

No. 661,009.

Patented Oct. 30, 1900.

C. M. CARNAHAN.
CAR TRUCK.

(Application filed Feb. 10, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

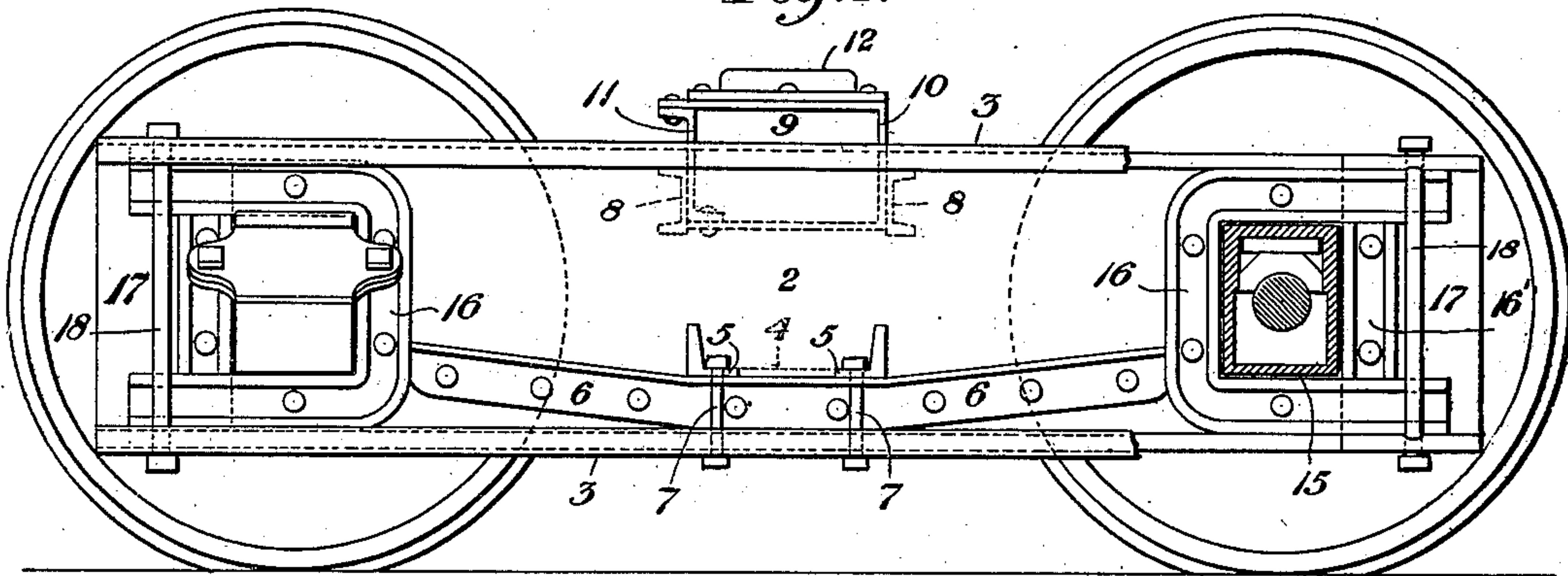


Fig. 2.

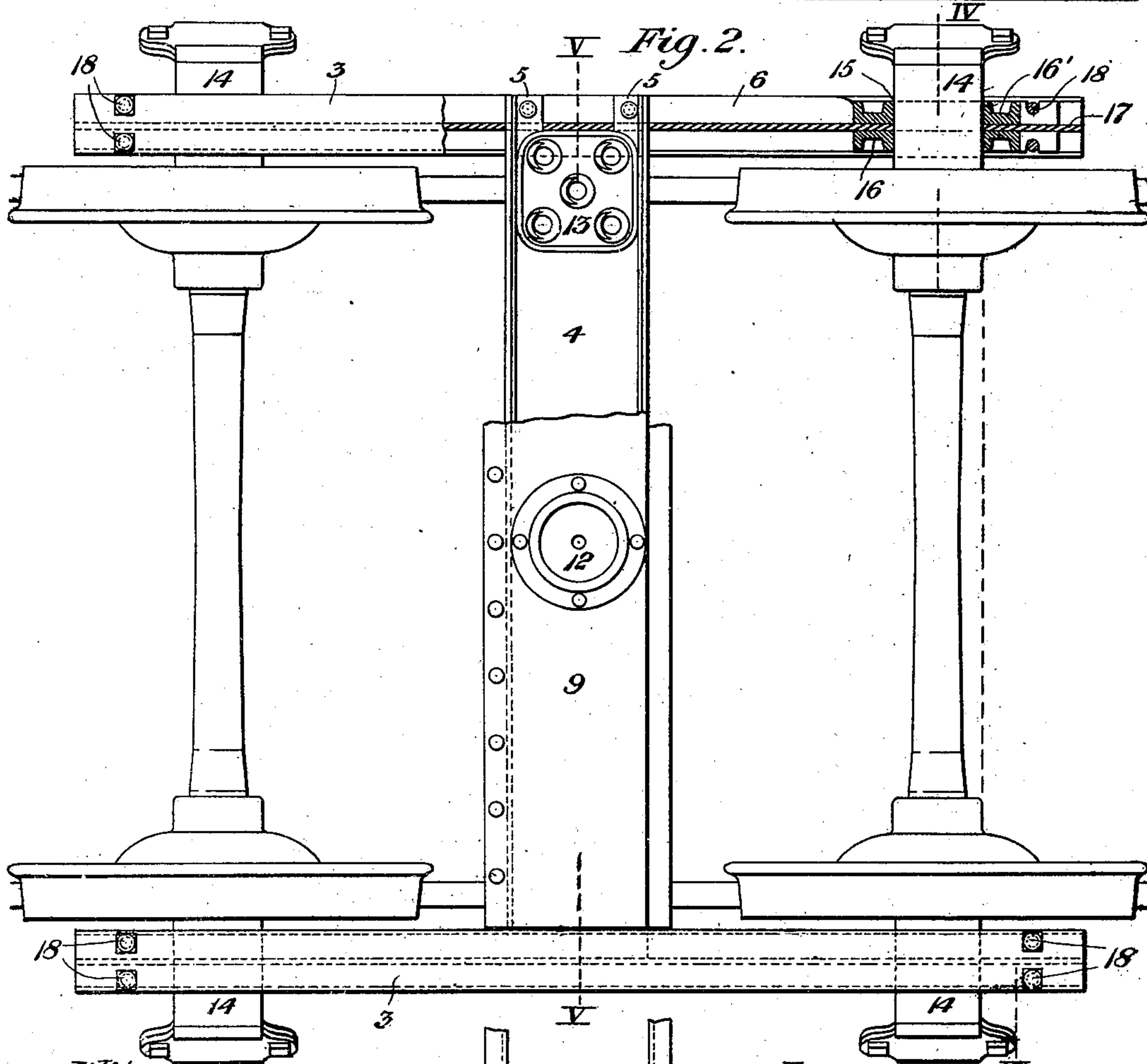
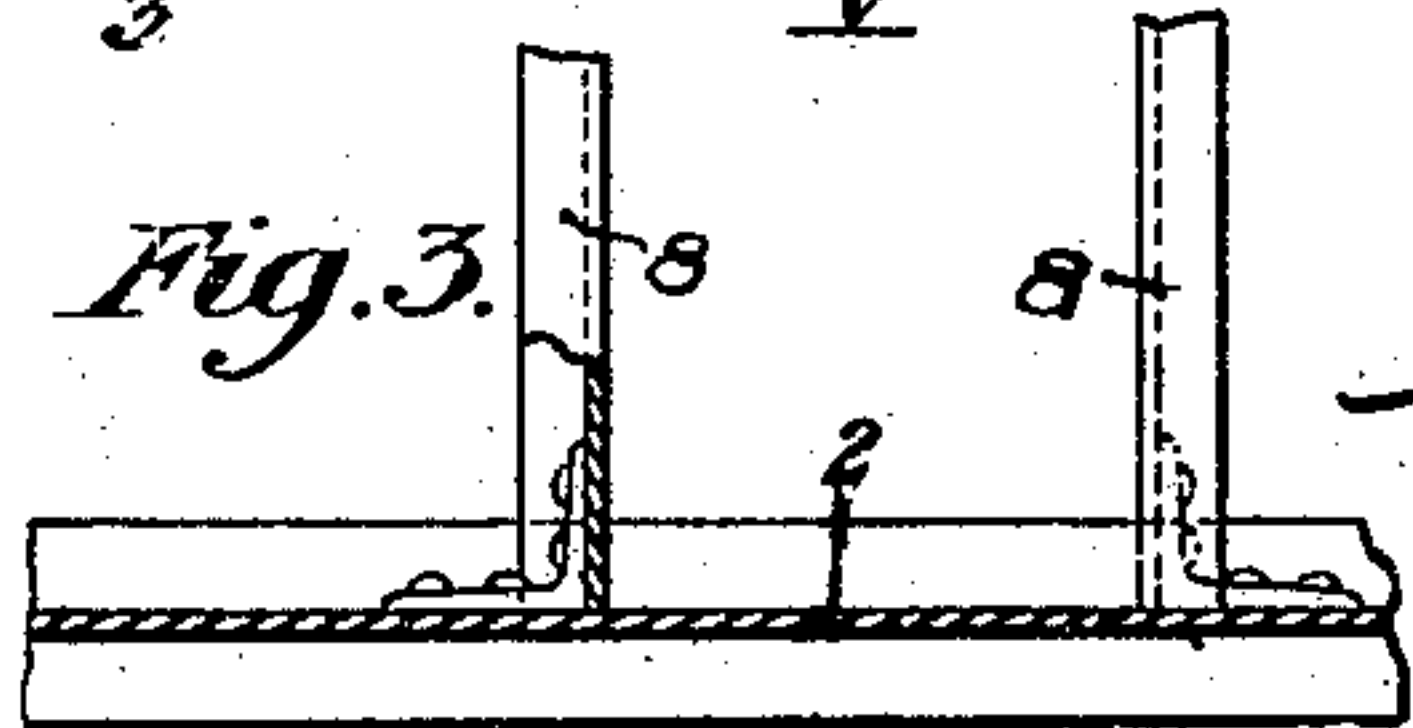


Fig. 3.



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Fig. 4.

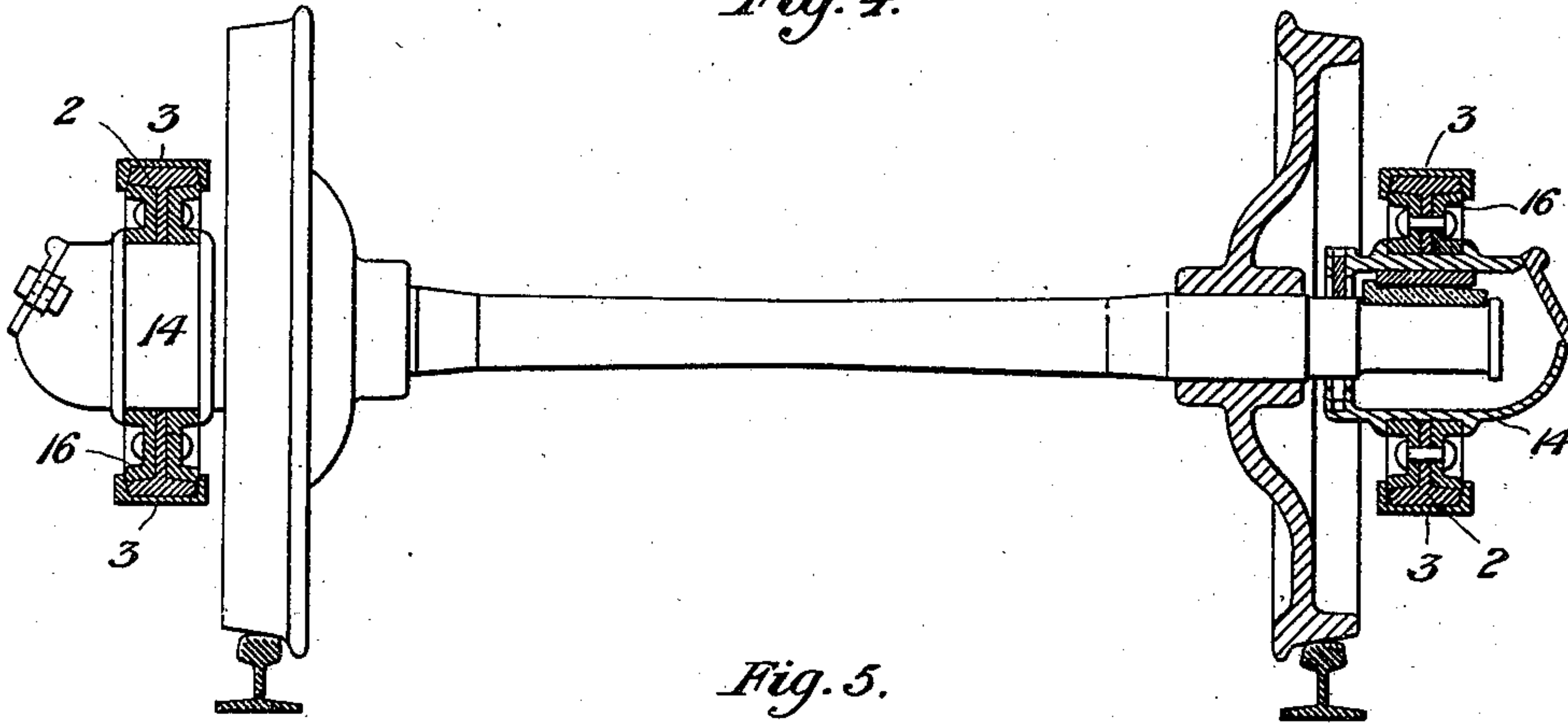


Fig. 5.

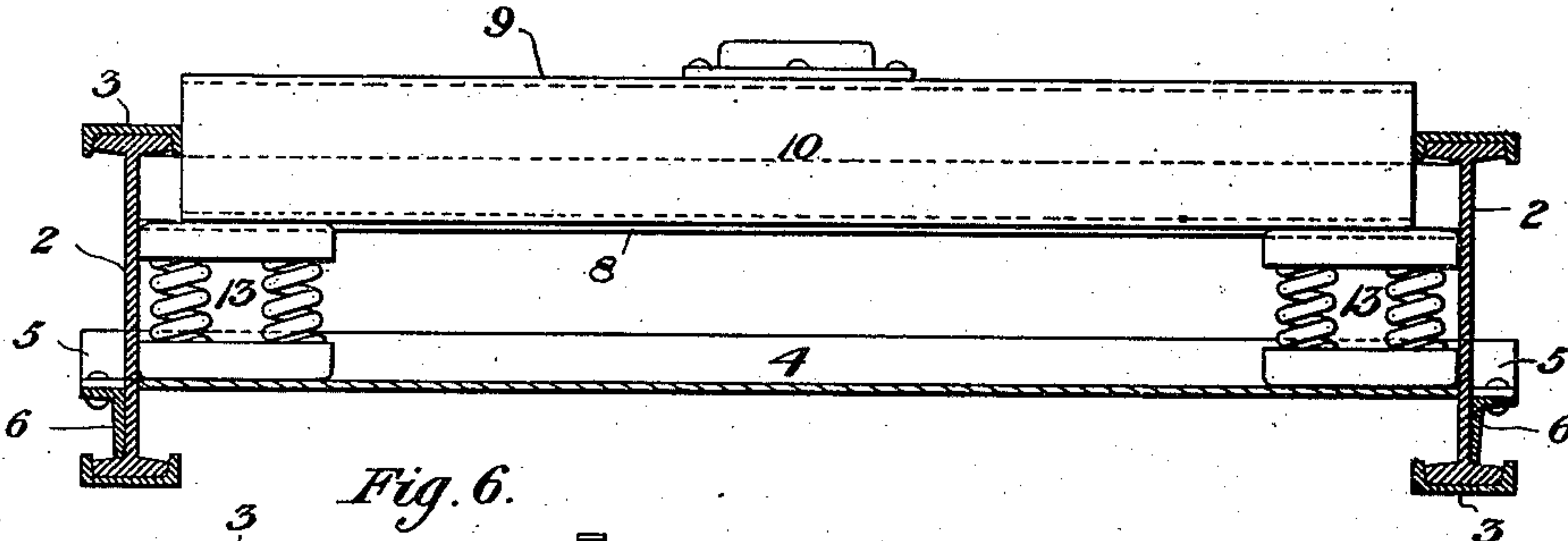


Fig. 6.

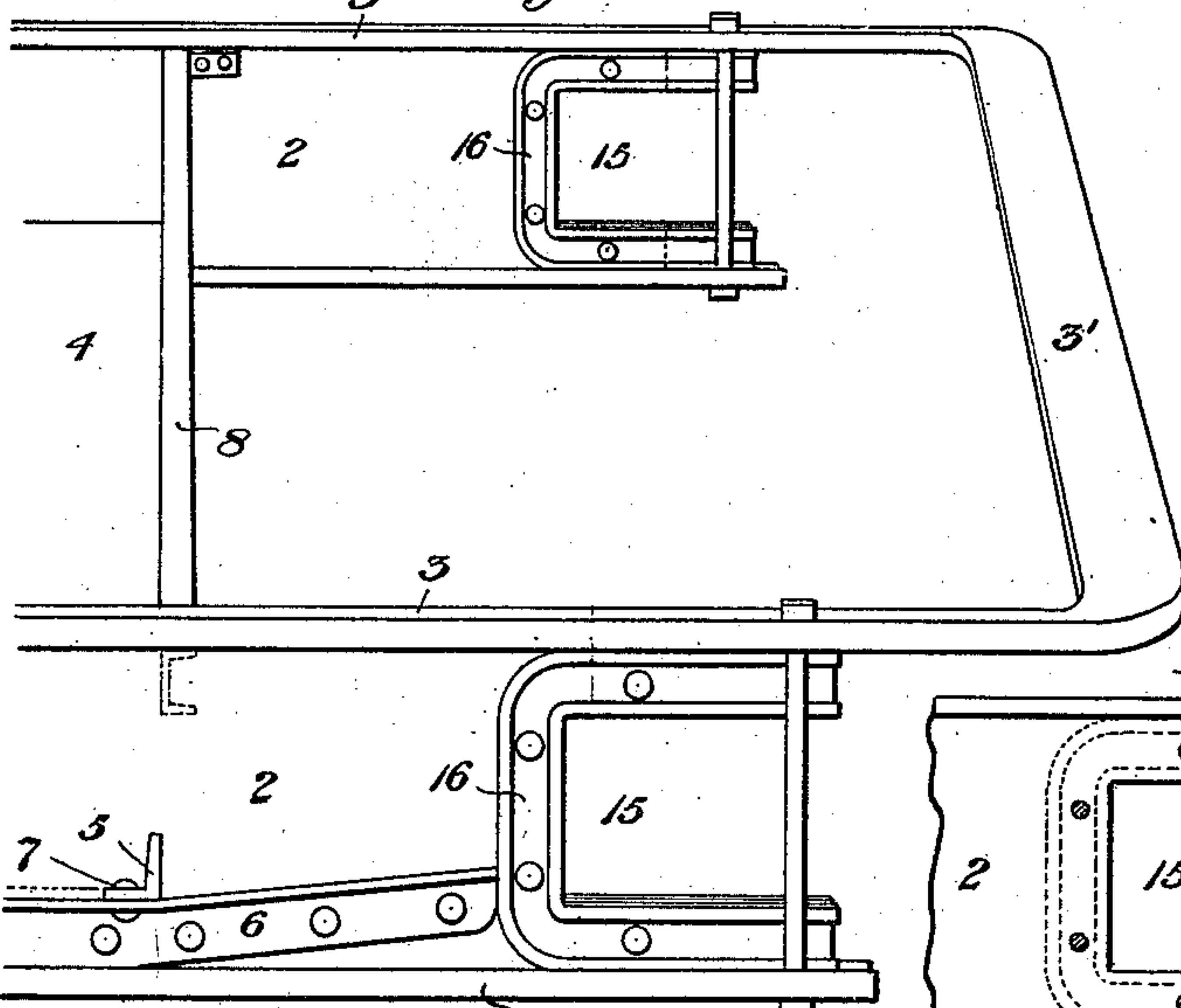


Fig. 7.

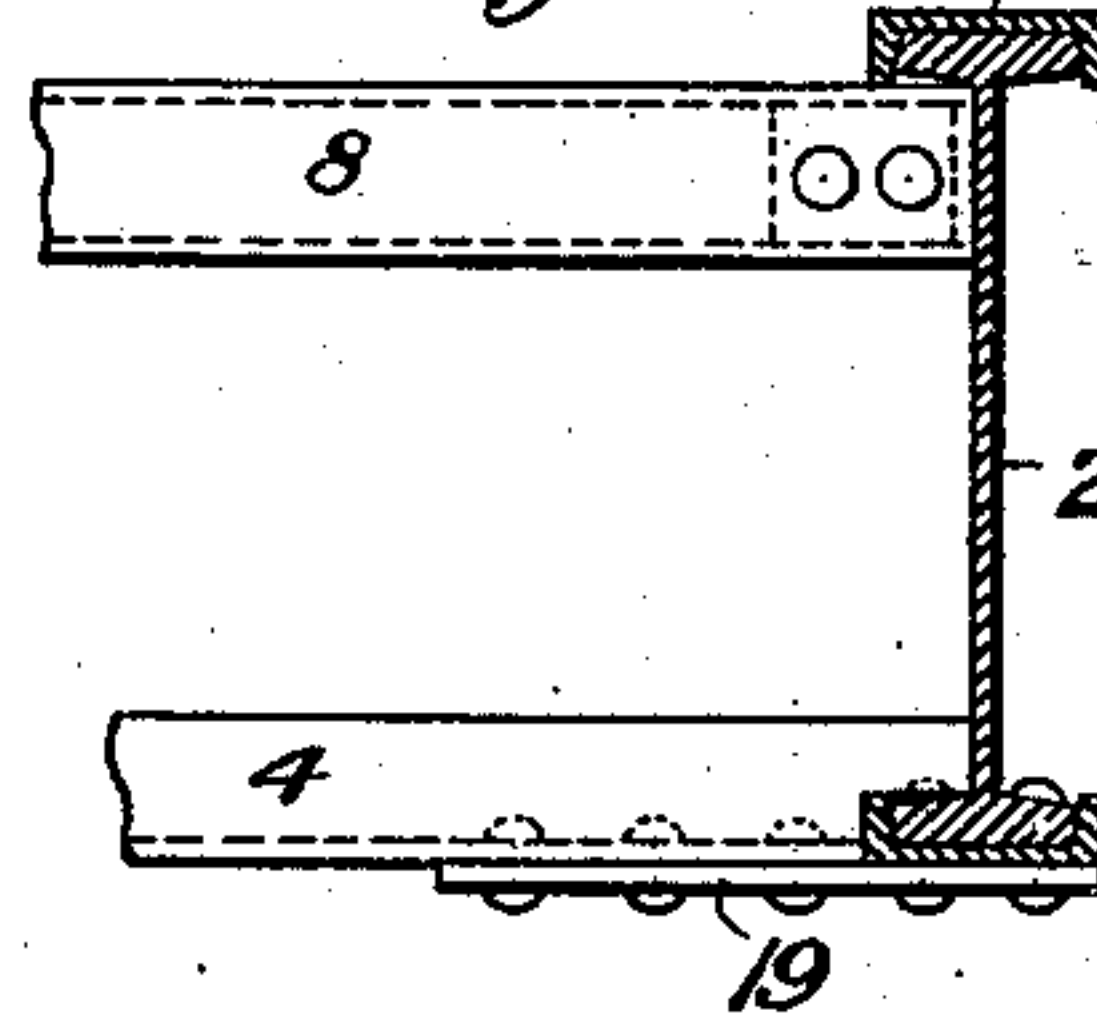


Fig. 8.

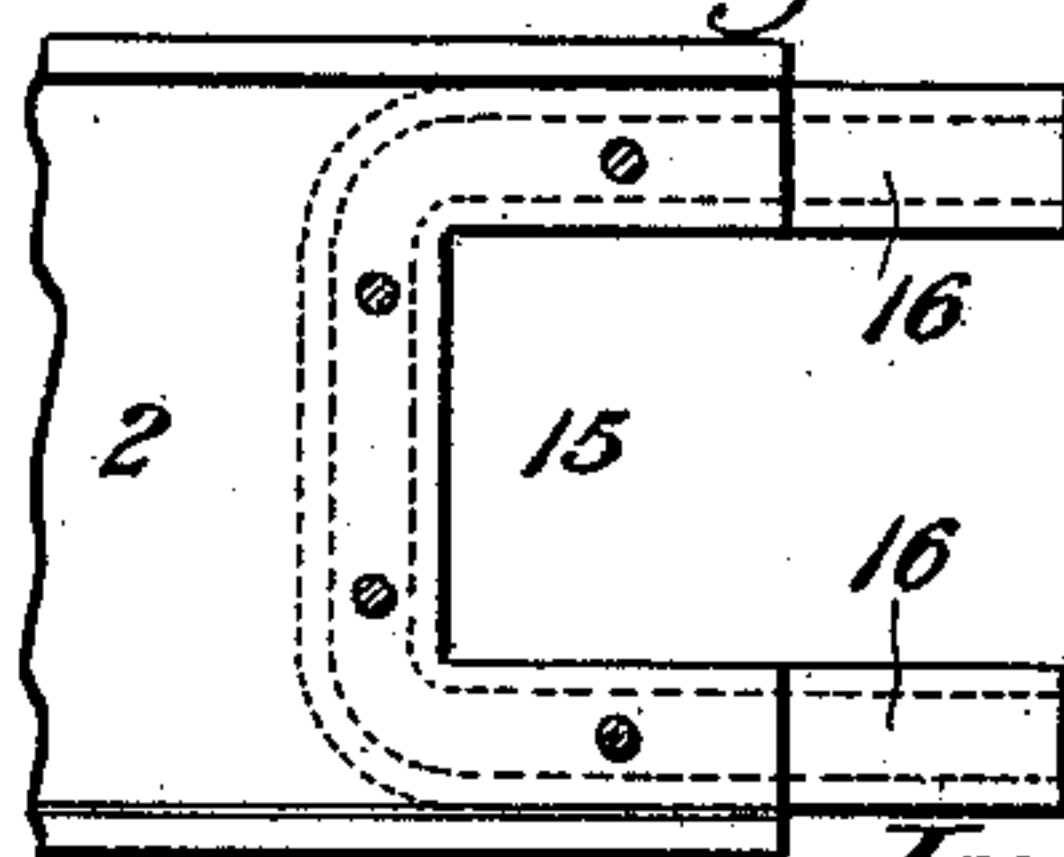
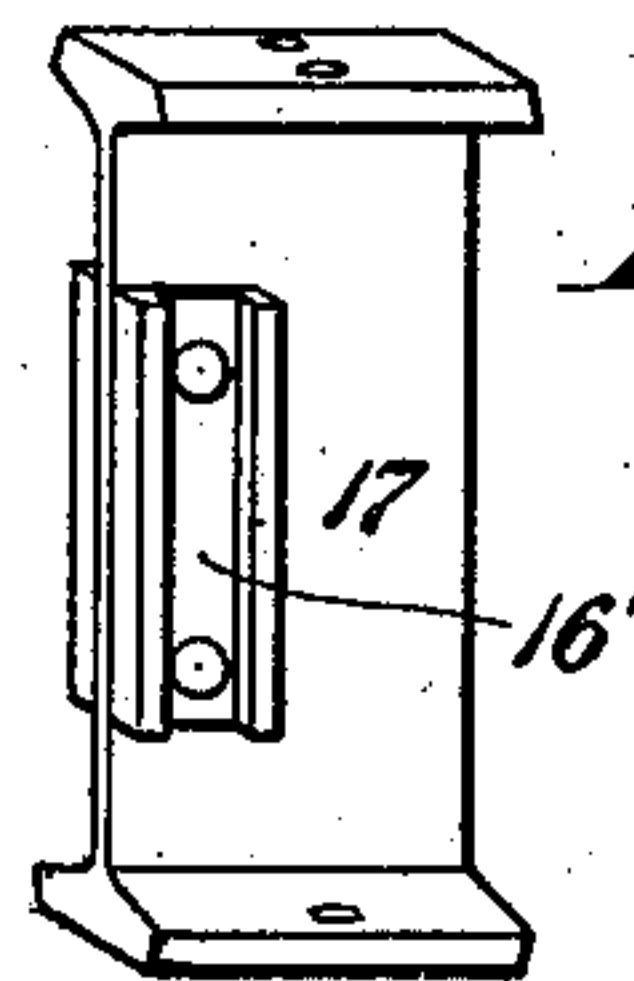


Fig. 9.



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UNITED STATES PATENT OFFICE.

CYRUS M. CARNAHAN, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR TO
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CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 661,009, dated October 30, 1900.

Application filed February 10, 1900. Serial No. 4,728. (No model.)

To all whom it may concern:

Be it known that I, CYRUS M. CARNAHAN, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Car-Trucks, of which the following is a specification, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation, partly in section, of my improved car-truck. Fig. 2 is a plan view, partly in section. Fig. 3 is a sectional detail view of the middle upper cross-frame joint. Fig. 4 is a transverse cross-section on the line IV IV of Fig. 2. Fig. 5 is a similar section on the line V V of Fig. 2. Fig. 6 is a perspective detail view of a modified construction, showing the extension members removed. Fig. 7 is a sectional detail view illustrating a modified construction of cross-framing joint. Fig. 8 is a detail view of one end of one of the side beams with the front reinforcing-frame removed. Fig. 9 is a perspective detail of one of the extension members.

My invention refers to car-trucks, more especially to trucks composed entirely of metal; and it consists of the novel construction and arrangement of the parts, as shall be more fully hereinafter set forth.

Referring to the drawings, 2 2 are the side beams of the truck, composed of structural members, preferably I-beams, the top and bottom of which are reinforced by channels 3, the flanges of which embrace the flanges of the side beams to which the channels are securely riveted. Midway of the side beams, extending across from side to side and rigidly connecting them together, is a channel 4, the middle extremities of which abut against the inner webs of the side beams, while the flanges and a portion 5 of the adjoining web of the channel at each side of the center project through suitable openings in the I-beam web and rest on longitudinal angle-bars 6, to which they are secured by bolts or rivets 7, passing through the channel angle I-beam flange and channel 3 on the outer side, thus rigidly connecting all the parts. The ends of the channel may, however, be simply riveted

to the angle with good results. The angle 6 is firmly riveted to the outer side of the I-beam webs, as shown. Above the channel 4 and in positions corresponding with its outer edges are transverse channels 8, with the flat sides inward, so as to provide flat bearings for the bolster 9, which channels abut against the beam-web at their ends and are riveted to the inner faces of the I-beams by angle-joints, as shown. Between these channels is located the bolster 9, composed of a section of U-shaped steel 10, laid sidewise and joined at the open end by a Z-bar 11, riveted to the extremities of the Z-bar, and forming when complete a rectangular box. It will be understood that a channel with the flanges turned inwardly may be substituted for the Z-bar, although the latter is somewhat preferable by reason of the greater ease of riveting. Also instead of the U shape a plate may be bent into the form shown, or the bolster may be constructed in any other suitable or convenient manner.

The usual fifth-wheel 12 is located on the top of the bolster, while it in turn fits between the channels 8 and rests upon springs 13, of any suitable design, supported on the upper face of channel 4. A considerable space is left between the channels 8 and flanges of channel 4 and below the bolster, which space conveniently allows for passage of brake-rods, pipes, &c.

At each end of the truck are located the journal-boxes 14 for the axles, which are made of the usual or standard construction, and to permit of their insertion a rectangular opening 15 is provided at each end of each I-beam, the I-beam proper terminating at the outer extremities of such opening. Surrounding the inner, upper, and lower sides of the opening and projecting somewhat beyond it are U-shaped reinforcing-frames 16, of channel or angle shape, laid flat against the inner and outer faces of the beam-web, to which the frames are securely riveted, as shown, the frames fitting up under and down against the flanges of the beam and forming with it a practically homogeneous construction. The upper and lower channels 3 3 extend somewhat beyond the termination of

the I-beam, and between these projecting ends of the channels 3 is embraced a short section of I-beam 17, corresponding to the main beam 2 and forming in effect an extension of it. On the inner side, adjacent to the opening 15, this section is provided with reinforcing frame, channel, or angle members 16', riveted to the beam-section and adapted to fit between the upper and lower extensions of the frame 16, thus completing the rectangular reinforcement of the journal-box housing. The section 17 is held in position by bolts 18 on one or both sides fitting into recesses cut in the flanges of frame member 16, passing through the channels 3 3, through upper and lower flanges of the beam 2, and firmly screwed up tight by a nut on the end of each bolt. As thus constructed the I-beam from one extremity to the other is practically solid, while its strength is greatly increased by the reinforcing-frames, and the section 17 being removable permits of easy and expeditious removal of the journal-boxes and axle and their return without disturbing, mutilating, or in any way affecting the truck, it being simply necessary to jack it up sufficiently to hold it in position. This feature of removal of the boxes is a valuable one and very desirable in trucks of all classes and renders my invention peculiarly applicable to the objects in view.

In Fig. 6 I have shown a modified construction wherein the top channel 3 is carried outwardly sufficiently far to permit the section to be drawn forward and dropped out of position and is then carried across at each end, as at 3', forming a rectangular frame. This construction is desirable in some cases and adds additional stiffness to the truck-frame.

Also in Fig. 7 I have shown in cross-section a modified construction wherein the lower cross-channel or spring-board 4 instead of projecting through the I-beam web abuts against the inner faces of the web and lower channels 3, while a lower plate 19 is riveted to the channel 4 and to channel 3 and flanges of beam 2, as clearly shown.

It will be noted that my truck is composed throughout of merchant-rolled steel shapes, such as are in common use and readily available. Very little cutting or fitting is necessary, and such as is so is made by suitable punching or shearing machinery very quickly and at small cost. None of the parts are complicated or difficult to make or assemble; but, on the contrary, in addition to using shapes found already rolled the work of cutting to size and putting together, as well as the percentage of scrap, is reduced to a minimum. The weight of the car is equally distributed from the center bearing throughout, the side beams constituting trusses of great strength and rigidity, while the manner of making the bolster and supporting it assures sufficient resiliency and good bearing, while providing ample strength for the support of the load and transmission of the strain throughout the

entire structure. All special or pressed shapes are avoided, castings are dispensed with, and ample opportunity is provided for attachment of brake and other connections.

The entire truck is comparatively light in proportion to its strength, its parts are few, of simple construction, not liable to get out of order, and the whole construction is such as to enable the truck to be built by mechanics of ordinary ability in a shop having the usual appliances and tools, and when constructed as I have shown and described is exceedingly strong, durable, and well adapted to the strains, wear, and accidents to which this class of rolling-stock is peculiarly liable.

Having described my invention, what I claim is—

1. A car-truck composed of rolled structural side members, a middle cross member rigidly connecting the side members supplemental cross members constituting bolster-guides, a bolster, reinforcing extended journal-box housings in the ends of the side members, and upper and lower reinforcing rolled members embracing the side members and extended journal-box housings, substantially as set forth.

2. A car-truck composed of I-beam side members, upper and lower reinforcing channel members, a middle cross member rigidly connecting the side members, supplemental cross members constituting bolster-guides, a bolster, reinforced journal-box housings in the ends of the side members, and removable end sections with means for holding them in position, substantially as set forth.

3. In a car-truck the combination of I-beam side members, provided at each end with reinforced journal-box housings open at the outer ends; upper and lower reinforcing channel members projecting beyond the ends of the side members, removable reinforced end sections with means for holding them in position between the upper and lower channel members, a middle cross member rigidly connecting the side members, supplemental upper cross members constituting bolster-guides, and a bolster mounted between the upper cross members and resting upon springs supported by the middle cross member, substantially as set forth.

4. In a car-truck having main I-beam side members, a middle cross member consisting of a channel-beam cut out at its ends, abutting against the webs of the side members and provided with side extensions passing through the webs and resting on and riveted to supporting angle-brackets secured to the outer sides of the side members, substantially as set forth.

5. In a car-truck having I-beam side members, the combination with such side members of a middle cross channel-beam cut out at its ends, abutting against the webs of the side members, provided with side extensions passing through the webs and resting on and riveted to supporting angle-brackets secured

to the outer sides of the side members, supplemental upper cross members constituting bolster-guides with an intervening space for rods, &c., a box-bolster mounted between the supplemental cross members and intervening supporting-springs resting on the cross channel-beam, substantially as set forth.

6. In a car-truck having I-beam side members, journal-box housings in the ends of the members consisting of rectangular open-ended apertures adapted to receive the journal-box, surrounding reinforcing frame members riveted to the web of the side members and extending outwardly beyond the ends of the beam, upper and lower reinforcing channel members projecting beyond the beam, and supplemental I-beam extensions provided with reinforcing frame members adapted to interfit between the fixed reinforcing frame members and the reinforcing-channels with vertical securing-bolts passing through the beam-flanges and reinforcing-channels respectively, substantially as set forth.

7. In combination with I-beam side members, a middle cross channel member and upper supplemental cross members forming bolster-guides; a bolster consisting of a rectangular hollow box of structural metal fitting between the upper supplemental members and supported by springs resting on the middle cross channel member, substantially as set forth.

8. In a car-truck, in combination with rolled structural side members, journal-box housings therein at each end consisting of end apertures, a surrounding reinforcing-frame therefor, upper and lower members embracing the frame, and removable end sections forming outer walls for the housing, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CYRUS M. CARNAHAN.

Witnesses:

PETER J. EDWARDS,
C. M. CLARKE.