

(No Model.)

4 Sheets—Sheet 1.

E. B. MEATYARD.

RAILWAY CAR.

No. 274,805.

Patented Mar. 27, 1883.

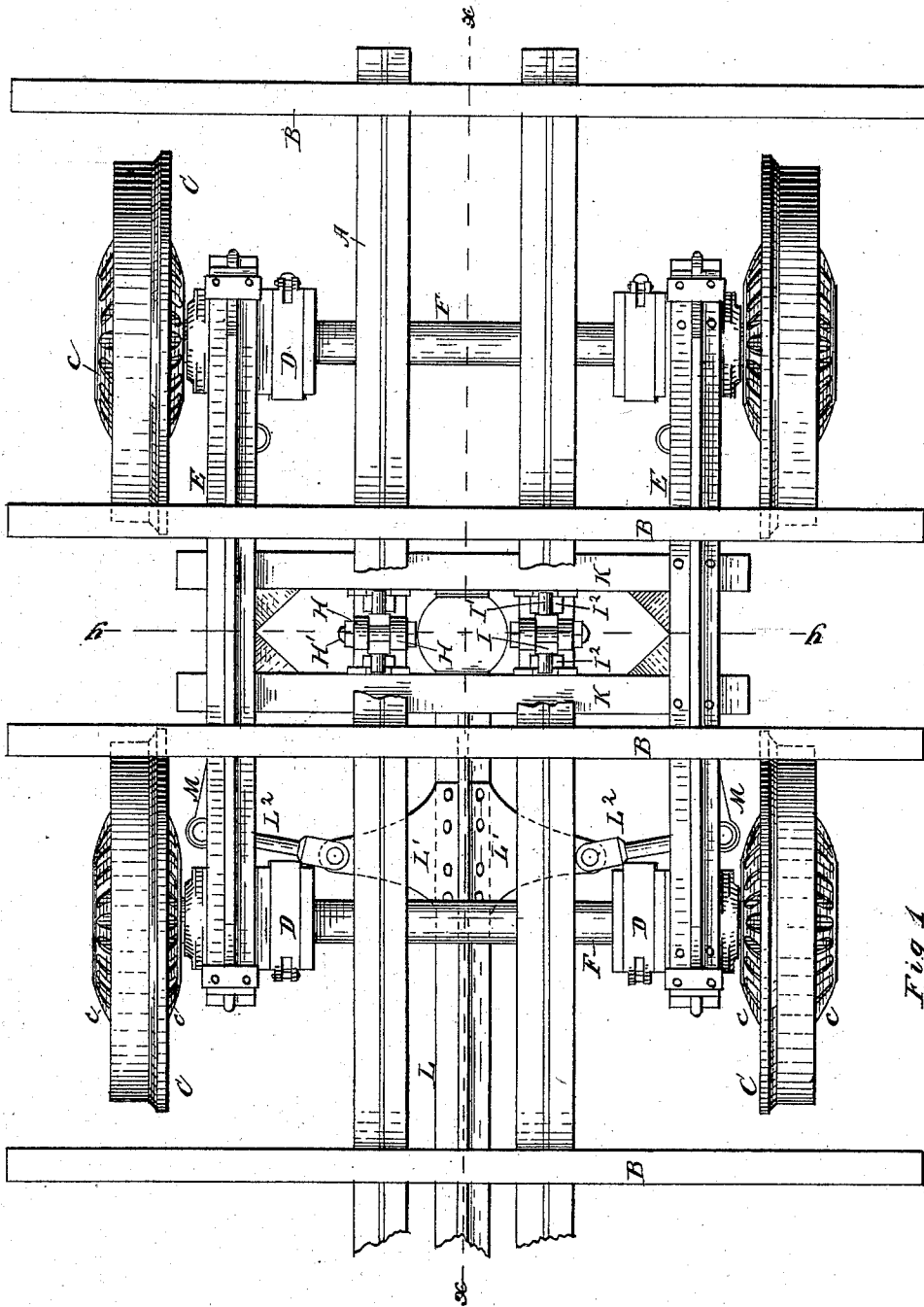


Fig 1

Witnesses
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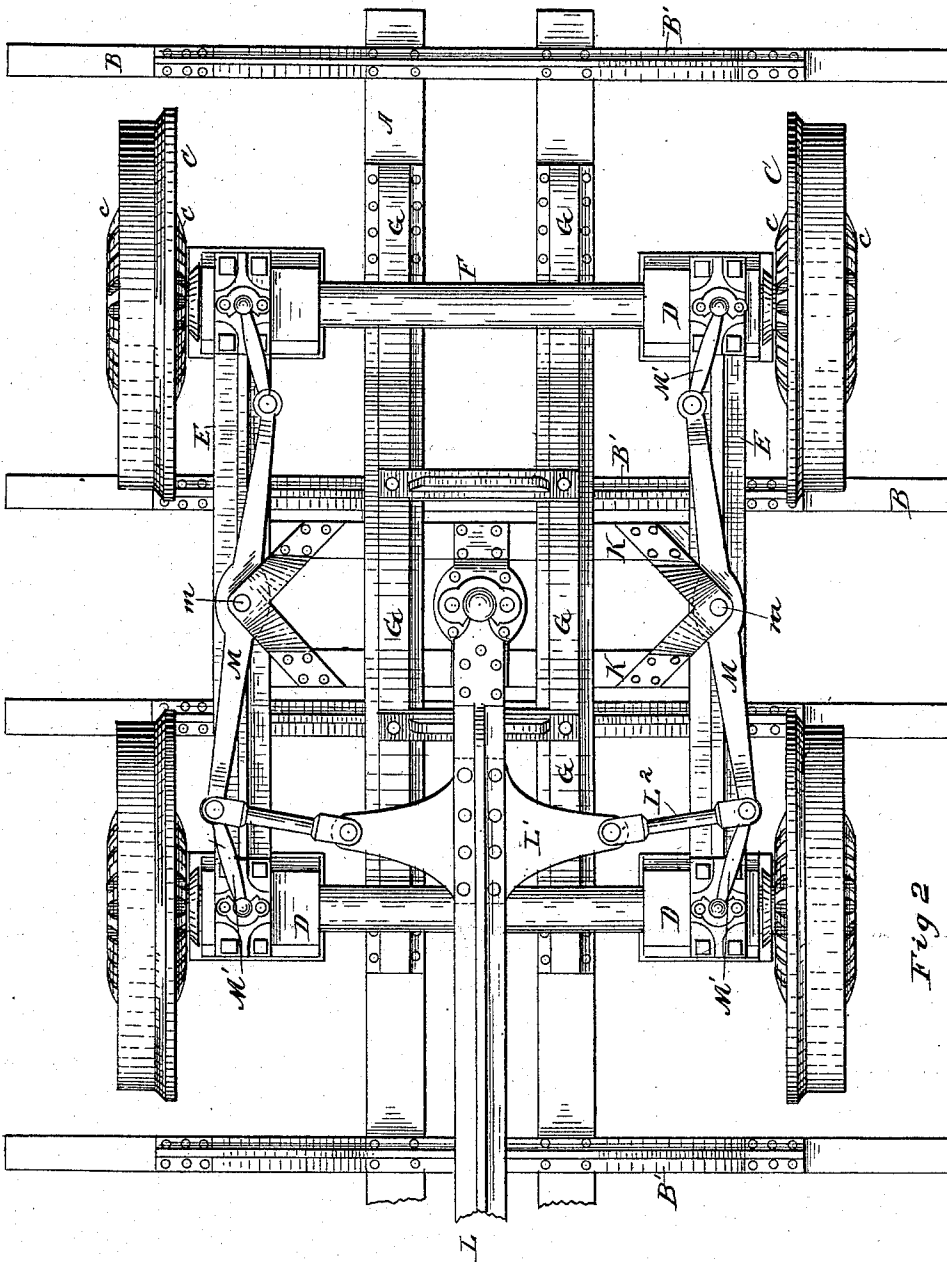


Fig 2

Witnesses
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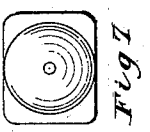
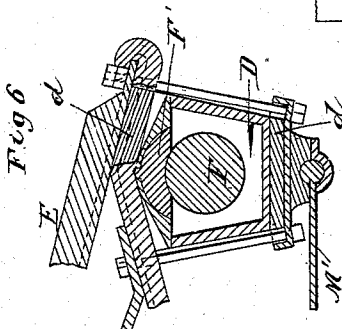
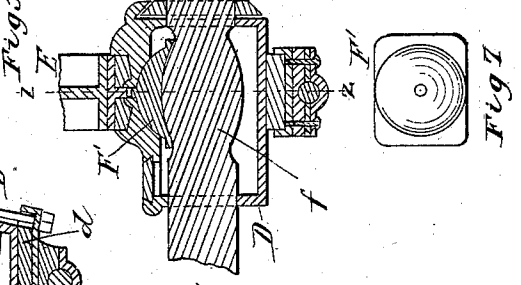
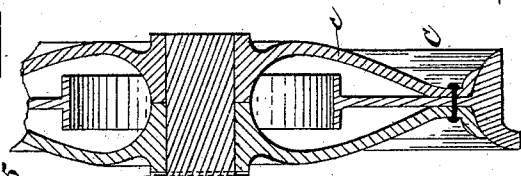
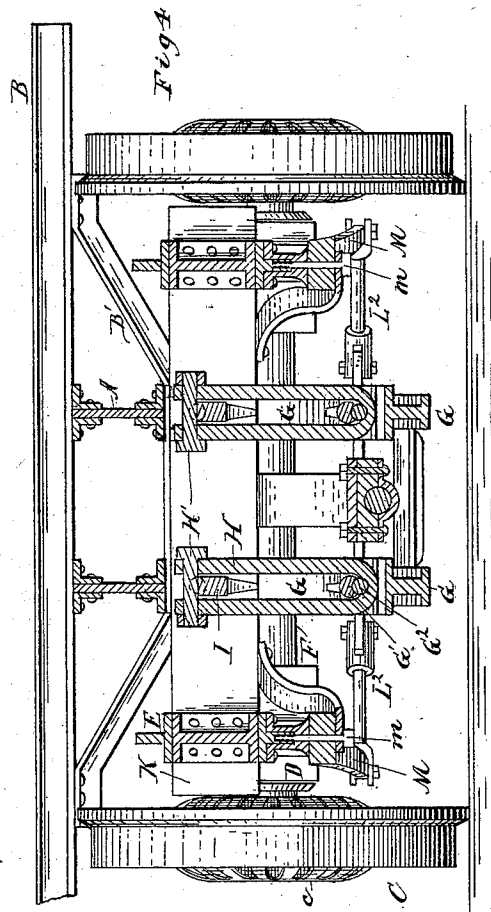
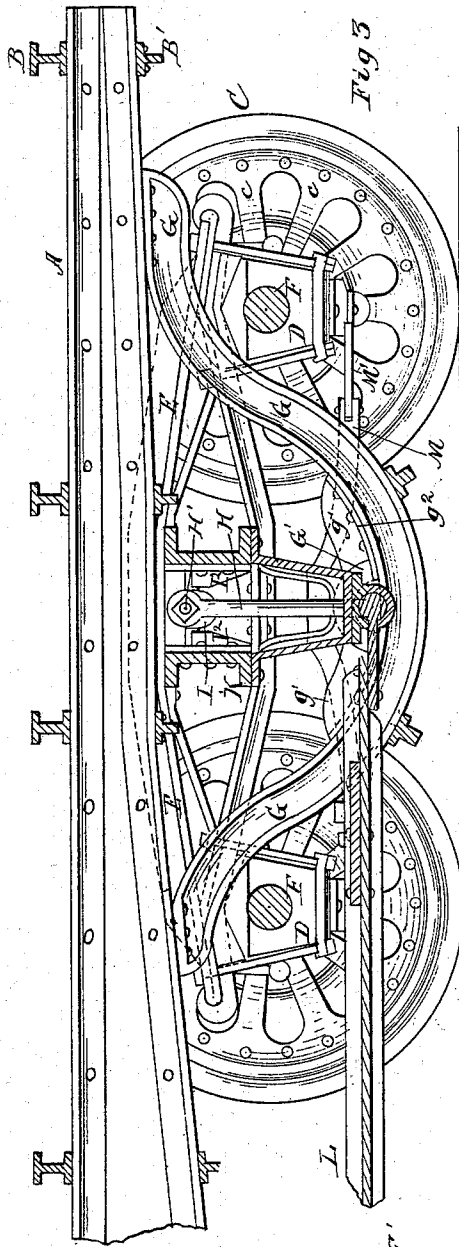
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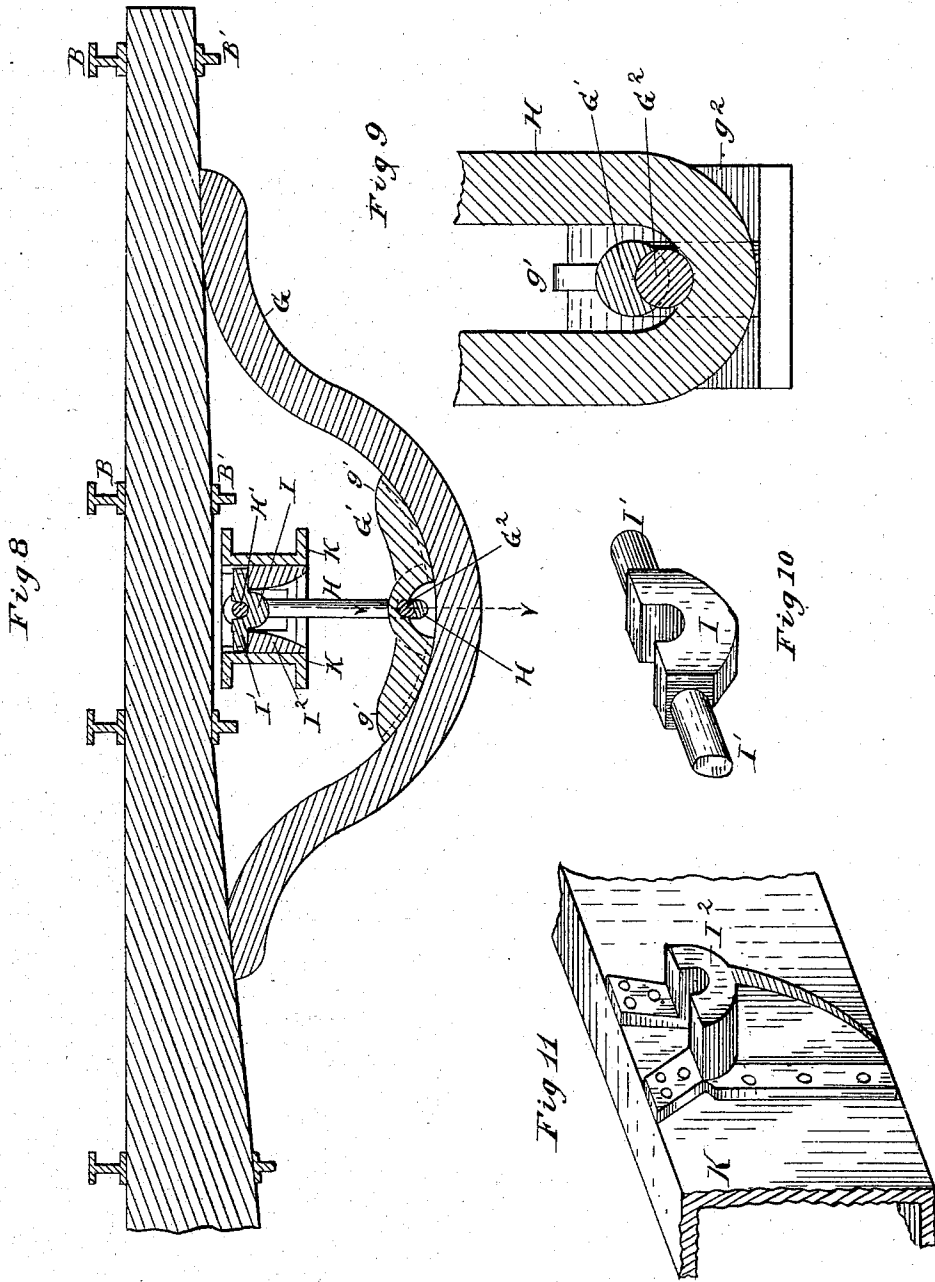
(No Model.)

4 Sheets—Sheet 4.

E. B. MEATYARD.
RAILWAY CAR.

No. 274,805.

Patented Mar. 27, 1883.



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UNITED STATES PATENT OFFICE.

EDWARD B. MEATYARD, OF GENEVA, WISCONSIN.

RAILWAY-CAR.

SPECIFICATION forming part of Letters Patent No. 274,805, dated March 27, 1883.

Application filed July 7, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDWARD B. MEATYARD, a citizen of the United States, residing at Geneva, in the county of Walworth, in the State of Wisconsin, have invented certain new and useful Improvements in Railway-Cars, which are fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a top plan view of a car-truck having my improvements, the longitudinal girders of the floor being broken away in the middle. Fig. 2 is a bottom plan view of the same. Fig. 3 is a section on the line xx in Fig. 1. Fig. 4 is a section on the line yy in Fig. 1. Fig. 5 is a detailed section, taken lengthwise of the axle, of a wheel and the adjacent axle-box. Fig. 6 is a section on the line zz in Fig. 5. Fig. 7 is a top plan view of one of the brasses. Fig. 8 is a detailed section of one of the longitudinal floor-girders and its support. Fig. 9 is a section on the line vv in Fig. 8. Fig. 10 is a detailed perspective view of the support of the clevis which aids in supporting the floor-girders. Fig. 11 is a detailed perspective view of one of the brackets which supports the bars shown in Fig. 10.

The same letters denote the same parts in all the figures.

My invention relates to railway-cars; and the objects of it are to diminish the weight of the car without impairing its strength, to make the motion easier, to diminish wear and tear, and to distribute the weight of the car more evenly along the track—a very important consideration in passing over viaducts and bridges; and to these ends it consists partly in a car-floor supported by a single pair of longitudinal girders, with cross-beams resting therein, partly in a car-body supported on the trucks, so as to be capable of oscillation in every direction, partly in car-wheels arranged equidistant from each other from end to end of the car, and partly in the several devices and combinations of devices which will be fully set forth hereinafter, and definitely pointed out in the claims.

In the drawings, A denotes a pair of wrought-iron girders, extending lengthwise of the car and about two feet and a half apart, so as to be between the wheels.

B denotes wrought-iron joists resting on the

longitudinal beams and firmly fastened thereto, and arranged between or beyond the wheels. On these joists the floor is laid. I thus provide an abundant support for the floor, and am enabled to place it so low that its planking shall just clear the wheels—an arrangement which would not be possible if the beams extended over the wheels, as in the ordinary construction. I thus greatly increase the steadiness of the car. Each joist is secured to the longitudinal girders by means of a brace, B', riveted at its ends to the lower side of the joist and at points near the middle of the lower sides of the girders. Additional plates may be riveted to joist and girder, if additional fastening is thought desirable.

By means of these braces the stiffness of the joists is maintained, and it is thus made possible to dispense with the usual supports at their ends.

The wheels C are made with inflexible tires, and with elastic bodies c interposed between the tires and axles, substantially as described in my application for a patent allowed May 15, 1882.

D denotes the axle-boxes, which are arranged with elastic and yielding cushions d above and below, intervening between them and the side bars, E, of the truck-frame, so as to prevent the jarring of the axles from being communicated to the side bars, and also to give opportunity for that rocking of the axle-boxes which is made requisite by the varying positions of the wheels in rounding a curve. These axle-boxes, as also the spheroidally-enlarged bearing-surfaces f of the axles F and the form of the brasses or bearing-blocks F', are substantially as described in my application for a patent for axle-bearings for railway-cars, No. 63,912, filed June 12, 1882. The cushioning of the axle-boxes and the elasticity of the wheel-bodies are important in this connection, as enabling me to dispense with the supporting springs, which, in the ordinary constructions, are interposed between the axles and the car-body.

To the under side of each of the longitudinal girders A are riveted the two ends of a vertical bow-shaped hanger, G, which is in general structure an I-beam, the flanges at that edge of the web which is placed uppermost being a little broader than at the other, and the rivets

passing through them. To these same flanges, at the middle of the hanger, is riveted a staple-like block, G' , which is in its middle part a half-ring, from whose outer surfaces, front and rear, extend a pair of ribs, g' . From the lower part of each rib flanges g^2 extend right and left, by means of which the block is riveted to the hanger.

In the middle of the block G' , on its inner surface, a hemispherical recess is formed, into which is welded or otherwise firmly attached a ball, G^2 . This ball is in contact with the curved end of a U-shaped iron, H , passing vertically through the block and joined at its straight ends by a horizontal pin, H' , which rests in a bearing-block, I , supported directly above in the cross-beams K of the truck-frame. The bearing-block I is in general form a half-ring, and is supported by means of trunnions L' , which project from each end of it and rest in brackets L^2 , which are affixed by means of flanges and rivets to the opposite faces of the cross-beams. Where the iron H is in contact with the ball G^2 it is socketed to conform to the surface of the ball, so as to admit of free motion in every direction. The iron H , in connection with the pin H' , thus forms a clevis on each side of the truck, in which the hanger G is suspended. By means of this construction the entire car-body is suspended from the cross-beams of the truck-frames in such a way as to secure the utmost possible freedom from disturbance of its balance by the rocking of the trucks, and also to mitigate in an important degree the jar caused by stopping the train. By means of the hanger G , I also support the car-body at four points of its length instead of two only, as in the ordinary construction, and thus obviate the tendency to sag both at the ends and in the middle. In a car of unusual length this number may be increased by means of trusses connecting the arch of the hanger with the girders at intermediate points.

Instead of the arched hanger G , a pair of vertical bars affixed at their upper ends to the girders and connected at their lower ends by a horizontal bar might be used. In this case, however, braces would undoubtedly be requisite in addition, and the construction shown in the drawings is far preferable.

By placing the axles of each truck farther apart (as will be found preferable in practice) the hanger G can be made to pass over the brake mechanism instead of under it, as shown in the drawings, and the altitude of its arch, and consequently the clevis $H H'$, can be considerably reduced. The range of oscillation by the car-body may thus be considerably diminished, if it is deemed desirable.

One end of a reach, L , is both vertically and horizontally pivoted to the under side of the cross-beam of each truck of the car. Under each truck, and a little back of the axle which is nearest to the other truck, an arm, L' , projects horizontally from each side of this reach, and is at its end pivotally connected by a bar, L^2 , with the longitudinal tie-bar M . This

bar is pivoted at m on the middle point of the lower surface of the side beam, and is connected with the bottom plates of the axle-boxes, respectively, by connecting-bars M' , which are each pivoted at one end to the tie-bar and at the other to the axle-box. The bar M and its two connecting-bars M' thus form together a jointed tie-bar. The pivoting to the axle-box is both vertical and horizontal, so as to provide for a slight rocking up and down of the axle-boxes. When the car is rounding a curve, and the trucks are in consequence not parallel to each other, the outer bar M and its connecting-rods M' , will be drawn into more obtuse angles with each other, while the opposite effect will be produced on the inner bar M and its connecting-rod, so that the distance between the axle-boxes on the outer side of the curve will be increased and that between the axle-boxes on the inner side diminished, in each case proportionately to the sharpness of the curvature.

In the ordinary plan of car the two axles of each truck are arranged quite near to each other, so that the weight of the car rests entirely on points of the track directly under the ends of the car, a comparatively long stretch of track between the trucks bearing no direct weight at all. This unequal distribution of weight becomes a serious evil when applied to the string-pieces of a bridge or similar structure. I remedy this by lengthening the trucks so that the distance from axle to axle in each truck shall be equal to the distance between trucks. The weight of the car will thus be applied to the track at one-eighth of the car's length from each end and at points one-eighth of the car's length each side of the middle of the car, and will thus be distributed as evenly over the track as possible.

For the sake of compactness, the axles of the trucks shown in the drawings are represented the usual distance apart; but the changes consequent on the improved construction which I have just described will be obvious.

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

1. The two girders A , arranged longitudinally under the middle part of the car-body, in combination with the floor-joists B , arranged as described on the girders, and the braces B' , affixed to both girders and joists, substantially as and for the purpose described.

2. The girder A , arched hanger G , riveted thereto at its ends, and provided with the arched bearing-block G' and ball G^2 , clevis $H H'$, socketed as described, cross-beams K , and bearing-block I , supported therein, all in combination, substantially as and for the purposes described.

3. In a railway-truck, a reach, L , pivotally connecting the cross-beam with the cross-beam of the other truck, a pair of doubly-jointed tie-bars, $M M'$, each pivoted near its middle point to one of the side beams and at its respective ends to the axle-boxes on which that

side beam rests, and mechanism pivotally connecting the reach with each of the bars, all in combination, substantially as and for the purposes described.

5 4. The longitudinal girders A, in combination with the hangers G, each affixed at two points to its girder, and with means for supporting the hanger upon the truck at a point

midway between the points of attachment to the girder, substantially as and for the purpose described.

EDWARD B. MEATYARD.

Witnesses:

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