

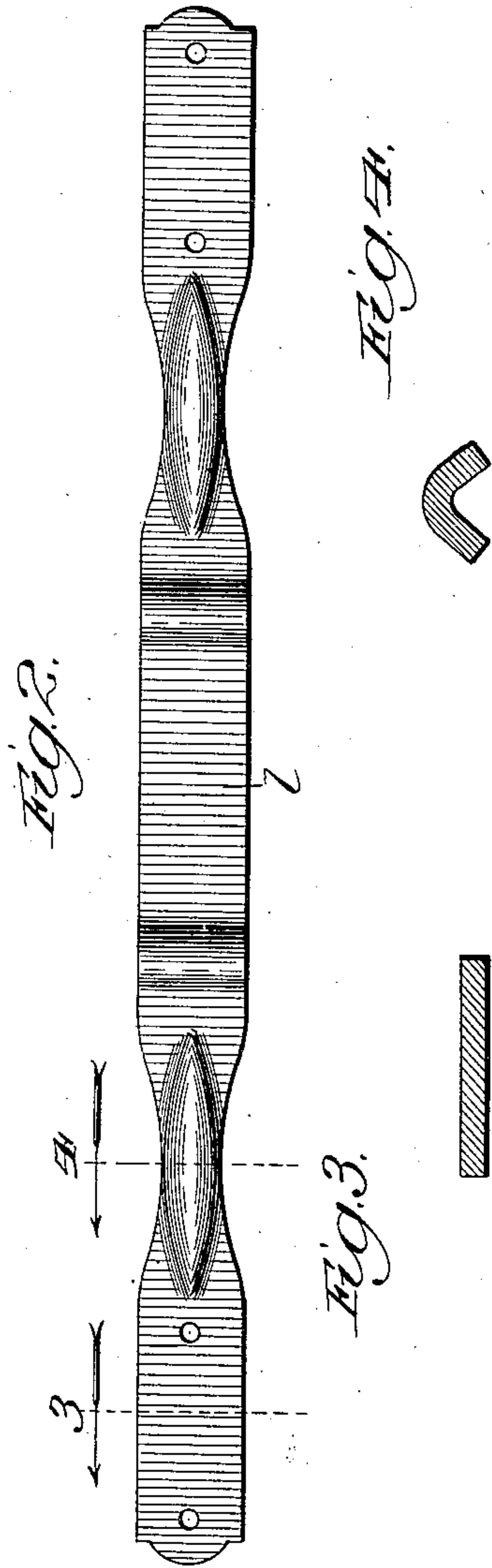
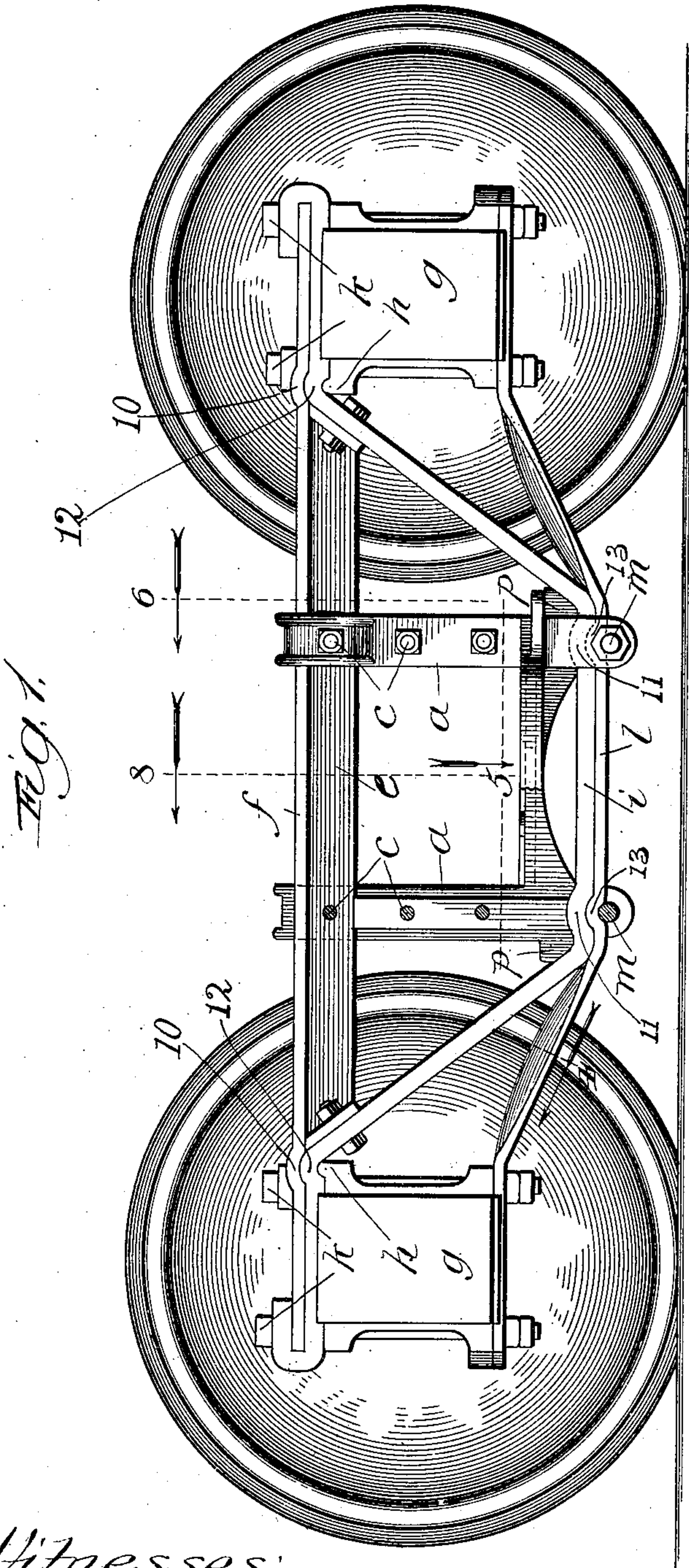
No. 744,226.

PATENTED NOV. 17, 1903.

S. OTIS.  
RAILWAY CAR TRUCK.  
APPLICATION FILED JAN. 31, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



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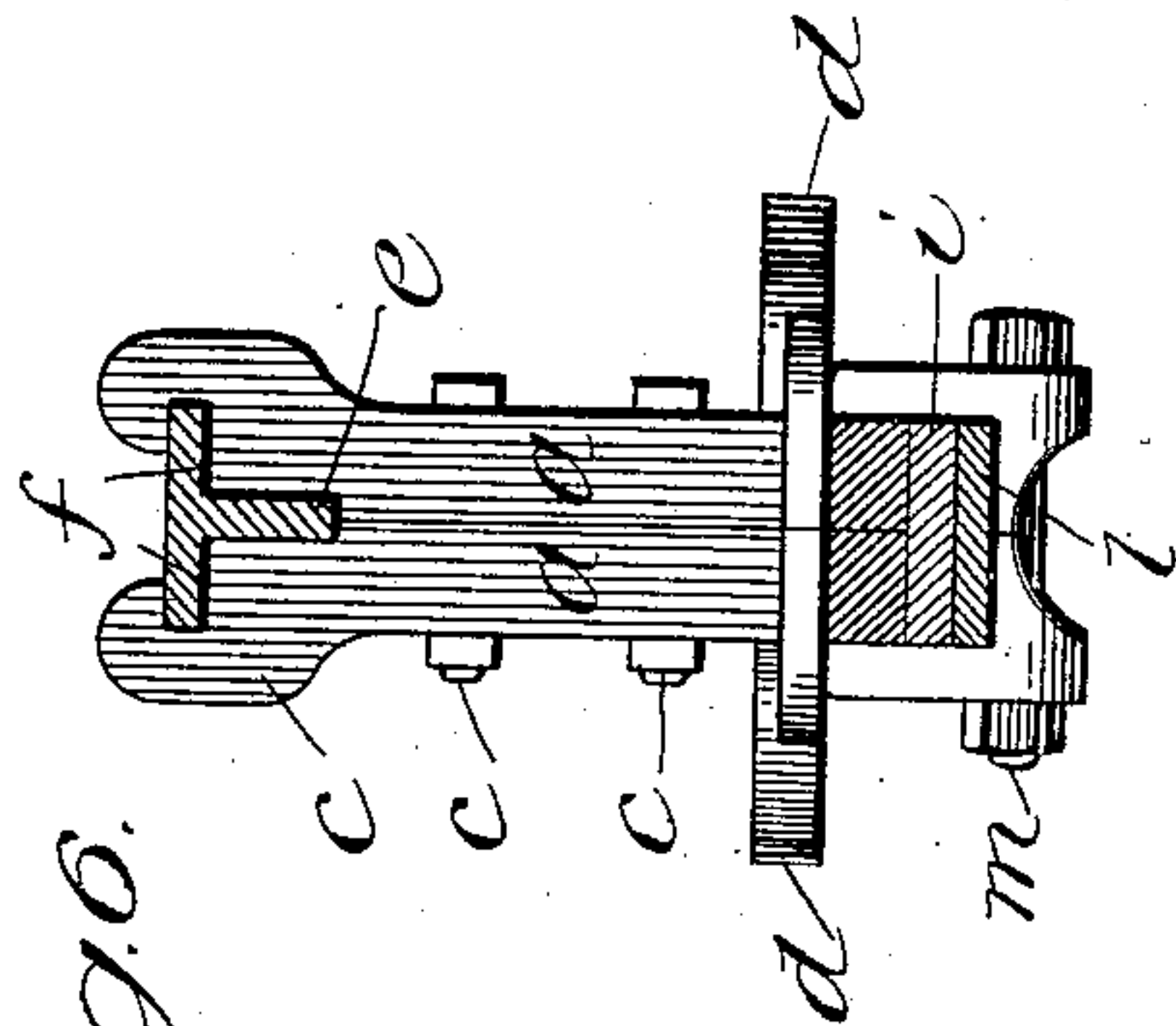


Fig. 6.

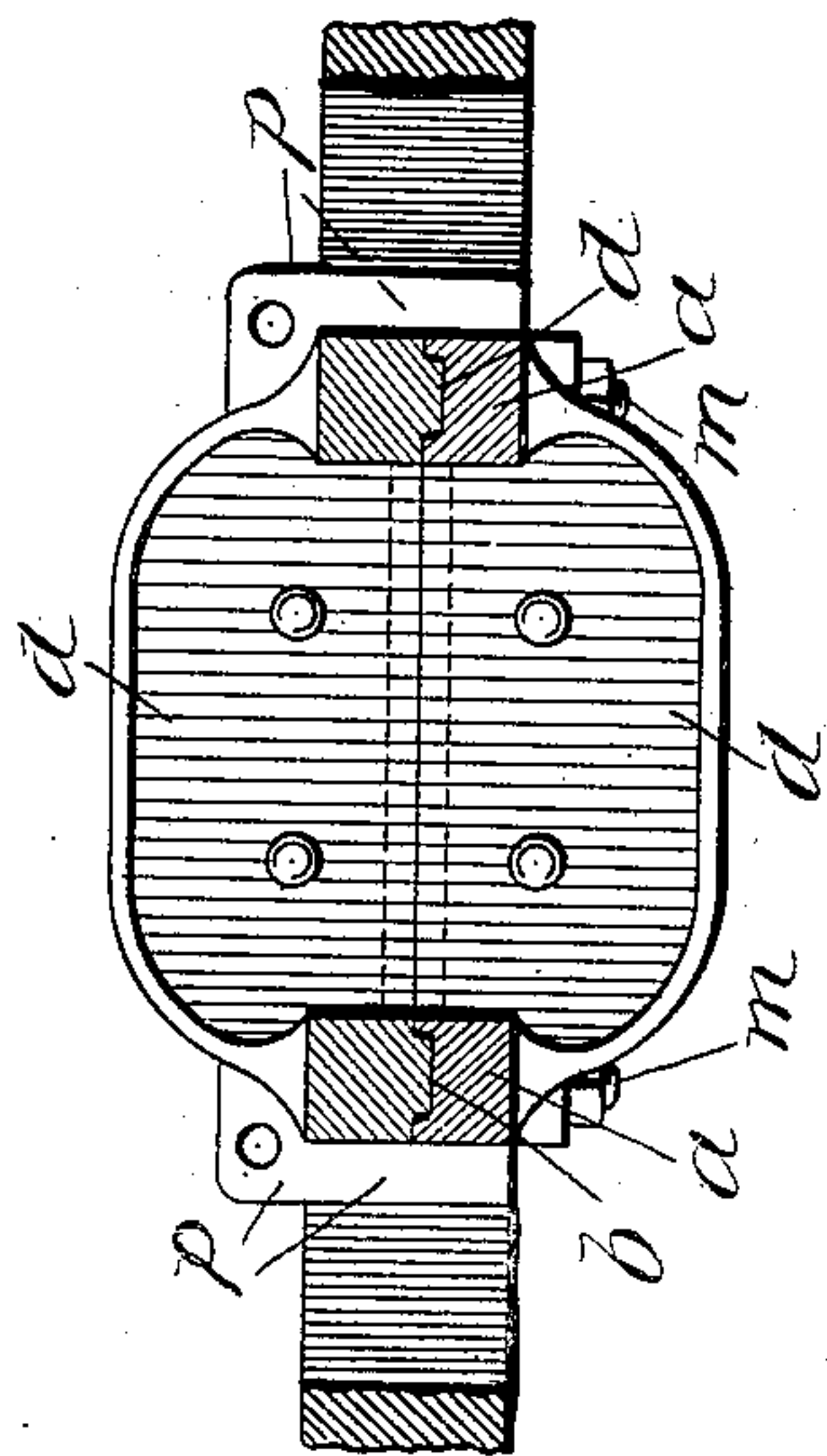


Fig. 5.

Fig. 7.

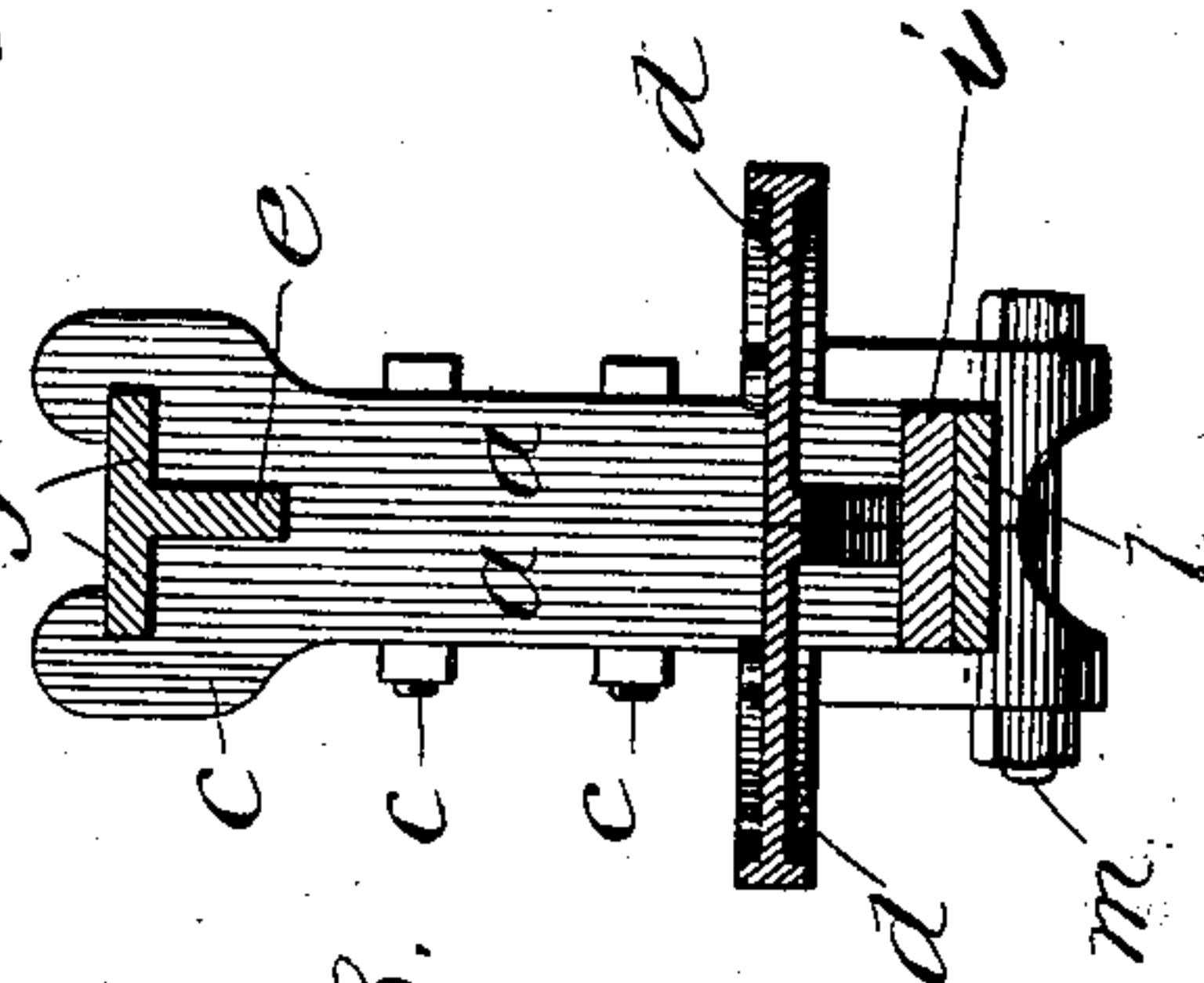
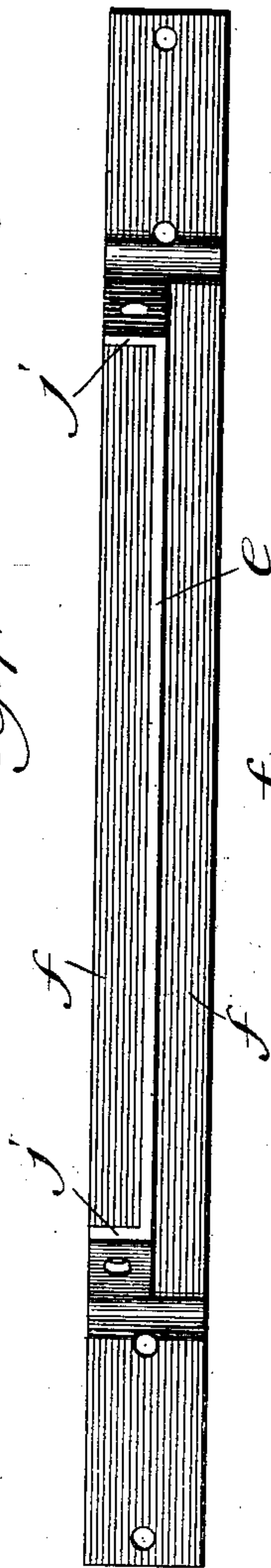


Fig. 8.

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# UNITED STATES PATENT OFFICE.

SPENCER OTIS, OF CHICAGO, ILLINOIS, ASSIGNOR TO NATIONAL PATENT HOLDING COMPANY, OF RAPID CITY, SOUTH DAKOTA, AND CHICAGO, ILLINOIS, A CORPORATION OF SOUTH DAKOTA.

## RAILWAY-CAR TRUCK.

SPECIFICATION forming part of Letters Patent No. 744,226, dated November 17, 1903.

Application filed January 31, 1903. Serial No. 141,240. (No model.)

*To all whom it may concern:*

Be it known that I, SPENCER OTIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have  
5 invented certain new and useful Improvements in Railway-Car Trucks, of which the following is a specification.

This invention relates to that class of car-trucks which is used in connection with the  
10 freight-cars of the truck-railways of the United States and Canada, and particularly to the construction and arrangement of the frame, all of which will more fully hereinafter appear.

15 The principal object of the invention is to provide a simple, economical, and efficient car-truck and form it of light metallic members of unique construction and arrangement to withstand the heavy shocks and strains of  
20 hard usage, as will more fully hereinafter appear.

The invention consists principally in a frame for railway-car trucks in which there are combined a pair of truck-columns, an upper arch-bar formed of a metal T-beam secured to the upper ends of the truck-columns, with its web portion inserted therein and arranged in a vertical plane and its flange portion arranged in a horizontal plane, and metal  
25 truss and lower tie bars secured to the lower ends of the truck-columns, substantially as hereinafter set forth.

The invention consists, further, in a railway-car truck in which there are combined a pair  
35 of metal truck-columns each divided into two clamping portions, an upper arch-bar clamped between the upper portion thereof and bolted thereto, a truss-bar, and a lower tie-bar clamped between the lower portions of such  
40 truck-columns, substantially as hereinafter set forth.

The invention consists, further and finally, in the features, combinations, and details of construction hereinafter described and  
45 claimed.

In the accompanying drawings, Figure 1 is a side elevation of one side of a truck-frame as it appears when constructed in accordance with these improvements; Fig. 2, a plan view  
50 of the lower truss-bar removed from engage-

ment with the other parts and looking at it from above. Figs. 3 and 4 are enlarged transverse views taken on lines 3 and 4 of Fig. 2, respectively; Fig. 5, a plan sectional detail taken on line 5 of Fig. 1 looking in the  
55 direction of the arrow; Fig. 6, a cross-sectional view taken on line 6 of Fig. 1 looking in the direction of the arrow; Fig. 7, a plan view of the upper arch-bar removed from engagement with the other parts and looking  
60 at it from below; and Fig. 8, a cross-sectional view of Fig. 1, taken on line 8 of Fig. 1 looking in the direction of the arrow.

In the art to which this invention relates it is well known that it is desirable to provide  
65 a car-truck frame formed largely of commercial iron, which may be purchased in the open market and easily bent into the desired shape, so as to form a frame in which the least amount of material may be used to withstand the maxi-  
70 mum strains.

The principal object of this invention, therefore, is to provide a car-truck having these advantages, all of which will more fully hereinafter appear.  
75

In illustrating and describing these improvements I have only illustrated and will describe that which I consider to be new taken in connection with so much that is old as will properly disclose the invention to others and  
80 enable those skilled in the art to practice the same, leaving out of consideration other and well-known elements which if illustrated or described herein would only tend to confusion, prolixity, and ambiguity.  
85

In constructing a frame for railway-car trucks of the class described I make a pair of truck-columns *a*, divided longitudinally along a vertical plane, as shown particularly in Figs. 1 and 6. As stated, this pair of truck-columns  
90 is divided longitudinally along a vertical plane and formed of two interlocking castings, one portion of which, preferably the upper, as shown in Fig. 5, is provided with tongues *b*, engaging with corresponding grooves in the  
95 other portion, so that when the parts are bolted together by means of a plurality of bolts *c* there is no tendency to any shearing action. Each half of the truck-columns is provided at or near its lower end with inte-  
100



gral portions *d*, which form when taken together a spring-seat on which the usual supporting-springs for the truck-bolster (not shown) may be arranged.

5 To assist in forming the truck-frame, an upper "arch-bar" is provided formed of a metal T-beam, the depending web *e* of which is arranged in a vertical plane and the flange portion *f* in a horizontal plane. This upper arch-bar is laid in a recess formed by and between  
10 the divided upper ends of the truck-columns, in which it is clamped and held firmly by the bolts *c*, when such divided truck-column is assembled and clamped together. This upper arch-bar extends outwardly and over the  
15 usual oil-boxes *g* and at or near such oil-boxes and their convex lugs *h* is provided with a pair of transverse concavo-convex ribs 10 for the purpose hereinafter described.

20 A metal lower arch or what I prefer to term a "truss" bar *i* is provided and clamped between the lower ends of the divided truck-columns, and where so clamped it is provided with a pair of transverse concavo-convex ribs 11, as  
25 will more fully hereinafter appear. This truss-bar is secured to the truck-columns, as suggested, and from such point is extended upwardly and bolted to the depending web of the upper arch-bar. This depending web in  
30 order to provide a point of attachment for the truss-bar is cut off for a portion of the length of each end of the upper arch-bar and a portion of such cut portion is bent at right angles, as shown at *j*, Fig. 7, to provide points  
35 of connection for the truss-bar. The truss-bar is further provided with a second pair of transverse concavo-convex ribs 12, arranged to engage with the concave portions of the transverse ribs of the upper arch-bar and the  
40 convex portion of the lugs *h* on the oil-boxes. The truss-rod is continued out beyond the ends of the upper arch-bar and bent over to clamp the same, as shown in Fig. 1, so that when bolts *k* are passed down through the  
45 same and through the lugs on the oil-box they can be firmly grasped to hold the same, in connection with the lower tie-bar, in position.

A lower tie-bar *l* is provided, also clamped between the lower ends of the truck-columns  
50 and below the truss-bar and provided with a pair of transverse concavo-convex ribs 13, where it engages with the concave portions of the transverse ribs 11 of the truss-bar to assist in positioning the same, and the concave portions of such ribs 13 also engage with  
55 a pair of tie-bolts *m* in the perforated lower ends of the divided truck-columns, so that when such parts are clamped together and between such divided truck-columns there is  
60 no tendency to endwise movement of the parts. The lower tie-bar, which is continued out and underneath the usual oil-boxes and bolted to the same, as above described, is formed of a rectangular piece of iron or steel  
65 when viewed in cross-section, (see Figs. 2 and 3,) and at points between where it engages with the truck-columns and oil-boxes it is

provided with longitudinal ribs formed by bending the central portion upwardly, all of which serves to strengthen the same and enable it to resist the strains and stress incident to ordinary use. 70

From an examination of the drawings it will be seen that I have only set forth one side or, more properly, "end" of the truck-frame. It will be understood, however, that the other end is a mere replica of the same, so that such description answers for both ends of the truck-frame and that both the truck-columns are provided at or near their lower edges  
80 with lugs *p* on their inner sides, in which diagonal braces or rods may be secured to tie both sides of the truck together. This manner of tying the sides of the truck together, however, is so well known and there are so many different methods of tying such parts together that it is deemed unnecessary to give any detailed description or illustration thereof. 85

I claim—

1. In a car-truck of the class described, a frame portion each end of which has a pair of truck-columns, an upper arch-bar formed of a metal T-beam secured to the upper ends of the truck-columns with its web portion inserted therein and arranged in a vertical  
95 plane and its flange portion arranged in a horizontal plane, and metal truss and lower tie bars secured to the lower ends of the truck-columns, substantially as described. 90

2. In a car truck of the class described, a frame portion each end of which has a pair of metal truck-columns each divided longitudinally into two clamping portions, an upper arch-bar clamped between the upper portion thereof, a truss-bar, and a lower tie-bar  
105 clamped between the lower portions of such truck-columns, substantially as described. 100

3. In a car-truck of the class described, a frame portion each end of which has a pair of truck-columns and integral spring-plates divided longitudinally and in a vertical plane into two clamping portions, a T-shaped metal upper arch-bar clamped between and secured to the upper ends of the truck-columns, a truss-bar clamped between the lower ends of the truck-columns and secured to the upper arch-bar, and a lower tie-bar secured to the lower ends of the truck-columns, substantially as described. 110

4. In a car-truck of the class described, a frame portion each end of which has a pair of cast-metal truck-columns joined together at or near their lower edges by a spring-plate, both of which are divided longitudinally and in a vertical plane and clamped together, an upper arch-bar formed of a metal T-beam clamped between the upper ends of the truck-columns, a truss-bar clamped between the lower ends of the truck-columns and secured at or near its upper end to the upper arch-bar, and a lower tie-bar clamped between the lower ends of the truck-columns, substantially as described. 120

5. In a car-truck of the class described, a



frame portion each end of which has a pair of truck-columns formed of cast metal joined together near their lower ends by a spring-plate both of which are divided longitudinally and in a vertical plane, an upper arch-bar formed of a metal T-beam clamped between the upper ends of the truck-columns with its web portion arranged in a vertical plane and depending from the flanged portion thereof, a truss-bar clamped between the lower portions of the truck-columns and provided with a pair of transverse concavo-convex ribs and secured to the upper arch-bar on its depending web portion, a lower tie-bar provided with a pair of concavo-convex ribs engaging with the transverse ribs of the truss-bar and clamped between the lower ends of the truck-columns, and bolt mechanism for tying the divided truck-columns together passed through the concave portions of the transverse ribs of the lower tie-bar, substantially as described.

6. In a car-truck of the class described, a frame portion each end of which has a pair of truck-columns formed of cast metal and joined together at or near their lower ends by integral portions forming a spring-seat, both of which are divided longitudinally and in a vertical plane, an upper arch-bar formed of a metal T-beam passed between and clamped by the upper edges of the truck-columns and extending out over the oil-boxes, a truss-bar clamped between the lower ends of the truck-column and bent upwardly and secured to the depending web of the upper arch-bar and also passed over the upper portions of the oil-boxes, a lower tie-bar clamped between the lower ends of the truck-columns engaging with the lower surface of the lower arch-bar and passed outwardly with its free ends arranged underneath the oil-boxes, bolt mechanism securing the divided truck-columns together and clamping the parts in place, and bolt mechanism passed down through the free ends of the upper arch-bar, truss-bar and lower tie-bar to secure the end portions thereof in position, substantially as described.

7. In a car-truck of the class described, a frame portion each end of which has a pair of truck-columns divided longitudinally and in a vertical plane, an upper arch-bar formed of a metal T-beam passing between and clamped by the upper ends of the truck-columns and extending out over the oil-boxes and provided with transverse concavo-convex ribs adjacent to such oil-boxes, a truss-bar provided with transverse concavo-convex ribs where it is clamped between the lower ends of the truck-columns and extending upwardly and provided with a second set of transverse concavo-convex ribs engaging the transverse ribs of the upper arch-bar and extending out over the oil-boxes, a lower tie-bar having concavo-convex ribs engaging the transverse ribs of

the truss-bar where it is clamped between the truck-columns, a plurality of bolt mechanism securing the divided truck-columns together, a pair of which are passed between the lower ends of such truck-columns and in contact with the concave portions of the transverse ribs of the lower tie-bar for positioning the same, an oil-box provided with lugs engaging the concave portion of the transverse ribs of the truss-bar to assist in positioning the parts, substantially as described.

8. In a car-truck of the class described, a frame portion each end of which has a pair of cast-metal truck-columns joined together at or near its lower end by integral portions forming a spring-seat, both of which are divided longitudinally and in a vertical plane, an upper arch-bar formed of a metal T-beam clamped between the upper ends of the divided columns and extending out over the usual oil-boxes, a truss-bar provided with a pair of transverse concavo-convex ribs where it is clamped between the divided truck-columns and extending upwardly and bolted to the upper arch-bar, a lower tie-bar provided with a pair of transverse concavo-convex ribs engaging the concave portion of the transverse ribs of the truss-bar where it is clamped between the lower ends of the truck-columns and extending outwardly under the usual oil-box and provided with longitudinal ribbed portions arranged between the truck-columns and the oil-boxes, and a plurality of bolt mechanism securing the divided truck-columns together, a pair of which are passed through the lower ends of the truck-columns in contact with the concave portions of the transverse ribs of the lower tie-bar to assist in positioning the same, substantially as described.

9. In a car-truck of the class described, a car-frame each end of which has a pair of cast-metal truck-columns secured together at or near their lower ends by integral spring-seats both of which are divided longitudinally and in a vertical plane, the divided pairs interlocking each with the other, an upper arch-bar formed of a metal T-beam clamped between the upper ends of the divided truck-columns, a truss-bar clamped between the lower ends of the truck-columns and secured to the depending web of the upper arch-bar, a lower tie-bar clamped between the lower ends of the truck-columns and engaging with the lower surfaces of the truss-bar, and bolt mechanism for securing the divided truck-columns together and clamping the upper arch lower tie and truss bars in position, substantially as described.

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