

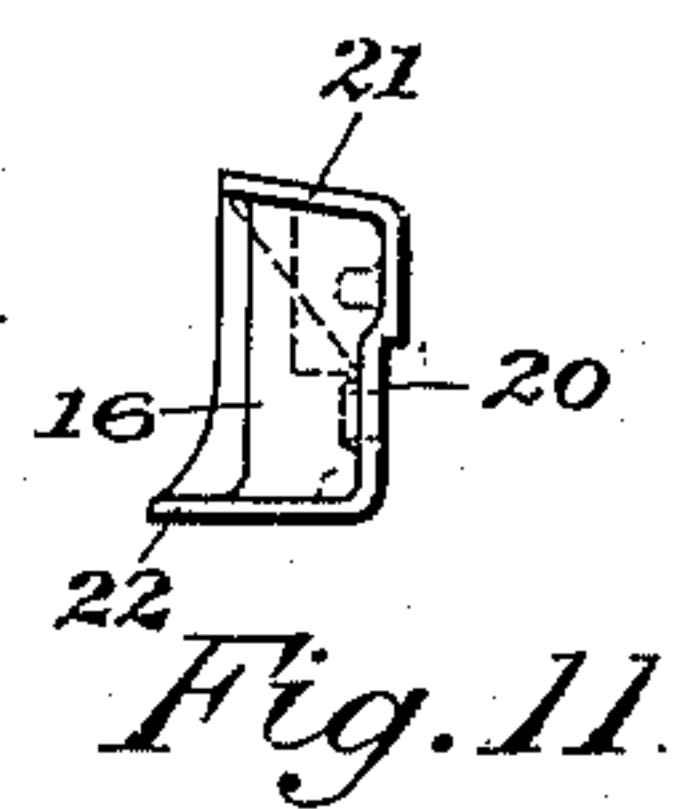
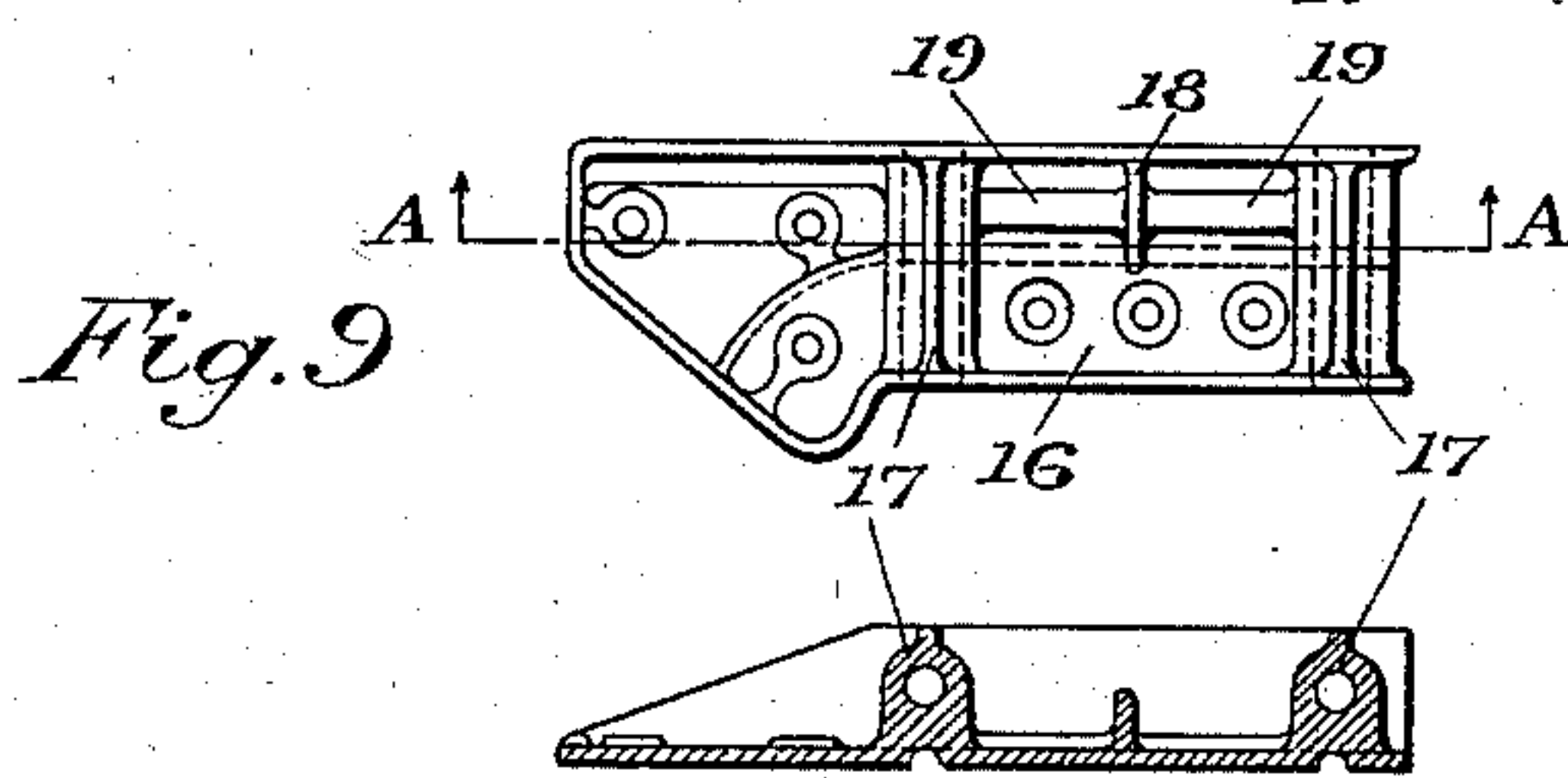
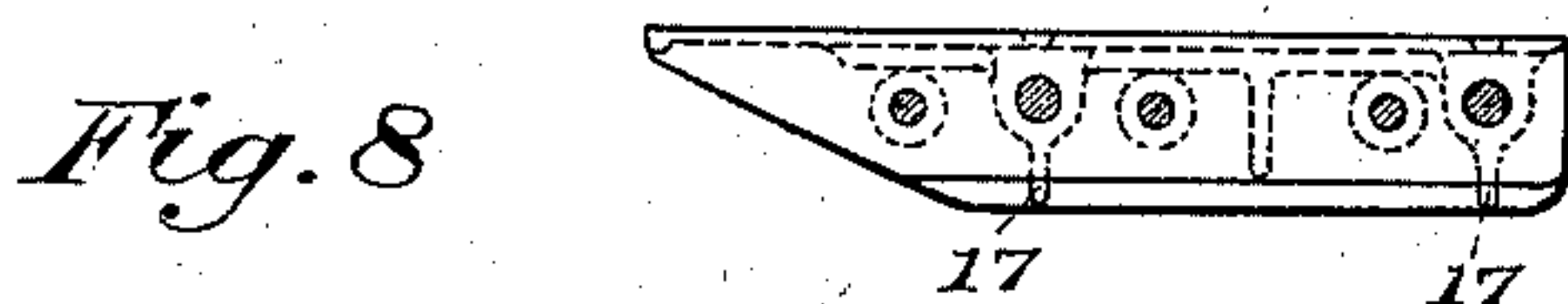
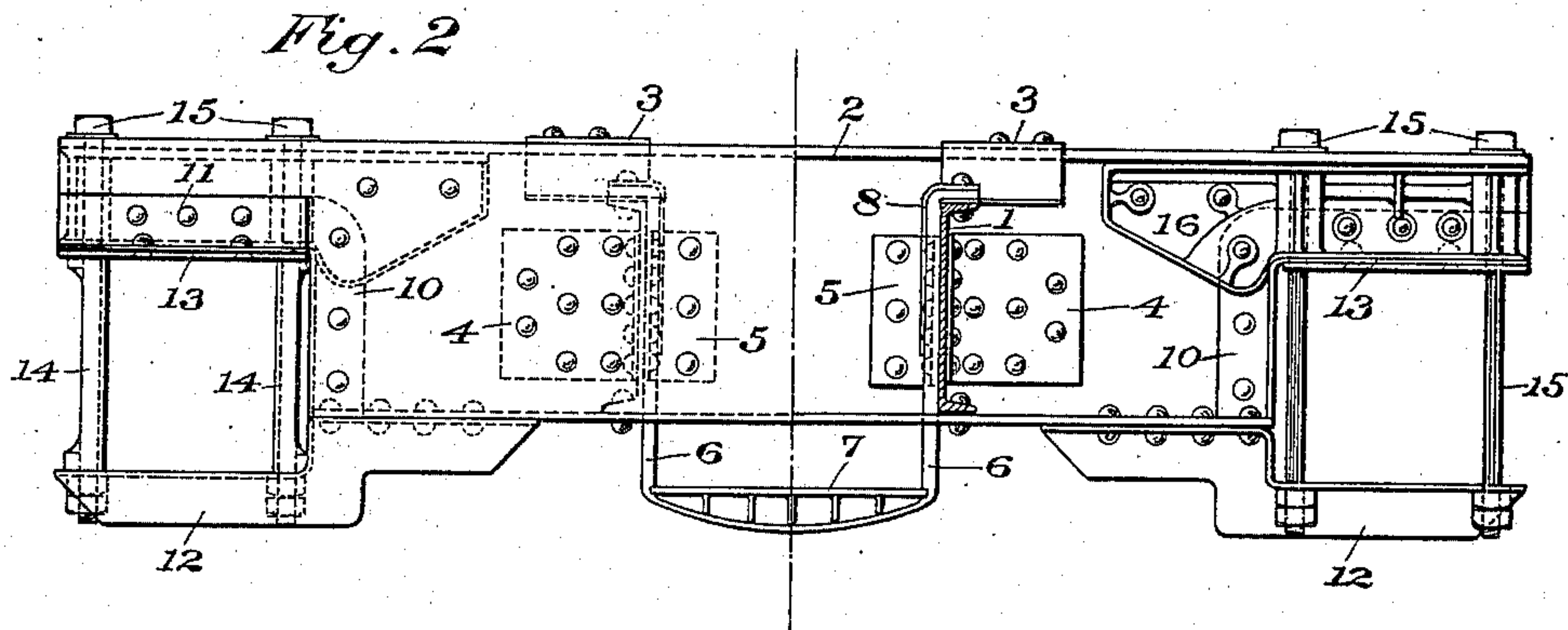
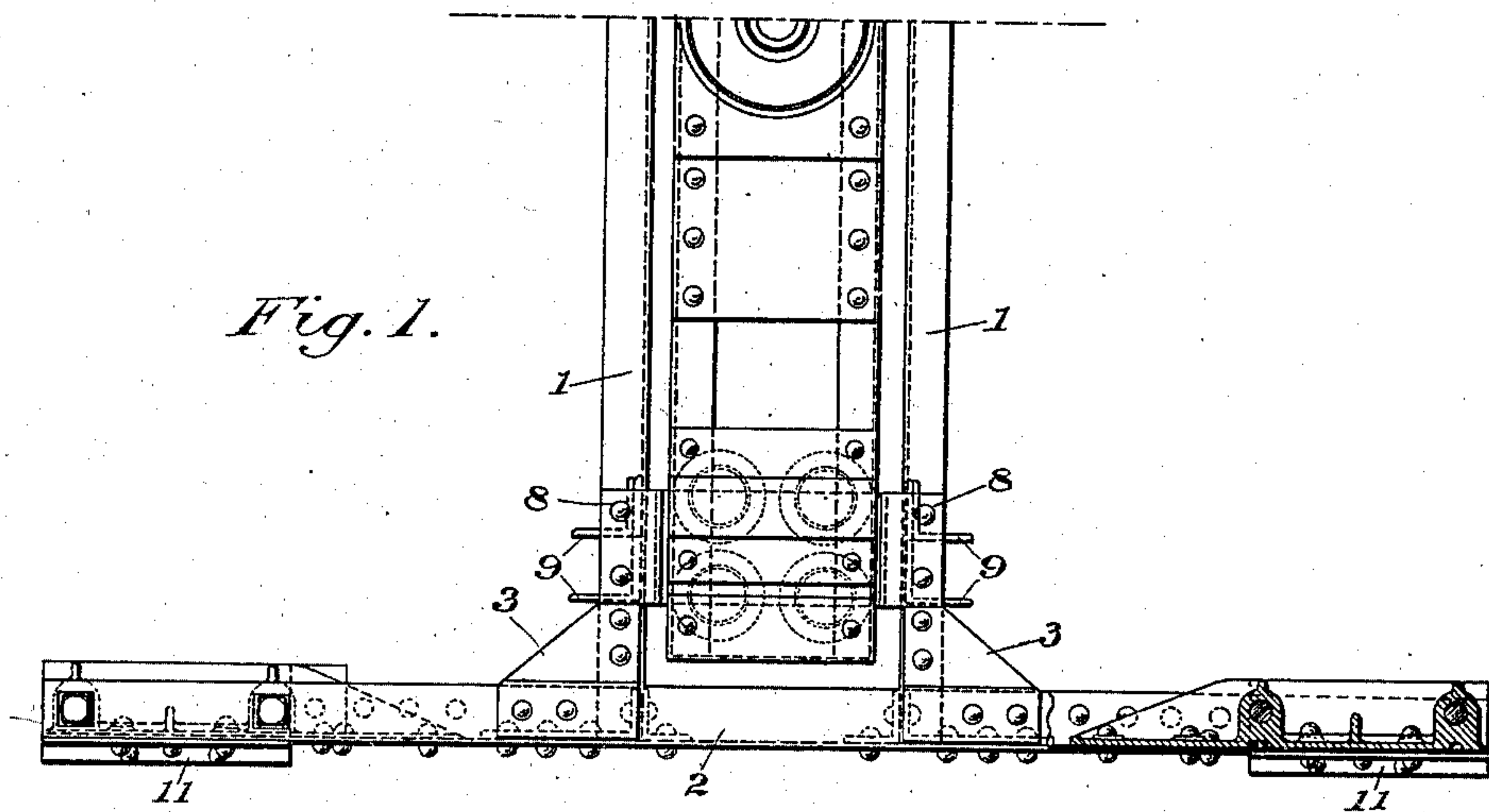
No. 748,007.

PATENTED DEC. 29, 1903.

R. E. POWERS.  
CAR TRUCK AND BOLSTER.  
APPLICATION FILED JUNE 27, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

*Stone & Edelen*  
*H. S. Coder*

INVENTOR:

*Robert E. Powers*

by *Collamer & Co.*  
ATTORNEYS.

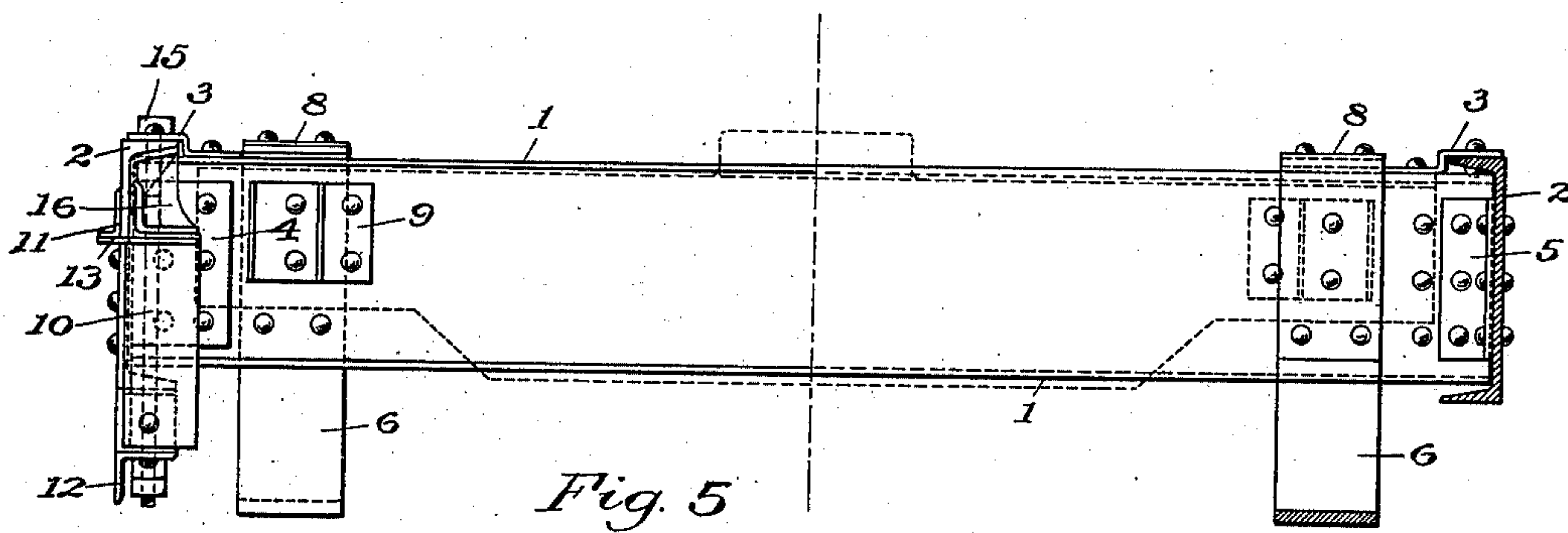
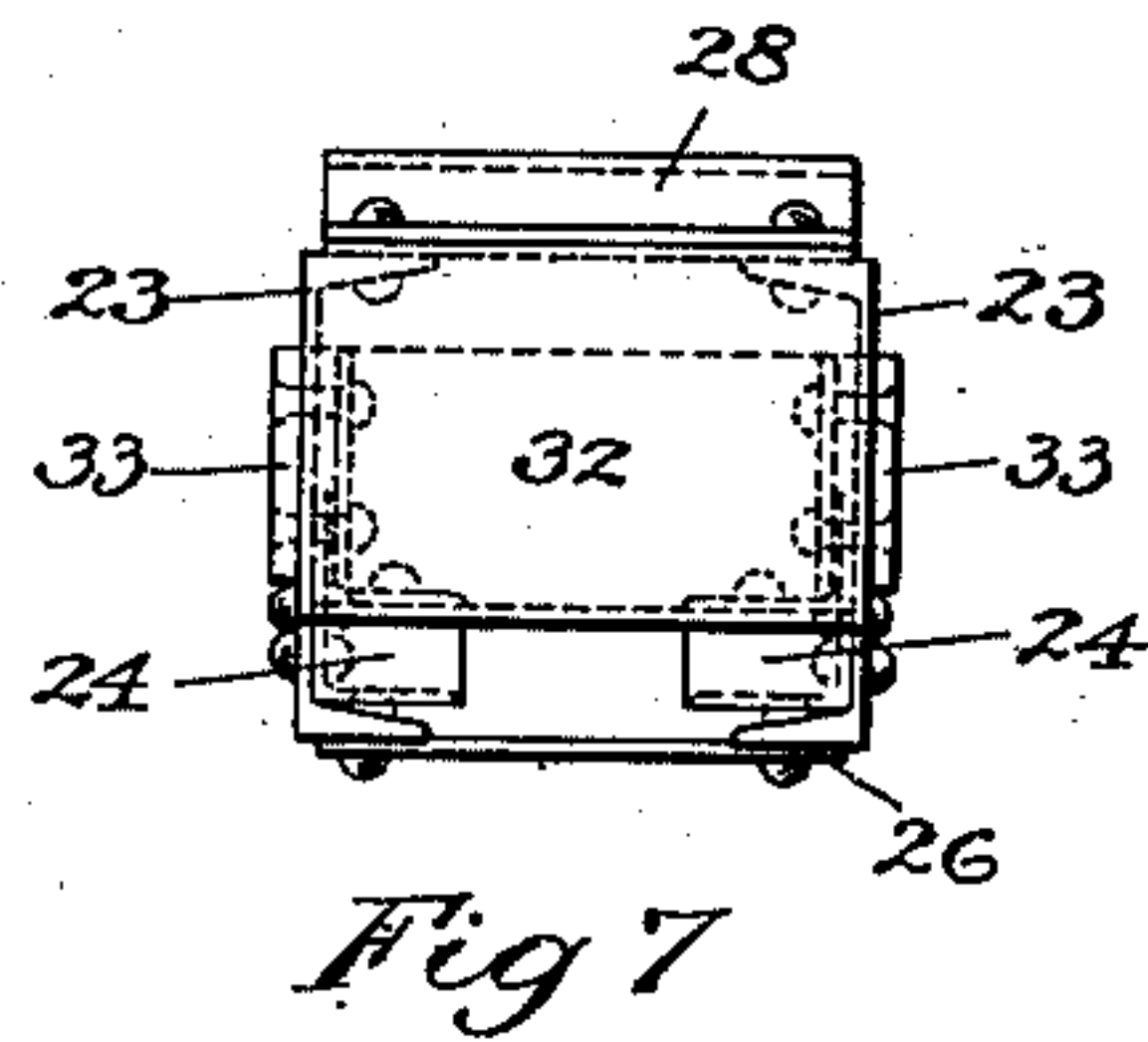
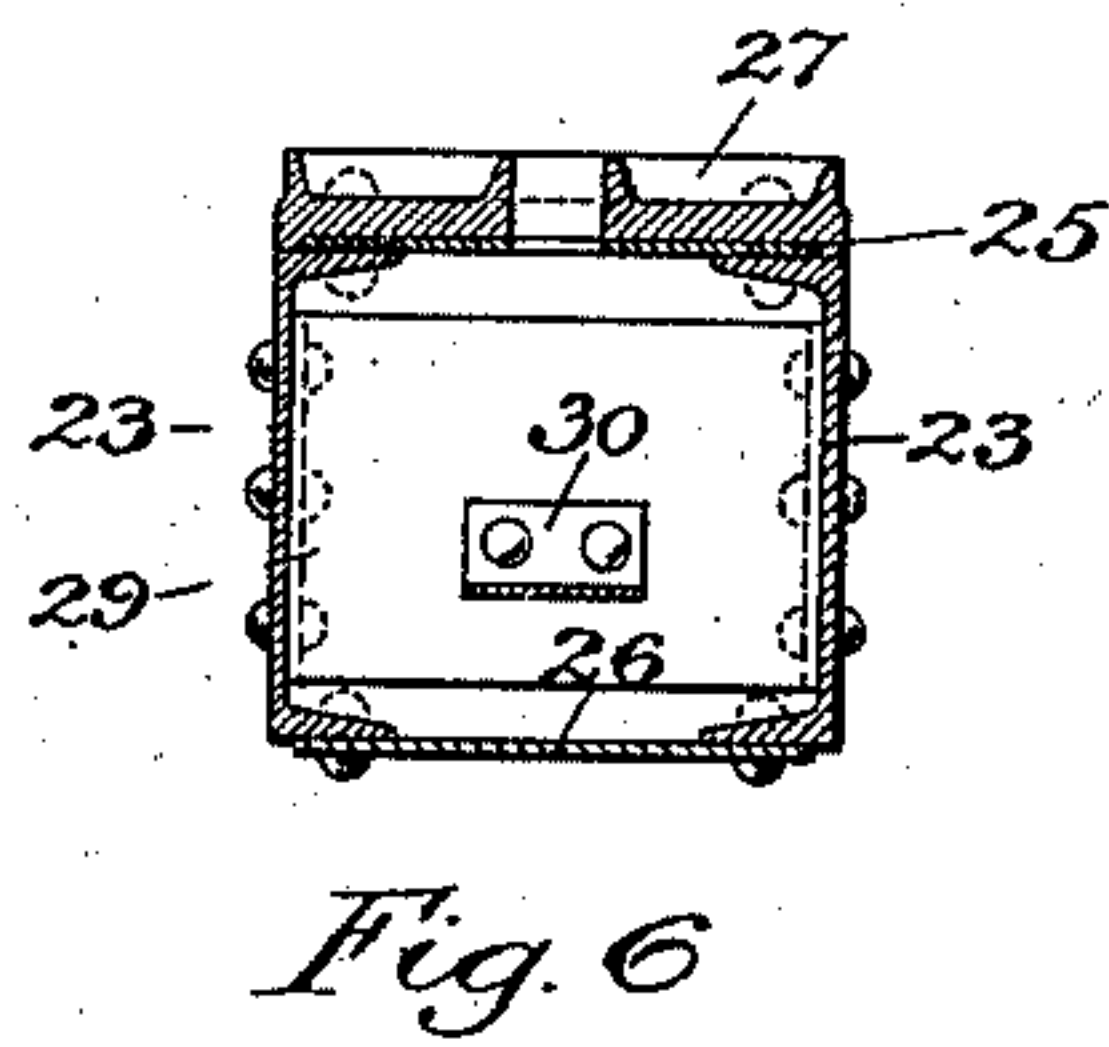
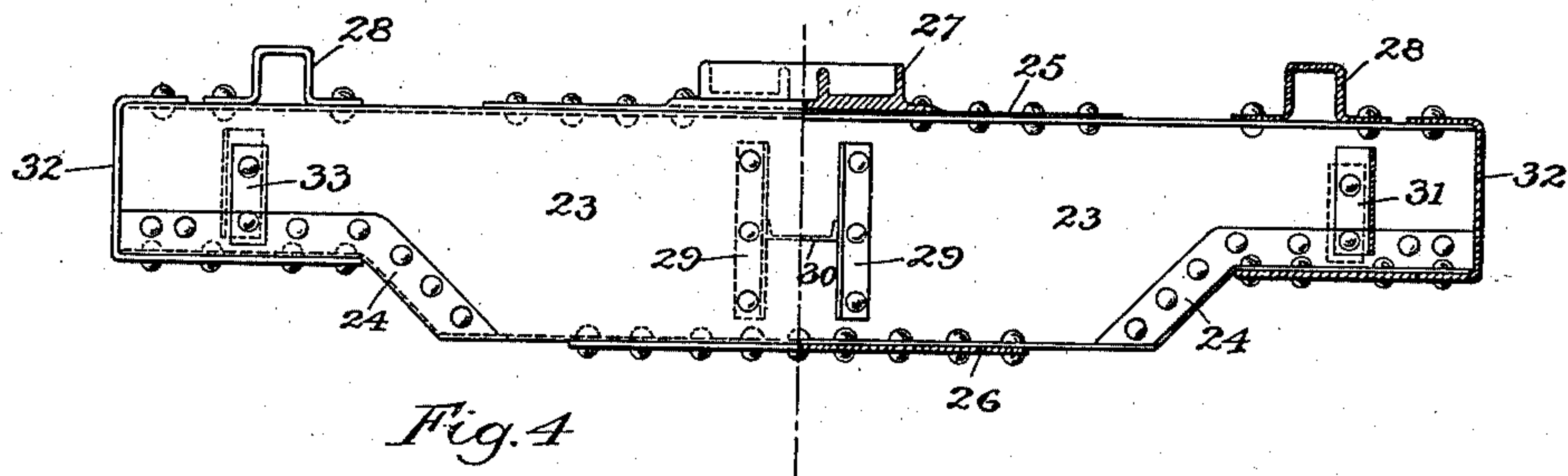
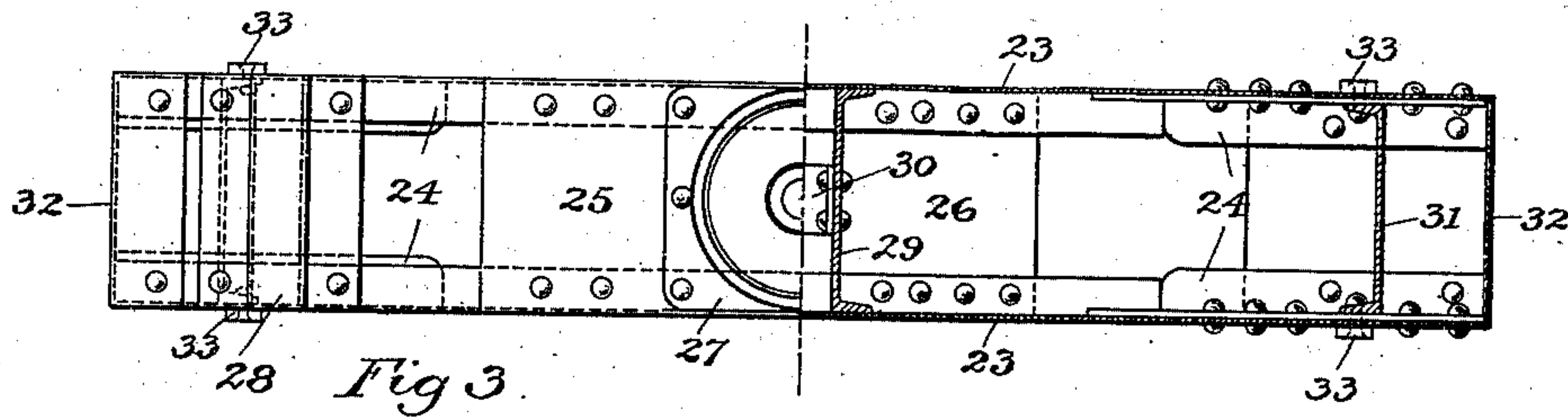
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*by Collamer & Co.*  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

ROBERT E. POWERS, OF JOHNSTOWN, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO ANDREW M. MYERS, OF ROANOKE, VIRGINIA.

## CAR TRUCK AND BOLSTER.

SPECIFICATION forming part of Letters Patent No. 748,007, dated December 29, 1903.

Application filed June 27, 1903. Serial No. 163,389. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT E. POWERS, a citizen of the United States, residing at Johnstown, in the county of Cambria and State of Pennsylvania, have invented certain new and useful Improvements in Car Trucks and Bolsters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of the present invention is to provide a truck of maximum strength and durability, having its sides built up of rolled beams and shapes riveted together and disposed to the best advantage, cheap in first cost, which can easily be repaired, and which shall permit the removal of wheels and their axle without the necessity of jacking up the car-body supported by the truck.

A further object is to provide a truck which is not too rigid to accommodate itself to irregular track and will stand well if derailed when loaded and is not readily distorted.

My invention consists in a truck having the transoms and sides formed of flanged metallic beams suitably united at their junctions and provided at the free ends of the side frames with cast-metal reinforcing-pieces.

My invention also consists in a bolsters specially adapted to be used in connection with my improved truck and likewise formed of flanged metallic beams.

Referring to the accompanying two sheets of drawings, in which like numerals of reference refer to like parts, Figure 1 is a plan, partly in section, of one half of the car-truck frame and bolster. Fig. 2 is a side elevation of the car-truck frame, the right half of which is an interior view and the left half an exterior view thereof. Figs. 3 and 4 are respectively a plan and an elevation of my improved bolster, showing one half thereof in section. Fig. 5 is an end elevation of the truck-frame, partly in section, with the bolster indicated in position. Fig. 6 is a central transverse vertical section through the bolster. Fig. 7 is an end view of the bolster. Figs. 8, 9, 10, and 11 illustrate in detail the cast-metal end filling and reinforcing-piece for the truck-pedestals, being, respectively, a top view, a

side elevation, a section on line A A of Fig. 9, and an end view of said reinforcing-piece.

In the drawings, 1 represents the transoms, shown formed of two parallel channels with outwardly-extending flanges.

2 is the side piece, shown as a channel having its flanges turned inwardly.

3 represents bent gusset-plates, and 4 and 5 angle or bent-plate connections which secure the side piece 2 to the transoms 1, as shown clearly in Fig. 2.

6 is a heavy U-shaped strap or yoke which supports the cast-metal seat 7 for the bolster-springs. (Indicated in Fig. 1.)

8 is a plate secured between the vertical sides of the strap 6 and the bolster sides to take up the wear which otherwise would affect said strap, and thereby weaken it.

9 represents brake-hanger carriers composed of two angles secured to the transoms 1, as shown in Figs. 1 and 5. The side piece or channel 2 is provided at its extremities with pedestals formed by cutting away a portion of the lower flange and the adjoining web and reinforcing the remaining portion by means of a bent angle 10, a short angle 11, and a piece 13 cooperating to form the upper jaw of the pedestal and a bearing for the axle-box. To complete the pedestals, I provide a piece 12, which forms the lower jaw thereof and may be constructed of a bent angle riveted to the lower flange of the side channel 2, as shown.

14 represents the pedestal-guides, and 15 the pedestal-bolts. It will be seen that by removing the outer pedestal guides and bolts it is possible to insert or remove the axles and journal-boxes without lifting the truck or jacking up the car.

In order to reinforce the ends of the side frames and to provide a very strong seat for the axle-box, I secure to said ends, between the upper flange of the member 2 and the horizontal leg of the bent angle 10, the casting 16. (Illustrated in Figs. 8, 9, 10, and 11.) The casting 16 is strongly braced by means of vertical ribs 17 and 18 and horizontal ribs 19, arranged therebetween, the ribs 17 being expanded and perforated to give passage to the pedestal-bolts 15, as shown. The casting 16 is also provided with a shoulder or de-



pression 20 and flanges 21 and 22, so disposed that the said casting will fit snugly against the web and the upper flange of the side frame and the horizontal leg of the bent angle 10, as clearly shown in Fig. 2. Furthermore, the casting 16 is arranged with a portion curved downwardly over the bend of the angle 10, thus increasing the stiffness of the end portions very materially.

10 The reinforcing-casting thus described, and illustrated in the drawings is very simple, easily made, yet exceedingly strong, and much less expensive than any other method of reinforcing the ends of the truck sides or frames.

15 The truck-bolster is supported, as usual, by springs, which rest on the seat 7, while it is guided in its vertical movement and held against lateral displacement by the vertical sides of the yoke 6.

20 My improved bolster consists of two rolled channels 23 parallel to each other and spaced the proper distance apart. The said channels are preferably arranged so that their flanges project inwardly, and a trapezoidal portion is cut away at the ends to diminish the depth of the bolster. In this manner deep beams can be utilized to give the necessary rigidity to the central portion of the bolster without raising the body thereof and without requiring any bending or shaping, as is the case with deep bolsters, but a simple operation which can be done with the ordinary alligator shears. The edges of the 25 trimmed portion are reinforced by angles 24 bent to conform to the contour thereof and secured to the web portion of the channels 23 by through-rivets.

25 and 26 are cover-plates secured, respectively, to the top and bottom of the bolster for adding strength thereto and securing the channels 23 together.

27 is a center bearing, and 28 represents side bearings, all of which may be of any approved pattern.

29 represents vertical diaphragms consisting of rolled channels secured to the sides of the bolster by their flanges and cooperating to form a center brace.

30 is a horizontal diaphragm also consisting of a rolled channel and intended to serve as king-pin bearing.

31 represents end braces or diaphragms secured between the sides of the bolster.

32 represents bent plates fitted over the ends of the bolster which serve to give a finish to these portions, as well as to attach the two members of said bolster together at their extremities, and 33 represents guides which bear against the sides of the strap or yoke 6, thereby preventing longitudinal displacement of the bolster.

Although I have shown and described the side frames, transoms, and bolster as composed of channels, it will be clearly understood that I-beams or any other form of rolled beam may be substituted.

The arrangement of the parts, while producing a simple, strong, and durable truck and bolster, is such that the assemblage of them can be done by any ordinary mechanic.

While I have shown my improvement in considerable detail, I do not desire to be understood as limiting myself to the details of construction and arrangement herein described and illustrated, but wish to reserve the right to all such variations and modifications as properly fall within the scope of my invention.

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

1. A car-truck comprising side frames each consisting of a single flanged beam having a portion of its web and lower flange cut away at the ends to form pedestals, bent angle-bars secured to said ends to form the upper and lower jaws of said pedestals, cast-metal reinforcing-pieces fastened onto the ends of the side frames, transoms consisting of two rolled flanged beams parallel to each other, connections for securing said transoms to said side frames, and a bolster composed of two flanged beams having portions of their webs and lower flanges cut away at the ends and separated by center and end braces mounted between said transoms.

2. A car-truck comprising side frames each consisting of a single flanged beam having a portion of its web and lower flange cut away at the ends to form pedestals, a bent angle-bar conforming to the edge of the cut secured to the web of said flanged beam in order to stiffen said web and form the upper jaw of the pedestal, a bent angle-bar secured to the lower flange of the side frame forming the lower jaw of the pedestal, transoms uniting said side frames, combined bolster-guides and spring-seat supports secured to said transoms and carrying a bolster composed of two parallel flanged beams having portions of their webs and lower flanges cut away at the ends, angle-bars conforming to the edge of the cut secured to the web of said beams, and center and end braces secured between said parallel flanged beams.

3. A car-truck comprising truck side frames each consisting of a single flanged beam having a portion of its web and lower flange cut away at the ends to form pedestals, a bent angle-bar conforming to the edge of the cut secured to said flanged beam in order to stiffen said web and form the upper jaw of the pedestal, and a bent angle-bar secured to the bottom flange of the side frame forming the lower jaw of the pedestal, a ribbed and flanged cast-metal piece fastened onto the ends of the side frames, pedestal-guides, pedestal-bolts passing through said cast-metal piece, the top flange of the side frame, and the upper and lower jaws of the pedestals, transoms consisting of two rolled channels parallel to each other having their flanges extending outwardly, angle connections and gusset-plates securing said side frames to



said transoms, combined bolster-guides and spring-seat supports secured to the said transoms, each composed of a heavy strap or yoke and wearing-plates attached thereto, a  
5 cast-metal spring-seat supported by the lower portion of said yoke, a bolster composed of two parallel flanged beams having portions of their webs and lower flanges cut away at the ends, angle-bars conforming to the edge  
10 of the cut secured to the web of said beams, and center and end braces formed of flanged beams, mounted on springs supported by the cast-metal spring-seat aforesaid.

4. A car-truck comprising side frames each  
15 consisting of a single-rolled flanged beam having a square portion of its web cut away at each end together with the adjoining portion of the lower flange, a bent angle-bar secured inside of said web to form a flange on  
20 one side and the top of said square portion, an angle-bar secured outside of said web parallel to the horizontal portion of said bent angle, a flat plate secured to the adjacent horizontal flanges of said angle-bar, a flanged

reinforcing-casting provided with vertical 25 and horizontal ribs fastened to the web aforesaid and fitted within the space included between the upper flange of the side frame and the horizontal flange of the bent angle-bar, pedestal bolts and guides, transoms uniting 30 the side frames, and a bolster mounted between said transoms composed of two parallel-rolled channels with their flanges extending inwardly and having a trapezoidal portion of their webs cut away at each end together with 35 the adjoining portion of the lower flange, angle-bars conforming to the edges of the cut secured to the webs of said channels, center and end braces formed of flanged beams and center and side bearings mounted on the up- 40 per flanges of the channels aforesaid.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ROBERT E. POWERS.

Witnesses:

STONE EDELEN,  
A. OKESON.