J. JACKSON.

TRICYCLE RAILWAY AND CAR.

APPLICATION FILED OCT. 18, 1913.

1,122,396.

Patented Dec. 29, 1914.

4 SHEETS—SHEET 1.

Fig. 1.

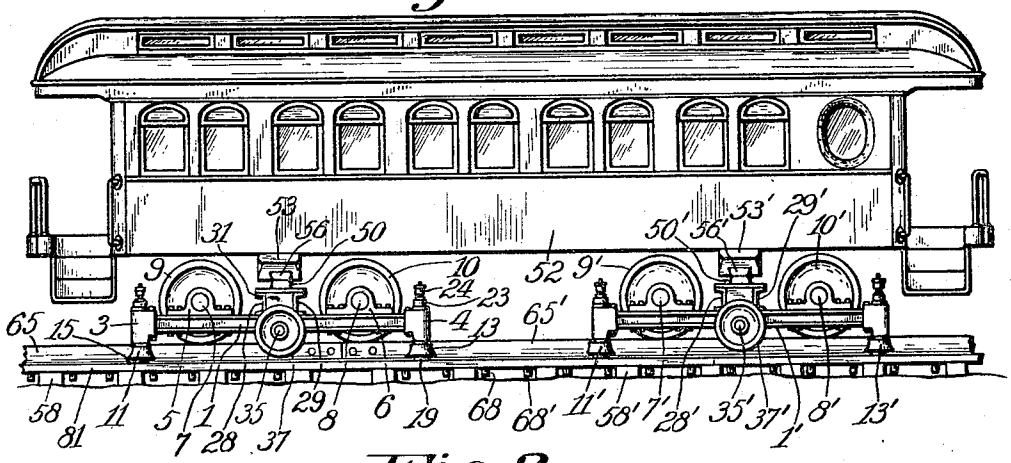
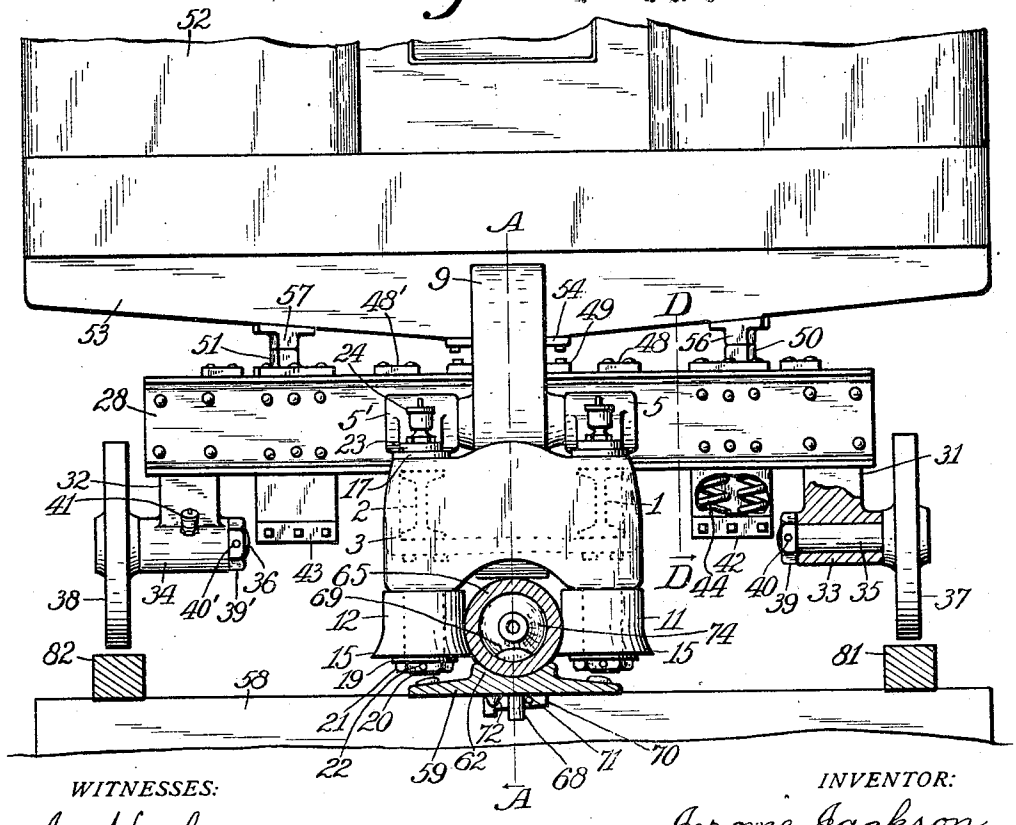


Fig. 2.



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4 SHEETS—SHEET 2.

Fig. 3.

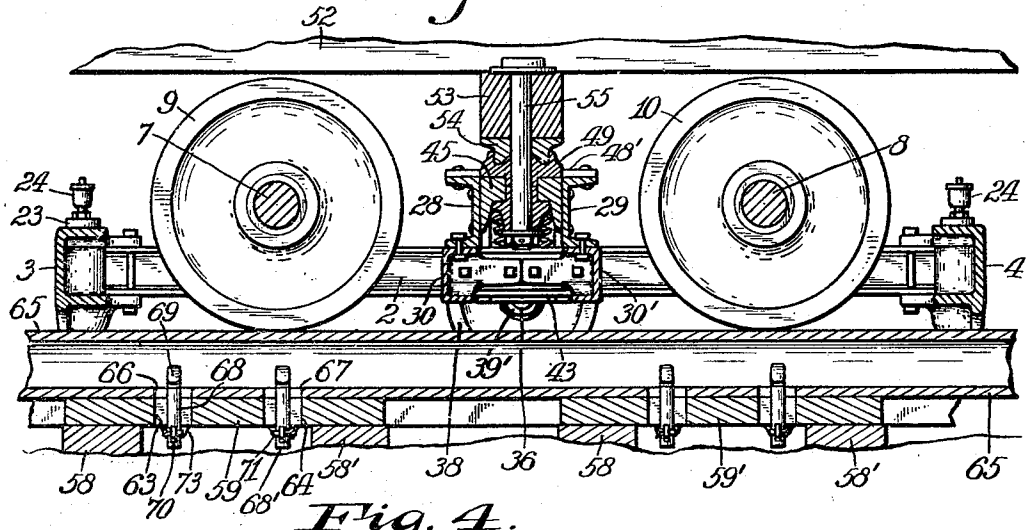
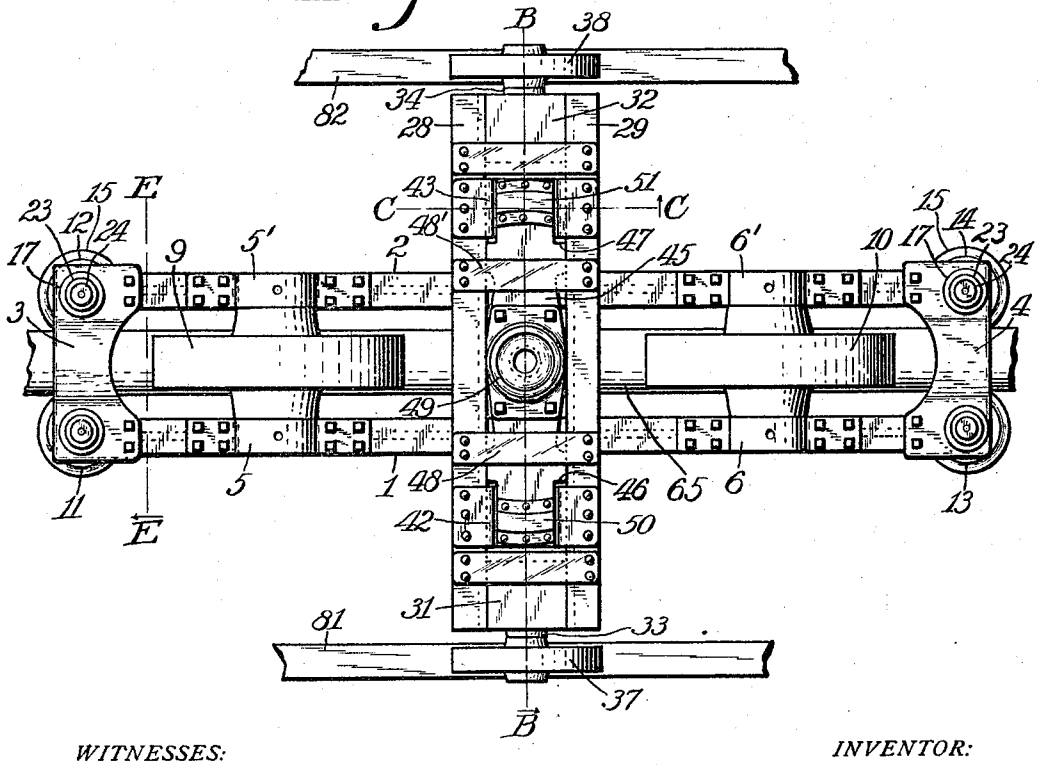


Fig. 4.



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4 SHEETS—SHEET 3.

Fig. 5.

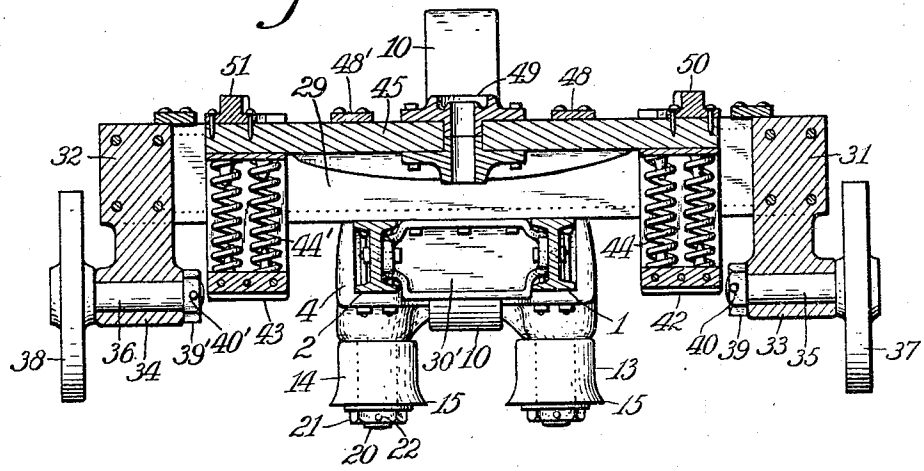


Fig. 6.

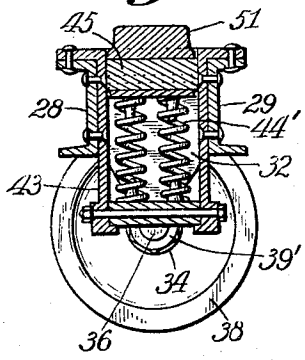


Fig. 7.

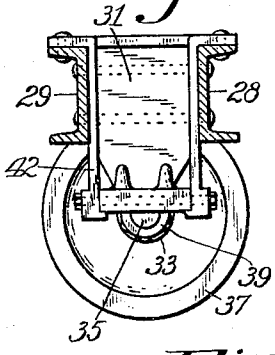


Fig. 8.

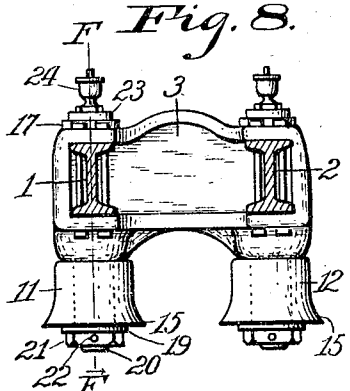


Fig. 9.

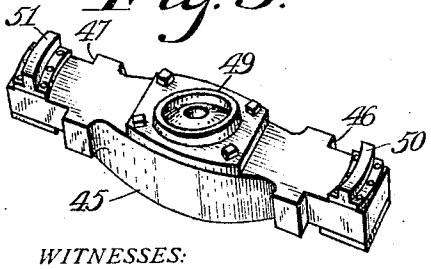


Fig. 10.

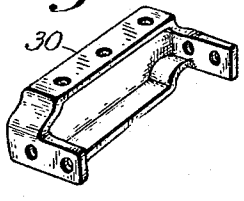
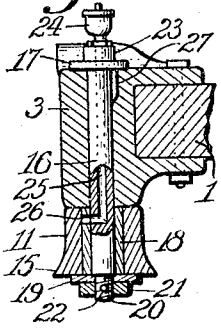


Fig. 11.



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4 SHEETS—SHEET 4.

Fig. 12.

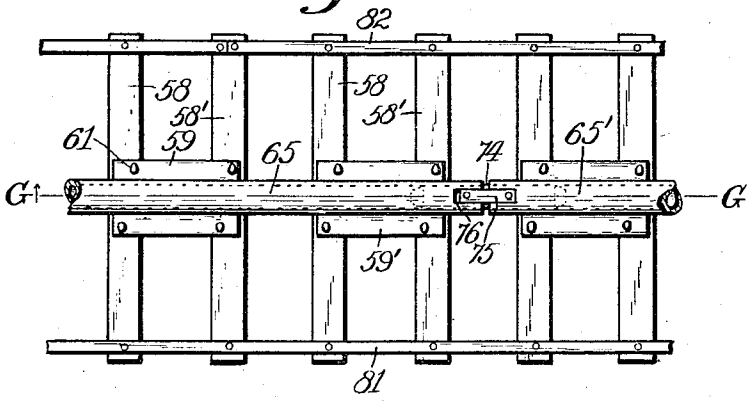


Fig. 13.

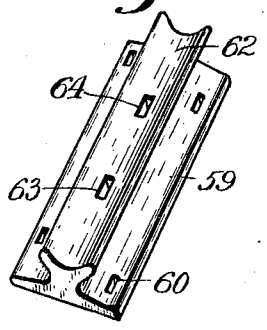


Fig. 14.

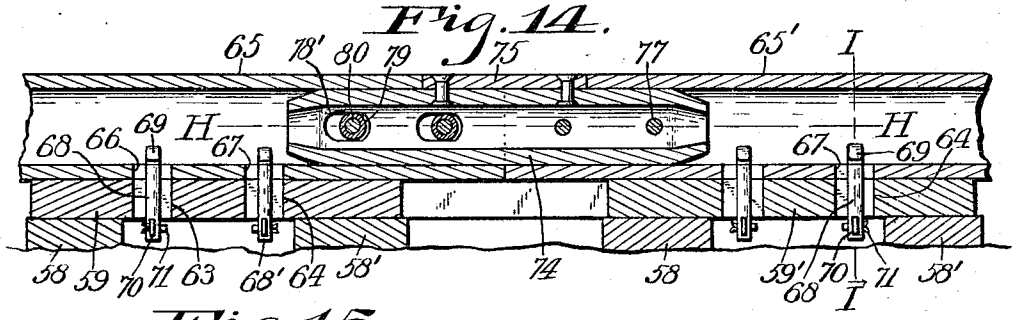


Fig. 15.

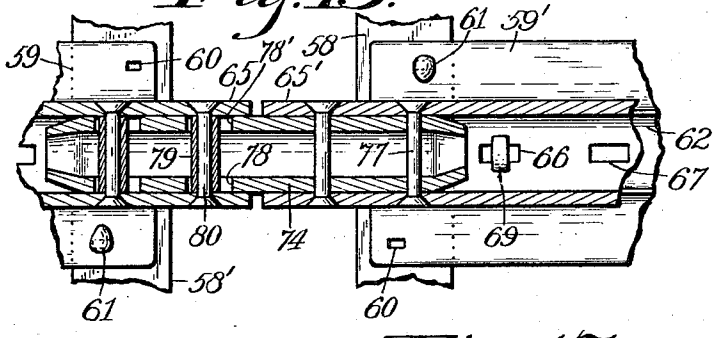


Fig. 16.

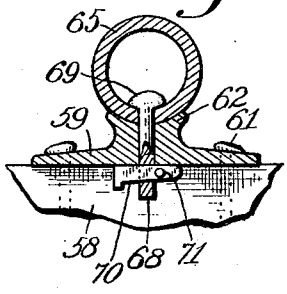
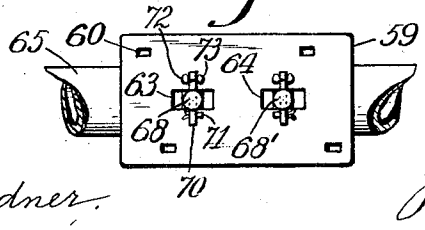


Fig. 17.



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UNITED STATES PATENT OFFICE.

JEROME JACKSON, OF SAN FRANCISCO, CALIFORNIA.

TRICYCLE RAILWAY AND CAR.

1,122,396. Specification of Letters Patent. Patented Dec. 29, 1914.

Application filed October 18, 1913. Serial No. 795,863.

To all whom it may concern:

Be it known that I, JEROME JACKSON, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented a new and useful Tricycle Railway and Car, of which the following is a specification, reference being had to the accompanying drawings and to the letters and figures of reference marked thereon.

This invention relates to the type of railway that comprises a single main rail for supporting and guiding the rolling stock, such as cars, engines or motors, and two balancing rails, the rolling stock having main wheels for supporting the load on the single rail and guide rollers to operate on the sides of the rail for guiding the main wheels upon the rail, and also balancing wheels arranged so as to coöperate with the balancing rails to prevent tilting of the car or other vehicle.

An object of the invention is to provide improved railway construction and equipment of simple and substantial design that shall contain reliable features insuring safety in operation.

Another object of the invention is to provide an improved car truck that shall be so constructed as to be effectually retained on the rail supporting it, in order to permit high speed of the car with safety.

A still further object of the invention is to provide light weight railway equipment which shall be so constructed as to permit high speed with safety and which shall be adapted to be produced inexpensively in relatively small sizes either as passenger, freight or mine roads, or as pleasure or amusement roads.

With the above mentioned and other objects in view, the invention consists in an improved railway car or vehicle truck having various novel features of construction, and in a railway track of novel construction.

The invention consists further in the parts and combinations and arrangements of parts as hereinafter particularly described and claimed.

Referring to the drawings, Figure 1 is a side elevation of the improved railway and car; Fig. 2, a transverse section of the railway and fragmentary end elevation of the car; Fig. 3, a section on the line A A in Fig. 2; Fig. 4, a top plan of the improved car truck; Fig. 5, a transverse section of the truck on the line B B in Fig. 4; Fig. 6, a sectional elevation on the line C C in Fig. 4; Fig. 7, a sectional elevation on the line D D in Fig. 2; Fig. 8, a sectional elevation on the line E E in Fig. 4; Fig. 9, a perspective view of the truck bolster; Fig. 10, a perspective view of one of the connecting parts of the truck; Fig. 11, a section on the line F F in Fig. 8; Fig. 12, a plan of the improved railway; Fig. 13, a perspective view of one of the chairs of the improved main rail; Fig. 14, a section on the line G G in Fig. 12; Fig. 15, a fragmentary section on the line H H in Fig. 14; Fig. 16, a transverse section on the line I I in Fig. 14, and Fig. 17 is an inverted plan of the chair and main rail.

Similar reference characters in the various figures of the drawings indicate corresponding elements or features of construction herein referred to.

The invention is illustrated in connection with a passenger car which may be propelled by any desired or suitable means or drawn in a train of cars if desired, the car having two trucks. As preferably constructed, a truck comprises two longitudinal bars or wheel pieces 1 and 2 arranged a short distance apart in parallel order and are connected together at their ends by means of two suitable end members 3 and 4, preferably formed as castings. The bar 1 is provided on its top with two suitable journal boxes 5 and 6, the companion bar 2 being provided with similar boxes 5′ and 6′, the boxes being of any desired or suitable construction and arranged relatively near to the end members. An axle 7 is mounted in and supports the boxes 5 and 5′, a similar axle 8 being mounted in and supporting the boxes 6 and 6′. A flangeless main wheel 9 is mounted on the axle 7, a similar wheel 10 being mounted on the axle 8, the two wheels being between the bars 1 and 2 and preferably are fixedly secured to the axles, suitable provision being made as will be obvious, for lubrication of the axles in the journal boxes. This arrangement permits relatively large main wheels, since the bars 1 and 2 or wheel pieces are underslung or extend below the axles, and therefore the center of gravity may be kept relatively low. One end of the truck is provided with two guide rollers 11 and 12 adapted to run along opposite sides respectively of the rail upon which the main

wheels are arranged to run, the opposite end of the truck being provided with similar rollers 13 and 14, the rollers preferably being mounted directly on or connected with the end members 3 and 4 of the truck, and each roller has a flaring or flange-like lower end 15 that normally extends partially under the rail or rail head so as to positively prevent the main wheels from being lifted from the rail. Each roller preferably is connected with the truck as shown more particularly in Fig. 11 in which an axle 16 is inserted in the end member 3 in vertical arrangement, the axle having a head 17 thereon that rests upon the top of the end member, the axle extending downward beyond said member. The roller 11 is rotatably mounted on the lower portion of the axle so as to rotate against the under side of the end member and preferably is provided with a "brass" or wearing bushing 18, the roller being retained on the axle by means of a washer 19 placed on the lower portion of the axle 20 which is screw-threaded and provided with a nut 21 for retaining the washer, the nut being secured on the axle by means of a split pin 22. The upper end of the axle is provided with a socket 23 receiving an oil cup 24 for lubricating the roller, the axle having a longitudinal channel 25 therein extending downward from the socket and extending to the side of the axle within the bushing which preferably has a pocket 26 therein adapted to receive oil from the channel so as to distribute it over the axle. The upper portion of the axle is provided with a key 27 seated in a suitable recess for preventing rotation of the axle but permitting it to be withdrawn when replacing rollers or bushings therein.

The truck includes transoms 28 and 29 which are suitably secured at their middle portions to the tops of the middle portions of the bars 1 and 2 and serve as balancing bars, two frame members 30 and 30′ preferably being secured to the transoms and also to the bars 1 and 2 in order to insure firm connections between the different parts. Two transom members 31 and 32 are rigidly secured to opposite ends respectively of the transoms and are provided respectively with two suitable journal boxes 33 and 34 at a suitable distance below the transoms, two axles 35 and 36 being rotatably mounted in the boxes and provided with flangeless wheels 37 and 38 respectively, the relative arrangement being such that the under portions of the wheels shall be on a plane below the plane of the under portions of the main wheels. The axles are suitably retained in the boxes, preferably by means of nuts 39 and 39′ removably secured to the axles by means of split pins 40 and 40′ respectively. Each journal box is suitably lubricated, as by means of an oil cup 41.

Two approximately U-shaped spring hangers 42 and 43 are secured to the transoms 28 and 29 and supported thereby in proximity to the end portions of the transoms, the hangers supporting suitable springs 44 and 44′ respectively. The springs support a suitable bolster 45 between the transoms, the bolster having guide shoulders 46 and 47 thereon that are guided by the spring hangers to prevent longitudinal movement of the bolster relative to the transoms. Preferably two straps 48 and 48′ are secured to the tops of the transoms and extend over the bolster to prevent the latter from being forced by the springs from between the transoms when not loaded. The bolster is provided on its middle portion with a center plate 49 and on its end portion with side bearings 50 and 51 respectively. It will be understood that the transoms or balancing bars may be varied in length to correspond to the width of the required roadway and car.

A body 52 of suitable form and construction is provided and it has two body bolsters 53 and 53′, each bolster being provided with a center plate 54 supported on the center plate 49, a center pin or king bolt 55 preferably being inserted through the bolster and center plate, and the bolster 53 is provided also with side bearings 56 and 57 that are arranged above the side bearings 50 and 51 respectively to coöperate therewith and prevent tilting of the body on the center plate. Another truck similar to that hereinbefore described comprises the wheel pieces 1′, the axles 7′ and 8′, main wheels 9′ and 10′, guide rollers 11′ and 13′, the transoms 28′ and 29′, the axles 35′, balancing wheels 37′, the truck side bearings 50′ and other elements corresponding to the other truck, the body bolster 53′ having the side bearings 56′ arranged above the side bearings 50′.

The improved railway comprises rail ties 58 and 58′ laid on the road grade as usual and a suitable number of chairs 59 and 59′ arranged on the middle portions of the ties, each chair having a suitable number of spike holes 60 therein to receive the securing spikes 61 whereby each chair is secured to the tops of two adjacent ties. Each chair is provided on its top with a rail seat 62 which preferably is concave transversely so as to fit the curvature of a cylindrical rail. Each chair has preferably two slots 63 and 64 extending vertically therethrough. The main rail comprises rail sections 65 and 65′ arranged upon the seat 62, each rail section preferably being tubular in order to provide the maximum stiffness and guiding surface with the minimum weight. Each rail section has slots 66 and 67 therein formed in the normally under portion of the wall of the rail so as to cor-

respond with the slots 63 and 64 to receive securing bolts 68 and 68′, each bolt having a T-head 69, so that the bolts may be inserted from below and then turned with the heads crosswise of the slots, the bolts being each secured in place so as to secure the rail to the chair, by means of a tapering key 70 driven into a suitable slot in the bolt and against the under side of the chair, each key being prevented from accidental displacement when loose by means of a split pin 71 inserted in the smaller portion of the key. The under side of the chair is provided with projections 72 and 73 between which the key is arranged in order to prevent accidental turning of the bolt.

In order to connect the abutting ends of the different rail sections together a splice bar or dowel 74 is provided for each rail joint and preferably is tubular and provided on the normal upper side thereof with a longitudinal rib 75 which extends into suitable slots 76 formed in the upper portion of the walls of the two rails so as to carry the wheels smoothly across the space between the two rails when the rails are contracted in length. The splice bar or dowel is rigidly secured in one of the rail sections by means of horizontal rivets 77 and extends movably into the opposite rail section. The bar or dowel has horizontally arranged slots 78 and 78′ in opposite portions of the wall thereof in which thimbles 79 are inserted and secured to the opposite rail section by means of a rivet 80, the rivet being driven when hot and prevented by the thimble from bending, the thimble also preventing the rivet from drawing the rail too tightly to the bar or dowel. When expansion or contraction of the rail occurs, the thimble slides in the slots 78 and 78′ as will be apparent. Two relatively small rails 81 and 82, which in some cases may be wooden, are suitably secured upon the rail ties 58, 58′ in proximity to the ends of the ties and equi-distant from the main rail for maintaining the equipment in upright position, especially when at rest or when the load thereon is not centrally arranged.

In practical use the main wheels are supported by and roll upon the rounded top of the main rail while the balancing wheels 37 and 38 are carried slightly above the rails 81 and 82 respectively, the guide rollers, as 11 and 12, rolling against the two opposite rounded side portions respectively of the main rail, the flange portions 15 of the rollers extending partially under the rail so as to prevent the main wheels from being accidentally forced upward and off of the main rail. The balancing wheels prevent the body and the truck from tilting appreciably when at rest, and during movement of the car either one of the wheels 37 or 38 may at times be in contact with its guide rail, but in some cases if the load be evenly distributed, and especially at high speed, both wheels 37 and 38 may at times be carried free of their guide rails.

Certain features of the invention having reference more particularly to the improved rail, etc., which may not be herein claimed, form the subject-matter of a divisional application for Letters Patent filed June 3, 1914, Serial Number 842,656.

Having thus described the invention, what is claimed as new is—

1. A railway car including a truck comprising two main wheels, each having an axle, two side bars extending under and supported by the axles, two transoms secured upon and extending in opposite directions beyond the side bars, and wheels carried by the end portions of the transoms.

2. A railway car including a truck comprising two flangeless main wheels, and two side bars mounted on the wheels and having guide rollers thereon arranged on opposite sides of the plane of rotation of the wheels, the axes of the rollers being vertical, each roller having a flaring flange on its lower end below the plane of the tread portion of the wheels.

3. A railway car including a truck comprising two side bars, two main wheels supporting the two bars, two end members rigidly secured to opposite ends respectively of the side bars, each member having two axles removably secured vertically therein, and a plurality of guide rollers rotatably mounted on the axles respectively.

4. A railway car including a truck comprising two main wheels having each an axle, a rectangular frame extending under and supported by the axles, four axles vertically mounted in the four corners respectively of the frame, there being two axles on opposite sides respectively of the plane of rotation of the main wheels, and four guide rollers mounted on the four axles respectively.

5. A railway car including a truck comprising a frame, two flangeless main wheels arranged in tandem order and supporting the frame, four axles removably secured vertically to the frame in relatively fixed position, two of the axles being on one side and two on the opposite side of the plane of rotation of the main wheels, and four guide wheels rotatably mounted on the lower portions of the four axles respectively, each guide wheel having a flange on its lower end.

6. A railway car including a truck comprising two main wheels having each an axle, a frame comprising two side bars extending under and supported by the axles, two transoms secured at their middle portions upon the middle portions of the side

bars and extending in opposite directions beyond the bars, two axles connected to opposite ends respectively of the transoms and having each a flangeless wheel mounted thereon, springs supported by the transoms, and a bolster supported by the springs.

7. A railway car including a truck comprising two flangeless main wheels having each an axle, a frame extending under and supported by the axles and provided on its upper portion with a transversely extending balancing bar projecting beyond opposite sides of the frame, two wheels mounted under opposite ends respectively of the bar and carried thereby, and two pairs of guide rollers carried on vertical axes by the frame below the plane of the under portion of the main wheels, the lower portion of each roller being larger than the upper portion thereof in diameter.

8. In a railway truck, the combination with a frame, and two main wheels arranged on one and the same plane of rotation and supporting the frame, of a plurality of pairs of axles carried vertically by the frame in relatively fixed position, the two of each pair of axles being on opposite sides respectively of said plane, and a plurality of guide rollers mounted on the axles respectively and having each a flaring flange on the lower portion thereof extending toward said plane and below the plane of the under portion of the main wheels.

9. In a railway truck, the combination of two side bars, each bar being provided with two journal boxes spaced apart, two flangeless main wheels arranged between the bars, two axles secured in the main wheels respectively, each axle extending into adjacent boxes of the two bars, two end members secured to the opposite ends respectively of the two side bars, four axles rigidly connected to the end members, two axles to each member, and extending downward therefrom, and a plurality of guide rollers rotatably mounted on the lower portions of the plurality of axles respectively, the rollers being below the plane of the under portion of the main wheels.

10. In a railway car, the combination of two side bars, two main wheels arranged between and supporting the two side bars, two transoms extending across the tops of and secured at their middle portions to the side bars between the two wheels, two journal boxes carried by the opposite ends respectively of the transoms, two axles carried horizontally by the two boxes respectively, two wheels carried by the two axles respectively, and a bolster carried by the two transoms.

11. In a railway truck, the combination of two side bars, two flangeless main wheels arranged between and supporting the two side bars, two transoms extending across and secured to the side bars, two journal boxes fixedly secured to the opposite ends respectively of the transoms and extending downward therefrom, two axles rotatably mounted horizontally in the journal boxes and extending outward therefrom, two guide rollers carried by one of said bars, two guide rollers carried by the remaining one of said bars, and two wheels fixedly secured to the outer portions of said axles respectively.

12. In a railway truck, the combination of two side bars, two flangeless main wheels arranged between and supporting the two side bars, two axles rigidly connected with opposite ends respectively of one of said bars, two axles rigidly connected with opposite ends respectively of the remaining one of said bars, a plurality of guide rollers rotatably mounted on said axles respectively below the said bars, two transoms extending across and secured to said bars, two journal boxes secured to opposite ends respectively of the transoms, two axles carried horizontally by the two boxes respectively, two wheels carried by the horizontal axles respectively, two hangers supported by said transoms adjacent to said boxes respectively, springs supported by said hangers, and a bolster supported upon said springs.

13. In a railway car, the combination of two side bars, each bar having two journal boxes on the top thereof in proximity to the two ends respectively of the bar, two flangeless main wheels arranged between the two bars, two axles mounted in the two wheels respectively, each axle extending into adjacent boxes of the two bars, two end members secured to the opposite ends respectively of the two side bars, and four guide rollers provided each with an axle, two of the four axles being removably secured vertically in one of the end members, the remaining two of the axles being removably secured in the remaining end member, each one of the four axles having an oil channel therein extending to the roller.

In testimony whereof, I affix my signature in presence of two witnesses.

JEROME JACKSON.

Witnesses:
JOHN HARTLEY PLATT,
JAMES THOMAS WILLIAMS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."