

No. 706,233.

Patented Aug. 5, 1902.

J. M. HANSEN.
TRUCK FRAME FOR RAILWAY CARS.

(Application filed Jan. 9, 1902.)

(No Model.)

2 Sheets—Sheet 1.

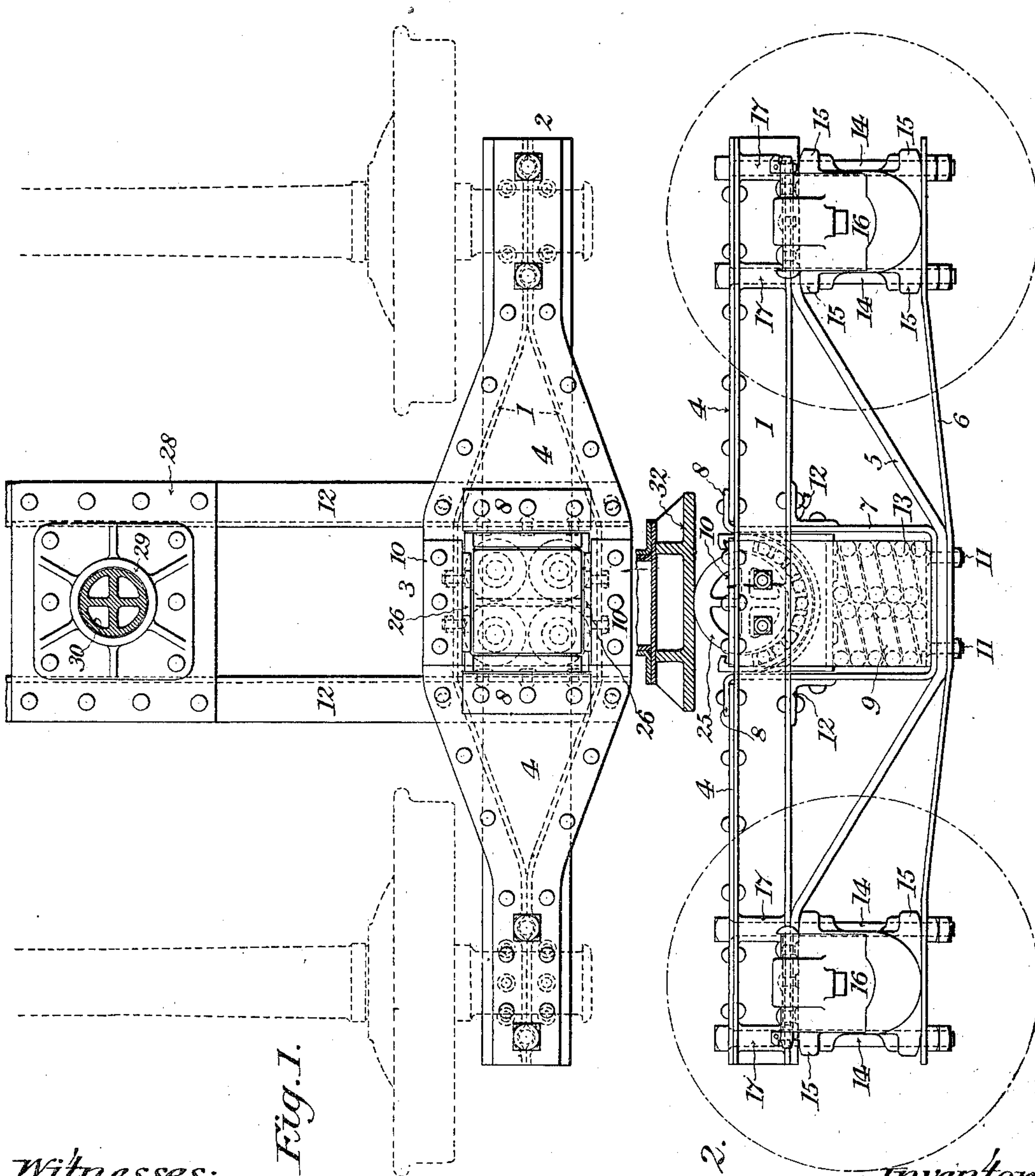


Fig. 1.

Fig. 2.

Witnesses:
A. M. Long,
Ada C. Briggs.

Inventor:
John M. Hansen
by W. H. Finckel
Atty.

No. 706,233.

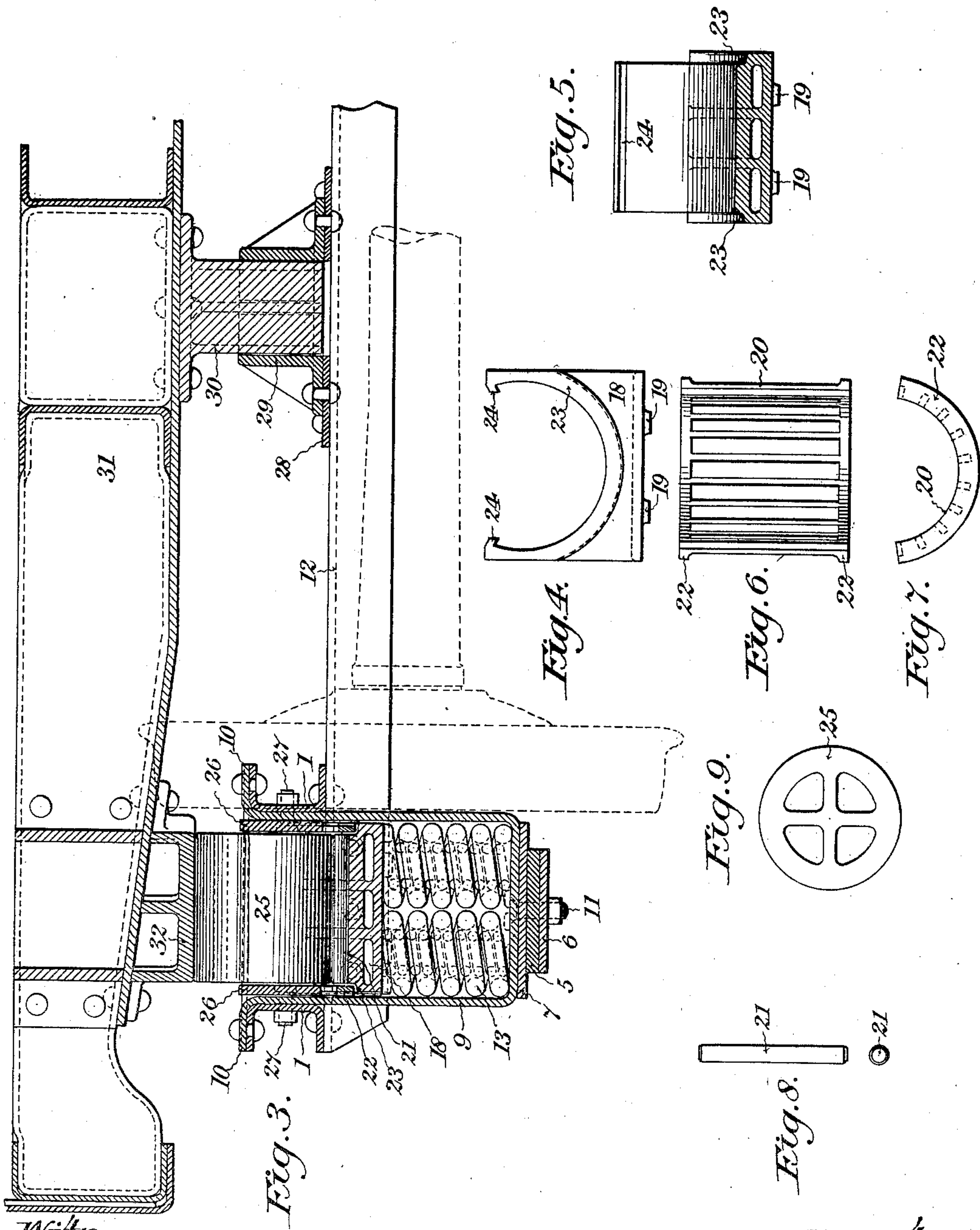
Patented Aug. 5, 1902.

J. M. HANSEN.
TRUCK FRAME FOR RAILWAY CARS.

(Application filed Jan. 9, 1902.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:

A. M. Long.

Ada C. Briggs.

Inventor:

John M. Hansen
by M. H. Finckel

Atty.

UNITED STATES PATENT OFFICE.

JOHN M. HANSEN, OF PITTSBURG, PENNSYLVANIA.

TRUCK-FRAME FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 706,233, dated August 5, 1902.

Application filed January 9, 1902. Serial No. 89,054. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. HANSEN, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Truck-Frames for Railway-Cars, (Case B,) of which the following is a full, clear, and exact description.

This invention relates to truck-frames for railway-cars, and has for its objects, first, to provide a structural side in which the springs may be arranged on the center line of the frame, and, second, to provide a truck-frame in which the necessity for a truck-bolster is obviated by the provision of a central pivot and side bearings, which latter rest upon roller-bearings carried by the sides.

In carrying out my invention I use as a fundamental element in the construction of each of the sides a pair of channel-beams arranged back to back and brought together at their ends over the journals and spaced apart between their ends in a substantially hexagonal figure and rigidly united by means of cover-plates riveted to the top flanges of the beams. This fundamental element of my side frame is the principal feature of this invention and may be embodied in a variety of forms of construction and is common to this case and to two of my concurrent cases. In the present instance the side is completed by the provision of rectangular lower arch-bars which are riveted to the ends of the upper arch-bar above the journals and are also riveted or otherwise secured to an ordinary tie-bar running from pedestal to pedestal.

The spring-supports comprise U-shaped stirrups arranged crosswise of one another and having flanged upper ends riveted, respectively, to the cover-plates of the upper arch-bar and to the side flanges of such upper arch-bar. Within these spring-supports is arranged a roller-bearing.

Instead of a bolster I employ tie-bars connecting the opposite side frames, and upon these tie-bars and centrally of the truck is arranged a socket-piece. The body-bolster is supplied with side bearings which cooperate with the roller-bearings and is also supplied with a pivot pin or lug which is received by the socket before mentioned, and thus is afforded a pivotal connection of the trucks with the

body, upon which the trucks turn in lieu of a king-pin and the ordinary center bearing-plates.

The invention comprises the before-mentioned features broadly and in detail, all as I will proceed now more particularly to set forth and finally claim.

In the accompanying drawings, illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a top plan view of half of a truck containing the several features of my invention, the pivot-pin and body-bolster being shown in section. Fig. 2 is a side elevation. Fig. 3 is a central transverse section on a larger scale. Fig. 4 is a side elevation of the base of the roller-bearing, and Fig. 5 is a transverse section thereof. Fig. 6 is a top plan view, and Fig. 7 is a side elevation, of a cradle or retainer for the supporting-rollers of the roller-bearing. Fig. 8 shows in plan and end view one of the supporting-rollers. Fig. 9 is a side elevation of the main roller.

As already stated, the fundamental element of the invention is the upper or top arch-bar of the side frame, and since both sides are alike a description of one will suffice. In the instance here shown the upper arch-bar is composed, essentially, of two channel-beams 1, rolled, pressed, or otherwise produced, arranged back to back, and brought together at their ends 2 over the journals or pedestals and spaced apart centrally between their ends in a substantially hexagonal figure, as at 3. Top cover-plates 4 are applied to these beams and extend from their ends toward their centers and are riveted or otherwise rigidly secured to the upper flanges of the beams. The lower arch-bar 5 may be of metal, rectangular in cross-section, bent to shape, and having its ends riveted to the lower flanges of the beams of the upper arch-bar, and a tie-bar 6 may be applied to the lower arch-bar and to the pedestals in any usual or approved manner. At the center of the frame, where there is the greatest width and depth, are arranged two substantially U-shaped stirrups at right angles to one another, the outer stirrup 7 having the horizontal edge flanges 8 riveted to the cover-plates 4, and the inner stirrup 9 having the horizontal flanges 10 riveted to the upper flanges of the upper arch-bar beams,

and in the preferred construction these two stirrups may be rigidly united at their lower ends with the lower arch-bar and the tie-bar by means of bolts, rivets, or other suitable fastening devices 11. The sides of the truck-frame thus constituted preferably are connected by angle-bars 12 on opposite sides of the outer stirrup 7 and riveted by one leg to the outer stirrup and by the other leg to the lower flanges of the upper arch-bar, thus making a substantially rigid connection between the opposite sides of the truck-frame. The two stirrups arranged thus crosswise of one another form a pocket for the reception of springs 13 of any usual or approved character. The "pedestals," so called, may be simply bolts 14, passed through ears 15 on the journal-boxes 16 and through sockets 17, made in the adjacent portions of the ends of the upper arch-bar beams; also within the pocket formed by these crossed stirrups is a roller-bearing base 18, provided with spring centering projections 19, if desired, and adapted to receive a cradle or retainer 20, made as a grid-like structure, substantially as shown in Figs. 6 and 7, and adapted to receive between its bars supporting-rollers 21, the bars of the cradle serving to separate the said rollers and insure their independent action. This roller-retainer has flanged rims 22 on opposite sides, which fit in the recesses 23 of the bearing-base 18. The base is provided with inturned lips 24, which serve to prevent the retainer from getting out of the base. Within this bearing and upon the supporting-rollers in the retainer is arranged a main bearing-roller 25, and the lips 24 also serve to prevent this main bearing-roller from traveling too far and from getting out of the base. Plates 26 are arranged within the stirrups and serve as wearing or chafing plates for the main roller. These plates 26 may be secured to the channel-beams 1 by means of bolts 27, so as to provide for their renewal when necessary. The rollers are arranged to revolve in the direction of the length of the sides.

Instead of a truck-bolster I connect the angle-bars 12 centrally by means of a plate or plates 28, and upon this plate is arranged a casting 29, having a bottomless socket, which is adapted to receive a cylindrical lug 30, secured to the body-bolster 31, and this cylindrical lug cooperating with the socket 29 serves as a pivot relatively to the car-body upon which the truck turns, and thus I have dispensed with the necessity for center bearing-plates and a king-bolt. The bolster 31 is also provided with side bearings 32, as shown more particularly in Figs. 2 and 3, and each bearing 32 (only one being shown) has a flat horizontal surface which cooperates with the main roller 25 of each side frame, and it is to be noted that the load is not supported upon the center pin 30, but it is supported upon the side bearings and roller-bearings, or, in other words, the load is transferred from the center of the truck to its side frames. It will be

observed, therefore, that the entire load of the car is carried on the side frames of the truck by means of the side bearings on the body-bolster cooperating with the antifriction-roller bearings in said side frames and that the bases of these roller-bearings rest directly upon the springs and form, as it were, spring-caps therefor. It will also be observed that by means of the flanged sides 32 of the retainer cooperating with the recesses 23 of the bearing 18 the retainer is restrained from sidewise movement, and it is also prevented from coming into contact with and wearing the stirrups. This construction also provides means whereby any dirt may work out of the bearings which might find its way into them. It will be noted also that the parts most liable to wear or damage are readily accessible and removable for repair or renewal.

While in this instance and in the other instances referred to the beams or portions which enter into the formation of the upper arch-bar are shown as provided with integral flanges, I wish to be understood as including in my invention the construction of an arch-bar with or without flanges and with applied flanges as well as integral flanges, and I also wish to be understood as including, broadly, in this case a side frame, whether the upper arch-bar is made separate from the lower arch-bar or solidly with it.

What I claim is—

1. A side frame, composed of a composite arch-bar, the members of which are brought together at opposite ends, and spaced apart between their ends, and adapted to receive the springs in substantially the center line of the truck.

2. A truck-frame, the upper arch-bar of each side of which is composed of flanged members, the ends of which are brought together, and the centers spaced apart in a substantially hexagonal figure, and adapted to receive the springs.

3. In a truck-frame, an upper arch-bar, composed of flanged beams arranged back to back, with their ends brought together over the journals, and spaced apart centrally, and provided with a spring-pocket in said centrally-spaced portion.

4. In a truck-frame, an upper arch-bar composed of flanged steel beams brought together at their ends over the journals, and spaced apart between their ends, top cover-plates rigidly uniting the said beams, and a longitudinally-arranged U-shaped stirrup rigidly fixed to the cover-plates, and depending therefrom, and another U-shaped stirrup arranged transversely of the first-named stirrup, and secured rigidly to the flanges of the beams, and depending therefrom within the first-named stirrup, the said stirrups constituting a spring-pocket.

5. A side frame, having an upper arch-bar composed of channel-beams arranged back to back at their ends, spaced apart between their ends, and connected rigidly by cover-plates

applied to their ends, extending centrally toward each other and riveted to the flanges of the beams.

5 6. A truck-frame, having sides of substantially the character described, provided with centrally-arranged spring-pockets, springs arranged in said pockets, roller-bearings arranged in said pockets above the said springs and each bearing including a main roller, and
10 adapted to support the load of the car by contact with the side bearings of the body-bolster.

7. A truck-frame, having roller-bearings in its side frames, and said frames connected by tie-bars provided with a socket, combined
15 with a body-bolster supplied with side bearings resting directly upon said roller-bear-

ings, and a pivot-pin coöperating with the socket aforesaid.

8. In a truck-frame, a side having an arch-bar provided with a spring-pocket, a spring 20 arranged therein, a roller-bearing base also constituting a spring-cap, supporting-rollers and a retainer therefor arranged in said roller-bearing base, and a main roller-bearing arranged upon the supporting-rollers. 25

In testimony whereof I have hereunto set my hand this 7th day of January, A. D. 1902.

JOHN M. HANSEN.

Witnesses:

CHAS. F. CHUBB,
WM. BIERMAN.