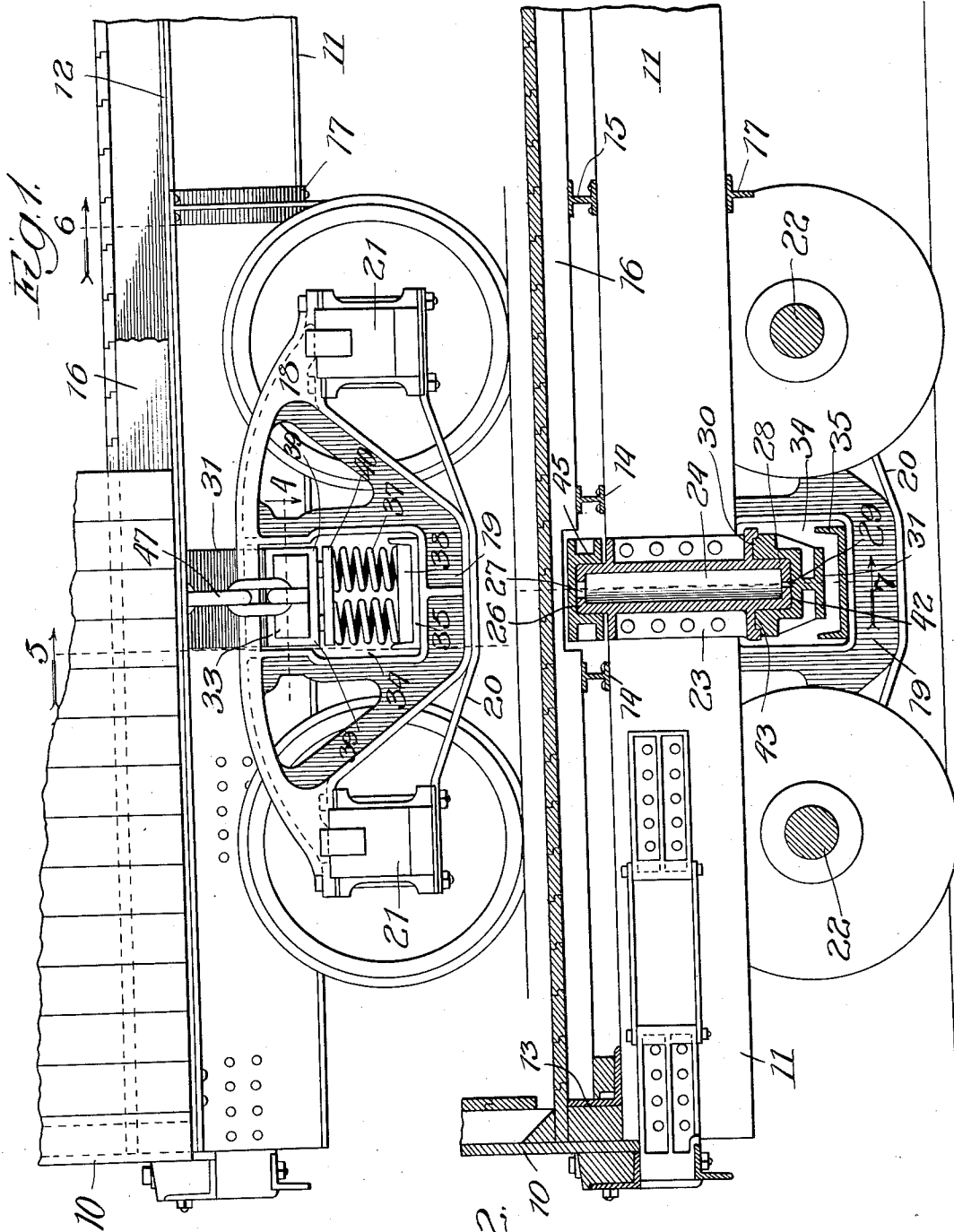


O. ANDERSON.
 CENTER BEARING FOR RAILWAY CARS.
 APPLICATION FILED MAY 2, 1912.

Patented Sept. 3, 1912.

4 SHEETS—SHEET 1.

1,037,576.



Witnesses:
E. C. Gaylord.
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Fig. 2.
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Fig. 4.

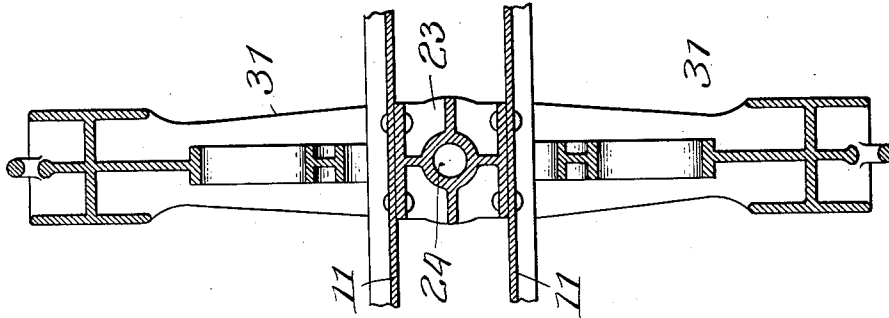
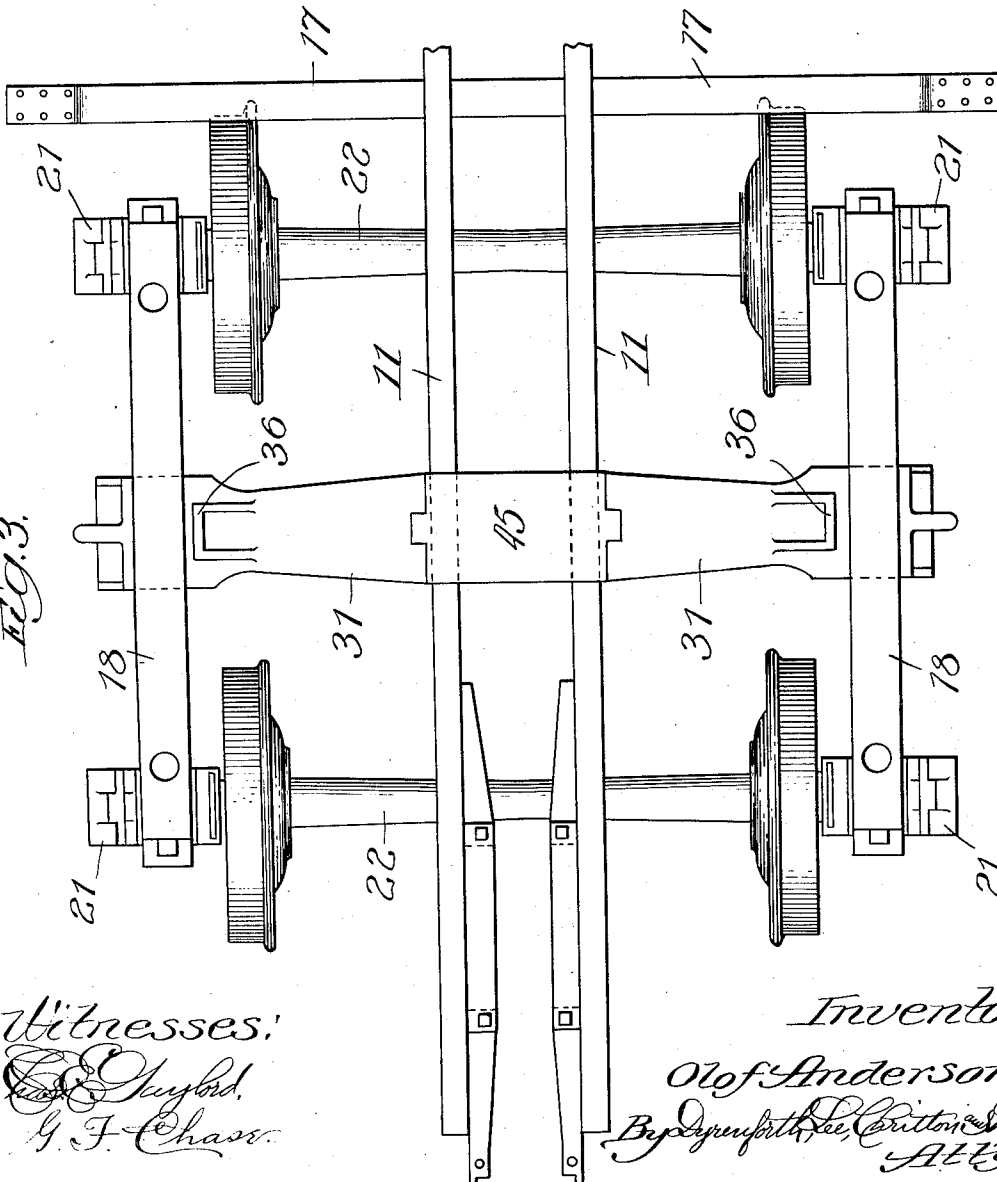


Fig. 3.



Witnesses:
[Signature]
 G. F. Chas.

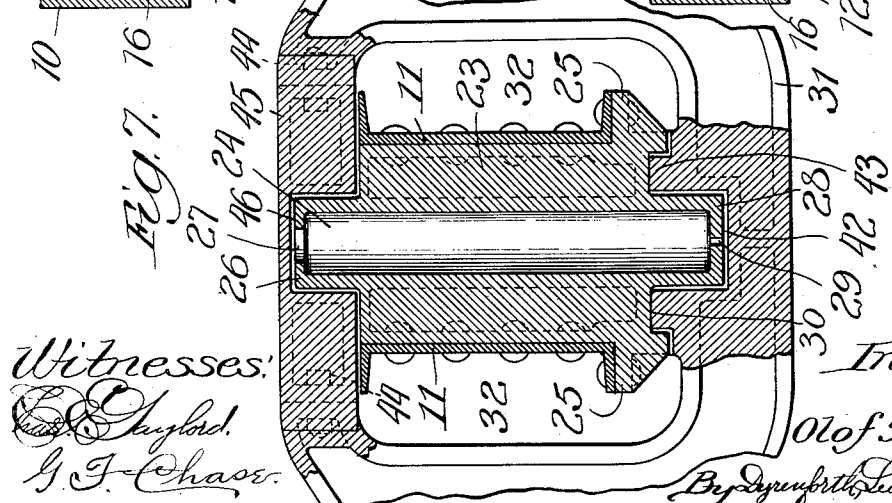
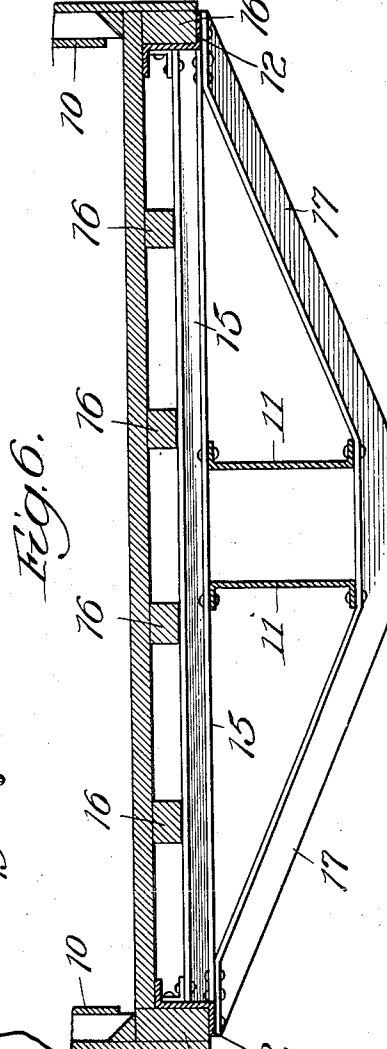
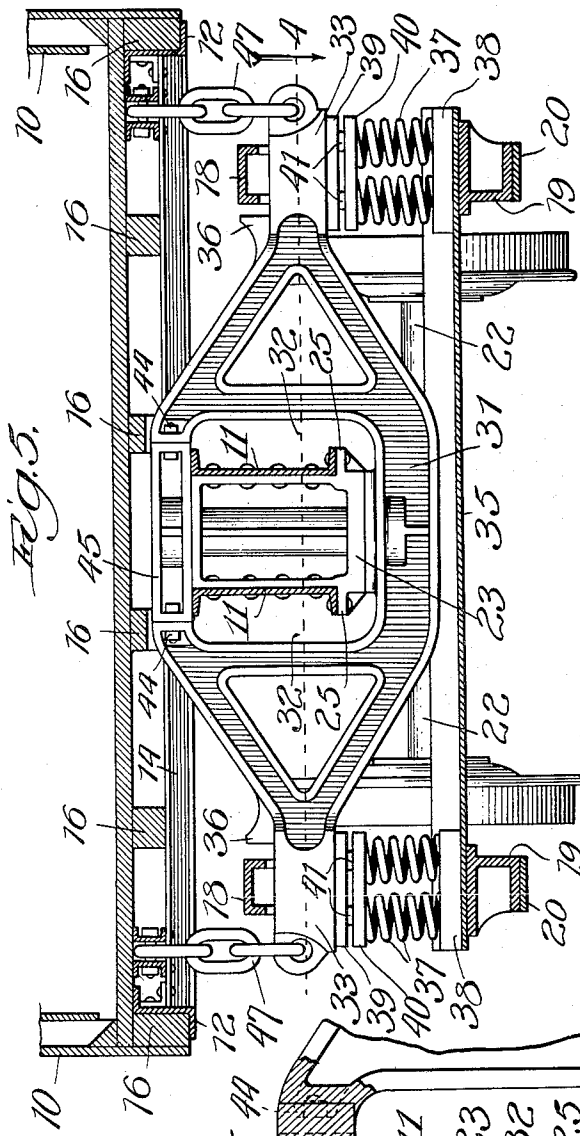
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4 SHEETS—SHEET 3.



Witnesses:
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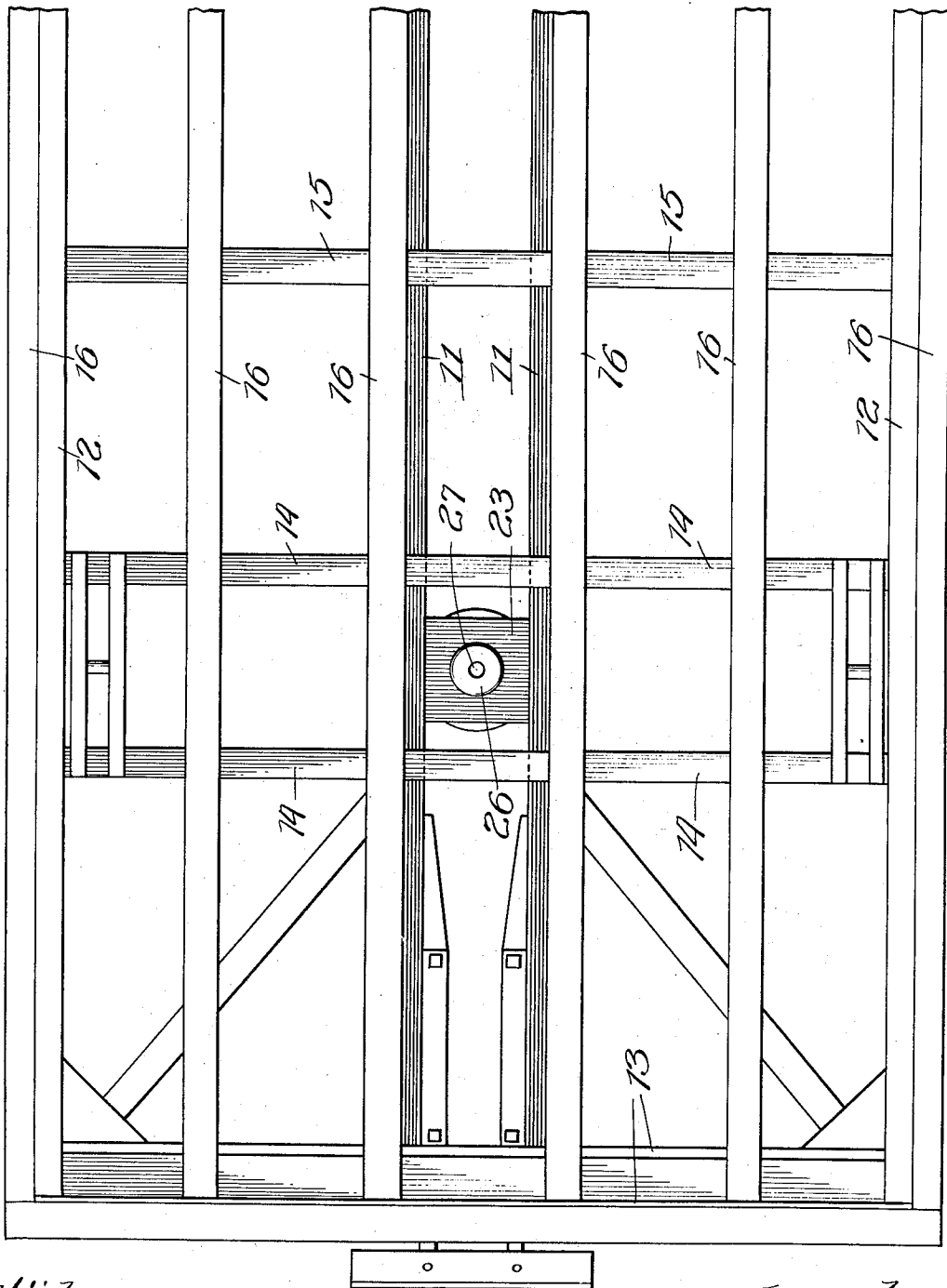
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4 SHEETS—SHEET 4.



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Figs.

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UNITED STATES PATENT OFFICE.

OLOF ANDERSON, OF CHICAGO, ILLINOIS.

CENTER-BEARING FOR RAILWAY-CARS.

1,037,576.

Specification of Letters Patent.

Patented Sept. 3, 1912.

Application filed May 2, 1912. Serial No. 694,701.

To all whom it may concern:

Be it known that I, OLOF ANDERSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Center-Bearing for Railway-Cars, of which the following is a specification.

My object is to provide improved center-bearing uniting means, of simple, strong and durable construction, for the bodies and trucks of railway-cars, which will effect great saving in weight and cost over the constructions hitherto generally employed, reduce to a minimum the number of separate pieces entering into the construction, permit lowering, to a very material extent, of the body underframe and floor-line, as well as the center of gravity of the car to decrease danger of derailment, and eliminate side-bearing friction which not only adds to the pulling force necessary but also to the wear upon wheel-flanges and rails.

Another object is to provide a center-bearing construction which will facilitate the designing of the car underframe in such a way that its constituent parts may be readily proportioned, with regard to strength, to the known forces to which they are to be subjected in service.

In carrying out my invention, I dispense with the usual car-body bolsters and connect the car underframe directly with each truck through center-bearing uniting means of novel and improved construction.

In the accompanying drawings, which show my improvements applied to a freight-car, Figure 1 is a broken, fragmentary view of a box-car, showing my improvements in elevation; Fig. 2, a central longitudinal section of the same; Fig. 3, a plan view of the car center-sills, center-bearing and truck; Fig. 4, a broken plan-section of parts taken on line 4 in Fig. 1; Figs. 5 and 6, sections taken respectively on lines 5 and 6 in Fig. 1; Fig. 7, an enlarged, broken, sectional view of parts entering into the center-bearing construction, the section being taken on line 7 in Fig. 2; and Fig. 8, a plan view of the car underframe taken beneath the floor-line of the car.

The reference numeral 10 designates a car-body built upon a steel underframe which may, as shown, be formed of the usual channel-beam center-sills 11, Z-bar side sills 12, end-sills 13, and I-bar reinforcing cross-bearers 14, 15 carrying the longitudinally

extending, wooden, floor and side attaching, timbers 16. Extending under the center-sills at the cross-bearers 15 are cross-ties 17 which operate with the end sills and cross-bearers to transmit the load to the heavy center-sills 11.

The car-trucks, as I prefer to construct them, have side-frames each formed with an integral upper arch-bar 18, and lower arch-bar 19, of rolled-plate or cast-steel, with the tie-bar 20 as a separate piece, and fitted with the usual journal-boxes 21 for the wheel-axes 22. Between the cross-bearers 14, toward each end of the underframe and mounted between and secured to the center-sills 11, is a bearing-block 23, containing a central chamber 24 and having a flange 25 at each side extending under the center-sills. The top of the block is formed with a central, cylindrical, upper pivot-pin 26 having an opening 27 through it to the chamber 24; and the under side of the block is formed with a central, cylindrical, lower pivot-pin 28 having an opening 29 through it and surrounded by an annular center-bearing member, forming a socket, 30.

The numeral 31 designates a diamond-shaped truck-bolster frame which may be a single piece, or be built up of a plurality of parts, of any suitable material. It has a central opening, or space, 32 and ends 33 which fit loosely through guide-openings 34 in the truck ends. Extending across the truck, beneath the bolster 31, is a channel-beam 35 resting at its ends in the openings 34 upon the lower arch-bars 19. Formed upon the bolster 31 are stops 36 which, by engaging the upper arch bars 18, limit the lateral play of the bolster in the truck-frame. The truck-springs 37 are mounted upon seat-plates 38, resting on the beam 35, and the spring-caps consist of upper plates or members 39 and under plates or members 40 with roller-bearings 41 between them. The ends 33 of the bolster rest upon the upper spring-cap members 39 and the roller-bearings reduce friction between the parts during the slight lateral movement permitted to the bolster with reference to the truck-frame, in practice. In the lower side of the space or opening 32 the bolster is provided with a central bearing-socket 42, for the pivot-pin 28, surrounded by an annular center-bearing member, in the form of a tongue or projection, 43 fitting into the center-bearing member 30. Forming part of

the bolster, and secured in place by nut-bolts 44, is a cap-plate 45 having a central bearing-socket 46 receiving the upper pivot pin 26. In the drawings I show safety chains 47, 5 connecting the car underframe and ends 33 of the bolster, which should be sufficiently slack to permit the bolster to swing the desired distance with reference to the car-body for rounding curves in the track.

- 10 The alined pivot-pins 26, 28 are practically an integral part of the center-sills of the car-body and fit loosely the bearing-sockets 46, 42 in the truck-bolster, so that while they may turn readily they have only 15 the necessary lateral play therein to allow for unevenness in the track.

In practice the chamber 24 may be filled, through the opening 27, with waste saturated with oil whereby the lower pivot-pin 20 and socket, and the surrounding center-bearing members 30, 43, are maintained properly lubricated through the opening 29. All yielding resistance to oscillation of the car-body is contributed by the truck-springs 25 37. Thus there can be but limited oscillation, in the vertical plane, of the car-body with reference to the truck bolster. The supporting points of the car-body are at the center-bearings, formed by the members 30, 43, 30 and they as well as the truck-springs 37 are located, preferably, at the lowest practical level, in the plane of the car-axles or so little above them as to approximate that plane. To detach the car underframe from 35 the truck it is only necessary to uncouple the chains 47, if employed, and remove the bolts 44 to free the cap-plate 45 from the truck-bolster. The car-body may then be jacked up to raise the pivot-pin 28 out of the socket 42 when the truck may be with- 40 drawn. To attach the truck it is only necessary to wheel it under the car-body until its socket 42 registers with the pivot-pin 28, lower the car-body and bolt the plate 45 in position. To change the car-wheels and axles the car-body and truck may be raised together without the necessity of removing the cap-plate 45.

My improved construction of center- 50 bearing involves comparatively few parts and has made it possible for me in designing the car underframe to eliminate a number of the details heretofore provided and which in the matter of strength were largely 55 guess-work. The elimination of parts and simplification in design makes it comparatively easy to trace the forces with great accuracy and determine the amount of metal needed for each part. This elimination of 60 parts, including the usual body-bolster, has made it possible without sacrifice of necessary strength to decrease the weight of the underframe and trucks to a very material and desirable extent with at least a propor- 65 tionate decrease in the cost of construction

as well as in the cost of maintenance. The pin and socket connection between the underframe and truck-bolster forms in itself the sole preventing means against abnormal 70 rocking of the car-body relative to the truck-bolster, and the construction dispenses with the usual side-bearings. It has been estimated from dynamometer tests that approximately two per cent. of the pulling 75 force from the locomotive is lost in side-bearing friction, as it is called; and while this friction has been reduced in some cars by providing the side-bearings of a roller-bearing construction, such a construction adds materially to the cost and does not 80 fully overcome the trouble. By dispensing with side-bearings altogether the loss of power stated is not only avoided but also the effect of the added resistance of side-bearings which tends in practice to cause undue 85 wear of the wheel-flanges and rails.

The lowering of the floor-line of the car makes it possible to increase the height, and therefore the capacity, of box-cars which are restricted, as to total height, by tunnel 90 and viaduct clearances. The lowering of the center of gravity of the car due to my construction decreases liability of derailment, which is a great factor in cars of large cubical capacity, especially in fast 95 freight service.

The foregoing description is intended to convey a clear understanding of my improvements in what I now believe to be the best form of their embodiment, and no undue limitation should be understood there- 100 from. It is my intention to claim all that is novel in my invention, and that the claims shall be construed as broadly as the prior state of the art may warrant. 105

What I claim as new and desire to secure by Letters Patent, is—

1. The combination with a car-body underframe and a truck having a yieldingly supported truck-bolster, of a center-bearing 110 and alined, upper and lower, pivotally engaging, pin and socket connections between said underframe and bolster.

2. In combination, the center-sills of a car-body underframe, a truck-bolster surrounding said center-sills, and a center-bearing for said center-sills in the truck-bolster. 115

3. In combination, the center-sills of a car-body underframe, a truck-bolster surrounding said center-sills, a center-bearing for said sills in said bolster, and alined pivotally engaging, pin and socket connections between said sills at their upper and lower 120 sides, and said bolster. 125

4. In combination, the center-sills of a car-body underframe, a truck-bolster surrounding said center-sills, a center-bearing, for the car-body in the truck-bolster, formed with a block, mounted between said 130

center-sills, having alined, pivotally engaging, pin and socket connections, at its upper and under sides, with said bolster.

5 5. In combination, the center-sills of a car-body underframe, a truck-bolster comprising a frame, having an opening through which said sills extend, and a cap for said opening removably secured to said frame, a center-bearing support for the car-body in
10 said frame, a pivotal, pin and socket connection between said sills, at their undersides, and said frame, and a pivotal pin and socket connection between said sills, at their upper sides, and said cap.

15 6. In combination, the center-sills of a car-body underframe, a truck-bolster com-

prising a frame having an opening through which said sills extend, a cap for said opening removably secured to said frame, a center-bearing, for the car-body in said frame, 20 formed with a block mounted between said center-sills and having an oil-holding chamber, alined, pivotally engaging, pin and socket connections between said block, at its under and upper sides, and said frame and 25 cap, and an oiling-opening from said chamber to the lower of said pin and socket connections.

OLOF ANDERSON.

In presence of—

DAISY C. THORSEN,
O. C. AVISUS.