F. S. PORTER.

TRUCK AND BRAKE FOR RAILWAY ROLLING STOCK.

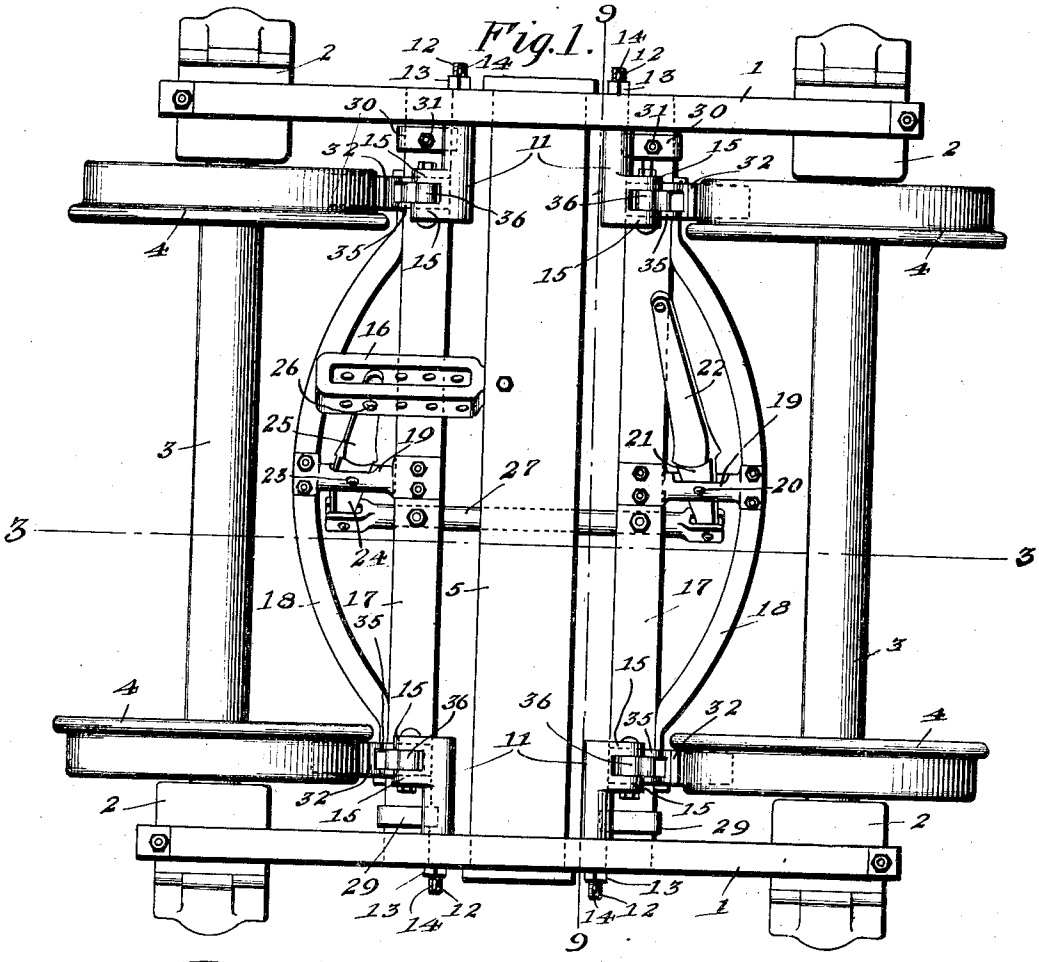
APPLICATION FILED APR. 22, 1919.

1,346,765.

Patented July 13, 1920.

3 SHEETS—SHEET 1.

Fig. 1.



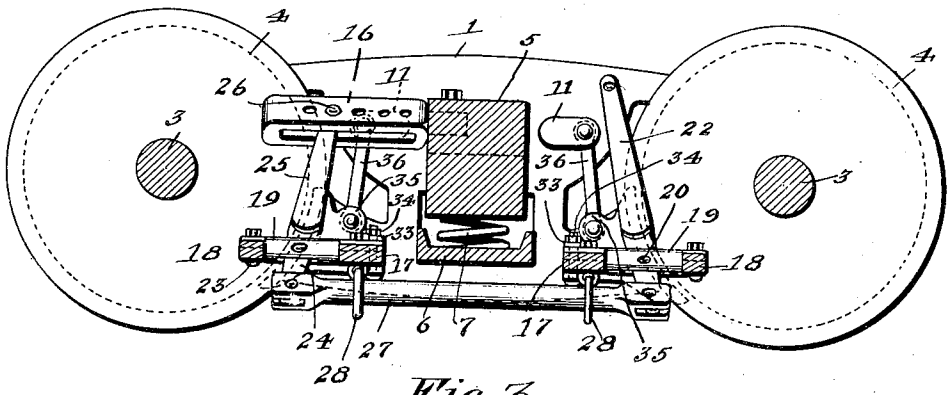


Fig. 3

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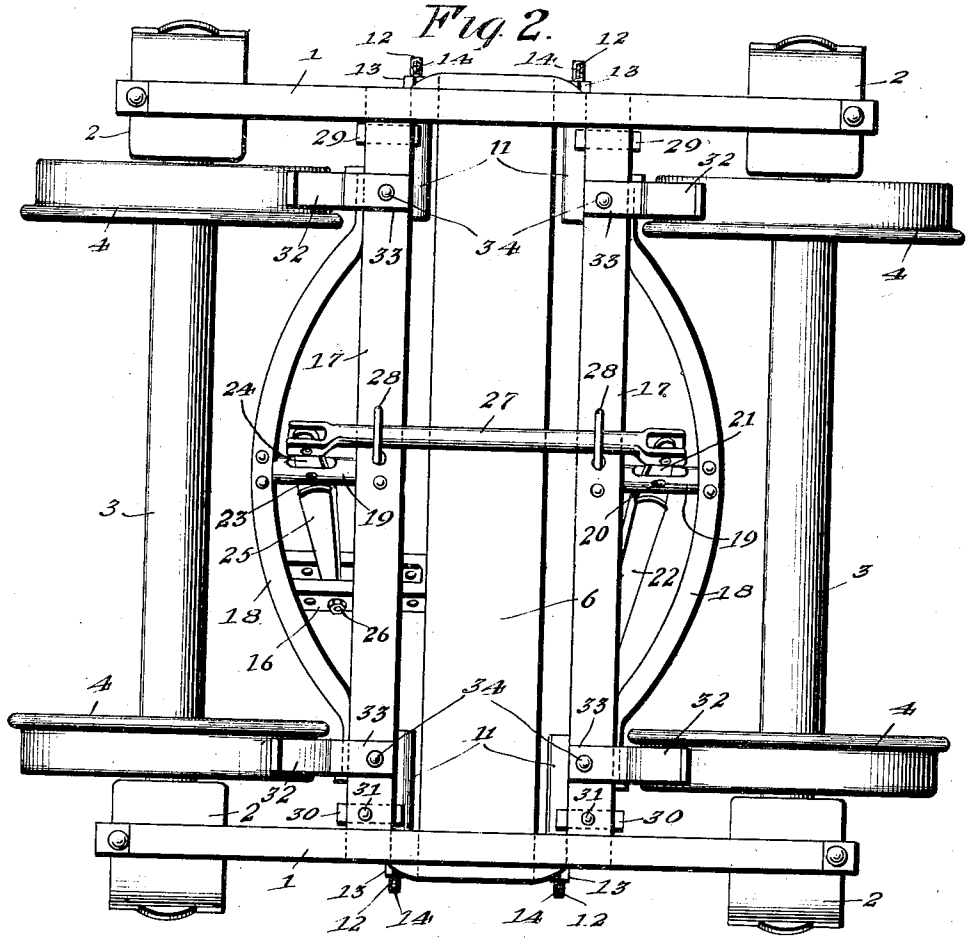
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3 SHEETS—SHEET 2.

Fig. 2.



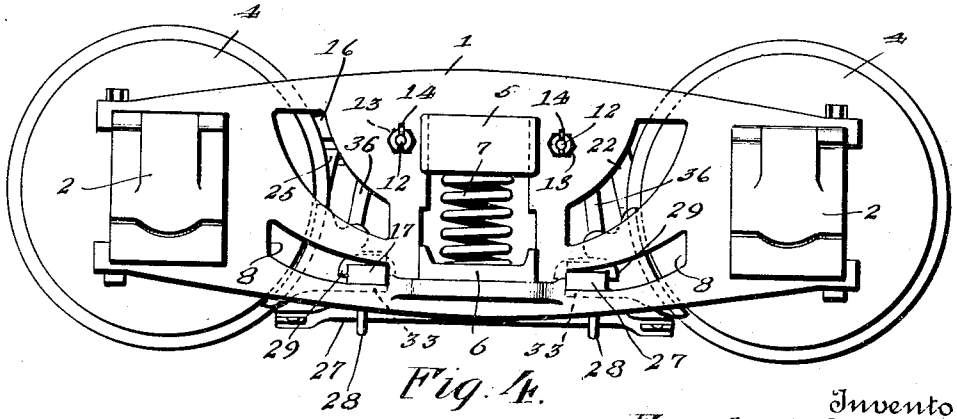


Fig. 4.

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3 SHEETS—SHEET 3.

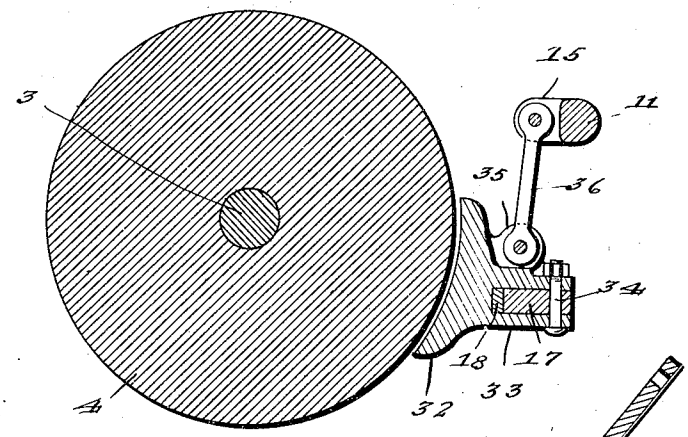


Fig. 8.

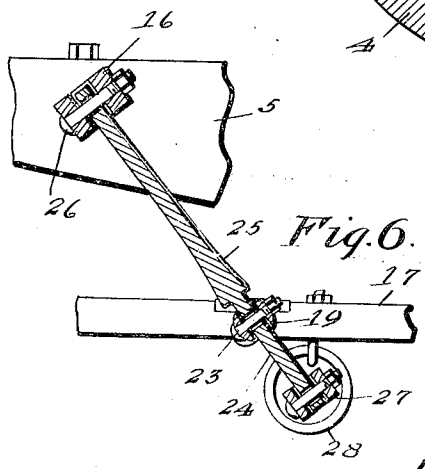


Fig. 6.

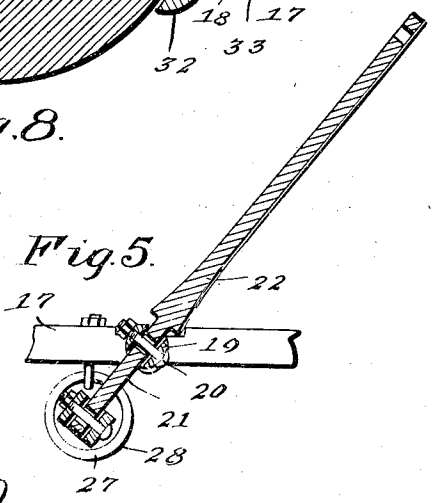


Fig. 5.

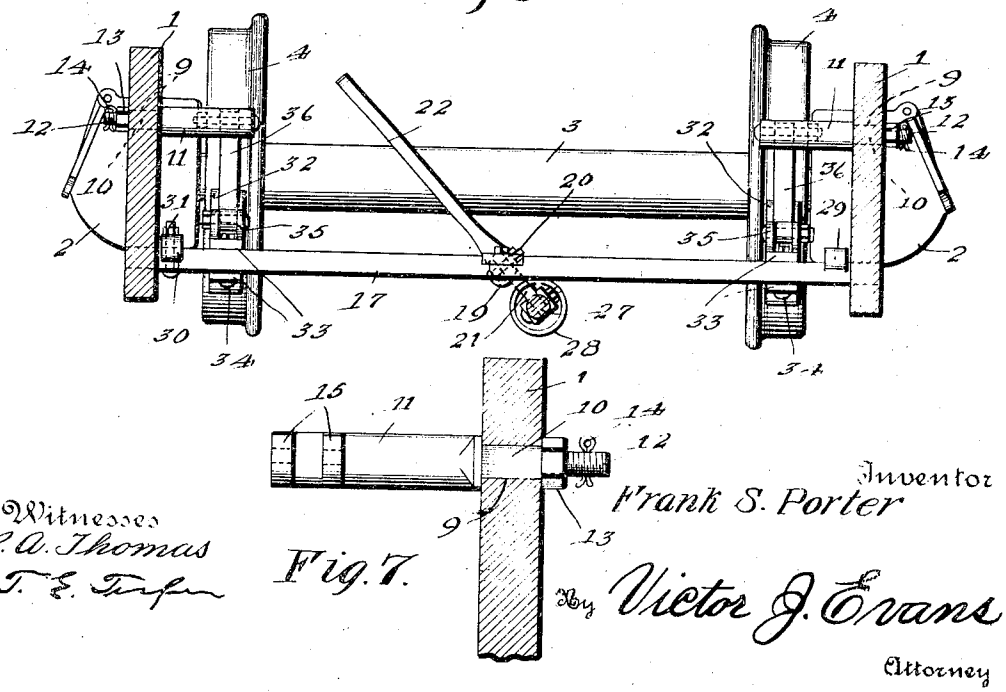


Fig. 9.

Fig. 7.

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UNITED STATES PATENT OFFICE.

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TRUCK AND BRAKE FOR RAILWAY ROLLING-STOCK.

1,346,765. Specification of Letters Patent. Patented July 13, 1920.

Application filed April 22, 1919. Serial No. 291,803.

To all whom it may concern:

Be it known that I, FRANK S. PORTER, a citizen of the United States, residing at Cushing, in the county of Payne and State of Oklahoma, have invented new and useful Improvements in Trucks and Brakes for Railway Rolling-Stock, of which the following is a specification.

The general object of my present invention is the provision of a rolling-stock truck and means carried thereby, embodying such construction and relative arrangement of parts that the brake shoes are maintained close to the wheel bodies and hence slight movement of the beams and shoes is all that is necessary to effectually apply the brakes; disconnection of one or more of the links complementary to the brake shoes is not likely to put the brake beams out of commission; all liability of either end of the push rod or said rod as a unit, falling, is eliminated; the live lever as well as the dead lever cannot drop in the event of their fulcrum pins being displaced; the brake shoes cannot climb on the wheel flanges and be grooved thereby; the top of the brake shoes are held away from the wheels as is desirable; the brake beams are suspended and adapted to float with respect to the side members of the truck, so that but little power is required for the movement of the brake beams; the shoes are so relatively arranged that they are applicable to the wheels below the horizontal centers thereof; and liability of the brake beams falling is obviated, and the brake beams are prevented from climbing on the wheels and giving rise to brake damage.

It will be apparent from the foregoing that my novel truck is designed particularly to avert accidents and at the same time increase the efficiency of the braking mechanism; and its novelty, utility and practical advantages will be fully understood from the following description and claims when the same are read in connection with the drawings, accompanying and forming part of this specification, in which:

Figure 1 is a top plan view showing the best practical embodiment of my invention that I have as yet devised.

Fig. 2 is an inverted plan view of the same.

Fig. 3 is a longitudinal vertical section of the truck.

Fig. 4 is a side elevation of the truck.

Fig. 5 is a detail vertical transverse section taken through the live lever and its support.

Fig. 6 is a similar view taken through the dead lever and its support.

Fig. 7 is a detail transverse section illustrative of the arrangement of the shanks of the link supporting arms to the side members of the truck.

Fig. 8 is a detail longitudinal vertical section taken through a portion of one wheel, one brake shoe, the adjacent portion of a beam, one of the links and the supporting arm complementary to said link.

Fig. 9 is a full transverse section of the construction.

Similar numerals of reference designate corresponding parts in all of the views of the drawings.

Among other elements my improved truck comprises side members 1 in which are carried journal boxes 2 for the reception of the ends of the axles 3 on which wheels 4 are carried in the ordinary well known manner, or in any other manner compatible with the purpose of my invention. Extending between and connecting the side members 1 is a transverse central bolster 5, and interposed between the end portions of the bolster 5 and a sand-bar 6 are cushioning springs 7, designed to serve the usual purpose of truck springs.

In furtherance of my invention the side members 1 are provided with curvilinear slots 8; each member 1 having two slots 8 extending generally in the direction of its length and disposed at opposite sides of the plane of the bolster 5. Formed in each side member 1 at opposite sides of the transverse center thereof are apertures 9, of angular form in cross-section in which are disposed the angular shanks 10 of bracket arms 11; the said shanks 10 merging at their outer ends into reduced and threaded portions 12 which receive nuts 13 and cotter keys 14. Manifestly the bracket arms 11 are held against turning about their axes and there is practically no liability of any one of the same becoming accidentally disconnected from its respective side members. At their

inner ends the bracket arms 11 are respectivey provided with parallel apertured lugs 15, each pair of lugs being directed toward the perimeter of the body portion of one wheel. Connected to and extending at right angles from the bolster 5 is a dead lever support 16. Disposed transversely of the truck and with their ends arranged and movable on the slightly curved lower walls of the slots 8 are bodily movable brake beams 17. Each of these beams 17 is preferably equipped with a tension rod or truss rod 18 and a longitudinally slotted strut 19 interposed between and fixed to the centers of the brake beam and the truss rod. In the slot of one strut 19 is fulcrumed by a bolt pin or the like 20, the lower reduced portion 21 of a live lever, the said lever being provided above its strut 19 with an enlargement 22, and being designed to be connected with a fluid-pressure brake apparatus in the usual or in any other approved manner. Fulcrumed in the slot of the other strut 19, by a pin 23 or other suitable means, is the lower reduced portion 24 of a dead lever, said lever having above its strut 19 an enlargement 25, and being connected at its upper end to the support 16 by a cotter pin 26 or other suitable means. It will be readily apparent that in the event of the pins of the live lever and the dead lever being casually displaced, the enlargements on said levers above their struts 19 will effectually prevent the levers from dropping to the road-bed and hence will tend to prevent accident. Again it will be noticed that in the event of the connecting pins of said levers being displaced, the enlargements of the levers, which enlargements are preferably surrounded at their lower ends as shown, will bear on the struts 19 so that the levers will function in the usual manner when their fulcrum pins are displaced. The lower arms of the live lever and the dead lever are connected through the medium of a push-rod 27, said rod being disposed under the sand-bar 6 and the beams 17 and being arranged loosely in rings 28 connected to and pendent on the brake beams. From this relative arrangement it follows that there is no liability of the push-rod 27 falling bodily, and no liability of either end thereof dropping, in the event of the push-rod 27 being partially or totally disconnected from the live lever and the dead lever. This also manifestly lessens the liability of accident.

Each of the brake beams 17 is provided adjacent to one of its ends with a fixed enlargement or abutment 29, and each is provided adjacent to its opposite end with a detachable enlargement or abutment 30, the latter being connected to its respective beam by a cotter pin 31 or other suitable means. The said enlargements 29 and 30, complementary to the brake beams, permit of ready installation and removal of the brake beams, and also permit of limited endwise play of the brake beams so as to better enable the brake shoes, hereinafter described, to accommodate themselves to the bodies of the wheels for braking purposes. The brake shoes are numbered 32, and each is provided at its back with a bifurcated portion 33 that straddles its respective brake beam and is pinned at 34 to or otherwise suitably connected with the beam. On the upper arm of each bifurcated portion 33 is an upstanding bifurcated portion 35, and interposed between and pinned to the several bifurcated portions 35 and the apertured lugs on the bracket arms 11 are link-hangers 36. By virtue of the employment of the said link hangers 36, the brake beams 17 are suspended and enabled to float in the slots 8 of the side members 1—*i. e.*, the brake members are adapted to move in the side members 1 with but little friction, and hence the brakes may be promptly applied with the expenditure of little power, and when the brakes are released the brake shoes will promptly and surely move away from the perimeters of the wheel bodies. In other words the brake shoes will gravitate away from the wheel bodies. It will also be noticed here that the connections of the link hangers 36 to the brake shoes are at points in planes between the longitudinal centers of the brake beams and the perimeters of the wheel bodies, with the result that the upper ends of the brake shoes are held out of contact with the wheel bodies when the brakes are released, no matter how loosely the brake shoes may rest to the perimeters of said bodies. This result is further due in a measure to the disposition of the ends of the brake beams 17 in the slots 8 of the side members 1. It will further be noticed that by reason of my peculiar arrangement, the brake shoes are disposed below the horizontal centers of the wheels where they can be operated to the best advantage.

An additional and important advantage of my improvement resides in the fact that the brake shoes cannot climb upon the flanges of the wheels and be grooved or otherwise impaired by the said flanges or be prevented in any measure from coöperating to advantage with the perimeters of the wheel bodies. This is due to the fact that in the event of the brake shoes tending to move laterally and engage the flanges of the wheels, the enlargements 29 and 30 on the brake beams 17 will bring up against the inner sides of the side members 1 and effectually prevent undue lateral movement of the brake shoes.

It will be apparent from the foregoing that in the abstract my improved construc-

tion is capable of being operated to the best advantage in the application and release of the brakes, and is practicable in all respects. It will also be apparent that in my improvement there is practically no liability of either brake beam or any other part dropping and causing derailment or an accident of other character, and any of the parts of my improvement are interchangeable, so that repairs may be expeditiously and easily effected.

Having described my invention, what I claim and desire to secure by Letters-Patent, is:

1. The combination of a truck having side members in which are longitudinal curvilinear slots at opposite sides of the transverse centers thereof, journal boxes in said side members, wheel-supported axles in said boxes, brake beams disposed and movable in said slots of the side members and each having a fixed abutment opposed to the inner side of one side member and a detachable abutment opposed to the inner side of the other side member, brake shoes suspended between the side members and connected to the beams and arranged below the horizontal centers of the wheels, a live lever fulcrumed at an intermediate point of its length on one brake beam, a second lever connected with the other brake beam, and a push-rod interposed between and connecting the said levers.

2. The combination of a truck having side members in which are longitudinal curvilinear slots, journal boxes in said side members, an axle disposed in said boxes and provided with wheels, a brake beam movable in said slots on the bottom walls thereof, shoes suspended between the side members and connected to said beam in opposed relation to the perimeters of the wheels and disposed below the horizontal centers of the wheels, means on the brake beam for coöperating with the side members to prevent undue lateral movement of the shoes, and means hinging the shoes from the side members and relatively arranged for coöperation with the slots in the side members to maintain the upper ends of the shoes away from the perimeters of the wheels when the brakes are released.

3. The combination of the side members of a truck having longitudinal curvilinear slots, brake beams movable laterally in the arcs of circles in said slots, brake shoes carried by said beams and connected with the side members, levers connected at intermediate points in their lengths with the brake beams and having arms depending below said beams, open suspending means carried by the beams, and a push-rod movable freely through said suspending means and connected with the lower portions of the lever.

4. The combination with the side members of a truck, said side members having longitudinal curvilinear slots, a brake beam movable laterally in the arc of a circle in said slots and capable of playing endwise in the slots and between the side members and having a fixed abutment opposed to the inner side of one side member, an abutment detachably connected to the brake beam and opposed to the inner side of the other frame member, and brake shoes carried by said beam.

In testimony whereof I affix my signature.

FRANK S. PORTER.