(No Model.) 3 Sheets—Sheet 1.

W. F. RICHARDS.

CAR TRUCK.

No. 580,535. Patented Apr. 13, 1897.

Fig. 1.

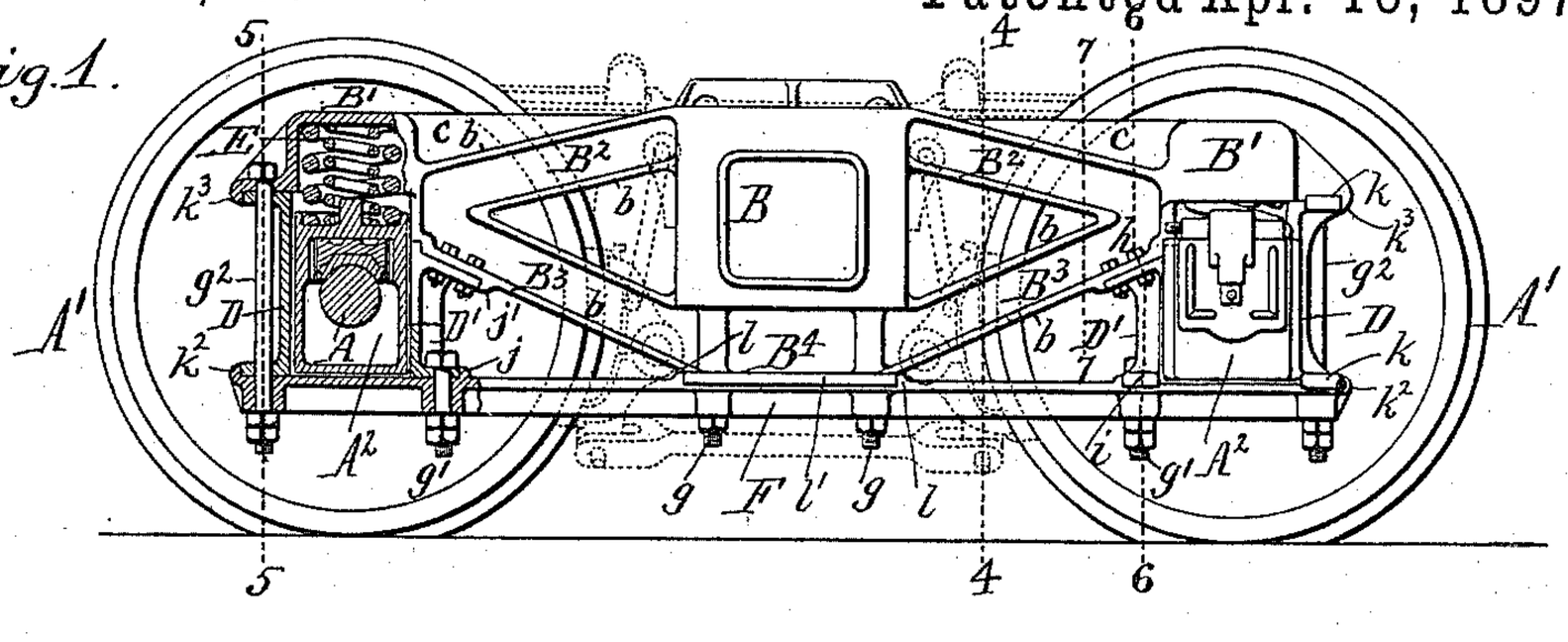
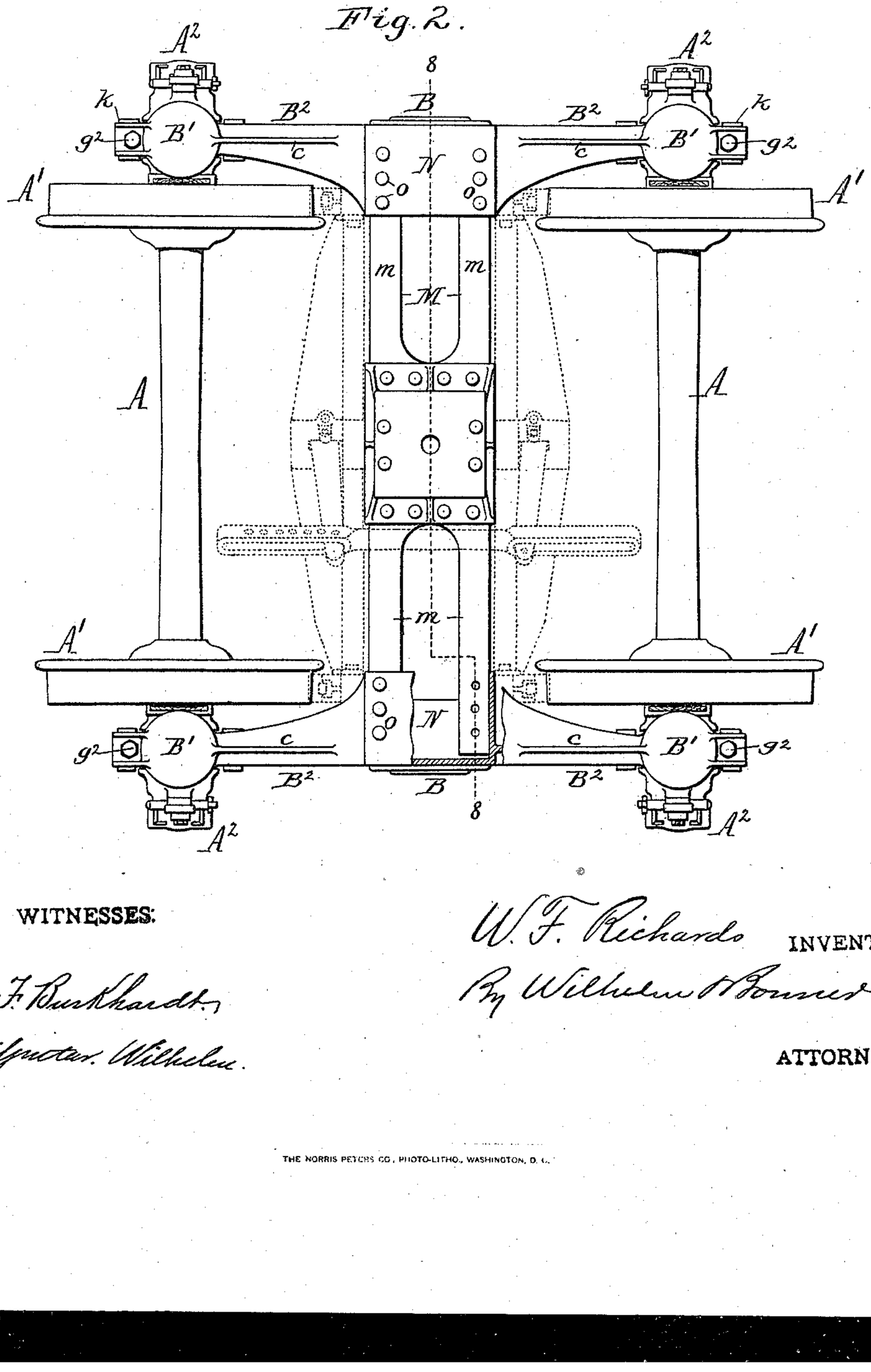


Fig. 2.



WITNESSES:

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W. F. Richards INVENTOR.

By Wilhelm & Bonner

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(No Model.)

3 Sheets—Sheet 2.

W. F. RICHARDS.

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Fig. 3.

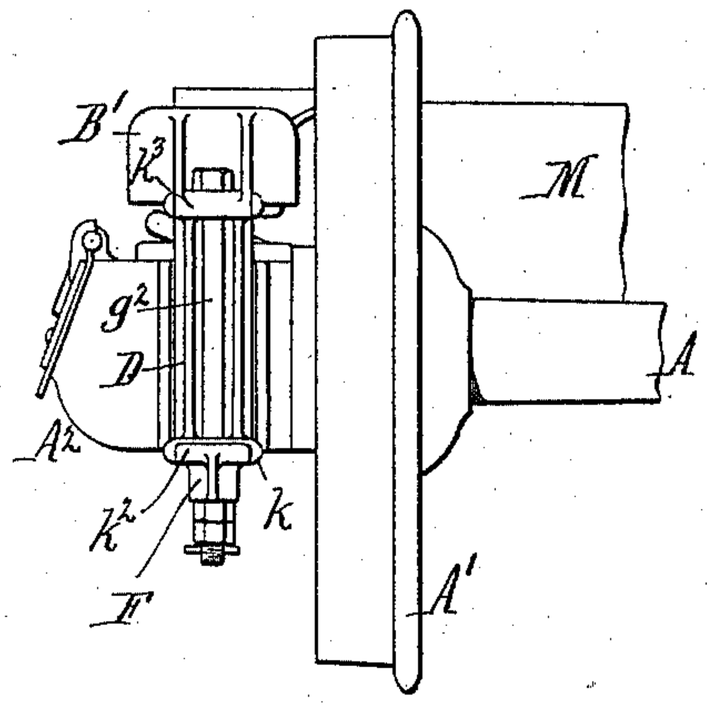


Fig. 4.

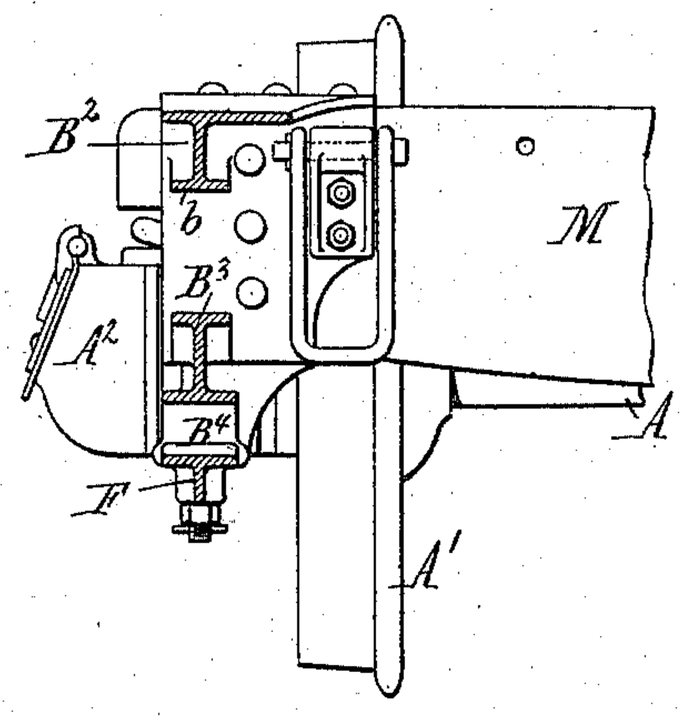


Fig. 5.

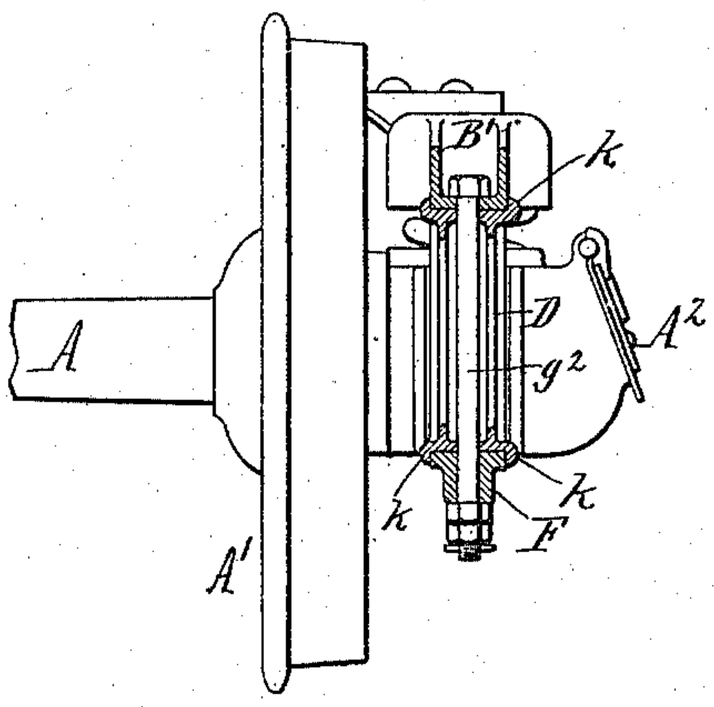


Fig. 7.

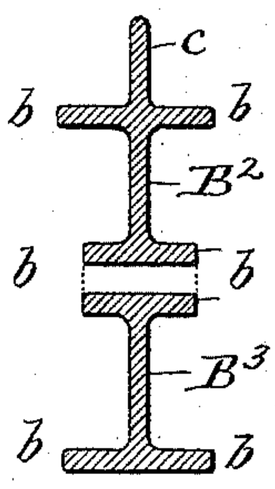


Fig. 6.

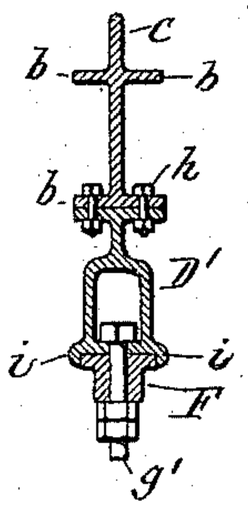
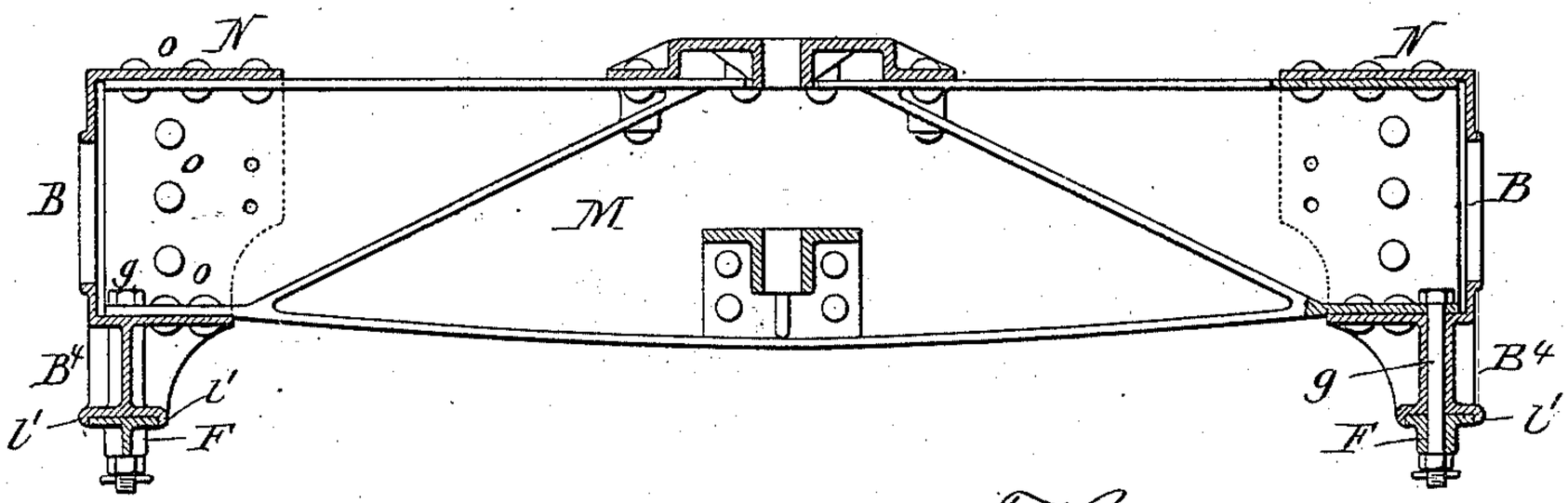


Fig. 8.



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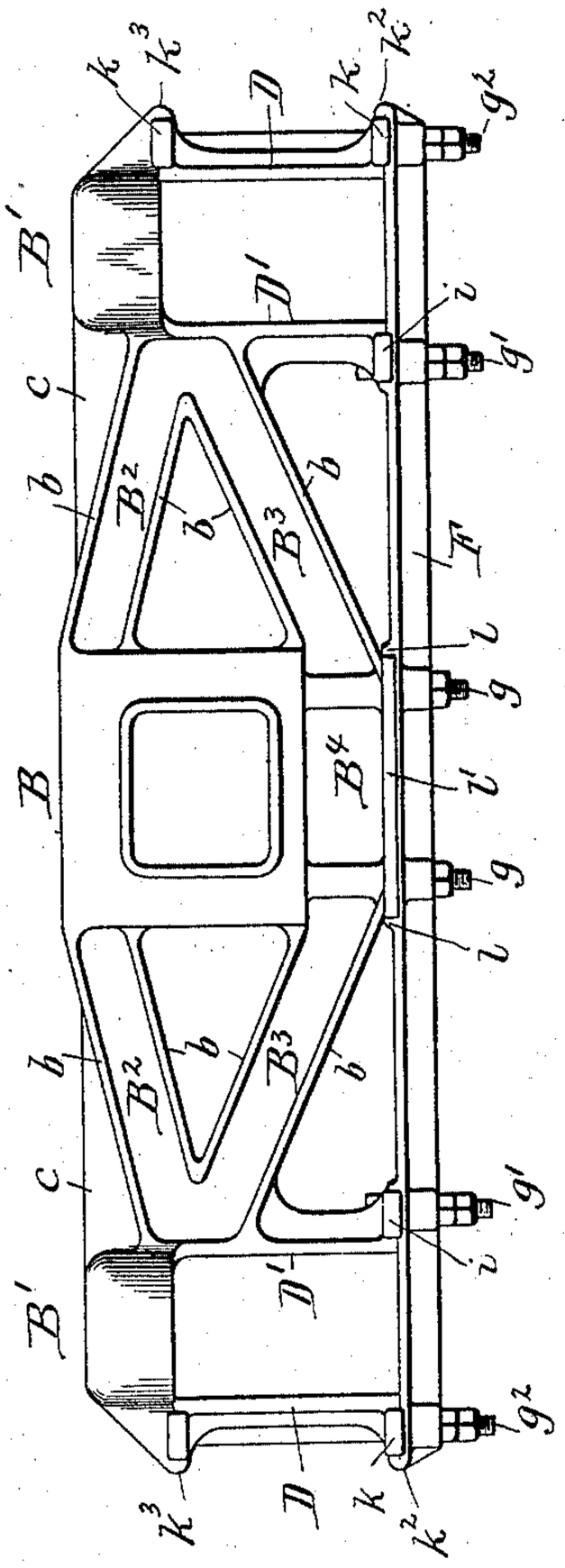
(No Model.) 3 Sheets—Sheet 3.

W. F. RICHARDS.

CAR TRUCK.

No. 580,535. Patented Apr. 13, 1897.

Fig. 9.



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UNITED STATES PATENT OFFICE.

WILLARD F. RICHARDS, OF BUFFALO, NEW YORK, ASSIGNOR TO THE GOULD COUPLER COMPANY, OF NEW YORK, N. Y.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 580,535, dated April 13, 1897.

Application filed December 23, 1896. Serial No. 616,694. (No model.)

To all whom it may concern:

Be it known that I, WILLARD F. RICHARDS, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Car-Trucks, of which the following is a specification.

This invention relates to metallic car-trucks, and more especially to a cast-metal truck constructed upon the general lines of the well-known "diamond" truck. Such a cast-metal truck is shown and described in an application for Letters Patent of the United States filed by me December 10, 1896, Serial No. 615,209.

The object of my present invention is the construction of a truck of this character which has no lower compression members or auxiliary arch-bars, so as to render the side frames more open for easy inspection of and access to the brake-gear, the brake-shoes, and the truck-frame, but which at the same time possesses the necessary strength and rigidity to withstand the strains to which it is subjected.

In the accompanying drawings, consisting of three sheets, Figure 1 is a side elevation of my improved truck, partly in section. Fig. 2 is a top plan view thereof with the pocket of one of the side frames partly broken away. Fig. 3 is a fragmentary end view of the truck. Figs. 4, 5, and 6 are fragmentary transverse sections in lines 4 4, 5 5, and 6 6, Fig. 1. Fig. 7 is a cross-section, on an enlarged scale, of a pair of upper and lower arch-bars of the truck, the section being taken in line 7 7, Fig. 1. Fig. 8 is a transverse section of the truck in line 8 8, Fig. 2. Fig. 9 is a side elevation of a modified construction of my improved truck with the journal-boxes removed.

Like letters of reference refer to like parts in the several figures.

A A are the axles, A′ the wheels, and A^2 the axle-boxes, which may be of any ordinary construction. The side frames of the truck are constructed of cast metal, such as malleable iron or cast-steel, and each frame is composed of a substantially rectangular central portion or panel B, horizontal end caps B′, upper inclined arch-bars B^2, extending downwardly in opposite directions from the upper corners of the central panel B to the inner sides of the end caps B′, and lower reversely-inclined arch-bars B^3, extending upwardly from the lower corners of the panel B to the outer ends of said upper arch-bars and united with the latter, the inner portions of these lower arch-bars being connected by a horizontal portion B^4, arranged below the panel B and forming, with the lower bars, an inverted arch. These various members of the side frame are formed in a single piece of cast metal. Each of the arch-bars B^2 B^3 is provided at both of its edges and on opposite sides thereof with longitudinal stiffening ribs or flanges *b*, which extend from end to end thereof, giving these bars practically the form of I-beams and rendering the same very strong. The end caps are connected with the upper arch-bars by longitudinal webs or flanges *c*.

D D′ are the outer and inner jaws of the pedestals, in which the axle-boxes are guided, and E are the cushioning-springs of the truck, interposed between the upper sides of the axle-boxes and the end caps B′.

F is a tie-bar which extends across and closes the lower ends of the pedestals and which is secured to the central portion B^4 of the side frame by vertical bolts *g* and to the jaws of the pedestals by similar bolts *g′* g^2. The tie-bar is constructed of cast metal and provided with a longitudinal reinforcing-rib, as shown.

In the construction shown in the drawings the outer jaws D of the pedestals are constructed separate from the remaining portion of the side frame and removably secured thereto and to the tie-bar by the long end bolts g^2, so that they can be detached from the frame for removing the axle-boxes laterally from the pedestals when necessary. The inner pedestal-jaws D′ may also be made separate from the frame and detachably secured thereto and to the tie-bar, so that these jaws can be renewed when worn out by contact with the axle-boxes and thereby avoid renewing the entire side frame, which would be necessary if said jaws were cast in one piece with the frame. The upper ends of the inner pedestal-jaws are secured to the lower arch-bars B^3 by vertical bolts *h*, and their lower ends are secured to the tie-bar F by the

bolts g', said jaws being formed at their ends with perforated flanges for the passage of these bolts. The holes for the reception of the several bolts g, g', g^2, and h are cast in the side frames and the removable pedestal-jaws, and hence the bolts are not fitted snugly in the holes and liable to become loose. In order to prevent displacement of the bolts of the inner pedestal-jaws D', which would be liable to occur from the jars and vibrations of the truck, each of these jaws is provided at its lower end with lateral lips i, which overlap the tie-bar F, as shown in Figs. 1 and 6, and the tie-bar and the lower arch-bars B^3 are provided with lugs or lips j j', respectively, which abut against the inner sides of said inner jaws at their upper and lower ends. For the same purpose the outer pedestal-jaws D are provided with lateral lips k, as shown in Fig. 5, and the tie-bar F and caps B' with end lips k^2 k^3, as shown and described in my previous application for patent hereinbefore referred to. The tie-bar is also provided with central lips l, which bear against opposite sides of the adjacent central portion of the side frame, and said central portion is provided with depending lips l', which overlap the tie-bar, as shown in Fig. 1. These various lips relieve the several fastening-bolts both from the end and side thrust to which they would otherwise be subjected, and thereby insure the desired rigidity of the parts and transmit any shocks throughout the entire truck. By making the tie-bar of cast metal the same is formed, with its several lugs or lips, at small cost.

As the portion of the side frames opposite the wheels of the truck consist only of the converging arch-bars B^2 B^3 and the tie-bar F, large spaces are left between these members, through which a considerable portion of the wheel treads and flanges and the brake-shoes are exposed, permitting an easy and thorough inspection of those parts and of the truck-frame and rendering the brake-shoes, the hangers, and connecting parts of the brake-gear conveniently accessible for renewing the shoes and making repairs. While the open area of the side frame is materially increased by the omission of the usual auxiliary or lower compression members, the frame is properly reinforced to compensate for the absence of those members.

The transom or beam which connects the side frames of the truck is preferably composed of two parallel channel-bars M, preferably of cast metal, arranged so that their horizontal flanges m face each other. The end portions of these bars are seated in rectangular pockets or sockets N, projecting inwardly from the center panels B of the side frames and cast integral with the frames. The closed outer ends of these pockets are about flush with the outer face of the side frames, and the ends of the transom extend to or nearly to said closed ends, as shown in the sectional portion of Fig. 2, so that the ends of the transom rest directly over the lower inverted arches of the side frames. The transom-bars are confined in these pockets by rivets o, passing through the top and bottom of the pockets and the flanges of the bars, and also by the central fastening-bolts g of the tie-bar F, which pass through the bottom of the pockets and the lower flanges of the transom-bars, as shown in Fig. 8. These bolts thus serve the double purpose of securing the tie-bar in place and connecting the transom with the side frames.

If desired, the inner jaws D' of the pedestals may be cast in one piece with the side frames, as shown in Fig. 9 of the drawings.

I claim as my invention—

1. A side frame for car-trucks having a central portion or panel, pedestals arranged at the ends of the frame, upper and lower arch-bars arranged between said panel and said pedestals and converging toward the pedestals, and a tie-bar connecting the lower ends of the pedestals and provided with lugs or lips which bear against the inner jaws of the pedestals, substantially as set forth.

2. A side frame for car-trucks having a central portion or panel, pedestals arranged at the ends of the frame, upper and lower arch-bars arranged between said panel and said pedestals and converging toward the pedestals, a tie-bar connecting the lower ends of the pedestals and provided with lugs or lips which bear against the inner jaws of the pedestals, and with similar lugs or lips which bear against opposite sides of the central panel of the frame, substantially as set forth.

3. The combination with the cast-metal side frames, each having a central horizontal pocket extending outwardly to the face of the frame and pedestals arranged at the ends of the frame, of tie-bars connecting said pedestals, a transom composed of flanged bars seated at their ends in said pockets, and vertical bolts passing through the tie-bar of each side frame, the bottom of its pocket and the lower flanges of said transom-bars, substantially as set forth.

Witness my hand this 17th day of December, 1896.

WILLARD F. RICHARDS.

Witnesses:
KATHRYN ELMORE,
JNO. J. BONNER.