

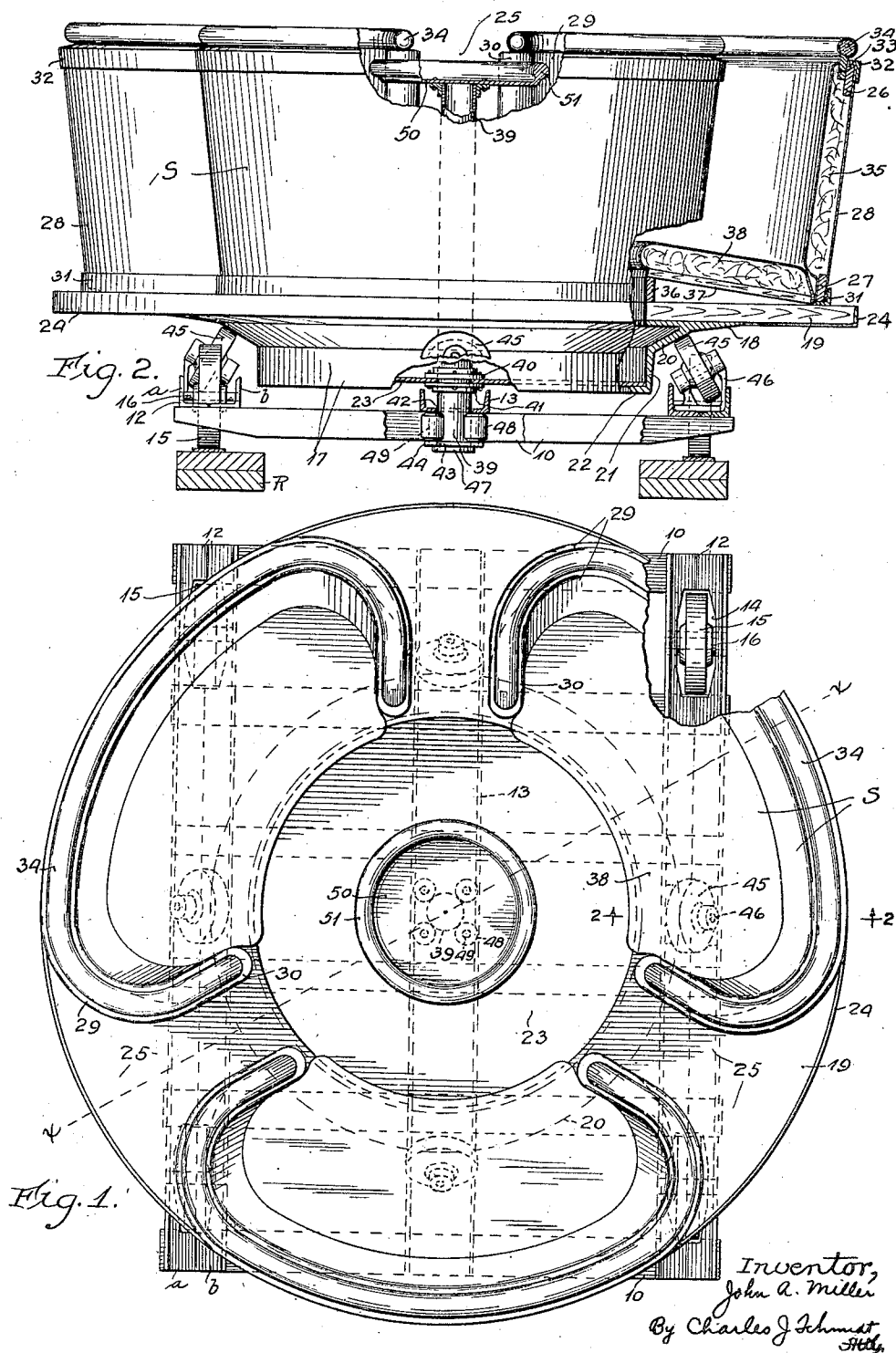
Mar. 20, 1923.

1,448,764

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PLEASURE RAILWAY CAR

Filed Dec. 15, 1922



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UNITED STATES PATENT OFFICE.

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PLEASURE-RAILWAY CAR.

Application filed December 15, 1922. Serial No. 607,027.

To all whom it may concern:

Be it known that I, JOHN A. MILLER, a citizen of the United States, and a resident of Homewood, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Pleasure-Railway Cars, of which the following is a specification.

My invention relates to improved cars for pleasure railway structures, particularly structures which have abrupt dips and summits and sharp curves. The general object of the invention is to produce a car whose riding over such railway structures will be full of sensation yet will be entirely safe.

More in detail one of the important objects of the invention is to provide a seating structure for the car which besides partaking of the movement of the car over dips and summits and around curves, will have oscillating and rotary movement. Another important object of the invention is to so arrange seats on the seating structure that when the car is traveling up or down inclines or around curves the center of the load will move away from the center of rotation of the car to thus cease the car, by the unbalanced weight, to automatically turn without the aid of turning devices arranged along the track structure. This I accomplish by localizing weight by providing an uneven number of separated seats, preferably 3, each holding the same number of persons and spaced uniformly around the center of rotation.

Another object of the invention is to provide for quick and ready loading and unloading of the car, this being accomplished by providing radial aisles between the seats with the floor at the aisles on a level with the loading or unloading platforms of the railway structure on which the car is to be used.

Another object is to provide improved pivot and supporting arrangement which will enable the seating structure to turn with very little friction and which will hold it securely against tilting with reference to the car truck.

The above and other features of my invention are clearly disclosed in the structure shown on the accompanying drawing, in which—

Fig. 1 is a plan view of a car with parts broken away, and

Fig. 2 is a side elevational view with parts broken away and in section.

For supporting the revolvable seating structure any suitable type of truck may be used. The truck shown comprises a rigid framework of cross beams 10 and longitudinally extending beam structures 12 and 13. The cross beams may be of wood but the longitudinal beam structures are preferably of metal. The side beam structures 12 are each composed of angle beams *a* and *b* which form a channel shaped beam structure. At its ends these side beam structures are cut out as indicated at 14 to accommodate the vehicle wheels 15 journaled on the shafts or axles 16 which are supported in the opposed angle beams of the beam structures. The central longitudinal beam 13 is in the form of a channel beam secured to the cross beams with its flanges extending upwardly. I have shown rail structures *R* which form part of the supporting railway structure (not shown) and which will have abrupt summits and dips and lateral curves. In practice safety rollers or abutments (not shown) are also provided on the truck to cooperate with the rail structures to keep the truck to the rails particularly when going around curves or over abrupt summits.

The seating structure is of circular form. I comprises an annular preferably metal main supporting frame 17 of irregular T-shape cross section. The horizontal annular flange 18 of this frame forms a support for the entrance and seat supporting flooring 19, while the vertical or web part comprises the upper inclined annular section 20, the intermediate cylindrical section 21 and the lower or inwardly turned flange section 22, this flange section supporting the foot flooring 23. The flooring 19 is preferably surrounded by a tire or strengthening angle bar 24.

On the floor 19 are arranged and secured the seats *S*, three such seats being shown equally spaced on the floor and separated from each other a sufficient distance to leave the aisles 25. The seats are arcuate and concentric with the axis of the seating structure. I show a very desirable construction for these seats. For the backs I provide upper and lower boards or timbers 26 and 27 connected by the wooden or sheet metal walls 28. The backs at their ends bend to form the substantially semi-circular side sections 29 and the radially extending ends 30. The sections 30 of adjacent seats are separated and between the sections 29

and 30 of adjacent seats are the aisles or entrance passageways 25 already referred to. Passengers are readily guided through the aisles by the curved sides 29.

5 Angle bars 31 secured on the floor 19 form a rigid support for the rear lower edges of the seats and the tops of the backs are strengthened by the angle bar corners 32. Boards 33 extending up from the back support the upholstered rope 30 which affords
10 a good hand rail to which the passengers may hold when entering the car. The back is provided with suitable upholstery 35.

Secured along the inner edge of the annular floor 19 are the raise boards 36 for supporting the inner ends of the inclined seat bottom boards 37 on which are supported the cushions 38. The deep seats with their high backs are very comfortable and the
20 passengers cannot fall out. The recesses or pockets formed by the curved sides 29 and the ends 30 also serve to snugly seat the passengers, usually two to each seat. The passengers step from the aisles on to the
25 floor 23 and as there are three aisles and only two passengers per seat the passengers can readily find seats or leave them without crowding or confusion.

Describing now the pivotal arrangement
30 of the seating structure on the truck, a pivot post 39 extends axially through the floor 23 and by means of flanges 40 and 41 the post is rigidly secured to the floor 23. The post extends through the opening 42 in the channel beam 13 and through the hole 43 in the plate 44, the channel beam being secured to the cross beam on the top thereof and the plate being secured against the under sides
40 of the adjacent cross beams. To support the weight of the seating structure during its rotation and to prevent it from tilting I provide the rollers or wheels 45 which are arranged in planes at right angles with the plane of the outer surface of the inclined
45 section 20 of the main supporting frame 17. I have shown four such supporting rollers. They can be conveniently supported in bearing frames 46 securely mounted between the flanges of the beams 12 and 13 as clearly
50 shown. To hold the seating structure to the supporting rollers a head or abutment flange 47 is provided on the lower end of the pivot post 39 below the plate 44. I reduce the friction at the pivot point I preferably provide anti-friction rollers 48 which are arranged around the pivot axis to center the post and are supported on shafts 49 extending
55 between the beam 13 and the plate 44. Friction is thus reduced to a minimum and the seating structure can readily rotate on its axis in response to very slight unbalancing of the weight. To provide a convenient holding means for the passengers the post 41 is extended upwardly in the car and has
60 secured at its upper end the disk 50 having

at its periphery the circular hand rail 51. This hand rail and the rope rails 34 on the seats afford convenient support for the passengers when they enter or leave the car and serve a convenient hold for the passengers while the car is traveling rapidly on the railway structure. The aisle floor 19 is preferably at a level so that it will be close to and register with the loading or unloading platforms of the railway structures on
70 which the car is run, loading and unloading of the car being then quickly and readily accomplished without confusion. The passengers can all enter or leave through one aisle or the seating structure can be rotated
75 and the passengers loaded and unloaded through the respective aisles. Owing to the shape and size of the seats the passengers will be snugly but comfortably and safely seated and they can hold on to the rope rails
80 34 and the circular hand rail when the car is under way. There is therefore no danger of any of the passengers falling or being thrown from the car during its travel over the track structure.
85 90

Owing to the frictionless support and pivot of the seating structure very little disturbance will be required to cause it to rotate. When the seats are uniformly loaded, two in each seat, and the car is on
95 level track the center of gravity will be in the pivot line. But the loading is very seldom uniform and so the center of gravity will usually be at one side of the pivot line, and that side on which the center of gravity is located will therefore tend to swing down
100 when the car is going up or down grade, and when going around curves such heavier side will tend to swing toward the outside of the curve due to centrifugal action. Even
105 with the load equally and uniformly distributed on the seats so that on the level the center of gravity will be in the pivot line, the structure will turn on grades for the reason that there is no diametral plane on the sides
110 of which the load would be equally distributed. There might be the same total load on both sides but the distribution would be unequal this being due to the uneven number of separated seats. For example, suppose that with the position shown in Fig. 1 the car is traveling down an incline away from the observer. The load in advance of the transverse vertical plane passing through the center point will be heavier than the
115 load behind such plane because the trailing seat has only two occupants while the seats in front of the plane have the combined weight of more than two. The seating structure will therefore maintain this position while the car is traveling down a
120 straight incline. But suppose that the car is coming down an incline towards the observer. The slightest disturbance will move the center of gravity of the heavier weighted
125 130

side to one side or other of the line of direction of travel and then this heavier side will cause the seat structure to rotate until practically two seats are leading and one seat trailing.

Suppose that the car is traveling on level track with the seating structure in position with its plane $x-x$ at right angles with the direction of travel. There will then be two and one-half seats or three persons on each side of this plane but the center of gravity at each side of the plane will be closer to the center of the full seat on that side. Now if the car should strike an upgrade (traveling from the observer) the two seats which are in greater part at one side of the center line of travel will cause the structure to rotate to bring these seats to opposite sides of the center line of travel and to swing the other seat in advance. If the car then strikes a down grade two seats will swing in advance with one seat trailing. Thus while the car travels up or down grades the seat structure will always rotate to bring two seats to the lowest point, one on each side of the line of travel, and a single seat at the trailing end.

When going around curves centrifugal force will act strongest on that side of the center line on which is the greatest load so that two seats will be at the outside of the curve and one seat at the inside. Thus as the car travels at irregular intervals up and down grade and around curves of various radiuses the seating structure will be continuously rotated or whipped around and the ride is thus full of sensation and interest. The seats being designed to snugly receive two persons and the hand rails affording good holds for them there is no danger of their being thrown out of their seats or from the car.

I do not desire to be limited to the exact construction and arrangement shown as changes and modifications can be made which would still come within the spirit of the invention. I claim as follows:

1. In a car for pleasure railway structures of the class described, the combination of a truck, a seating structure pivoted on said truck to rotate on its vertical axis, and seats for said structure uniformly arranged around the pivot axis and separated by radial aisles.

2. In a car for pleasure railway structures of the class described, the combination of a truck, a seating structure supported on said truck to rotate on its vertical axis, and an uneven number of seats for said structure uniformly arranged around the pivot axis and separated by radial aisles.

3. In a car for pleasure railway structures of the class described, the combination of a truck, a seating structure mounted on said truck to rotate on its vertical axis,

and seats for said structure arranged in a circular row concentric with the pivot axis and facing said axis, said seats being separated by radial aisles.

4. In a car for pleasure railway structures of the class described, the combination of a truck, a seating structure supported on said truck to rotate on its vertical axis, and an uneven number of seats for said structure arranged in a circular row concentric with and facing the pivot axis, there being radial aisles between said seats.

5. In a car for pleasure railway structures of the class described, the combination of a truck, a seating structure mounted on said truck to rotate on its vertical axis, an annular floor for said structure concentric with the pivot axis thereof, and separated seats uniformly distributed on said floor and facing radially inwardly, the spaces between said seats forming radial aisles.

6. In a passenger car for pleasure railway structures of the class described, the combination of a truck, a seating structure supported on said truck to rotate on its vertical axis, a circular inner floor for said seating structure, uniformly spaced seats arranged in a circle around said inner floor concentric with the pivot axis, the space between said seats forming aisles to the inner floor, and flooring for said aisles raised above the inner floor to be on a level with the loading and unloading platforms of the railway structure over which the car is run.

7. In a car for pleasure railway structures of the class described, the combination of a truck, a circular seating structure pivoted on said truck for rotation around its axis, and an uneven number of seats uniformly distributed in a circular row concentric with said pivot axis, said seats being of the same capacity and uniformly spaced apart to afford loading and unloading aisles, the end walls of said seats forming the guiding walls for said aisles.

8. In a car for pleasure railway structures of the class described, the combination of a truck, a circular seating structure pivoted on said truck for rotation on its vertical axis, and seats for said seating structure arranged in a circular row around the pivot axis, backs for said seats, and end walls for said seats extending radially, the end walls of adjacent seats being separated whereby to form aisles for the loading or unloading of passengers.

9. In a car for pleasure railway structures of the class described, the combination of a truck, a circular seating structure pivoted on said truck for rotation around its vertical axis, and an uneven number of seats uniformly distributed in a circular row concentric with said pivot axis, backs for said seats, and end walls for said

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seats, the end walls of said adjacent seats being separated and extending radially whereby to form radial aisles for the loading or unloading of passengers.

5 10. In a car for pleasure railway structures of the class described, the combination of a truck, an annular floor mounted on said truck and pivoted thereon to rotate around its axis, and seats on said floor facing the pivot axis and spaced apart to provide aisles for the loading and unloading of passengers.

11. In a car for pleasure railway structures of the class described, the combination of a truck, an annular floor supported on said truck to rotate around its axis, an uneven number of seats uniformly distributed on said floor and separated to provide aisles.

12. In a car for pleasure railway structures of the class described, the combination of a truck, an annular floor supported on said truck to rotate on its axis, and an uneven number of similar seats uniformly spaced on said floor and facing the axis of rotation, said seats being separated at their ends to provide radial aisles for the loading or unloading of passengers.

13. In a vehicle for pleasure railway structures of the class described, the combina-

tion of a truck, a circular seating structure on said truck, an axial pivot connection between said seating structure and said truck for permitting rotational movement of said structure, rollers between said truck and seating structure for supporting it vertically during rotation thereof, separate seats on said seating structure arranged in a circular row around the pivot axis, a post in the center of said seating structure, and a circular hand rail at the top of said post.

14. In a vehicle for pleasure railway structures of the class described, the combination of a truck, a seating structure on said truck, a pivot connection between said seating structure and truck for permitting rotational movement of said structure, an annular rail on said structure, rollers journaled on said truck for receiving said rail to thereby support the structure vertically, a plurality of separate seats arranged in a circular row on said structure around the pivot axis, and a circular hand rail supported in said structure for the passengers.

In witness whereof, I hereunto subscribe my name this 8th day of December A. D., 1922.

JOHN A. MILLER