it. The cable also extends through all the tubes *t*. By this construction, the cars are connected together with absolute security. In going around curves and in passing over the humps and hollows of the road-bed, the ball-and-socket joints permit the connections to be maintained without strain thereon and without imparting any jerking or racking motion to the cars. The springs within the tubes tend to maintain adjacent cars at fixed distances apart but yield to permit them to recede and approach to the extent required. Whatever variations occur in the distances between adjacent cars is taken up by the flexible connections between the cars and the rear end of the cable. The construction also has the advantage of extreme simplicity in construction and assemblage. To attach the cars together, it is only necessary to draw the front end of the cable from the rear car through the connections between the cars and the front cross-piece on the front car and clamp the front end of the cable thereto. To remove the cable it is merely necessary to unclamp the front end of the cable, take hold of the rear cross-head *n* and withdraw the cable. Should it be desired to reduce or increase the number of cars in a train, it is only necessary to withdraw the cable, withdraw a car or introduce an extra car, and insert another cable of an appropriate length.

In Figs. 3, 4 and 5, I have illustrated the braking mechanism. The brake-lever 10 is pivoted between its ends on a standard 11 on the rear truck frame and at its lower end is attached to a head 12 secured to the rear end of a tube 13, which, besides forming part of the braking mechanism, also serves as a guide for the rear part of the connecting cable *m*. The tube 13 is slidable in the cross-pieces of the truck. To the tube 13 is secured a clamp 14, to which is fixed a rearwardly extending bar 15 having ears 16, 16. To these ears are pivoted links 17, which connect the bar 15 with brake-shoes 18 pivoted at their front ends to the side-pieces *k* of the car-body. By drawing back the upper end of the brake lever 10, the tube 13 and bar 15 are moved forwardly, thereby pulling forwardly the inner ends of the links 17, thereby forcing out the brake shoes 18 with a powerful pressure against the side-guides *k*.

In pleasure railways as heretofore constructed the flanges of the running wheels have been placed inside the tread—following the usual method in the construction of all vehicles designed to run on tracks. I have, however, placed the flanges on the outside of the tread, as shown in Fig. 6. I am aware that this is not broadly new, but when combined with side guides arranged along opposite sides of the track adapted to be engaged by rollers carried by the car, the elements cooperate to perform a new and important function namely, the absolute prevention of derailment.

In Fig. 6, I have assumed that the car, while passing around a curve at high speed (say to the left) tends to lurch, throwing the pressure of the car to the right, causing the inside wheels to lift. Under these conditions, assuming the wheel flanges to be on the inside of the treads, there is grave danger that the side pressure between the side-guides *k* and rollers *i* will shove the wheels off the track. This will almost inevitably occur if the inside wheels lift sufficiently to clear the rail, as there is then nothing to prevent the right hand wheels from slipping off the rail due to the pressure above. Derailments due to this cause have, in fact, occurred, resulting in fatalities. With the flanges on the outside of the wheel treads, however, assuming the conditions otherwise to be the same as above detailed, the outer flanges on the wheels at the right-hand side of the car will absolutely prevent the car from being pushed to the left, no matter to what height the left-hand wheels rise; and derailment from this cause is impossible.

The specific mechanism in which my invention is embodied in the construction shown and described, while exhibiting the preferred embodiment of my invention, may be modified, within the limits defined by the claims, without departing from my invention.

Having now fully described my invention, what I claim and desire to protect by Letters Patent is:

1. In a pleasure railway, the combination with a plurality of cars arranged as a train, of a cable attached to the front car and extending longitudinally of the cars and attached to the rear car whereby the front and rear cars of the train are held together, coupling mechanism between adjacent cars adapted to permit them to have a limited degree of relative longitudinal movement, and a tension contrivance included in the

attachment of the cable to one of the end cars.

2. In a pleasure railway, the combination with a plurality of cars arranged as a train, of coupling members telescoping one within the other, means connecting said members with adjacent cars and permitting them to assume different angles relatively thereto, and means additional to the coupling members connecting together the front and rear cars and maintaining the coupling members in operative relation.

3. In a pleasure railway, the combination with a plurality of cars arranged as a train, of a non-propulsion cable extending longitudinally of and connected with the car at one end of the train, means additional to the cable to connect adjacent cars, and a flexible connection between the cable and the car at the other end of the train, thereby permitting the average distances apart of adjacent cars to vary with an interconnecting cable of definite length.

4. In a pleasure railway, the combination with a plurality of cars, arranged as a train, of a non-propulsion cable extending longitudinally of the cars and connected with the front and rear cars, and means additional to the cable, yieldingly connecting adjacent cars and through which the cable extends and is guided.

5. In a pleasure railway, the combination with a plurality of cars, of a pair of coupling members, telescoping one within the other, between adjacent cars, means connecting said coupling members with adjacent cars and permitting them to assume different angles relatively thereto, and a non-propulsion cable extending longitudinally of the cars and maintaining the coupling members of each pair in operative relation.

6. In a pleasure railway, the combination with a plurality of cars, of a pair of tubes, telescoping one within the other, between adjacent cars, means connecting the tubes with adjacent cars and permitting them to assume different angles relatively thereto, and a non propulsion cable extending longitudinally of the cars through said tubes, and limiting the extensibility of the tubular connection.

7. In a pleasure railway, the combination with a plurality of cars, of a pair of tubes, telescoping one within the other, between adjacent cars, means connecting the tubes with adjacent cars and permitting them to assume different angles relatively thereto, a tension device yieldingly resisting the contractibility of the tubular connection, and a cable extending through said tubes and attached to the front and rear cars.

8. In a pleasure railway, the combination with a plurality of cars, of a pair of tubes, telescoping one within the other, arranged between adjacent cars, a ball and socket connection between each tube of a pair and the next adjacent car, a tension device yieldingly resisting the contractibility of the tubular connection, and a cable extending through said tubes and attached to the front and rear cars.

9. In a pleasure railway, the combination with a plurality of cars, of a pair of tubes, telescoping one within the other, arranged between adjacent cars, a ball and socket connection between each tube of a pair and the next adjacent car, a spring confined between the tubes of a pair and tending to cause them to assume a more extended position, and a cable extending through said tubes and limiting the extensibility of the tubular connection.

10. In a pleasure railway, the combination with a plurality of cars arranged as a train, of a pair of tubes, telescoping one within the other, between adjacent cars, means connecting the tubes with adjacent cars and permitting them to assume different angles relatively thereto, and a cable extending through said tubes and connected with the front and rear cars.

11. In a pleasure railway, the combination with a plurality of cars arranged as a train, of a pair of tubes, telescoping one within the other, between adjacent cars, means connecting the tubes with adjacent cars and permitting them to assume different angles relatively thereto, a cable connected with the car at one end of the train and extending through said tubes to the car at the other end of the train, and a flexible connection between the cable and the last named car.

12. In a pleasure railway, the combination with a plurality of cars arranged as a train, of a pair of tubes, telescoping one within the other, between adjacent cars, means connecting the tubes with adjacent cars and permitting them to assume different angles relatively thereto, a tension device tending to extend said tubular connection, a cable connected with the car at one end of the train and extending through said tubes to the car at the other end of the train, and a flexible connection between the cable and the last named car.

13. In a pleasure railway, the combination with a plurality of cars arranged as a train, of a pair of tubes, telescoping one within the other, arranged between adjacent cars, a ball and socket connection between each tube of a pair and the next adjacent car, a tension device confined between the tubes of a pair and tending to cause them to assume a more extended position, and a cable extending through said tubes and connected with the front and rear cars.

14. In a pleasure railway, the combination with a plurality of cars arranged as a train, of a pair of tubes, telescoping one

within the other, arranged between adjacent cars, a ball and socket connection between each tube of a pair and the next adjacent car, a tension device confined between the tubes of a pair and tending to cause them to assume a more extended position, a cable connected with the car at one end of the train and extending through said tubes to the car at the other end of the train, and a flexible connection between the cable and the last named car.

In testimony of which invention, I have hereunto set my hand, at New York city, N. Y., on this 13 day of February, 1913.

LA MARCUS A. THOMPSON.

Witnesses:

DANL. A. SLATTERY,

M. M. HAMILTON.