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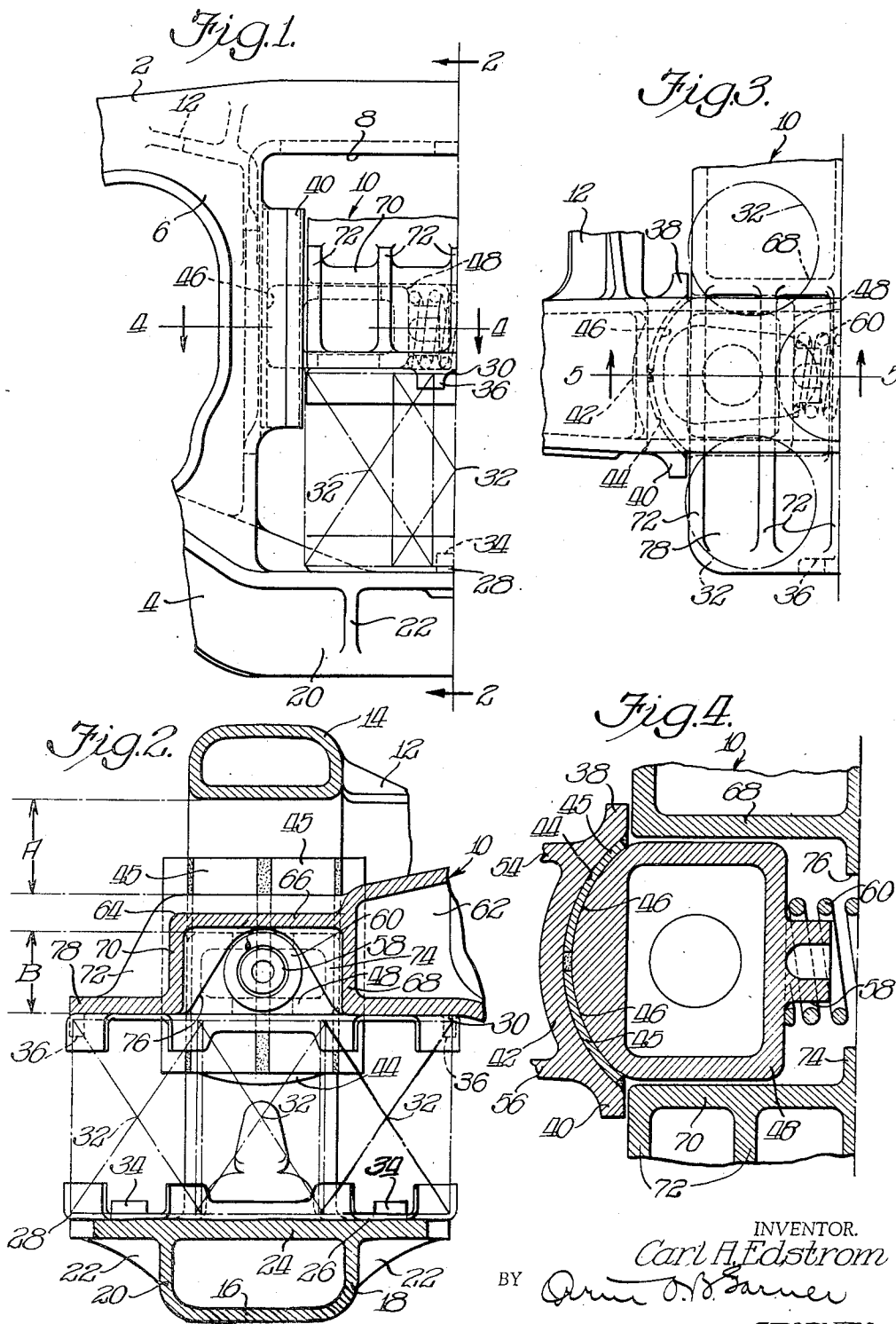
C. A. EDSTROM

2,370,106

TRUCK ARRANGEMENT

Filed Jan. 16, 1942

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Fig. 5.

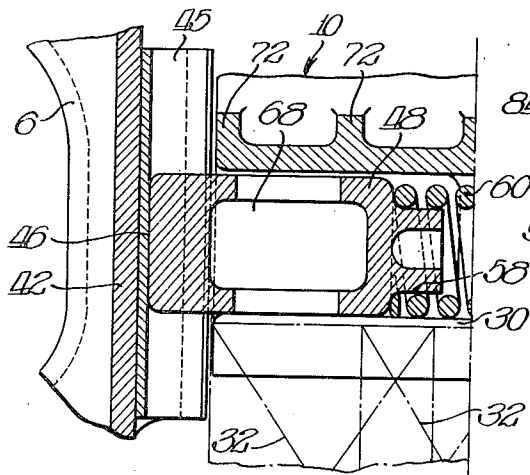


Fig. 6.

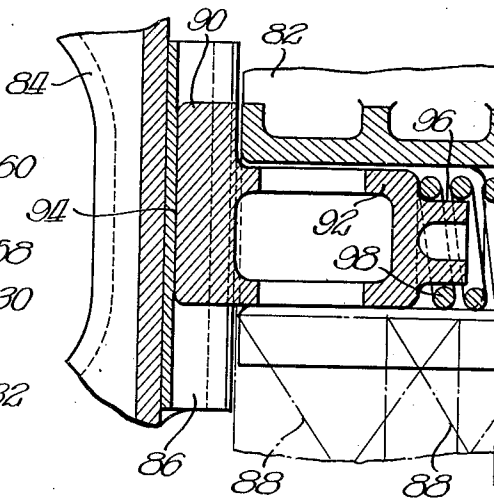


Fig. 7.

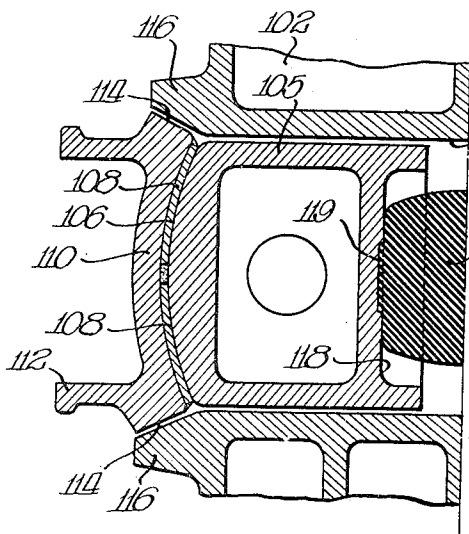
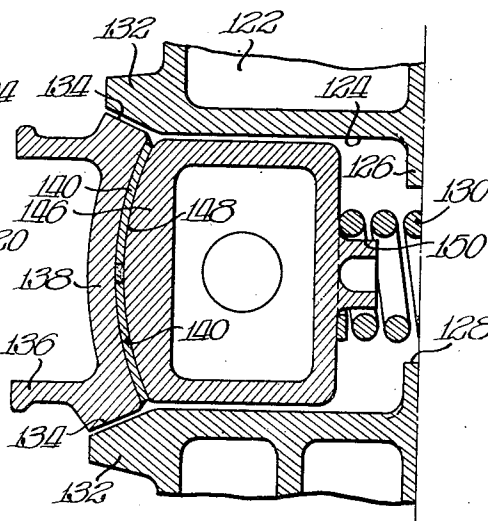


Fig. 8.



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TRUCK ARRANGEMENT

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27 Claims. (Cl. 105—197.2)

My invention relates to a railway freight car truck and especially to such a type of truck commonly designated spring plankless wherein spaced side frames may be held in squared relationship by a connecting bolster affording support in usual manner for a car body.

The general object of my invention is to devise a spring plankless freight car truck for use in high speed service wherein snubbing means may conveniently be associated with each side frame and the bolster at their points of connection, said snubbing means assisting also in the squaring of the truck parts.

A specific object of my invention is to devise a novel form of railway car truck wherein the bolster may be tied to each side frame by means of laterally slidable followers which may have frictional engagement with complementary surfaces formed on the adjacent columns of the side frame, and which may be supported within a recess in the end of said bolster by the bolster supporting coil spring group.

My invention comprehends an arrangement wherein the bolster may be removed from the bolster opening of the side frame or applied therein without disturbing the spring group upon which the bolster is normally seated or my novel snubbing device supported upon said group.

A different object of my invention is to devise a novel form of bolster wherein may be recessed followers or friction shoes in frictional engagement with the adjacent columns of the side frame, and wherein said followers may be actuated by a single resilient means recessed in said bolster.

My invention also contemplates an arrangement wherein the friction shoes or followers may serve as a sole means of tying together the side frame and bolster, or where desirable I may utilize additional guide lugs on the bolster for engagement with the side frame columns as illustrated.

In the drawings,

Figure 1 is a fragmentary side elevation of a railway car truck embodying my invention.

Figure 2 is a sectional view of the structure shown in Figure 1, taken substantially in the transverse vertical plane bisecting the truck and as indicated by the line 2—2 of Figure 1.

Figure 3 is a fragmentary top plan view of the structure shown in Figures 1 and 2.

Figure 4 is a fragmentary sectional view taken substantially in the horizontal plane indicated by the line 4—4 of Figure 1, and Figure 5 is a further fragmentary setcional view in the vertical plane indicated by the line 5—5 of Figure 3.

Figure 6 is a view comparable to that shown in Figure 5 but showing a different modification of my invention, and Figures 7 and 8 are views comparable to that shown in Figure 4, each showing a different modification of my invention.

Describing the structure in detail and referring first to the modification illustrated in Figures 1 to 5 inclusive, my novel truck structure may comprise a truss side frame having a compression member 2, a tension member 4, and an integral column 6 at each side of the bolster opening 8 within which may extend the bolster generally designated 10 in usual manner. Adjacent the juncture of the column 6 with the compression member 2 may be formed the usual brake hanger bracket fragmentarily indicated at 12. Over the bolster opening 8, the compression member 2 may have a box-section illustrated at 14 in Figure 2, and beneath said bolster opening the tension member likewise may have a box-section with a bottom chord 16, inboard and outboard walls 18 and 20 reinforced by the vertical ribs 22, 22, and a top chord 24 widened beneath said bolster opening to form a spring seat 26 upon which may be supported a spring group in usual manner, said group comprising a bottom spring plate 28, a top spring plate 30, and a plurality of coil springs, diagrammatically indicated at 32, 32, said top and bottom plates being flanged over to afford retaining means for said springs. Upstanding lugs 34, 34 on the spring seat 26 may afford positioning means for the spring group and likewise depending lugs 36, 36 on the bolster 10 may further position said spring group.

The upper portion of each column may be widened somewhat by laterally projected inboard and outboard vertical flanges 38 and 40 (Figures 3 and 4). Between said flanges, the transverse web 32 of the column may be cylindrical in form affording an arcuate surface 44 to which may be welded the arcuate wear plates 45, 45 (Figure 4), said plates being engaged as at 46, 46 with a complementary friction surface formed on the friction shoe 48 which may have vertical slidable movement with respect thereto. Figure 4 well illustrates the structure of the column through the bolster guide surface, said column comprising the before-mentioned arcuate transverse web 42, the inboard wall 54, and the outboard wall 56.

The friction shoes 48, 48 may be rectangular in section with the before-mentioned friction surfaces in complementary engagement with the plates 45, 45 as at 46, 46, each of said shoes being afforded positioning means 58 for one end of the

compression spring 60 confined between the shoes 48, 48.

From a comparison of Figures 2, 3, and 4 it may be noted that the bolster 10 comprises a body portion 62 and an end portion 64 (Figure 2), said end portion being a jaw-like structure defined by a top wall 66, inboard and outboard walls 68 and 70, the wall 68 being integral with the body portion 62 of said bolster. The end portion 64 is strengthened by the vertical ribs 72, 72 and by the intermediate vertical wall 74 extending longitudinally of said bolster and cored away as at 76 for accommodation of the spring 60. The end portion 64 also comprises a nose portion 78 seated upon the outboard end of the spring plate 30 and comprising the lug 36 serving a purpose heretofore described.

Figure 6 shows a modification of my novel arrangement in which the bolster designated 82, each bolster guide column 84, the wear plates 86, 86 secured thereto, and the bolster supporting coil springs (fragmentarily indicated at 88, 88) are identical with those shown in the previous modification, the sole difference between this and the previous modification being the vertical extension 90 on each friction shoe 92 affording increased friction and bearing surfaces for engagement as at 94 with the wear plates 86, 86, said shoe positioning as at 96 a compression spring 98 identical with that employed in the previous modification.

Figure 7 shows another modification of my invention comprising a bolster end 102 with a transverse recess 104 in the bottom thereof, said recess receiving therewithin at each end thereof a friction shoe or spring cap follower 105 in frictional engagement as at 106 with the friction plates 108, 108 welded to the column 112 as in the previous modifications. The column 112 is similar with those shown in previous modifications except that the transverse web 110 thereof comprises a slightly shallower contour so that the friction plates 108, 108 secured thereto may also be of shallower contour than those employed in the previous modifications. This difference in the column structure is made possible because of the guide surfaces 114, 114 on said column cooperating with guide lugs 116, 116 on the bolster end 102 to tie said bolster end to said column, thus relieving the friction shoe 105 of this tying function and thereby making possible a shallower arcuate face engagement between said shoe and the associated wear plates than the similar engagement shown in previous modifications. Each follower is a cup-like structure engaged as at 106 with wear plates 108, 108 as previously described and comprises a recess 118 receiving therewithin for positioning as at 119 an end of the rubber-like pad 120 extending between the followers at opposite sides of the bolster end.

Figure 8 shows still another modification of my invention comprising a bolster end designated 122 with a recess 124 in the bottom thereof, said end being reinforced by the intermediate longitudinal wall 126 cored away as at 128 for accommodation of the coil spring 130 extending between the friction shoes at opposite sides of the bolster end. The bolster also comprises guide lugs 132, 132 cooperating with surfaces 134, 134 on each column 136, the transverse web 138 of which is of arcuate contour and adapted for the securement thereto of the arcuate friction plates 140, 140. Each friction shoe 146 is in engagement as at 148 with the associated friction plates 140, 140 and comprises positioning means at 150 for

the coil spring 130 extending between the shoes at opposite sides of the bolster end.

In each of the modifications shown, the distance between the top of the bolster opening and the top of the bolster end, indicated at A (Figure 2), is greater than that between the top of the friction shoes and the bottom of the bolster end, as indicated at B (Figure 2) so that the bolster may be removed from the bolster opening without disturbing the supporting spring group and the snubbing and tying device recessed within the end of the bolster.

In those modifications showing guide lugs on the bolster end and cooperating surfaces on the associated columns, it will be readily understood that said lugs and said surfaces may be of limited depth so that the bolster end may be raised in the bolster opening and readily removed therefrom without disturbing the supporting spring group and snubbing device associated therewith.

It is to be understood that I do not wish to be limited by the exact embodiments of the device shown which are merely by way of illustration and not limitation as various and other forms of the device will, of course, be apparent to those skilled in the art without departing from the spirit of the invention or the scope of the claims.

I claim:

1. In a railway car truck, a side frame comprising a bolster opening and vertical columns at opposite sides thereof, a spring group in said opening, a bolster end seated on said group and comprising a recess in the bottom thereof, friction shoes in said recess and in engagement with respective columns, resilient means under compression between said shoes, the distance between the top of said bolster opening and the top of said bolster end being greater than that between the tops of said shoes and the bottom of said bolster end, whereby said end may be raised in said opening and removed therefrom without disturbing said shoes.

2. In a railway car truck, a truss side frame comprising a bolster opening and upstanding columns at opposite sides thereof, a spring group on said frame in said opening, a bolster end received therewithin and supported by said group, said end comprising a transverse recess in the bottom thereof, friction shoes in said recess and in frictional engagement with respective columns and supported by said group, and resilient means under compression between said shoes, said shoes being the only means tying said end to said frame and being operable to frictionally resist vertical and transverse movements of the bolster end with respect to said frame.

3. In a railway car truck, a truss side frame comprising a bolster opening and upstanding columns at opposite sides thereof, arcuate guide surfaces on said columns, a spring group in said opening, a bolster end supported thereon, said bolster end comprising a recess in the bottom thereof, friction shoes in said recess in complementary engagement with respective surfaces, and resilient means under compression between said shoes, said shoes being the only means tying said frame and said bolster end to each other.

4. In a railway car truck, a truss side frame comprising a bolster opening and upstanding columns at opposite sides thereof, a spring group on said frame in said opening, a bolster end received therewithin and supported by said group, arcuate guide surfaces on said columns, friction shoes housed in said bolster end at opposite sides thereof and in complementary frictional engage-

ment with respective of said surfaces, said shoes being supported independently of said bolster end by said spring group, and resilient means under compression between said shoes.

5. In a railway car truck, a side frame comprising a bolster opening and vertical columns at opposite sides thereof, a spring group in said opening, a bolster end supported thereon and comprising a recess in the bottom thereof, and means housed in said recess and tying said frame to said end, the distance between the top of said means and the bottom of said end being less than that between the top of said end and the top of said bolster opening whereby said end may be removed therefrom without disturbing said means, said means comprising spaced members engaged with respective columns and resilient means urging said members into said engagement.

6. In a railway car truck, a truss side frame comprising a bolster opening and upstanding columns at opposite sides thereof, a spring group on said frame in said opening, a bolster end received therewithin and supported by said group, said bolster end comprising a transverse recess in the bottom thereof, friction shoes in said recess in engagement with respective columns and seated directly on said spring group, and resilient means under compression between said shoes, the distance between the tops of said shoes and the bottom of said bolster end being less than the distance between the top of said bolster end and the portion of the side frame thereabove, whereby said bolster end may be elevated in said bolster opening and removed therefrom during a quick wheel change while said friction shoes remain in normal assembled relationship on said spring group.

7. In a railway car truck, a truss side frame comprising a bolster opening and upstanding columns at opposite sides thereof, a spring group on said frame in said opening, a bolster end received within said opening and supported by said group, said end comprising a recess in the bottom thereof, a friction shoe received within said recess at each end thereof and in engagement with the associated column, said bolster end being of limited depth whereby the same may be elevated in said bolster opening and removed therefrom during a quick wheel change while said friction shoes and side frame remain in normal assembled relationship, and resilient means compressed by and between said shoes, said shoes being seated directly on said group.

8. In a railway car truck, a truss side frame comprising a bolster opening and upstanding columns at opposite sides thereof, resilient means on said frame in said opening, friction plates secured to said columns, a bolster end received within said opening and supported by said means, said bolster end comprising a recess in the bottom thereof, spaced friction shoes in said recess and in engagement with respective of said plates, and a block of resilient material bearing against all of said shoes and compressed thereby, said shoes being seated directly on said first-mentioned resilient means.

9. In a railway car truck, a truss side frame comprising a bolster opening and upstanding columns at opposite sides thereof, arcuate guide surfaces on said columns, a spring group in said opening, a bolster end supported thereon, said bolster end comprising a recess in the bottom thereof, friction shoes seated directly on said group in said recess and in complementary engagement with respective surfaces, and resilient means compressed by and between said shoes.

10. In a railway car truck, a truss side frame comprising a bolster opening and vertical columns at opposite sides thereof, resilient means on said frame in said opening, a bolster end received therewithin and supported by said means, a recess in the bottom of said end, friction shoes therein in engagement with said columns and seated directly on said means, and a resilient member under compression between said shoes, the distance between the tops of said shoes and the bottom of said bolster end being less than the distance between the top of said bolster end and the portion of said side frame thereabove, whereby said bolster end may be elevated in said bolster opening and removed therefrom during a quick wheel change while said friction shoes and side frame remain in normal assembled relationship.

11. In a railway car truck, a side frame comprising a bolster opening and vertical columns at opposite sides thereof, a spring group in said opening, a bolster end supported thereon and comprising a recess in the bottom thereof, and a friction absorbing device comprising friction shoes housed in said recess, supported by said group, and cooperating with said columns to frictionally control oscillations of said group and transverse movements of said end.

12. In a railway car truck, a truss side frame comprising a bolster opening and spaced columns, resilient means on said frame in said opening, a bolster end supported by said means and comprising a recess in the bottom thereof, a pair of friction shoes in said recess in engagement with the associated columns, said bolster end being of limited depth whereby the same may be elevated in said bolster opening and removed therefrom during a quick wheel change while said friction shoes and side frame remain in normal assembled relationship, and a coil spring under compression between said shoes, said shoes being seated directly on said resilient means.

13. In a railway car truck, a side frame comprising a bolster opening and vertical columns at opposite sides thereof, a spring group in said opening, a bolster end supported thereon and comprising a recess in the bottom thereof, and friction means comprising friction shoes in said recess, supported by said group, and in frictional engagement with said columns, said means being operable to frictionally resist vertical and transverse movements of said bolster end.

14. In a railway car truck, a side frame comprising a bolster opening and upstanding columns at opposite sides thereof, resilient means in said opening, a bolster end supported on said means and comprising a recess in the bottom thereof, and friction means comprising friction members housed in said recess, supported by said resilient means, and tying said end to said frame, said friction members being resiliently urged against surfaces on respective columns extending transversely of said frame, and said friction members being movable against said surfaces during vertical or transverse movements of the bolster end with respect to said frame for frictionally resisting such movements.

15. A bolster comprising spaced bottom walls formed and arranged for seating upon an associated spring group, spaced transverse walls integral with said bottom walls, a top wall joining said transverse walls, said top and transverse walls defining a recess formed and arranged for reception therewithin of means securing said bolster to an associated side frame, and an in-

intermediate longitudinal wall within said recess and comprising a passage for a portion of said means.

16. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening, resilient means on said frame in said opening, a bolster supported on said resilient means, and a friction unit recessed in the bottom of said bolster and seated directly on said means, said unit comprising spaced shoes in frictional engagement with respective columns said bolster being of limited depth whereby the same may be elevated in said bolster opening and removed therefrom during a quick wheel change while said shoes and side frame remain in normal assembled relationship.

17. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening, resilient means on said frame in said opening, a bolster supported on said resilient means, and a friction unit recessed in the bottom of said bolster and seated directly on said means, said unit comprising spaced shoes in frictional engagement with respective columns and a resilient member compressed by and between said shoes, the engagement between said shoes and said columns being along complementary arcuate faces to afford frictional control of transverse movements of said bolster.

18. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening, resilient means on said frame in said opening, a bolster supported on said resilient means, and a friction unit recessed in the bottom of said bolster and seated directly on said means, said unit comprising spaced shoes in frictional engagement with respective columns and a resilient member compressed by and between said shoes, the engagement between said shoes and said columns being along complementary arcuate faces to afford frictional control of transverse movements of said bolster, said friction unit being the sole means tying said bolster to said frame.

19. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening, resilient means on said frame in said opening, a bolster supported on said resilient means, and a friction unit recessed in the bottom of said bolster and seated directly on said means, said unit comprising spaced shoes in frictional engagement with respective columns and a resilient member compressed by and between said shoes, said bolster being of limited depth whereby the same may be elevated in said bolster opening and removed therefrom during a quick wheel change while the friction unit and side frame remain in assembled relationship.

20. In a railway car truck, a side frame comprising a bolster opening with spaced columns at opposite sides thereof, resilient means on said frame in said opening, a bolster supported on said means, and a friction unit including friction shoes recessed in said bolster and cooperating with said columns to frictionally resist movements of the bolster vertically and transversely with respect to said frame, said unit constituting the sole means tying said bolster to said frame.

21. In a railway car truck, a side frame comprising a bolster opening with spaced columns at opposite sides thereof, resilient means on said frame in said opening, a bolster supported on said means, and a friction unit recessed in said bolster and cooperating with said columns to frictionally resist vertical and transverse move-

ments of the bolster, said unit comprising spaced friction shoes in frictional engagement with respective columns and resilient means independent of the first-mentioned resilient means and urging said shoes into said engagement, said shoes being the sole means tying said bolster to said frame.

22. In a railway car truck, a side frame comprising a bolster opening with spaced columns at opposite sides thereof, resilient means on said frame in said opening, a bolster supported on said means, and a friction unit recessed in said bolster and cooperating with said columns to frictionally resist vertical and transverse movements of the bolster, said unit constituting the sole means tying said frame to said bolster and comprising spaced friction shoes in frictional engagement with respective columns and a resilient member compressed by and between said shoes.

23. In a railway car truck, a side frame comprising a bolster opening and columns at opposite sides thereof, a spring group in said opening, a bolster end seated on said group, friction shoes recessed in the bottom of said bolster end, said shoes being in frictional engagement with respective columns, and resilient means urging said shoes into said engagement, said bolster end being of limited depth whereby the same may be elevated in said bolster opening and removed therefrom without disturbing said shoes.

24. In a railway car truck, a side frame comprising a bolster opening and columns at opposite sides thereof, a spring group in said opening, a bolster end seated on said group and comprising a recess in the bottom thereof, friction shoes in said recess and in engagement with respective columns, and a resilient member compressed by and between said shoes, said bolster end being of limited depth whereby the same may be elevated within said bolster opening and removed therefrom during a quick wheel change while the side frame and friction shoes remain in assembled relationship.

25. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening, guide surfaces on the adjacent edges of respective columns, the distance between said surfaces being less at the inboard and outboard sides thereof than centrally thereof, a bolster resiliently supported in said opening, friction shoes carried by said bolster at opposite sides thereof, said shoes having surfaces complementary in form to the associated column surfaces and in frictional engagement therewith, and resilient means urging said shoes into said engagement, said column and shoe surfaces being the sole contact at all times between said columns and said shoes and being the sole means for tying said bolster to said frame, and said shoe surfaces being slidable against said column surfaces during relative vertical or transverse movement of the bolster with respect to said frame.

26. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening, guide surfaces on said columns, resilient means on said frame in said opening, a bolster end supported thereon, friction shoes recessed in said bolster end and in complementary frictional engagement with respective surfaces, and resilient means urging said shoes into said engagement, said shoes being the sole means tying said bolster end to said frame and being operable to frictionally resist vertical and transverse movements of said bolster, the distance be-

tween the guide surfaces on the respective columns being less at the inboard and outboard sides thereof than centrally thereof.

27. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening partially defined at opposite sides thereof by guide surfaces on said columns, resilient means on said frame in said opening, a bolster end supported thereon, friction shoes recessed in said bolster end and in complementary 10

engagement with respective surfaces, and a resilient member compressed by and between said shoes, said shoes being the sole means tying said bolster end to said frame and being operable to 5 frictionally resist vertical and transverse movements of said bolster end, the distance between the guide surfaces on the respective columns being less at the inboard and outboard sides thereof than centrally thereof.

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