

Nov. 30, 1965

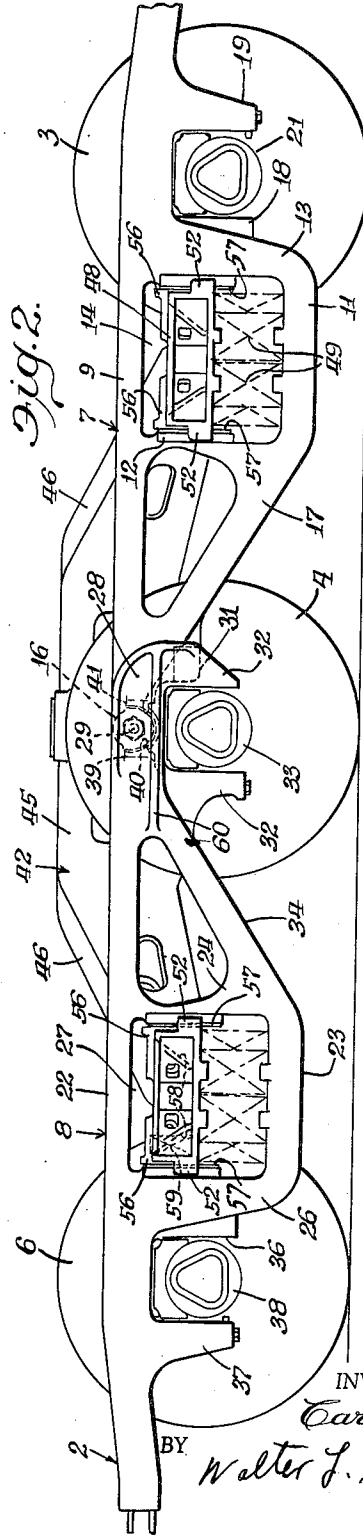
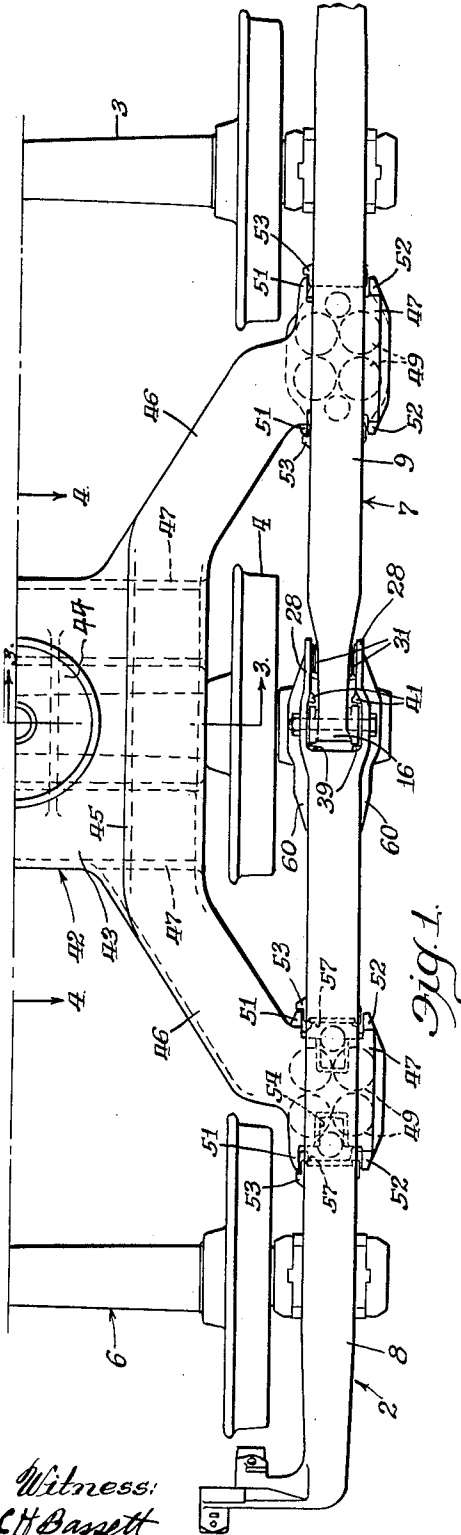
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3,220,357

RAILWAY CAR TRUCK

Filed Feb. 14, 1962

4 Sheets-Sheet 1



Witness:
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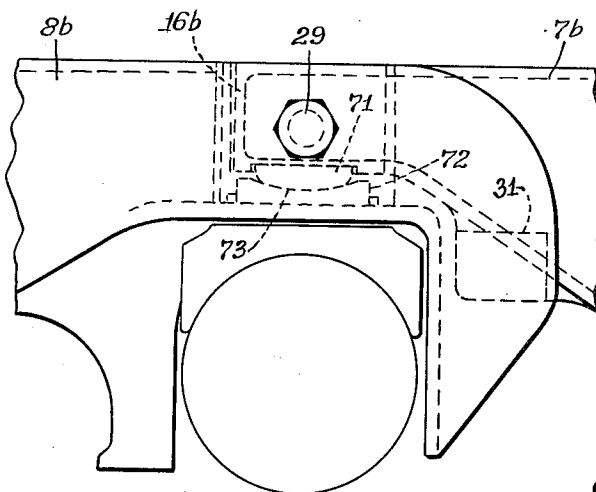
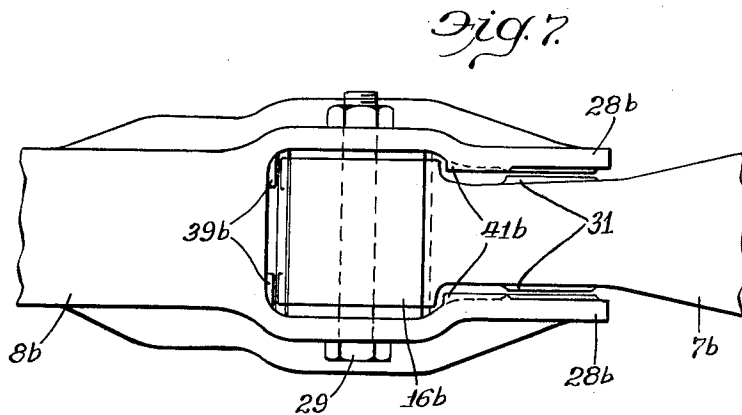
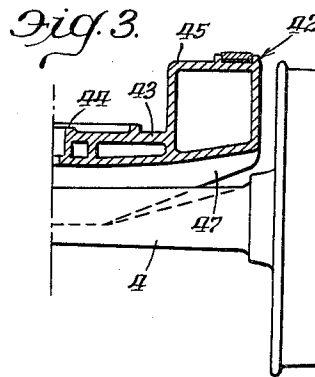
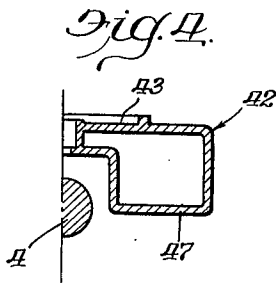
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RAILWAY CAR TRUCK

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4 Sheets-Sheet 2



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RAILWAY CAR TRUCK

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4 Sheets-Sheet 3

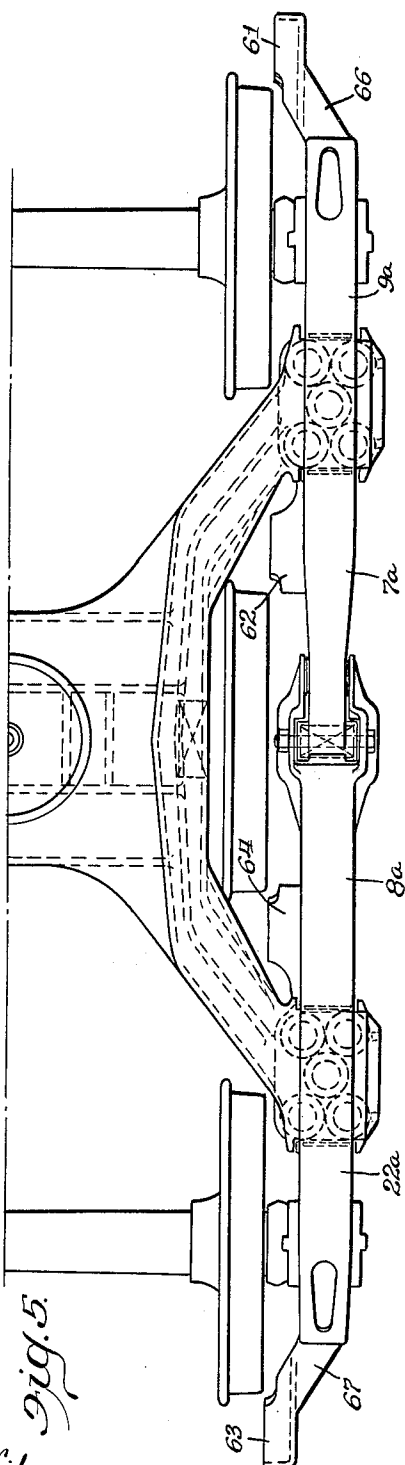


Fig. 5.

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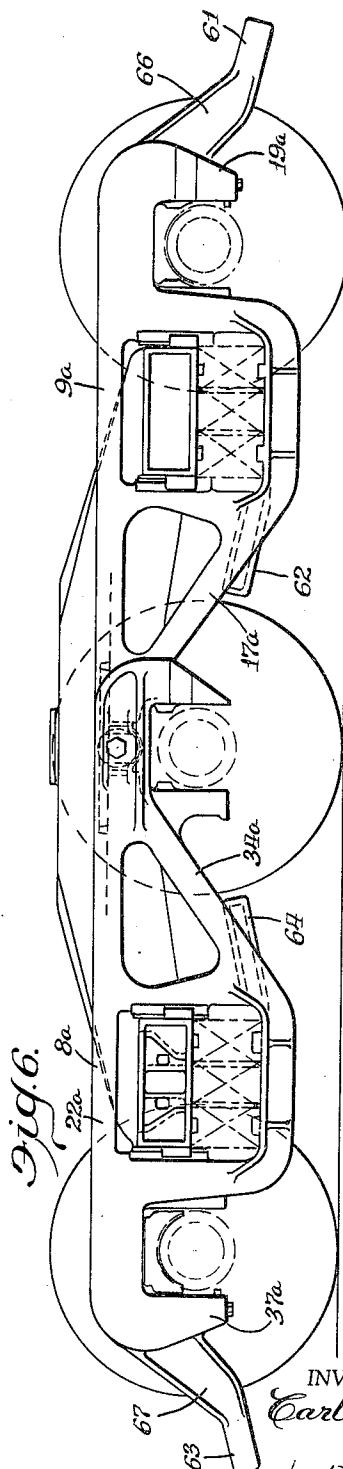


Fig. 6.

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RAILWAY CAR TRUCK

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Fig. 9.

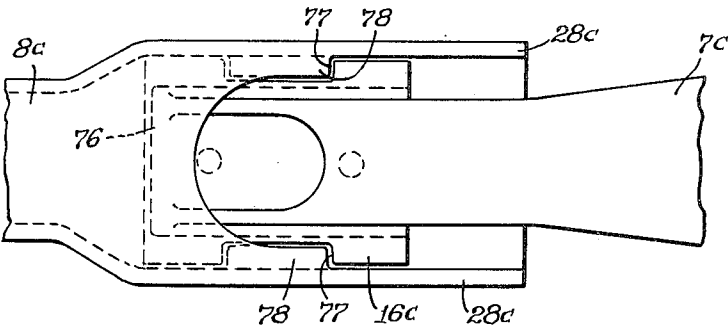


Fig. 10.

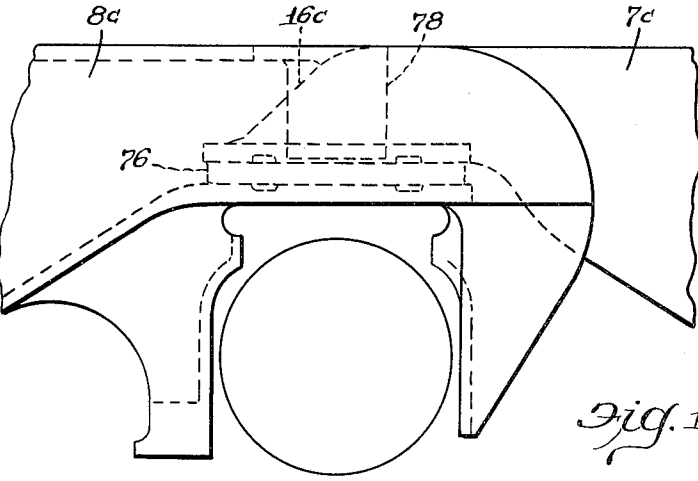
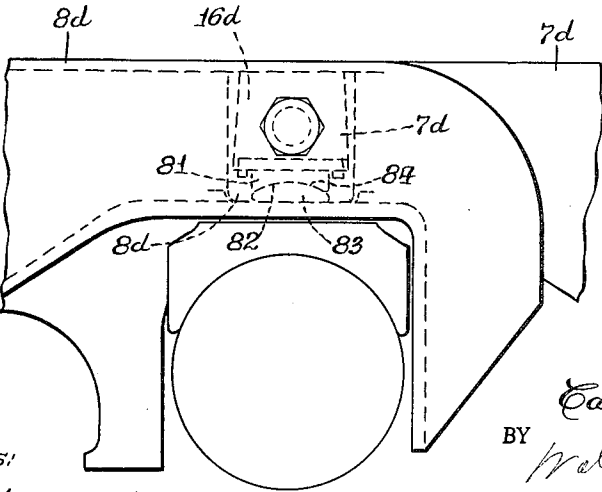


Fig. 11.



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3,220,357

RAILWAY CAR TRUCK

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4 Claims. (Cl. 105—195)

This invention relates to railway car trucks and more particularly to a six wheel freight car truck.

The present invention contemplates the provision of a six wheel, self-aligning, spring plankless railway freight car truck in which the side frames are free within controlled limits to adjust themselves to track conditions. On entering curved track sections, the truck is adapted to yield slightly to external forces tending to pull it out of square against the resistance of the bolster springs to angular distortion. On reentering straight track, the resistance of the bolster springs to temporary distortion restores the truck to its normally square condition.

An object of the invention resides in the provision of a six wheel truck embodying friction snubbing means to control different movements of the bolster relative to the side frames and of the side frame relative to each other, said snubbing means coacting with the bolster springs to maintain the truck in its normally square condition.

Another object of the invention resides in the provision of a six wheel truck embodying means for snubbing oscillations of the bolster relative to the side frames and for returning the truck to its normally square condition as the truck moves from a curved section of track onto a straight section.

A further object of the invention resides in the provision of a self-aligning freight car truck embodying side frames supported upon three wheel and axle assemblies, each side frame comprising two side frame sections having their adjacent inner ends pivotally connected to each other and supported upon the central wheel and axle assembly, the outer ends of the side frame sections being supported upon their respective outer wheel and axle assemblies.

Another object of the invention resides in the provision of two pivotally connected side frame sections, each comprising a one-piece metal casting having tension and compression members interconnected by spaced columns to define a window to receive the outer end of a bolster leg.

Another object of the invention resides in the provision of a bolster having four legs diverging outboardly from a central body portion toward and into their respective side frame windows, the outer end of each leg being resiliently supported upon a spring group seated on a side frame section tension member, and each leg being provided with two pockets to receive shoes biased into frictional engagement against their respective columns by compression springs.

Another object of the invention resides in the provision of two pivotally connected side frame sections, one of which is provided at its inner end with pedestal jaws to receive a journal box, and with spaced aligning walls above said pedestal jaws defining a pocket to receive the inner end of the companion frame section.

Another object of the invention resides in the provision of improvements in a one-piece bolster structure for a six wheel railway car truck, wherein longitudinal legs of box

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section are arranged upon the ends of spaced transverse reinforcing members of box section provided under the body portion of the bolster.

The invention embodies other novel features, details of construction and arrangement of parts which are hereinafter set forth in the specification and claims and illustrated in the accompanying drawings, forming part thereof, wherein:

FIGURE 1 is a top plan view illustrating a six wheel railway car truck embodying features of the invention, only one-half of the truck being shown as opposite sides of the truck are similar in construction;

FIGURE 2 is side elevation showing the truck structure illustrated in FIGURE 1;

FIGURE 3 is a transverse section taken along the line 3—3 of FIGURE 1;

FIGURE 4 is a section taken along the line 4—4 of FIGURE 1;

FIGURE 5 is a top plan view illustrating another embodiment of the invention, only one-half of the truck being shown;

FIGURE 6 is a side elevation of the structure shown in FIGURE 5;

FIGURE 7 is a fragmentary top plan view illustrating another embodiment of the invention;

FIGURE 8 is a side elevation of same;

FIGURE 9 is a fragmentary top plan view illustrating another embodiment of the invention;

FIGURE 10 is a side elevation of same;

FIGURE 11 is a fragmentary side elevation illustrating another embodiment of the invention.

Referring now to the drawings for a better understanding of the invention, the six wheel spring plankless railway car truck is shown as comprising spaced side frames 2 supported upon three wheel and axle assemblies 3, 4 and 6, each side frame embodying two pivotally connected sections 7 and 8.

The side frame section 7 is preferably in the form of a one-piece metal casting comprising a beam member 9 and spring seat member 11 interconnected by spaced columns 12 and 13 to define a window 14. A pivot head 16 is provided on the inner end of the beam member 9, and a tension member 17 extends upwardly from the spring seat member 11 to merge with the beam member adjacent the pivot head. The outer side of the column 13 is formed to provide an inner pedestal jaw 18 which coacts with an outer pedestal jaw 19 depending from the beam member 9 to engage a journal box 21 containing anti-friction roller bearings of any conventional type to receive a journal portion on the wheel and axle assembly 3.

The side frame section 8 is also preferably in the form of a one-piece metal casting comprising a beam member 22 and a spring seat member 23 interconnected by spaced columns 24 and 26 to define a window 27. Spaced vertical walls 28 are provided on the inner end of the beam member 22 to receive the pivot head 16 therebetween, the head being pivotally connected to the walls by means of a bolt 29 extending therethrough. As illustrated in FIGURE 1, the walls 28 extend from the head 16 along opposite sides of the beam member 9 to engage pads 31 thereon to limit lateral and angular deflection of the section 7 relative to the section 8.

Spaced pedestal jaws 32 extend downwardly from the inner end of the beam member 22 to receive a journal

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box 33 therebetween, said box containing conventional roller bearings to engage a journal portion of the wheel and axle assembly 4. A tension member 34 extends upwardly from the inner column 24 to merge with the inner end of the beam member 22 adjacent the pedestal jaws 32. A pedestal jaw 36 formed on the outer side of the column 26 coacts with a pedestal jaw 37 depending from the beam member 22 to engage a journal box 38 provided with roller bearings to receive a journal portion of the wheel and axle assembly 6.

The head 16 is supported for rocking movement upon an arcuate bearing 40 provided on the inner end of the side frame section 8 between the vertical walls 28, and stop lugs 39 and 41 are formed on each wall 28 to engage opposite sides of the head 16. The inner end of the side frame section 8 is reinforced by means of ribs 60 extending longitudinally along the outer sides of the walls 28.

A bolster 42 interconnects and is resiliently supported upon the four side frame sections 7 and 8. The bolster 42 is shown as comprising a one-piece metal casting having a body portion 43 formed with a central pivot pin bearing surface 44. Beams 45 of box section extend longitudinally along opposite sides of the body portion 43 and merge with outboardly diverging legs 46. To reinforce the bolster structure, spaced beams 47 of box section extend transversely under the body portion 43 and under the longitudinal beams 45 adjacent the inboard ends of the legs 46.

As illustrated in FIGURE 1, the bolster 42 is symmetrical about its longitudinal and transverse center lines, and said transverse center line is in a common vertical plane with the axis of rotation of the wheel and axle assembly 4.

The outboard end of each leg 46 merges with a foot portion 48 of box section disposed within a window of its respective side frame section and resiliently supported upon a spring group 49 seated on a spring seat member. Each foot portion 48 is provided with inboard and outboard lugs 51 and 52 straddling their respective side frame columns, the inboard lugs 51 also being engagable against stop lugs 53 provided on each side frame section.

Pockets 54 are provided on the sides of each bolster foot portion 48 to receive friction shoes 56 for engagement against wear plates 57 provided on the columns, said pockets being formed with wedge surfaces 58 inclined upwardly toward their respective wear plates. The friction shoes are urged upwardly against and along said wedge surfaces 58 by means for compression springs 59. The pockets 54 and friction shoes 56 may be formed and arranged as disclosed in United States Patent No. 2,953,995, granted September 27, 1960, to A. F. Baker, which patent is incorporated herein by reference.

FIGURES 5 and 6 illustrate another embodiment of the invention wherein the side frame sections 7a and 8a are formed with brake beam support members 61, 62, 63 and 64 adapted to receive guide lugs provided on opposite ends of brake beams which, for example, may be of the type disclosed in United States Patent No. 2,500,192, issued March 14, 1950 to R. L. Leisk.

On the side frame section 7a, the guide member 61 is formed on an extension 66 which merges with the outer end of the beam member 9a and pedestal jaw 19a; and the guide member 62 is formed on the inboard side of the tension member 17a. On the side frame section 8a, the guide member 63 is formed on an extension 67 which merges with the outer end of the beam member 22a and the pedestal jaw 37a; and the guide member 64 is formed on the inboard side of the tension member 34a. This embodiment of the invention is otherwise similar to the form heretofore shown and described.

FIGURES 7 and 8 illustrate another embodiment of the invention in which a wear block 71 is secured to the lower side of the head 16b of the side frame section 7b for engagement against a bearing block 72 secured on

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the side frame section 8b, the blocks having complementary abutting spherical bearing surfaces at 73. This embodiment of the invention is otherwise similar to the embodiments heretofore shown and described.

FIGURES 9 and 10 illustrate another embodiment of the invention in which a resilient rubber pad 76 is mounted on the inner end of the side frame section 8c between the spaced walls 28c to support the head 16c on the side frame section 7c, the head being formed with recesses 77 to receive abutment lugs 78 formed on the side walls 28c. This embodiment of the invention is otherwise similar to the embodiments heretofore shown and described.

FIGURE 11 illustrates another embodiment of the invention. In this form of the invention, a wear block 81 having a concave spherical surface 82 is secured to the head 16d of the side frame section 7d. A bearing block 83 having a convex spherical bearing surface 84 is secured to the side frame section 8d to receive the wear block 81. This embodiment of the invention is otherwise similar to the embodiments of the invention illustrated in FIGURES 1 to 4.

In each of the several embodiments of the invention, it is contemplated that the side frame sections 7 of the two side frames 2 may be located at either the same end of the truck or at diagonal locations in the truck structure. When the two side frame sections 7 are located at one end of the truck and the two side frame sections 8 are located at the other end of the truck, it will be noted that the sections 8 and assemblies 4 and 6 comprise generally a four wheel truck structure, and that the assemblies 3 serve as trailer or guide wheels in the six wheel truck structure. By arranging the side frame sections 7 at diagonal locations, it will be noted that all the wheels are integrated into one truck structure.

It will also be noted that the friction shoes 56 act to yieldably resist an out of square condition of the truck and to return the parts to an in square condition.

In each of the several connections between the side frame sections 7 and 8, lateral action will occur at the joint inducing a couple rotating the side frame section about the vertical axis. With this embodiment of pad 31 this force is transferred from the upper connection to a position in the horizontal line of bolster lateral action.

I claim:

1. A six wheel railway freight car truck comprising spaced side frames supported upon three wheel and axle assemblies, each side frame including two side frame sections having adjacent inner ends interconnected for relative pivotal movement, one of said sections having at its inner end a bottom wall extending completely between spaced vertical side walls, a bearing block secured to said bottom wall, the other of said sections having at its inner end a head disposed between said side walls, and a wear block secured to said head, said bearing and wear blocks having complementary abutting spherical surfaces.

2. A six wheel railway freight car truck comprising spaced side frames supported upon three wheel and axle assemblies, each side frame including two side frame sections having adjacent inner ends interconnected for relative pivotal movement, one of said sections having at its inner end a bottom wall extending completely between spaced vertical side walls, a bearing block secured to said bottom wall and having an upwardly-facing concave spherical surface, the other of said sections having at its inner end a head disposed between said side walls, and a wear block secured to said head and having a downwardly-facing convex spherical surface, said surfaces being complementary abutting surfaces.

3. A six wheel railway freight car truck comprising spaced side frames supported upon three wheel and axle assemblies, each side frame including two side frame sections having adjacent inner ends interconnected for relative pivotal movement, one of said sections having at its inner end a bottom wall extending completely between

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spaced vertical side walls, a bearing block secured to said bottom wall and having an upwardly-facing convex spherical surface, the other of said sections having at its inner end a head disposed between said side walls, and a wear block secured to said head and having a downwardly-facing concave spherical surface, said surfaces being complementary abutting surfaces.

4. A six wheel railway freight car truck comprising spaced side frames supported upon three wheel and axle assemblies, each side frame including two side frame sections having adjacent inner ends interconnected for relative pivotal movement, one of said sections having at its inner end a bottom wall extending completely between spaced vertical side walls, a bearing block secured to said bottom wall and having an upwardly-facing convex spherical surface, the other of said sections having at its inner end a head disposed between said side walls in spaced relationship therewith, a wear block secured to said head and having a downwardly-facing concave spherical surface, said surfaces being complementary abutting surfaces, and stop lugs on the inner sides of said vertical walls to

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directly engage opposite sides of said head to limit relative longitudinal movements of said sections.

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