June 27, 1950 R. B. COTTRELL 2,512,829

SNUBBED TRUCK

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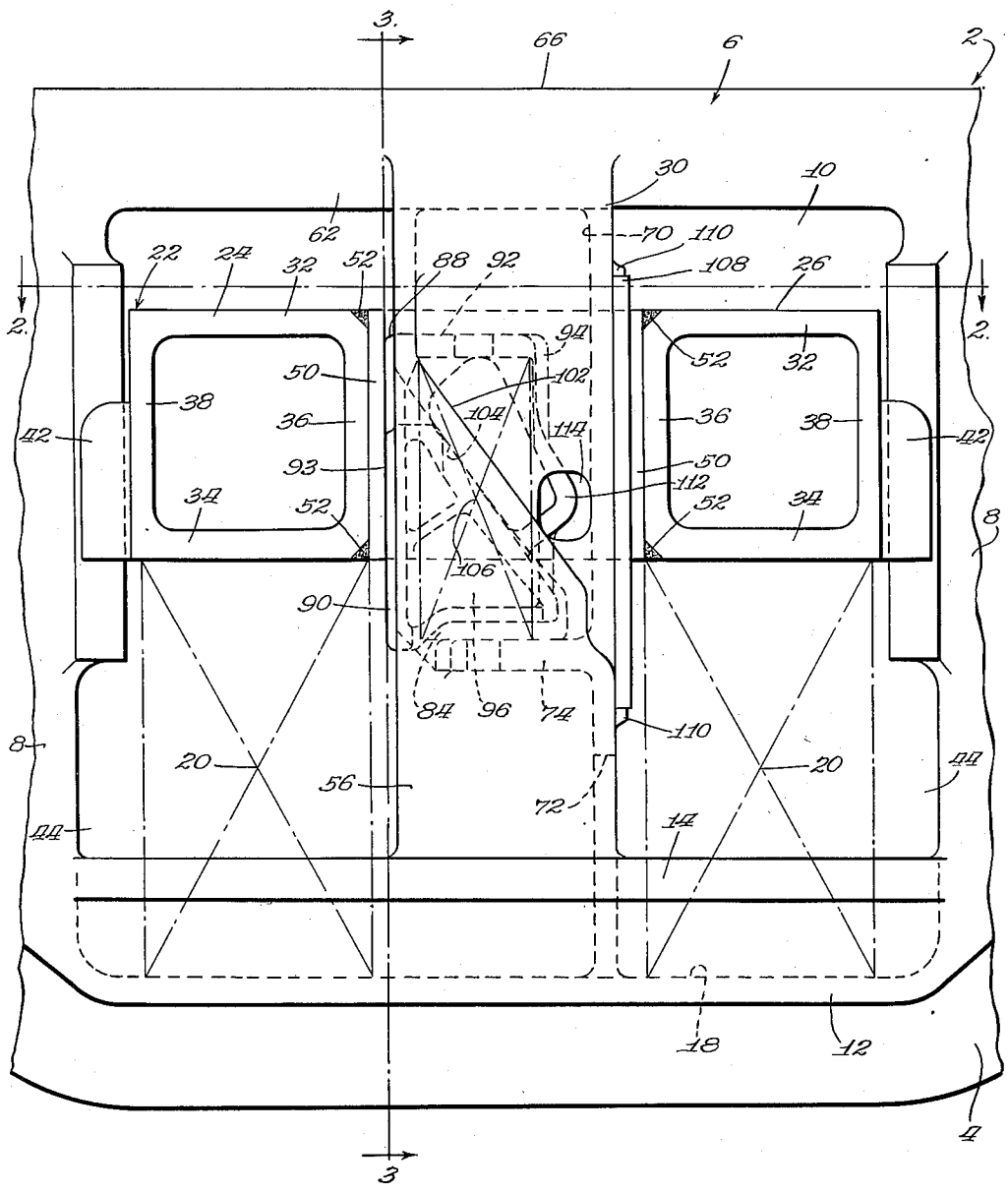


Fig. 1.

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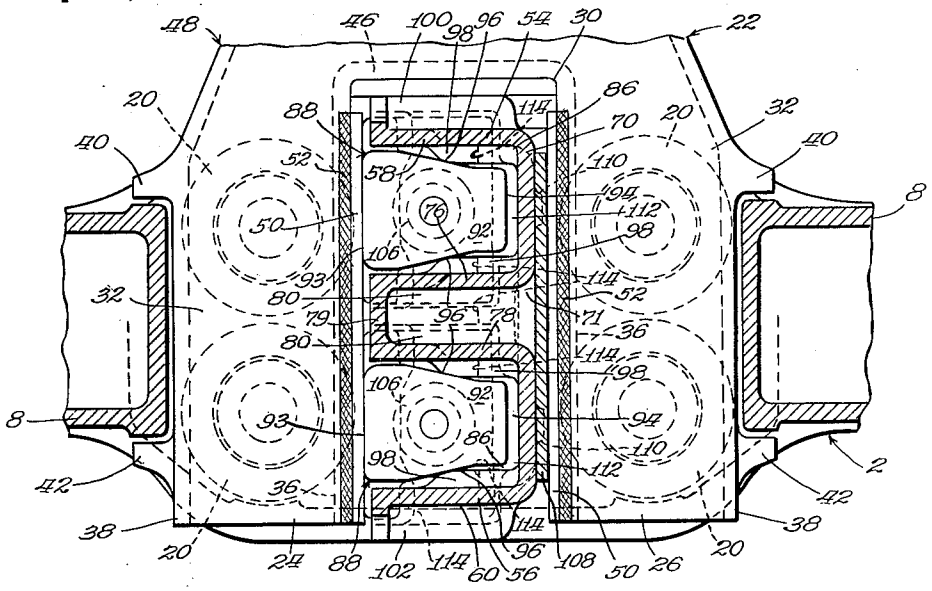


Fig. 2.

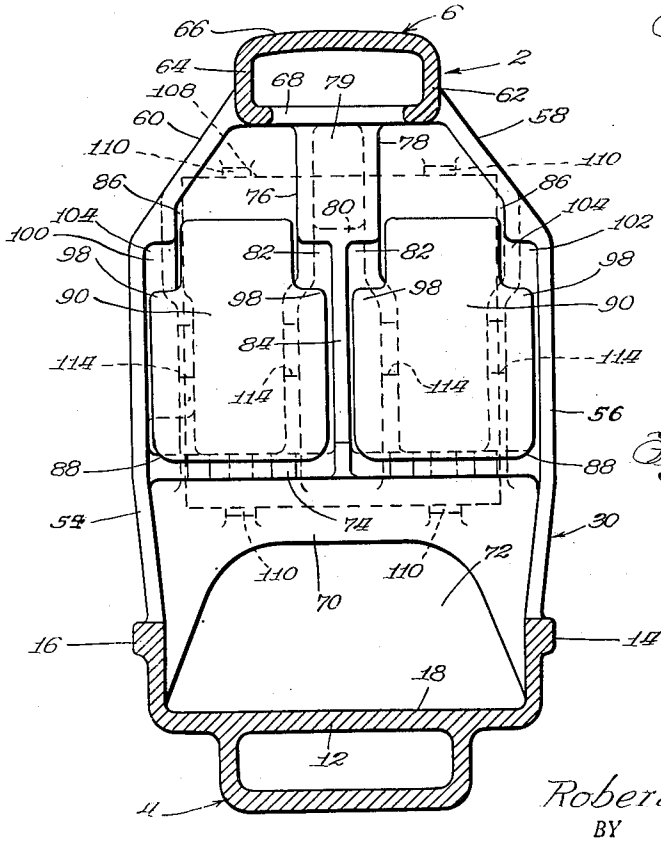


Fig. 3.

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Fig. 4.

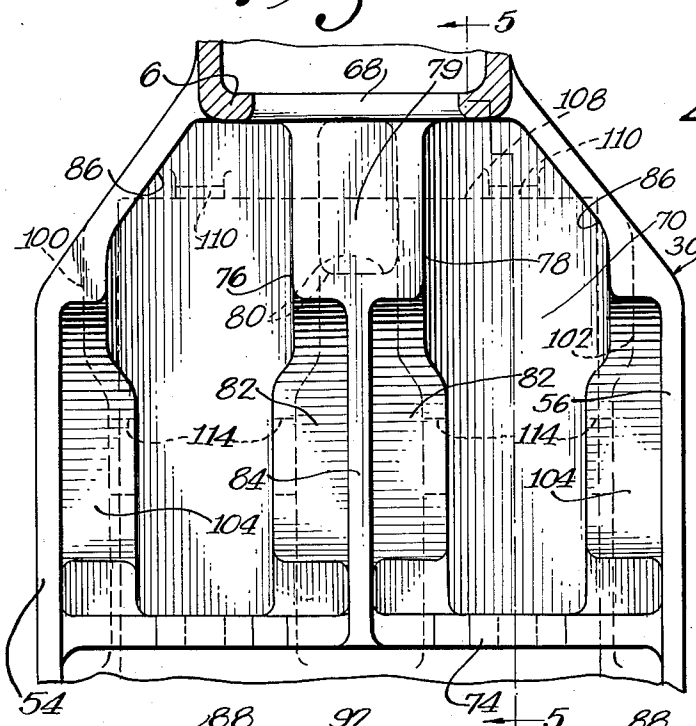


Fig. 5.

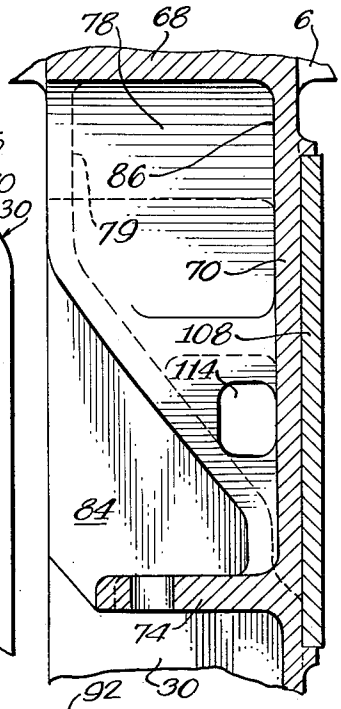


Fig. 6.

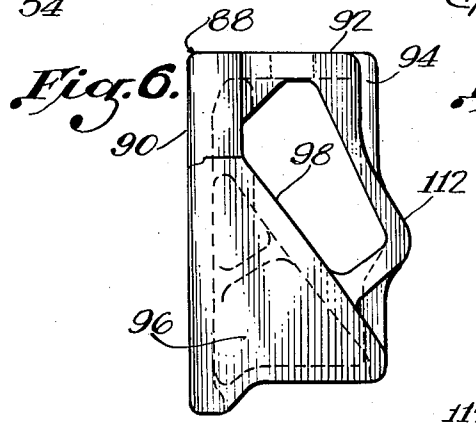


Fig. 7.

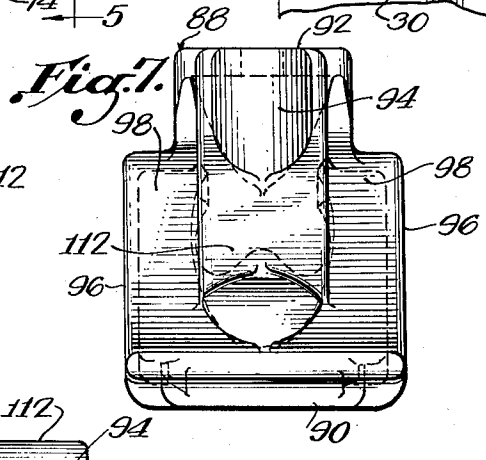
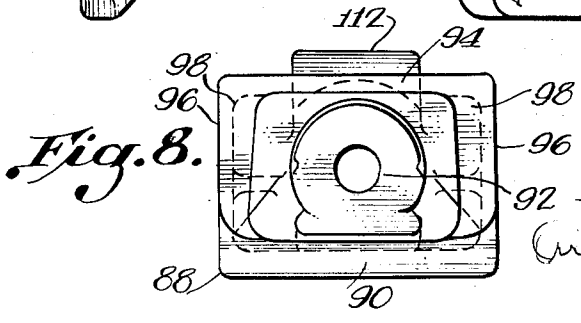


Fig. 8.



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UNITED STATES PATENT OFFICE

2,512,829

SNUBBED TRUCK

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Application September 2, 1948, Serial No. 47,515

21 Claims. (Cl. 105—197)

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This invention relates to railway car trucks and more particularly to a snubbed truck wherein means are provided for damping oscillations of the bolster-supporting springs.

The general object of the invention is to design a truck such as above described wherein a truss type side frame is provided having a substantially vertical center post or column received between spaced legs of a bifurcated bolster end which is resiliently supported from the frame, said column carrying friction means for engagement with one of said legs and having a friction surface in engagement with the other leg.

Another object is to provide means for effectively controlling various movements of the bolster relative to the side frames and to maintain the truck parts in squared relationship.

A more specific object is to provide a set of friction shoes in one side of the center column, the shoes being spaced transversely of the side frame and engaging one of the bolster legs on a surface thereof extending longitudinally of the bolster and being operative to urge the other leg of the bolster against the opposite side of said column.

A different object is to provide in such a car truck as described friction means wherein each shoe comprises spaced ledges in engagement with spaced wedge means in the associated pocket and the actuating means for each shoe comprises a spring extending between the wedge means and ledges and compressed between vertically spaced abutment surfaces on the shoe and column.

These and other objects of the invention will become apparent from the specification and the drawings wherein:

Figure 1 is a fragmentary side elevation of a railway car truck embodying the invention;

Figure 2 is a top plan view of Figure 1, partly in section, taken substantially on the line 2—2 of Figure 1;

Figure 3 is a sectional view taken on the line 3—3 of Figure 1 with the bolster removed;

Figure 4 is a fragmentary sectional view comparable to Figure 3 with the shoes removed to more clearly illustrate the construction of the friction shoe pockets;

Figure 5 is a sectional view taken substantially on the line 5—5 of Figure 4; and

Figures 6 to 8, inclusive, illustrate the friction shoe, Figure 6 being a side elevational view thereof, Figure 7 a rear view taken from the right as shown in Figure 6, and Figure 8 a bottom view.

Describing the invention in detail, the truck comprises a side frame, generally indicated 2, at

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each side thereof. Each side frame 2 comprises tension and compression members 4 and 6 and spaced upright columns 8, 8 merging with said members and forming a bolster opening 10 therewith.

The tension member 4 is of box section, as best seen in Figure 3, and comprises a widened top chord 12 with upstanding outboard and inboard flanges 14 and 16 defining with said top chord a spring seat 18 on which are mounted pairs of bolster-supporting springs 20, 20 disposed one pair at each side of the transverse center line of the side frame, the lower ends of said springs 20, 20 seating on said seat 18 and the upper ends of the springs seating against a bolster, generally designated 22.

The bolster comprises a bifurcated end having spaced legs 24 and 26 extending generally longitudinally of the bolster and receiving a column or post 30 therebetween, said column or post 30 extending substantially medially between the columns 8, 8 within the bolster opening 10 and being integral with the tension and compression members, as hereinafter more fully described. The bolster legs are of box section and each comprises top and bottom walls 32 and 34 and spaced side walls 36 and 38.

On the remote sides of walls 38 of the legs 24 and 26 are provided inboard and outboard guide lugs or interlocking gibs 40 and 42 which are arranged in embracing relationship with the adjacent columns. It will be noted that the outboard lugs 42 are of a depth convenient to be inserted into and withdrawn from the bolster opening through its widened lower portion, indicated at 44. The walls 36, 36 on the adjacent sides of legs 24 and 26 extend longitudinally of the bolster and at their inner extremities merge with a transverse wall 46 which is integral with the body portion 48 of the bolster. The walls 36, 36 of legs 24 and 26 are provided on their adjacent sides with friction means or surfaces in the form of wear plates 50 secured to the associated leg in any convenient manner although preferably by welding as at 52, 52.

As above noted, the center post 30 extends between legs 24 and 26, said center post comprising spaced inboard and outboard walls 54 and 56, the lower portions of said walls 54 and 56 being slightly inclined toward each other and merging at their lower extremities with the inboard and outboard spring seat flanges 16 and 14, respectively, and the upper portions 58 and 60 of walls 56 and 54 are inclined towards each other and at their upper extremities merge with the outboard and

inboard webs 62 and 64, respectively, of the box section compression member 6. Said compression member, in addition to walls 62 and 64, includes top and bottom walls 66 and 68.

One side of the center post adjacent one of the columns 8 is provided with a substantially vertical web 70 bifurcated at its upper portion at 71, said web 70 extending transversely of the frame and between said inboard and outboard walls and merging therewith at its lateral edges, and at its upper end merging with said bottom web 68 of said compression member and at its lower end being cored away as at 72 to lighten the structure and merging on its lateral edges at its lower ends with the inner sides of the spring seat flanges 14 and 16. The post is also provided with a substantially horizontal wall 74 disposed substantially medially between the top and bottom ends of said center post, said wall 74 extending between the inboard and outboard walls 54 and 56 and merging therewith and with the rear or inner side of said transverse web 70.

The post also comprises at its upper extremity medially between the inner and outer walls 54 and 56 thereof, spaced substantially vertical parallel webs 76 and 78 extending at right angles to web 70 and connected at one of their lateral edges thereto and at their other lateral edges being interconnected by a vertical web 79. The upper ends of the webs 76, 78 and 79 merge with bottom web 68 of the compression member, and the lower ends thereof terminate well above the horizontal wall 74. The lower ends of walls 76 and 78 are turned inwardly toward each other as at 80, 80 to form downwardly facing, upwardly sloping or diagonal coplanar convex or crowned wedge surfaces or ledges 82, 82, at opposite sides of a substantially vertical rib 84 merging at its upper extremity and rear edge with and medially between the inturned portions of the walls 76 and 78 and connected at its lower edge with the top surface of wall 74. The walls 54 and 56 together with the webs 70, 74, 76 and 78 and rib 84 define a plurality of pockets 86, 86 spaced transversely of the column and in each pocket is received a friction shoe, generally designated 88.

Each shoe is in general a skeletal structure and comprises a front or friction wall 90 in engagement as at 93 with the before-mentioned friction plate 50 on leg 24 of the bolster. In addition to the front wall, each shoe comprises a top wall 92, a rear wall 94, and spaced side walls 96, 96 from which project wing portions 98, 98.

The inboard and outboard walls of the post are offset inwardly as at 100 and 102, respectively, to provide ledges 104, 104 within the respective pockets 86, 86 and affording upwardly sloping wedge surfaces coplanar with wedge surfaces or ledge surfaces 82, 82.

Within each shoe is housed an actuating spring 106 which is compressed between the top wall 92 of the shoe and the horizontal or spring seat wall 74 of the center post. Each spring 106 serves to urge the associated shoe upwardly and the wing portions 98, 98 on the shoe into wedge engagement with ledges 82 and 104 in the associated pocket. Thus the shoe is urged outwardly of the pocket against the wear plate 50 on the associated bolster leg 24. The action of the friction shoes causes the bolster to move laterally and to engage the wear plate 50 on leg 25 thereof with a wear plate 108 mounted on the external side of the transverse web 70 and held thereon by means of spaced lugs 110, 110 formed on the external side of said web 70. The friction plate 108 may, of course, be integral with wall 70; however, it is preferred that it be welded thereto.

The rear wall of each shoe is provided with a loop portion 112 behind which may be hooked a suitable tool, such as a bar (not shown), which may be projected through aligned openings 114 in the inboard and outboard walls 54 and 56 of the post and intermediate walls 76 and 78, the tool serving to hold the shoes in retracted position within the pockets 86, 86 in the post to accommodate ready assembly and disassembly of the bolster with respect to the side frame, as will be readily understood by those skilled in the art.

It will be appreciated that the bolster is restrained from movement laterally thereof in one direction by the unyielding nature of the friction means on the post and one of the bolster legs; however, the bolster is accommodated a slight lateral movement in the reverse direction inasmuch as the friction shoes are accommodated movement inwardly of the friction post. It will be noted that any twisting or angling movement of the bolster is restricted by both of the friction shoes and constant friction is provided between the bolster and the friction shoes to dampen vertical oscillations of the bolster. Of course, only one shoe could be used; however, the two shoes as shown provide for greater stability and are more effective to control angling of the bolster as well as rotational movement thereof around the column.

I claim:

1. In a railway car truck, tension and compression members and three spaced columns extending therebetween, resilient means on said tension member, a bolster having a bifurcated end supported on said resilient means and comprising spaced legs receiving therebetween the intermediate of said columns, one of said legs directly engaging one side of said intermediate column, and friction means housed in said intermediate column comprising a friction element projecting from the opposite side of said intermediate column and in wedge engagement therewith and in frictional engagement with the other leg, and substantially vertical resilient means under compression between abutment means on said intermediate column and said element.

2. A side frame having tension and compression members and spaced columns forming therewith a bolster opening, said tension member being of box section beneath said bolster opening with the top chord of said box-section widened and formed with upstanding inboard and outboard flanges defining a spring seat, a post extending between said tension and compression members, said post comprising spaced inboard and outboard walls merging at opposite ends thereof with said compression member and respective flanges, intermediate webs integral with said compression member between said walls, each wall and adjacent web defining a friction shoe pocket, and ledges in each pocket on the associated web and wall providing spaced coplanar wedge surfaces.

3. In a railway car truck, a side frame having a bolster opening, a substantially vertical column within said opening, a relatively movable member supported from said frame comprising spaced portions embracing said column, engaging friction plates on one portion and adjacent side of said column, a plurality of pockets in said column, a pair of ledges in each pocket, a friction shoe in each pocket in wedge engagement with the ledges within the pocket and in frictional en-

gagement with the other portion, and resilient means within each shoe reacting thereagainst and against a wall of said column beneath said shoe.

4. In a railway car truck, a side frame comprising a substantially vertical column, a bolster with a bifurcated end supported on said frame and having spaced legs embracing said column, friction devices on adjacent sides of said legs, friction means on said column adjacent each leg, one of said friction means comprising a friction plate in engagement with the friction device on the adjacent leg, and the other of said friction means comprising a pocket in said column, wedge means within said pocket, a shoe engaging said wedge means and the friction device on the adjacent leg, and a spring bearing against said shoe and said column and oriented to deliver a force urging said shoe into said engagement.

5. In a railway car truck, a side frame having top and bottom members and spaced columns therebetween, a post intermediate said columns integral with said top and bottom members, a bolster having a bifurcated end portion comprising spaced legs one between each column and said post, one of said legs frictionally engaging the adjacent side of said post, horizontally spaced pockets in said post open to the other leg, a shoe in each pocket in engagement with a surface of the pocket and a surface of said other leg, and actuating means for each shoe for urging the same into engagement with all of said surfaces.

6. In a railway car truck, a side frame including top and bottom elements, a relatively movable member between said elements spring-supported from said bottom element and comprising spaced legs, and friction means between said legs including a column integral with both of said members, a pair of friction shoes in wedge engagement with said column and in frictional engagement with one of said legs, and indepedent friction means on the other leg in engagement with friction means on said column, and spring means compressed between said shoes and abutment means on said column.

7. In a railway car truck, a side frame comprising a substantially vertical central column, a bolster spring-supported from said frame and including spaced legs receiving said column therebetween, one of said legs directly engaging one side of said column, friction shoe means in the opposite side of said column comprising spaced shoe means in wedge engagement with spaced wedge means in said column and in frictional engagement with the other leg, a spring seat in said column beneath said shoe means, and spring means compressed between said spring seat and said shoe means extending between said spaced wedge means.

8. In a railway car truck, a side frame including a substantially vertical central column, a relatively movable member resiliently supported from said frame and comprising spaced legs receiving said column therebetween, engaging friction surfaces on adjacent sides of one leg and said column extending transversely of said frame, friction means within said column spaced transversely of said frame and each engaging said column and a friction face on the other leg extending substantially parallel to said surfaces, and actuating means for said friction means housed within said column.

9. In a railway car truck, spaced side frames each comprising a substantially vertical column, a bolster extending between said frames and comprising end portions supported on said frames, each of said end portions comprising spaced legs embracing the adjacent column, one of the legs of each end portion engaging one side of the associated column along a surface extending longitudinally of the bolster, pockets in the opposite side of each column spaced transversely of said frames, and shoe means in each pocket in engagement with the other leg of the associated end portion.

10. A side frame having tension and compression members, a post therebetween comprising spaced inboard and outboard walls merging at opposite ends with said members, webs between said walls, said walls and webs defining spaced shoe pockets in one side of said column, wedge means on each wall and web within the associated pocket, a transverse wall interconnecting said inboard and outboard walls, friction means carried by said transverse wall, and a spring seat at the lower end of each pocket comprising a substantially horizontal wall interconnecting said inboard, outboard and transverse walls.

11. In a railway car truck, a side frame having a substantially vertical column, a bolster having a bifurcated end spring-supported from said frame and comprising spaced legs at opposite sides of said column, shoe means within said column in wedge engagement with spaced column wedge means and in frictional engagement with one of said legs, spring means extending between said wedge means and compressed between spaced abutments on said shoe means and column, and a friction surface on said column in engagement with the other leg.

12. In a railway car truck, a truss type side frame including a substantially vertical center post, a bolster supported from said frame and comprising spaced legs embracing said column, one of said legs engaging the adjacent side of said column, friction shoe means pocketed in the opposite side of said column in engagement with the adjacent side of the other leg, and resilient means for actuating said shoe means compressed against spaced abutments on said column and said shoe means.

13. In a railway car truck, a side frame having a bolster opening, a column within said opening, a bolster having spaced legs in said opening at opposite sides of said column, engaging friction means carried by one of said legs and said column, spaced wedge means on said column, friction shoe means in wedge engagement with said wedge means and in frictional engagement with the other leg, and resilient means within each shoe means compressed between a wall thereof and a spaced column wall.

14. In a railway car truck, spaced side frames each comprising a substantially vertical column, a bolster extending between said frames and comprising bifurcated end portions supported on said frames, each of said end portions comprising spaced legs receiving the adjacent column therebetween, a plurality of friction shoes housed within each column in engagement with one of the legs of the associated end portion, and cooperating friction means carried by the other leg of each end portion and the related column.

15. In a railway car truck, a side frame comprising a substantially vertical column, a relatively movable member comprising spaced portions embracing said column, friction surfaces on adjacent sides of said portions extending transversely of said frame, unitary friction means on said column adjacent the surface on

one of said portions and in engagement therewith, and independent friction devices in said column in engagement therewith and with the surface on the other portion.

16. In a railway car truck, a side frame including a column, a relatively movable member spring-supported from said frame and having spaced legs embracing said column, one of said legs engaging one side of said column, friction means in the opposite side of said column including a plurality of shoes spaced transversely of said frame and in engagement with the column and the other leg, and resilient means compressed between vertically spaced abutment means on said shoes and said column.

17. In a railway car truck, a side frame having a bolster opening, a column integral with the frame within said opening, a bolster comprising spaced legs receiving said column therebetween, friction means within said column in frictional engagement with one leg and formed and arranged to move said bolster transversely of said column whereby the other leg of the bolster is caused to engage the column.

18. In a railway car truck, a side frame comprising a column member, a bifurcated bolster structure comprising spaced legs resiliently supported from said frame and disposed at opposite sides of said column member, a pair of friction shoes arranged side by side transversely of said column and bearing thereagainst and engaging one of said legs, and a friction surface on the other leg engaging said column.

19. A snubbed truck comprising a side frame, a bolster adapted to support an associated car body, said bolster being spring-supported from said frame and having spaced legs, one of said

legs having a fixed friction surface, a post between said legs, and spring-actuated friction means associated with the post and other leg for urging said surface against said post.

20. In a railway car truck, a side frame having a bolster opening and a portion within said opening, a bolster comprising spaced legs disposed at opposite sides of said portion, friction means between one of said legs and said portion formed and arranged to move the bolster to a position engaging the other leg with said portion, said friction means comprising a shoe wedged between said one leg and said portion, and resilient means for urging the shoe to the wedged position thereof and reacting between said shoe and said frame.

21. A truss type side frame comprising two spaced columns and a post connected to the frame between said columns and aligned therewith longitudinally of the frame, said post being formed wider than said columns transversely of the frame and comprising a plurality of friction shoe pockets open to one of said columns and having a friction surface facing the other of said columns.

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