May 13, 1941. M. P. BLOMBERG ET AL 2,242,190

CAR TRUCK FRAME

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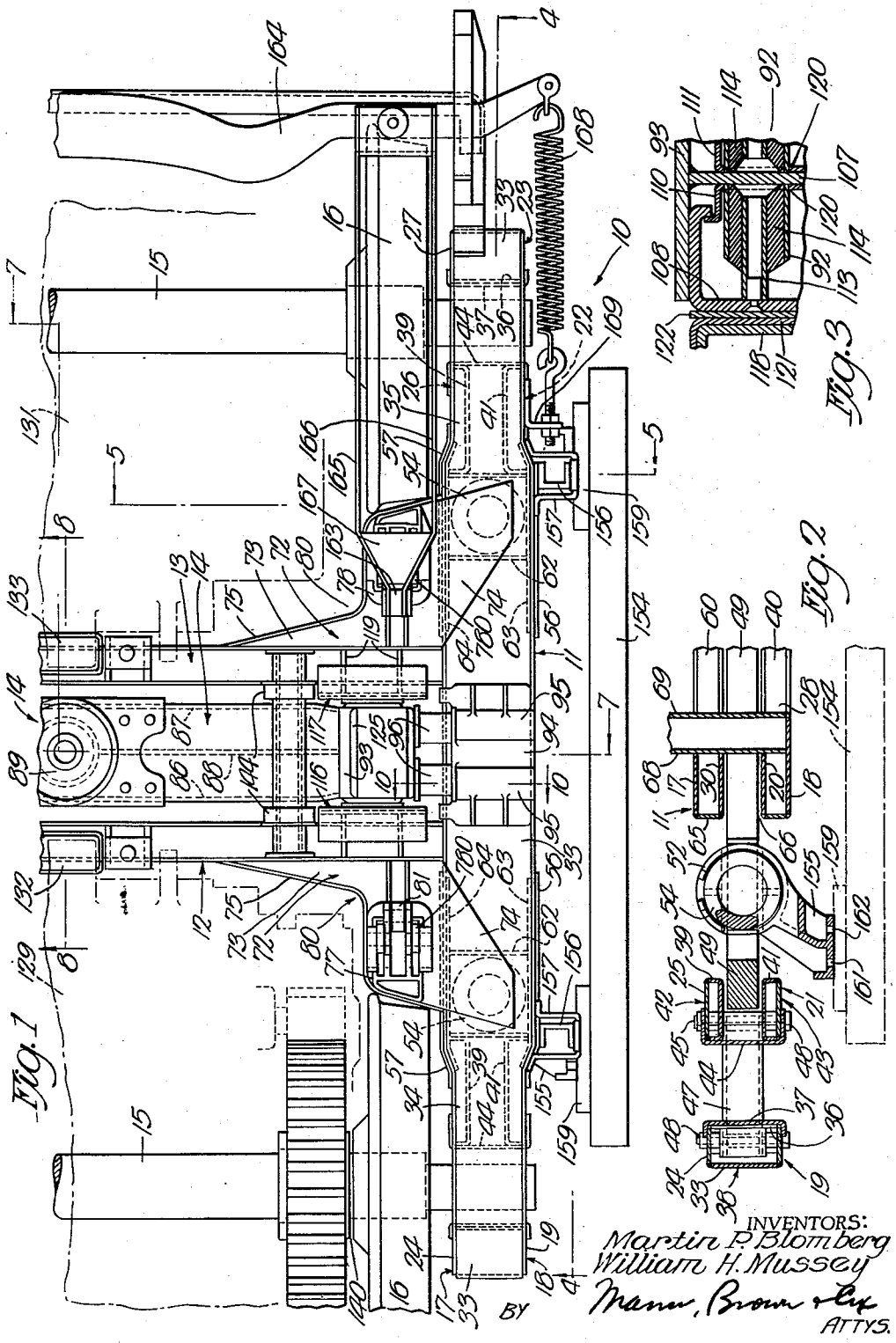


Fig. 1

Fig. 3

Fig. 2

INVENTORS:
Martin P. Blomberg
William H. Mussey
Mann, Brown & Ex
ATTYS.

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CAR TRUCK FRAME

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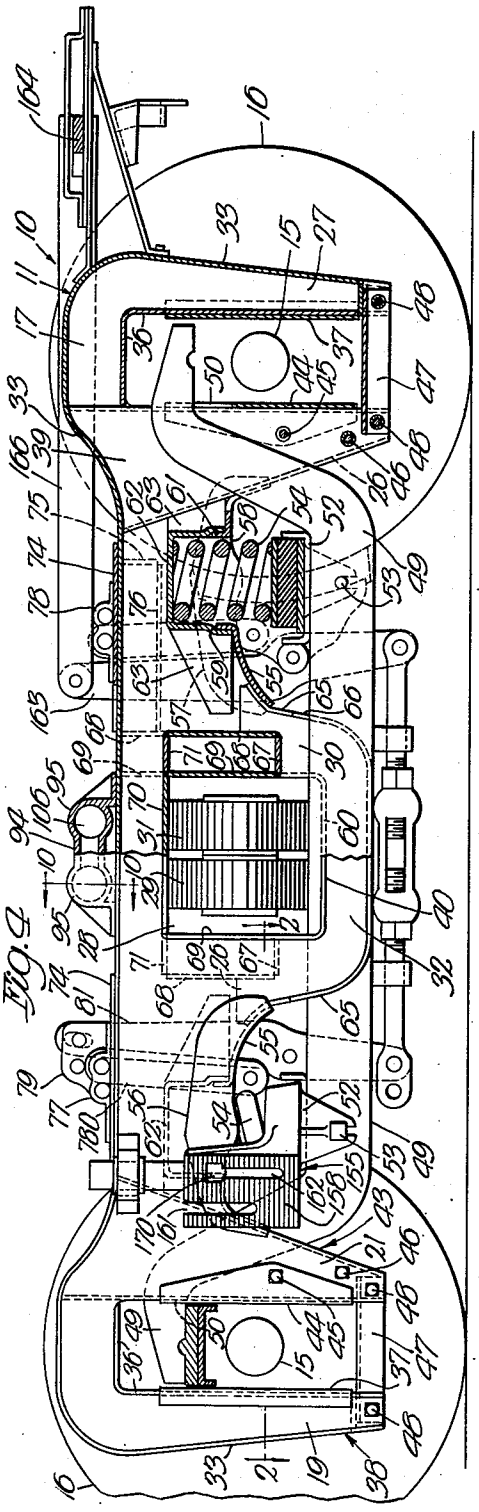


Fig. 4

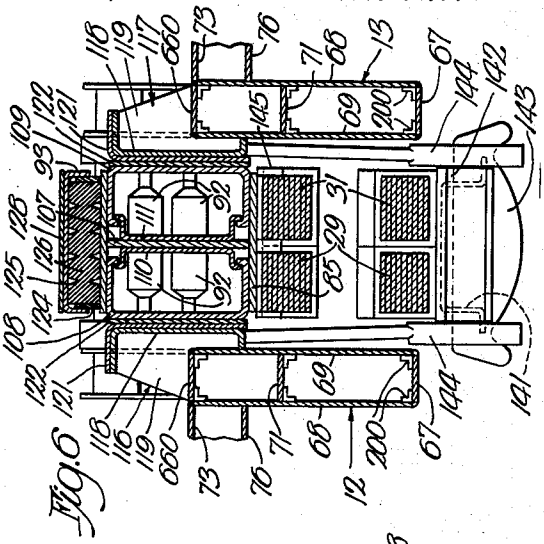


Fig. 6

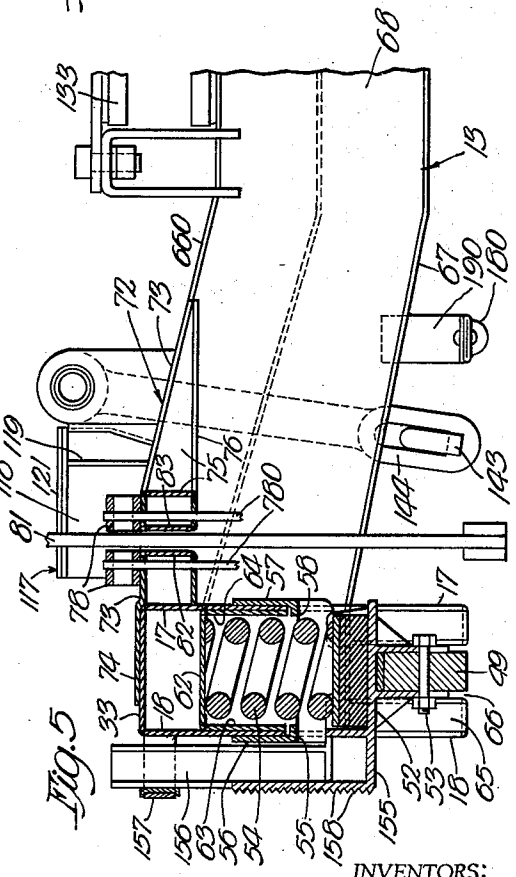


Fig. 5

INVENTORS:
Martin P. Blomberg
William H. Mussey

BY Mann, Brown & Cr
ATTYS

May 13, 1941. M. P. BLOMBERG ET AL 2,242,190

CAR TRUCK FRAME

Filed Jan. 28, 1939 3 Sheets-Sheet 3

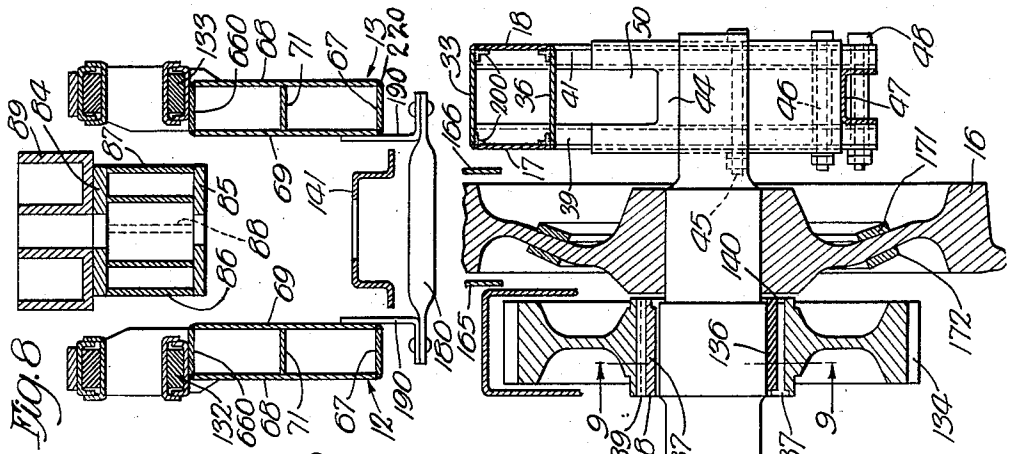


Fig. 8

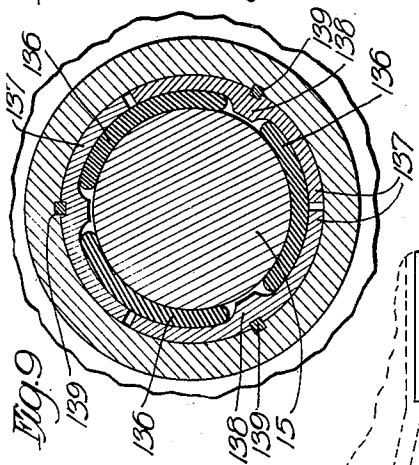


Fig. 9

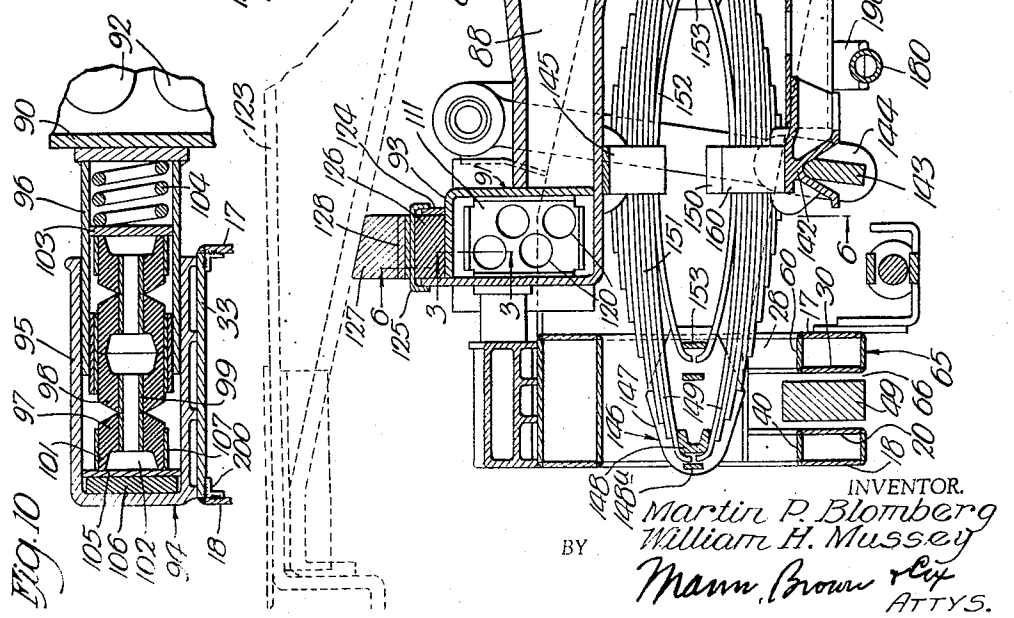


Fig. 7

Fig. 10

INVENTOR.
Martin P. Blomberg
William H. Mussey
BY Mann, Brown & Ely
ATTYS.

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2,242,190

UNITED STATES PATENT OFFICE

2,242,190

CAR TRUCK FRAME

Martin P. Blomberg, Hinsdale, and William H. Mussey, Chicago, Ill., assignors to Pullman-Standard Car Manufacturing Company, Chicago, Ill., a corporation of Delaware

Application January 28, 1939, Serial No. 253,420

13 Claims. (Cl. 105—190)

This invention relates to car trucks, and, more particularly, to frames for car trucks and means associated therewith for supporting the car body therefrom.

One of the objects of the invention is the provision of new and improved frame members for railway car trucks which are constructed from sheet metal whereby the same will have a maximum strength and minimum weight.

Another object of the invention is the provision of new and improved means for mounting the car supporting bolster on the truck in such a manner that the bolster will be cushioned in its movement, both longitudinally and transversely of the car and also have its vertical vibrations dampened.

Another object is the provision of a new and improved truck frame made from sheet metal, the parts being rigidly connected and so reinforced as to give maximum strength.

A further object of the invention is the provision of a new and improved truck frame for railway cars having new and improved means associated therewith for mounting certain parts of the transmission thereon whereby the relative distortion of the parts of the driving mechanism will not tend to loosen certain of those parts on their shafts.

Other and further objects and advantages of the invention will appear from the following description, taken in connection with the accompanying drawings, in which—

Fig. 1 is a top plan view of one side portion of a truck embodying the invention;

Fig. 2 is a section on the line 2—2 of Fig. 4, with parts broken away;

Fig. 3 is a section on line 3—3 of Fig. 7;

Fig. 4 is a section on the broken line 4—4 of Fig. 1;

Fig. 5 is a section on the line 5—5 of Fig. 1, with parts broken away;

Fig. 6 is a section on the line 6—6 of Fig. 7;

Fig. 7 is a section on the broken line 7—7 of Fig. 1;

Fig. 8 is a section on the line 8—8 of Fig. 1;

Fig. 9 is a section on the line 9—9 of Fig. 7; and

Fig. 10 is a section on the line 10—10 of Fig. 4.

In street cars, elevated and interurban trains, and the like, which stop and start frequently, it is expensive to operate heavy trains due to the energy necessary to overcome the inertia of the mass in stopping and starting. In order to materially lighten the cars, and yet be well within the margin of safety in the construction, the present invention contemplates the substitution of sheet metal structures for the conventional solid or cast iron constructions. In order to employ such structures, it is necessary that the parts be so constructed and arranged that there will be a maximum of strength with a minimum of weight. The present invention seeks to accomplish this purpose by the provision of a light structure which is properly braced and reinforced at points necessary to resist the strains and stresses to which a railway truck is subjected.

Referring now to the drawings, the reference character 10 designates generally a car truck comprising the side frame members 11, one at each side of the truck, the transoms 12 and 13 connecting the frame members together, the truck bolster 14, the truck axles 15 and the wheels 16, see Fig. 1.

In the form of the invention selected to illustrate one embodiment of the invention, the side frame members are shown as being hollow and are made from the metallic plates to form the hollow arches and pedestal legs which correspond to the conventional side frame members. While in the embodiment of the invention herein disclosed, the frames are shown as being hollow, it is understood that these plates may be welded together to provide other shapes and forms for the frames, as desired. Each frame member comprises a pair of side plates 17 and 18, see Figs. 1 and 5, spaced apart laterally, as shown in Figs. 1, 5 and 7. These plates are in pairs and are cut to desired shape to form depending pedestal arms at each end of the plates. The outer plate 18 has the depending pedestal arms 19 and 21 at, what for convenience of description will be termed its "forward end," Figs. 2 and 4, and the corresponding pedestal arms 22 and 23 at its rearward end. The inner side frame plate 17 is provided with the depending pedestal arms 24 and 25 at its forward end and with the depending pedestal arms 26 and 27 at its rear end, Figs. 2 and 4. Each side plate is provided with an opening 28, Figs. 2 and 4, through which the outer ends of the bolster springs 29 and 31 extend. The opening through the inner side plate 17 is wider than that of the outer side plate for receiving the transoms 12 and 13, as will presently appear. The portions 32 of the side plates below the opening 28 may be termed the "lower arch" and the portions above the opening the "upper arch."

The two side plates 17 and 18 are connected together along their front, rear and upper edges by an outer plate 33 which may be considered

an upper chord and which extends from the lower end of the pedestal arms 19 and 24 upwardly and along the upper edges of the plates and downwardly on the rear side of the depending arm members 23 and 27. This outer or tie plate or chord is rigidly secured to the side plates in any suitable manner. For the most part, the various plates, as shown on the drawings, are connected together by welding at opposite sides or at the inner and outer portions of the plates that are arranged in vertical planes. These welds or attaching means are parallel and are separated by the plates. As shown, plates extending at right angles to each other are connected by a fillet weld—that is, neither plate overlaps the other, the plates having an edge to edge or line contact and the welding material occupying the rabbet formed by the contacting plates, as shown more clearly at 220 in Fig. 8 of the drawings. Preferably, an angle bar is provided on the inner side of the angle formed by the plates in order to reinforce the joint as indicated at 200 in Figs. 6 and 7. It is preferably connected to the adjacent plates by welding. For the sake of clearness, the welds and angle bars are omitted for the most part. The plates may be connected together by other means or by other types of welds, if desired. The tie plate 33 is narrower at its ends, as shown at 34 and 35, Fig. 1, to accommodate the inwardly offset portions of the side plates 17 and 18. The front pedestal arms 19 and 24 of the plates 17 and 18 are connected together at their rear edges by the plate 36 which extends upwardly and across the jaw or space between the arms 19 and 21, as shown in Fig. 4. A wear plate 37 extends about the rear edges of the pedestal arm portions 19 and 24 over the plate 36. The parts are all welded together in the usual manner. By this arrangement, the box shaped depending pedestal leg 38 is provided.

The depending pedestal arm members 21 and 25 are reinforced in the following manner. Triangular reinforcing plates 39 and 41, Figs. 2 and 4, channel shape in cross section, are secured to the inner sides of said members, respectively, thus forming with the pedestal arms a pair of depending pedestal leg members 42 and 43, Fig. 2. These members are connected together by the wear or chafing plate 44 which is secured in position by a suitable bolt 45, Figs. 2 and 4. The pedestal arms 42 and 43 are held in spaced relation by suitable spacing sleeves secured in position by the bolt 46. A pedestal tie plate 47 connects the lower end of pedestal leg 38 to the lower ends of the pedestal leg members 42 and 43. This tie plate is preferably a channel bar of sheet metal and may be held in position by the bolts 48 on which spaced sleeves are mounted for positioning the plate centrally of the front pedestal leg and for preventing the collapse of the rear pedestal leg members. The upper end of the wear plate 44 at the front end of the side frame, as well as the corresponding plate at the rear end of the frame, are cut out, as at 50, Fig. 4, for receiving the ends of the equalizer bar 49.

Since the arrangement of the depending pedestal arms at the rear end of the side frame is the same as that at the front end, it is not thought necessary to repeat the description. The triangular reinforcing plates 39 and 41 have their lower edges conforming to the edges of the depending pedestal arms and are rigidly connected thereto.

The side frame members are adapted to receive the car axle in the pedestal jaws or the space between the pedestal legs at each end thereof, as is usual in such constructions. The equalizer bar 49 is of the conventional form and rests at its ends on the journal boxes in the usual manner. Since the details of this arrangement are well-known, it is not thought necessary to illustrate or describe the same.

Suitable means are provided for supporting the truck frame from the ends of the equalizer bars 49. As shown, a spring seat or spring supporting member 52 is pivoted to the equalizer bar, as at 53, at each end thereof, and has seated thereon a spiral spring 54, Figs. 4 and 5. A suitable spring cap is provided on the side frame member for receiving the upper end of the spring. In the form of construction shown, the side plates of the truck frame are connected together between the pedestal and the spring arches at the ends of the side frame members by curved plates 55 which extend across and between the side plates 17 and 18 and have their outer ends turned upwardly along the sides of the plates 17 and 18, as shown at 56 and 57, Figs. 4 and 5. Each of the plates is rigidly connected to the frame members by any suitable means as by welding. This plate 55 is provided with an opening 58 for receiving the spring 54, as clearly shown in Figs. 4 and 5 of the drawings. The front and rear edges of the opening are bent upwardly as at 59 and 61. An inverted U-shaped plate 62 has its lower ends rigidly connected to the upwardly extending edges 59 and 61 of the plate 55 to form a recess in which the upper end of the spring 54 is seated. The plate 62 is also rigidly connected along its side edges to reinforcing plate 63 and 64 which in turn are welded to the plates 17 and 18, Figs. 4 and 5.

The outer ends of plates 63, Fig. 4, abut against the triangular plates 39 and 41. The plates 55 constitute braces between the side plates 17 and 18. The lower arches 32 of the side plates are connected together at their lower edges by a U-shaped plate or lower chord member 65, Figs. 4 and 7. This plate is provided with a slotted portion 66, Fig. 7, for receiving the equalizer bar 49, as shown in said figure.

Extending upwardly from the plate 65 at each edge of the slot 66 are the plates 20 and 39 and connecting the upper edge of the plates 20 and 30 to the side plates 17 and 18, Figs. 4 and 7, are the plates 40 and 60 which define the lower portion of the opening 28. The plates 40 and 60 are rigidly secured in position by welding and their upper ends abut against and are rigidly secured to the lower portions of the transoms 12 and 13, as will presently appear. It will thus be seen that the arch 32 is bifurcated and each furcation is rectangular in cross section, as clearly shown in Fig. 7.

The side frame members at opposite sides of the truck are connected together by the transoms 12 and 13, as is usual in such constructions. These transoms are also of hollow sheet metal, rectangular in cross-section and are depressed at their central portions—that is, their central portions are offset downwardly, as shown in Figs. 5 and 7. Each transom comprises an upper plate member 660, a lower plate member 67, Figs. 5, 6 and 7, the side plates 68 and 69, and a partition or reinforcing plate 71, which extends between the side walls, as clearly shown in Fig. 6. The partition 71, lower plate member 67, a portion of the side plates 68 and 69 below the partition 71 extend across the frame mem-

bers 11 at each side of the truck and are rigidly secured to the inner side of the outer frame plate 18, Fig. 2. The plates 69 of the transoms constitute a portion of the front and rear defining walls of the opening 28 and this portion of each transom is rigidly connected to both sides plates 17 and 18 of the side frame member and constitutes a spacing member and a brace between said plates. The ends of the top plate 660 and the side plates 68 and 69 above the partition 71 abut the inner plate 17 of the side frame member and are rigidly secured thereto, as by welding, Fig. 4.

A plate 70 extending between the transoms, Figs. 4 and 7, forms the upper marginal wall of the opening 28. This plate is rigidly connected to the transoms and to the side plates 17 and 18 and forms with these side plates and the top plate 33 a hollow upper arch, rectangular in cross-section.

Suitable gusset members 72 extend across the angle between the side frame member 11 and each of the transoms. Since these gusset members are similar, only one need be described. Each is preferably hollow and of sheet metal and comprises an upper plate 73, Figs. 1 and 5, which extends along the upper edge of the outer plate of the transom and has its outer end lapping the upper surface of the side frame member, as shown at 74, Fig. 1, and is rigidly secured thereto. Each gusset has a side wall 75 extending vertically along the outer edge of the plate 73 and a bottom wall formed by a plate 76, Fig. 5, which is similar to plate 73. The plate 76, however, abuts the plate 17 and is rigidly secured thereto. The inner ends of the plates 73 and 76 are tapered and are secured to the transom as by welding. As shown, each gusset member has a cut-away portion, as at 80, for affording clearance for the motors.

The gussets are provided on their upper surface with fittings or castings 77 and 78 to which the conventional brake hangers 780 are pivotally connected. The casting 77 is also provided with an extension 79 to which dead lever 81 of the brake operating mechanism is pivotally connected. Each of these castings may, if desired, be provided with a plurality of openings in order that the brake mechanism may be properly adjusted by changing the pivots for the levers to the different openings. The gussets below the fittings are slotted to accommodate the movement of the brake hangers and brake levers. If desired, the opening for the brake lever 81 through the gusset may be reinforced by plates 82 and 83 at each side of the opening. These plates are rigidly attached to the upper and lower plates of the gussets, as shown more particularly in Fig. 5 of the drawings. There are a pair of transoms for each truck, one on each side of the bolster, as is usual in such constructions.

The construction of the truck bolster will now be described. This bolster is also made from sheet metal and in the construction shown is hollow. It comprises the upper plate 84, Fig. 7, a lower plate 85, side plates 86 and 87, Figs. 1 and 8, and a central vertical web 88. The central portion of the bolster is provided with the conventional bolster center casting or filler 89 for connecting the truck and body bolsters.

As shown, the lower plate 85 of the truck bolster 14, Fig. 7, is offset downwardly and is bent vertically upward as at 90. An angle plate 91 has its lower edge connected to the plate 85 and its upper laterally extending end is rigidly connected to the vertical plate 90 thus forming a casing in which are mounted a plurality of resilient units 92 for cushioning the movement of the bolster longitudinally of the truck, as will presently appear. The upper plate 84 of the bolster is rigidly connected to the plate 91, as shown in Fig. 7.

Suitable means are provided for cushioning the endwise movement of the bolster 14. In the form of construction shown, which is by way of example only, resilient mechanism is employed for this purpose. This mechanism comprises a casing 94, containing one or more cylinders 95, rigidly attached to the top plate 33 of each side frame member in which is slidably mounted a tubular member 96, Figs. 7 and 10, for each cylinder. Each tubular member 96 slidably engages the plate 90 at its inner end. Slidably mounted within the tubular member 96 is a resilient unit 97. In the form of construction shown, this unit comprises a plurality of rubber blocks 98 which may, if desired, be arranged in pairs, each pair being vulcanized on a tube 99. The blocks 98 are provided with extensions 101 extending outwardly beyond the tube 99 to form the recess 102. One or more of these units are employed and inwardly of the rubber blocks is a slidable partition 103 and between this partition and the inner end of the tubular member 96 is a coil spring 104. A slidable partition 105 may be inserted between the bottom of the cylinder 95 and the outer end of the resilient unit 98, and between this partition or plate and the end of the cylinder 95 may be inserted a rubber block 106. In order to increase the capacity of the rubber blocks 97 and 98, they may be, and preferably are, surrounded by short tubes 107 for confining the expansion of these blocks in a direction at right angles to their axes.

The spring 104 yields more readily than the rubber blocks and is adapted to absorb the lighter shocks, and, in the operation of the device, the spring 104 will first be distorted, after which the rubber blocks 97 and 98 will be further distorted for absorbing abnormal shocks.

Suitable means are also provided for cushioning the forward and rearward movement of the truck bolster. Any suitable means may be employed for this purpose, but, as shown, a type of rubber bumper is preferably employed, although other resilient means may be used, if desired. In the form of construction shown, Fig. 6, a rigid partition plate 107 is arranged vertically between the horizontal portion of the angular plate 93 and the bottom bolster plate 85 along the center line of the bolster. At the front and rear of the plate 107 are the channel shaped plate members 108 and 109, each of which is arranged with its upper and lower ends extending inwardly toward the partition plate 107 and with the edges bent inwardly toward each other for engaging corresponding outwardly turned edges of plates 110 and 111. The parts are so constructed that the plates 108 and 109 are free to move inwardly, as will presently appear.

A plurality of resilient units 92 are inserted between the plates 108 and 110 and a plurality of similar units are inserted between the plates 109 and 111. These units are secured in openings 120 in the plates 110 and 111, as shown in Fig. 3. These units may be of any suitable construction, and may, if desired, be of the form shown in Fig. 3. As shown in said figure, each unit comprises a tubular member 113, Fig. 3, rigidly attached to the adjacent plate, as 108, and

has vulcanized thereto a rubber block 114 surrounded by a short tubular member 115, to which the rubber is vulcanized, the construction being similar to that shown in Fig. 10. Since these units are similar, it is not thought necessary to further illustrate or describe the same.

Suitable abutment members 116 and 117 are mounted on each side of the buffer device, as shown more clearly in Fig. 6. Each abutment comprises a U-shaped plate 118, arranged vertically with its ends extending outwardly, and having its lower end rigidly attached to the inner side plate, as 69, of the adjacent transom. The central portion of the plate is reinforced by ribs 119 which are secured to the transom and to the plate 118. Suitable wear, or chafing plates 121 are attached to the plate 118 and are adapted to engage the wear plates 122 rigidly connected to the plates 108 and 109. In the operation of the device, any forward or rearward shock to which the truck or body may be subjected will be absorbed by the resilient units 92.

The resilient units 92 and the springs 104 may be and preferably are inserted under more or less compression whereby the friction between the member 96 and the plate 90 and between the plates 121 and 122 will not only dampen the vertical movements of the bolster but will also assist in deadening the sound vibration of the car.

Suitable means are provided between the truck and body bolsters for assisting in supporting the outer ends of the body bolster 123 and for preventing rocking of the car body. A shown, the plate 90, Fig. 7, constituting the extension of the lower plate 85 of the body bolster is extended above the plate 93 to form one side of a telescopic member. The other side of this member is formed by a plate 124 which is rigidly connected to the plate 93. An upper cap member 125 is adapted to telescope the lower section of the telescopic member and a resilient block of rubber, as at 126, is inserted between the plate 93 and cap member 125. The car bolster 123 is provided with a block 127 above the cap 125 and interposed between the block and the cap 125 are suitable wear plates 128. The rubber block 126 is so constructed that it will yield to absorb rocking movement of the body bolster 123.

The truck is provided with suitable motors 129 and 131 shown in dotted lines in Fig. 1. These motors are pivotally mounted on the car axles 15 and the transoms 12 and 13 are provided with suitable motor nose supports 132 and 133, Figs. 1 and 8, for supporting the adjacent ends of the motors, as is usual in such constructions. The motors are adapted to operate the car through the gear 134 and a pinion 135 on the motor shaft.

Considerable difficulty has heretofore been experienced in the gear mechanism, due to the fact that there is more or less angular movement of the pinion 135 relative to the gear 134, in that the axle 15 is movable relative to the transoms 12 and 13, which support the motor nose; that is, the axle may rock in a vertical plane, thereby rocking the gear 134 relative to the pinion 135. Such a movement tends to injure the meshing teeth of the gear and pinion. In order to overcome this difficulty, suitable means are provided for mounting one of these members so that it may have a slight movement relative to the shaft to which it is attached.

In the form of construction shown, the gear 134 is provided with means for accomplishing this function. As shown, the opening through the hub of the wheel is made larger than the axle, and surrounding the axle are a plurality of rubber strips 136 and surrounding these strips are a plurality of segments 137. Preferably each segment is provided with a radial projection 138, extending inwardly thereof. The parts are so arranged that the projections 138 will occupy a position between the ends of the rubber strips or sections 136. The parts are forced into position, thereby compressing the rubber sections 136 for causing the same to grip the axle. Keys 139 are provided for holding the sectors 137 in position and preventing the rotation of the hub relative thereto.

The gear is spaced slightly from the wheel 16, as shown at 140, whereby a slight tilting of the axle relative to the gear will be permitted.

In operation, the rubber strips 136 will grip the axle 15 sufficiently to turn the same, and under abnormal load the projections 138 will ride upon the ends of the rubber strips or blocks and increase their normal gripping action sufficiently to cause the axle to be turned by the motor.

The bolster 14 is supported at each end thereof by a pair of elliptic springs 29 and 31. These springs are attached by brackets 145 to the bolster 14 and by the brackets 160 to the spring plank members 142. The brackets 145 and 160 are provided with spaced extension fingers that engage each side of each spring for holding them spaced apart, and for securing them in position. The spring plank members are connected by the spring plank 141. This plank is of sheet metal in the form of an inverted U, with the edges turned horizontally. The spring plank is supported by the swing hanger cross bars 143, which in turn are removably secured in the lower slotted ends of the hangers 144. The swing hangers 144, Figs. 5 and 7, are pivotally mounted on suitable brackets on the transoms.

A spring plank safety hanger 180 is suspended by suitable brackets 190 beneath the spring plank 141, Figs. 7 and 8. Each hanger comprises a hollow bar having its ends flattened and secured to the brackets 190.

Each of the springs is preferably, though not necessarily, so constructed that it yields more or less freely during its initial movement than during its final movement in compressing the same so that lighter shocks will be absorbed during its initial movement. In the form of construction shown, which is by way of example only, the spring is of the elliptical multi-leaf type. A casting 146 is provided at each end of the spring. Each casting comprises the side plates 147 having the cross members 148 and 148a at their outer ends which are adapted to be positioned at opposite sides of the loops formed by the inner leaves 149 of the main spring 151. An auxiliary spring member 152 is provided and preferably, though not necessarily, this spring is elliptical. The side plates 147 are provided with cross members 153 for engaging in the end of the auxiliary spring 152. The auxiliary spring 152 is more convex than the main spring so that during the initial movement of the bolster 14 relative to the truck frame, the outer ends of the main spring will cushion the vertical movement of the bolster, and on further movement the main spring will come in contact with the auxiliary spring 152 which will materially resist any further downward movement of the bolster. Since the spring 152 is shorter than the spring 151, the ends of the former will move inward and outward at a greater speed than the latter, consequently, upon rebound the ends of

the spring 152, that is, the loops will engage the cross bars 153 and since the bars 148a engaging the ends of the spring 151 will prevent the plates 147 and bars 153 from moving inward, the springs 152 will tend to prevent rebound beyond a predetermined extent.

Furthermore, during the initial movement of the spring, its fulcrums are at the end of the spring on the cross members 148 and when the spring is compressed sufficiently, it will contact the cross member 153 and fulcrum thereon, thereby shortening the effective length of the spring, and, consequently, materially increasing its resistance to further compression. In this manner, the lighter shocks are absorbed by the initial movements of the spring, and the heavier shocks by its final movements when its effective length is shortened. A suitable bumper block 150 mounted on the lower spring bracket 160 limits the compression of the spring.

Suitable means are provided for supporting the contact shoe supporting bar 154. In the form of construction shown, the bar 154 is supported by brackets 155, Figs. 2 and 5, which are integral with the seats 52 for the springs 54. The outer ends of these brackets are provided with upstanding arms 156 which extend through loops 157 rigidly connected to the side frame members of the truck. These loops are adapted to brace the bracket arms 156. Each of the arms 156 is provided at its lower outer side with serrations 158 adapted to be engaged by the corresponding serrations on the plate 159 carried by the bar 154. The serrated portion of the arm is provided with slots 161 and 162 for receiving clamping bolts whereby the bar 154 may be adjusted vertically, as may be desired.

The slot 161 may be open at its upper end and the slot 162 may have an enlargement at its upper end, as at 170, through which the head or nut of the contact bar attaching bolt may pass whereby the bar 154 may be easily and readily removed and attached without entirely removing the attaching bolts.

The live lever 163 of the brake operating mechanism, Fig. 4, is operated by a link which is pivoted to said lever at one end and attached to the brake lever 164 at its other end. This link is so constructed that it will not interfere with the rotation of the wheel 16. In order to accomplish this result, the lever comprises the two bars 165 and 166 which are spaced apart a greater distance than the width of the wheel and at their forward ends are offset inwardly and held in spaced relation by a suitable block 167. The brake is adapted to be released by a suitable spring 168 attached to an extension of the brake lever 164 and at its opposite end is adjustably connected to a bracket 169 rigidly attached to a side plate 18.

In order to assist in minimizing the noise made by the car in transportation, the wheels which, as shown, are of the disk type, are provided with annular strips of sound deadening material on one, or both, sides. As shown, rubber strips 171 and 172 are attached, one on each side of the wheel, substantially midway between the rim and hub.

This is a continuation in part of our application Serial No. 677,226, filed June 23, 1933, for Car truck frame, which matured in Patent No. 2,150,870, March 14, 1939.

It is thought from the foregoing, taken in connection with the accompanying drawings, the construction and operation of our device will be apparent to those skilled in the art and that changes in size, shape, proportion and details may be made without departing from the spirit and scope of the appended claims.

We claim as our invention:

1. In combination, hollow sheet metal side frame members, a pair of hollow sheet metal transoms extending transversely to said members and rigidly connected thereto, and hollow sheet metal gusset members extending across the outer angles formed by said frame members and transoms.

2. A side frame member for railway trucks fabricated from sheet metal comprising a hollow body member, a pedestal leg depending from each end of said body member, a pair of leg members depending from said body portion inwardly of said legs and spaced therefrom to form pedestal jaws at each end of said body portion, each of said legs and leg portions being of sheet metal substantially polygonal in cross-section.

3. In a railway truck a side frame member comprising a pair of sheet metal plates spaced apart, each member having a pair of pedestals spaced apart depending from each end of said member, a central depending portion having an opening therein through which the boltser springs extend, a plate rigidly attached to the upper edges of said frame members and extending the entire length thereof and downwardly to form the front and rear walls of the front and rear pedestals, respectively, a pair of transoms connecting said side frames together, hollow gusset members extending across the angles between said transoms and said side members, said gussets comprising top, bottom and side walls, the top walls of said gussets overlapping said plates and rigidly connected thereto, and brackets to which the brake hangers and brake operating mechanism are adapted to be connected on the top walls of said gusset members.

4. In a frame for railway trucks, a side frame member at each side of said truck, each member being hollow and constructed from sheet metal, each of said members comprising an outer plate, an inner plate, top and bottom plates rigidly connected together, said side plates having an opening therethrough at their central portion, the opening through said inner plate having lateral extensions, hollow transom members of sheet metal, the lower portion of the end of each transom member extending through the lateral extensions of said opening and being rigidly connected to said outer and inner plates, and the upper portions of said transoms being rigidly connected to said inner plates.

5. A truck frame fabricated from sheet metal plates, comprising a side frame, built up from sheet metal plates, at each side of said truck and transoms extending in spaced relation between said frames and welded together at their junctures, said frames and transoms comprising sheet metal plates arranged in vertical planes and top and bottom plate members at right angles to said plates, and means including welds for rigidly attaching the inner and outer edge portions of said plates to said plate members, sheet metal gusset members comprising sheet metal plates rigidly connected to said transoms and overlapping said side frames and welded thereto, whereby a rigid structure is provided.

6. In a truck for railway cars, a side frame, built up from sheet metal plates, at each side of said truck, transoms comprising plates in vertical planes extending between said side frames and welded thereto, said side frames and tran-

soms each comprising at least one plate arranged in a vertical plane, an upper and a lower sheet metal plate for each frame arranged at right angles to said side frame and transom plates and rigidly secured thereto by means including welds separated by the first-named plates and extending in parallel planes, and hollow sheet metal gussets built up from sheet metal plates overlapping and welded to said upper plates and rigidly connected to said transoms.

7. In a truck for railway cars, a side frame, built up from sheet metal plates, at each side of said truck, transoms comprising plates in vertical planes extending between said side frames and welded thereto, said side frames and transoms each comprising at least one plate arranged in a vertical plane, upper and lower plates arranged at right angles to said side frame and transom plates and rigidly secured thereto by means including welds separated by the first-named plates and extending in parallel planes, and sheet metal gussets between said side frame and transom plates at their juncture, said gussets being built up from sheet metal plates and each having a horizontal plate welded to the adjacent transom and overlapping the adjacent upper plate of the side frame and welded thereto.

8. In a frame for a railway car truck, a pair of built-up sheet metal side frames comprising sheet metal frame plates arranged in spaced vertical planes at each side of the truck, sheet metal transom plates arranged in vertical planes spaced apart and welded at their ends to the central portions of certain of said side frame plates, a single sheet metal top plate and a bottom plate for each side frame extending along and engaging respectively the upper and lower edges of the frame plates and at right angles thereto, each of said plates being substantially straight in transverse section, and means including welds at each side of said frame plates for rigidly connecting the same to said top and bottom plates.

9. In a frame for a railway truck, a pair of built-up sheet metal side frames each comprising side plates extending longitudinally of the truck in spaced vertical planes, each plate having upper and lower horizontal edge portions between its end portions, transom plates extending between said side frames and welded thereto between said horizontal edge portions, a top and a bottom plate for each side frame having plane horizontal portions engaging said horizontal edges and forming the upper and lower chords of said frame, respectively, and means at each side of the horizontal edges of said side plates for rigidly connecting said side plates to said upper and lower plates, said means including welds on opposite sides of each of said side plates.

10. In a truck for railway cars, a sheet metal side frame built up from plates of sheet metal at each side of said truck, said frames having web portions arranged in spaced vertical planes, sheet metal transom plates spaced apart and extending in vertical planes between said web portions and welded to said web portions, a single horizontally arranged sheet metal plate, substantially straight in cross-section, extending over the web portions of each side frame and another beneath each of said web portions and respectively engaging the upper and lower edges thereof for forming the upper and lower chords of said frames, and means at each side of each of said web portions for rigidly connecting the same to said plates, said means comprising welds.

11. A truck frame fabricated from sheet metal plates and comprising a side frame member built up from sheet metal plates at each opposite side of the truck, each of said side frame members comprising sheet metal frame plates extending in spaced vertical planes, transom members comprising sheet metal transom plates arranged in spaced relation in vertical planes and extending between said frame members and rigidly connected thereto at their junctures, and a single upper plate straight in transverse section and a lower plate substantially straight in transverse section, for each side frame member respectively engaging the upper and lower edges of said side frame plates and rigidly secured thereto by welds at opposite sides of said side frame plates, whereby a rigid truck frame structure is provided.

12. A truck frame fabricated from sheet metal plates and comprising side frame members, built up from sheet metal plates to form a box structure, at opposite sides of the truck, said side frame members comprising sheet metal frame plates extending in vertical planes, transom members comprising sheet metal transom plates arranged in spaced relation in vertical planes and extending between said frame plates and rigidly connected thereto at their junctures, a single upper and a lower plate for each side frame member engaging respectively the upper and lower edges of said side frame plates, and depending pedestal sheet metal plate members at each end of said frame members.

13. In a frame for a railway truck, a pair of built-up sheet metal side frames each comprising side plates extending longitudinally of the truck in spaced vertical planes, each plate having upper and lower horizontal edge portions between its end portions, spaced transom plates extending between said side frames and welded thereto between said horizontal edge portions, a top and a bottom plate for each side frame having plane horizontal portions engaging said horizontal edges and forming the upper and lower chords of said frame, respectively, means at each side of the horizontal edges of said side plates for rigidly connecting said side plates to said upper and lower plates, said means including welds on opposite sides of each of said side plates, gussets across the angles formed by said transom plates and side frames, and brake hangers supported by said gussets.

MARTIN P. BLOMBERG.
WILLIAM H. MUSSEY.