

W. F. RICHARDS.
RAILWAY CAR TRUCK.
APPLICATION FILED OCT. 21, 1907.

919,770.

Patented Apr. 27, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

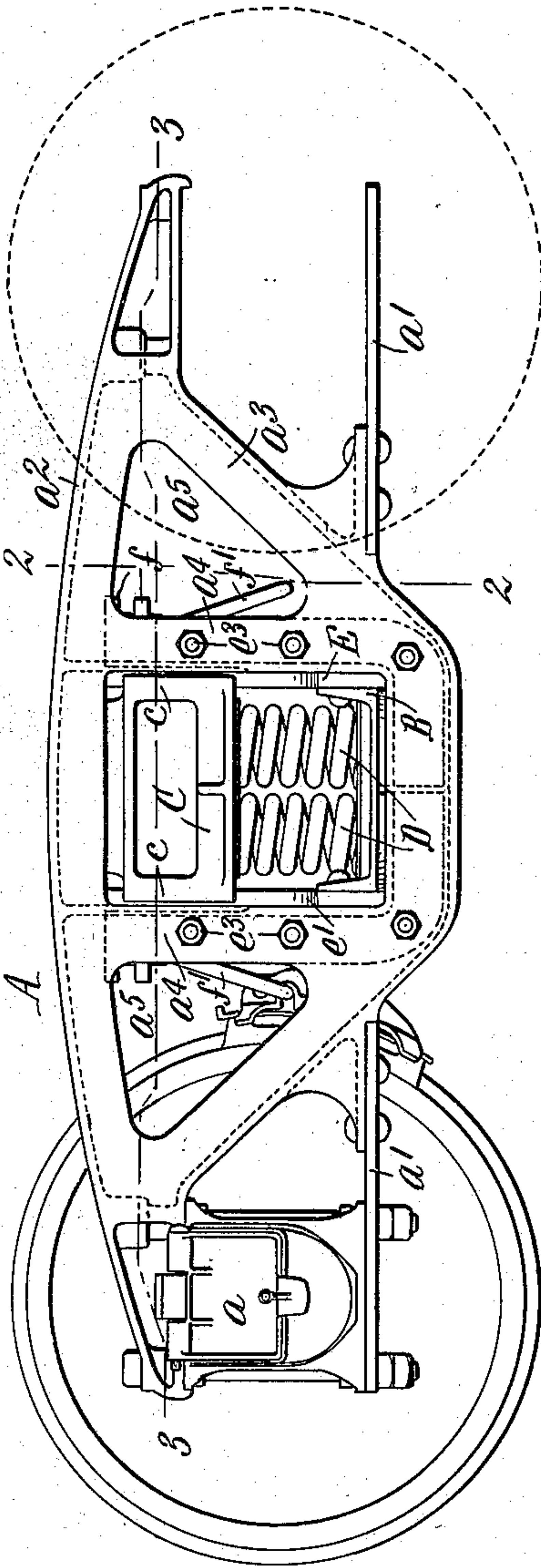
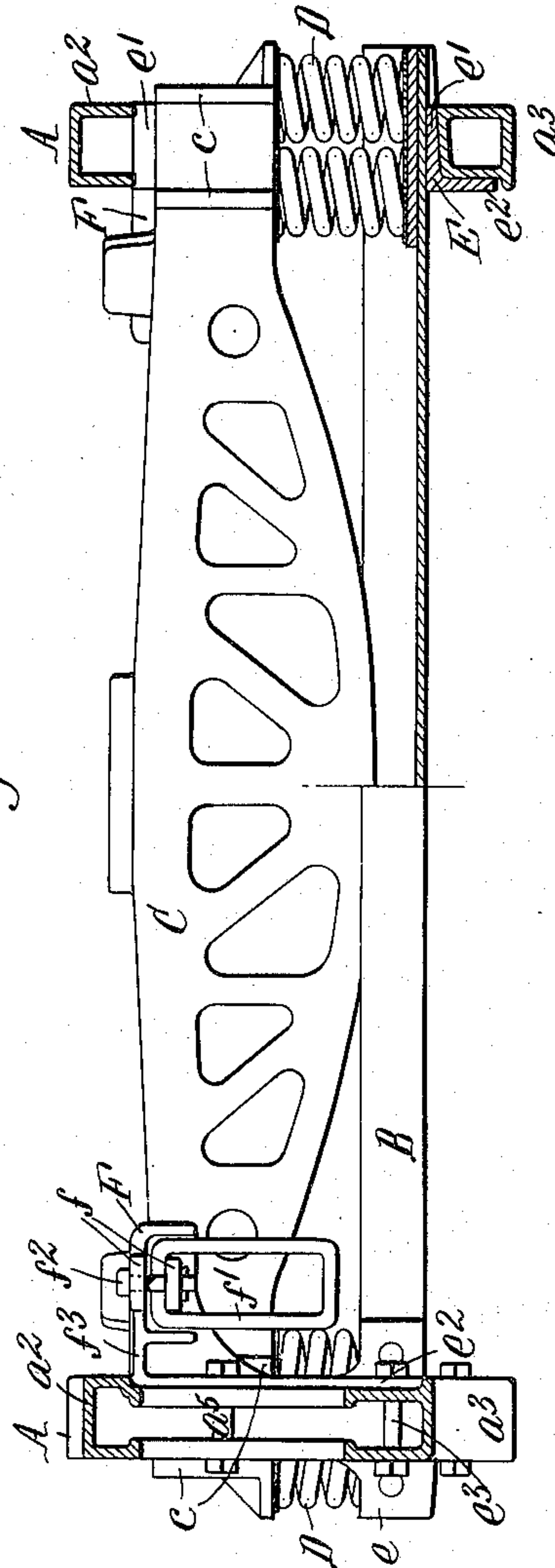


Fig. 2.



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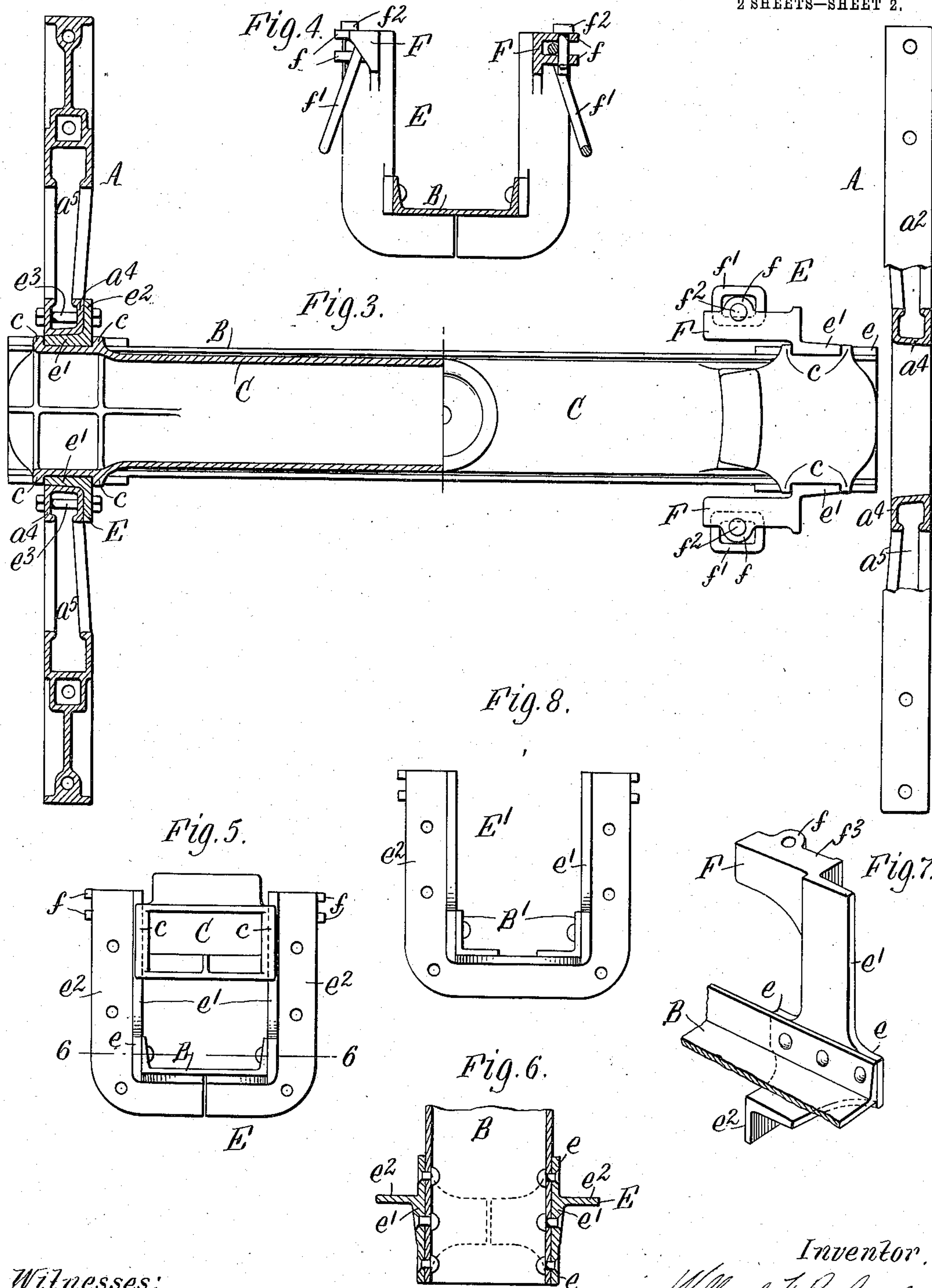
Attorneys.

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UNITED STATES PATENT OFFICE.

WILLARD F. RICHARDS, OF DEPEW, NEW YORK, ASSIGNOR TO GOULD COUPLER COMPANY,
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RAILWAY-CAR TRUCK.

No. 919,770.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed October 21, 1907. Serial No. 398,330.

To all whom it may concern:

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

This invention relates more particularly to the side frame construction of railway car trucks in which the side frames have bolster openings closed on all sides so that the bolster must be inserted endwise.

The objects of the invention are to provide a cast steel side frame in which the disposition of the metal is such as to give the maximum strength and rigidity for the weight of metal used; also to provide a side frame of strong and desirable construction having a bolster guide opening which is permanently closed on all sides, and bolster guides which enable the use with such a side frame of the ordinary bolster having integral or permanently attached guide lugs or parts; also to so construct and secure the bolster guide to the side frame that the fastening devices therefor will be largely relieved from the strains and shocks to which the guides are subjected in the use of the truck; also to so construct the parts that the opposite bolster guides can be permanently attached to the opposite ends of the spring plank or cross piece of the truck frame and the bolster and its springs placed in position thereon before the spring plank is secured to the side frames, and the side frames then slipped into place over the ends of the parts thus assembled, and secured; also to form the brake-beam hanger brackets integrally with bolster guides and construct them so as to make a safer and more secure brake beam suspension means; also to improve car truck frames in the respects hereinafter described and set forth in the claims.

In the accompanying drawings, consisting of two sheets: Figure 1 is a side elevation of a car truck embodying the invention, omitting the journal box and other parts at one end of the truck. Fig. 2 is a transverse sectional elevation thereof, the left half being taken in line 2—2, Fig. 1, and the other half through the center of the truck. Fig. 3 is a plan view of the truck frame, partly in section, in line 3—3, Fig. 1. Fig. 4 is an inside elevation of one of the bolster guides and cross section of the spring plank. Fig. 5 is an outside eleva-

tion of the same. Fig. 6 is a horizontal section thereof in line 6—6, Fig. 5. Fig. 7 is a sectional perspective view of one-half of one of the bolster guides and the spring plank. Fig. 8 is an elevation of a bolster guide of slightly modified form.

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

The truck is of the so-called "diamond" type in which the car journal boxes are fixed in the ends of side frames which are rigidly connected centrally by a spring plank or cross-piece and the bolster is spring-supported with its ends arranged to slide vertically in guides on the side frames.

A A represent the side frames, B the spring plank, transom, or cross-piece, connecting the side frames centrally, C the bolster, and D the bolster supporting springs.

Each side frame preferably consists of a cast steel body which rests at its opposite ends on the journal boxes *a*, and horizontal straps *a'* which are riveted or otherwise secured to the lower end portions of the body and extend beneath the journal boxes which they, together with ends of the body, are secured by the usual vertical bolts. The cast steel body of the side frame has an upper or compression chord *a²*, which is preferably arched on the arc of a circle, a lower or tension chord *a³* having inclined ends joining the ends of the upper chord, and vertical struts or pieces *a⁴* connecting the chords and with them forming a bolster guide opening which is closed on all sides by integral parts of the side frame body so that the bolster can only be inserted endwise or laterally therein. The several members of the body are substantially channel-shaped in cross section with the open sides of the channels facing inwardly or bounding the triangular openings *a⁵* formed by the members between the bolster guide opening and the ends of the frame, thereby facilitating the casting of the body and disposing of the bulk of the metal at the outer margin of the side frame where it is most effective for strength. The lower chord or member of the body is preferably of hollow rectangular cross-section, as shown at the right-hand side of Fig. 2.

The spring plank or cross-piece B, shown in Figs. 1—7, consists of a channel beam arranged with its flanges projecting upwardly, but a bar or bars of any other suitable form and arrangement could be used.

The bolster C (shown) is of hollow cast steel construction having integral vertical guide lugs or parts *c* on opposite sides of its ends, but it could be of any other suitable construction.

E E represent bolster guides which are secured in the bolster openings of the side frames and embrace the ends of the bolster between its guide lugs *c*, whereby the bolster ties the side frames together and is guided in its vertical movements. Each guide is of substantially U-shape or has vertical sides connected at the bottom and open at the top to receive the bolster. The guides are riveted or otherwise suitably attached at their lower portions to the opposite ends of the spring plank, their lower side portions being preferably extended, as shown at *e*, Figs. 6 and 7, to make a more secure connection, and when a channel or other single beam is used for the spring plank, each guide is preferably made in two halves which are separately secured to the spring plank (see Figs. 5-7) as thereby the guides can be tightly fitted and riveted to the spring plank notwithstanding slight inequalities or deviation of dimensions in the parts. Each guide could, if preferred, be cast in a single piece, as shown at E', Fig. 8, in which case, however, separate angle or other bars B' are employed for the spring plank and separately secured to the sides of each guide. Each bolster guide, whether made in one or two parts, has a laterally extending U-shaped flange *e'* which enters the bolster opening of the side frame and bears against the bottom and sides thereof, and a vertical flange *e''* which rests against the inner face of the side frame and is fastened to the side frame by suitable bolts *e'''*. The bolster opening is preferably tapered slightly and the lateral flange *e'* of the guide is correspondingly tapered so as to wedge into the opening and insure a snug fit when the fastening bolts are screwed up. As the flanges of the guide bear against the inner face of the side frame and enter its bolster opening, they receive and resist all thrusts and strains on the guide except such as act inwardly or in a direction opposite to that in which the guide is slipped into the bolster opening, and the fastening bolts *e'''* are relieved of all shearing strains and are required only to hold the guide in the bolster opening.

The construction described makes it possible to permanently fasten the two guides to the opposite ends of the spring plank B, put the bolster springs in place on the spring plank and drop the bolster vertically into place in the guides with the upright sides of the guides engaging between the guide lugs on the bolster, and after these parts are thus assembled, to slip the side frames laterally over the guides and bolt the guides thereto, which materially facilitates the assembling

of parts of the truck frame. It is to be noted that the bolster is of substantially the length of the spring plank, or long enough to project at opposite ends into the bolster openings of the side frames, but that it can be dropped vertically into the guides, which are open at their tops for this purpose.

F F, Figs. 2-4 and 7, represent brake hanger brackets. The two brackets for one side of the truck are cast integrally with each bolster guide and extend inwardly from the upper ends of the side pieces of the guide. Each bracket is preferably formed with two laterally projecting bolt lugs or parts *f* between which the upper end of the hanger loop *f'* engages, and a vertical bolt or pin *f''* passing through the lugs outside of the loop prevents the disengagement of the loop. By this arrangement of the lugs and bolt the latter is relieved from the strains resulting from the pulls and thrusts on the hanger loop which are taken directly by the lugs *f*. The upward thrusts of the loop are in a direction away from the bolt *f''* and the downward pulls thereon tend to hold the bolt in place rather than to dislodge it. Consequently there is little chance of the bolt being broken or displaced and the hanger loop detached from the bracket. The hanger brackets can be more expediently and economically cast with the bolster guides than directly upon the large bodies of the side frame, and the additional fastening devices, which are required when the hanger brackets are made separate from the side frames, are not necessary. The hanger brackets are also preferably formed with lateral flanges *f'''* which strengthen them and also aid in confining the hanger loops.

I claim as my invention:

1. In a railway car truck, the combination of a side frame having a bolster opening closed on all sides, a bolster having guide parts and being of a width adapting it to be inserted with said guide parts endwise into said bolster opening, and a separate bolster guide having connected upright side parts which are adapted to be inserted laterally into and are secured in said closed bolster opening at the opposite sides of said bolster and are slidably engaged by said guide parts on the bolster, substantially as set forth.

2. In a railway car truck, the combination of a side frame having a bolster opening closed on all sides, a bolster having guide parts and being of a width adapting it to be inserted with said guide parts endwise into said bolster opening, and a separate bolster guide having upright side parts which are adapted to be inserted laterally into and are secured in said closed bolster opening at opposite sides of the bolster and extend from top to bottom of said opening and are slidably engaged by said guide parts on the bolster, substantially as set forth.

3. In a railway car truck, the combination of a side frame having a bolster opening closed on all sides, a bolster having guide parts and being of a width adapting it to be inserted with said guide parts endwise into said bolster opening, and a separate bolster guide secured to said side frame and having a part which is adapted to be inserted laterally into and is secured in said bolster opening and is of U-shape to receive the end of the bolster and cooperate with the guides thereof to hold the end of the bolster in said bolster opening, substantially as set forth.

4. In a railway car truck, the combination of side frames having bolster openings closed on all sides, a bolster having guide parts and being of a width adapting it to be inserted with said guide parts endwise into said bolster openings, and connected bolster guides for the opposite ends of the bolster which are separate from said side frames and have upright side parts which are disconnected at their upper ends to receive the bolster between them and are adapted to be inserted laterally into and are secured in said bolster openings, substantially as set forth.

5. In a railway car truck, the combination of side frames having bolster openings closed on all sides, a bolster having guide parts and being of a width adapting it to be inserted with said guide parts endwise into said bolster openings, U-shaped bolster guides which are separate from said side frames and are adapted to be inserted laterally into and are secured in said bolster openings of the side frames and have upright side parts slidably engaged by said guide parts of the bolster, and a cross-piece connecting said bolster guides, substantially as set forth.

6. In a railway car truck, the combination of a side frame having a bolster opening closed on all sides, a bolster having guide parts and being of a width adapting it to be inserted with said guide parts endwise into said bolster opening, and a separate bolster guide secured to said side frame and having a part which is adapted to be inserted laterally into and is secured in said bolster opening and is of U-shape to receive the end of the bolster and cooperate with the guides thereof, said bolster guide having vertical flanges secured to said side frame, substantially as set forth.

7. In a railway car truck, the combination of a side frame, a bolster guide secured thereto and having a part projecting inwardly from said side frame and forming a brake hanger bracket, said bracket having laterally projecting upper and lower lugs, a brake hanger engaging between said lugs and supported by the lower lug and a vertical bolt or the like connecting said lugs to prevent the displacement of said brake hanger, substantially as set forth.

8. In a railway car truck, the combination of a brake hanger bracket having laterally projecting upper and lower lugs, a brake hanger loop arranged with one end between said lugs and supported by the lower lug, and a vertical bolt or the like connecting said lugs to prevent the displacement of said brake hanger, substantially as set forth.

Witness my hand, this 18th day of October, 1907.

WILLARD F. RICHARDS.

Witnesses:

C. W. PARKER,

C. B. HORNBECK.