

July 29, 1947.

D. M. LIGHT

2,424,936

CAR TRUCK

Filed Sept. 23, 1943

4 Sheets-Sheet 1



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4 Sheets-Sheet 2

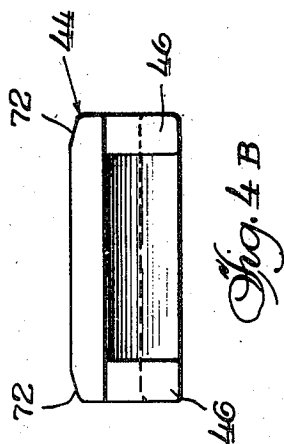


Fig. 4B

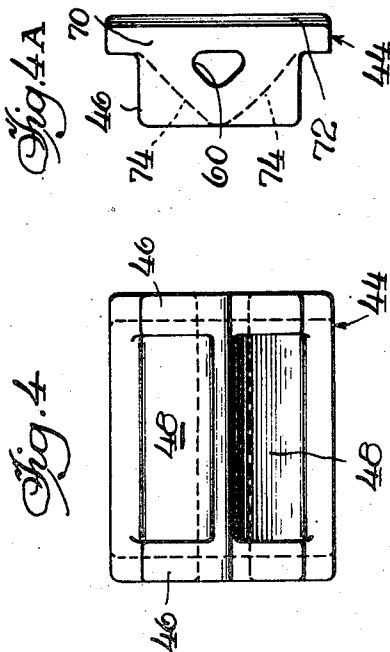


Fig. 4A

Fig. 4

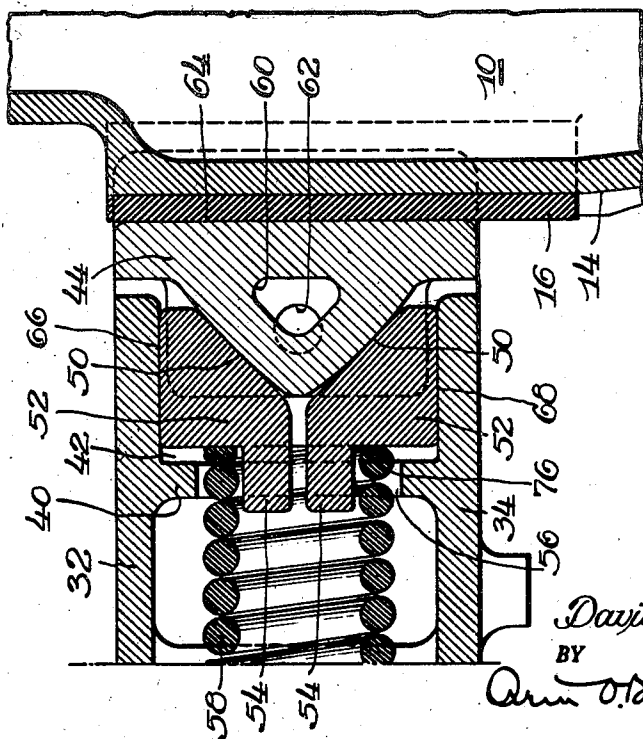


Fig. 3

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Fig. 6

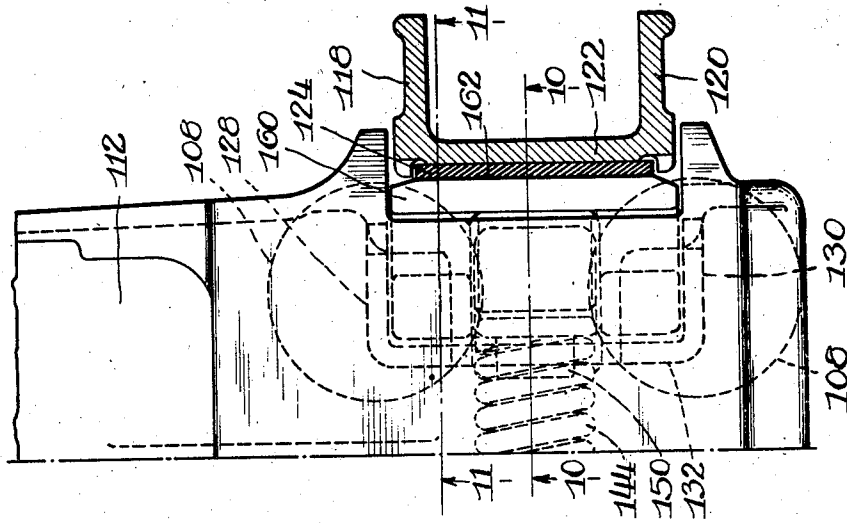
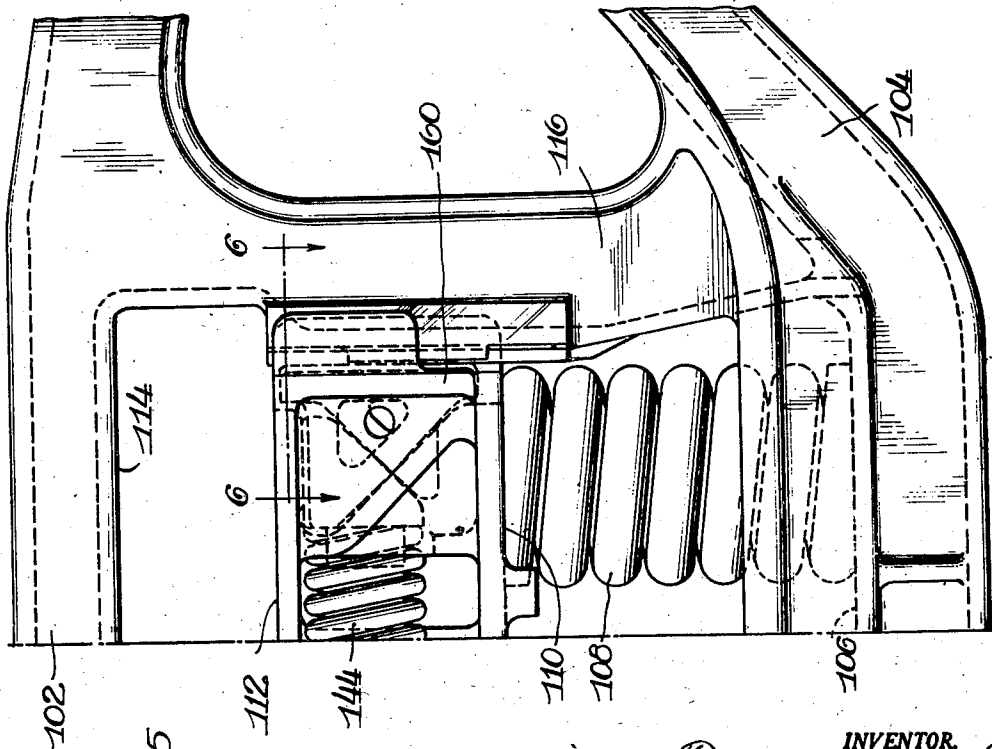


Fig. 5

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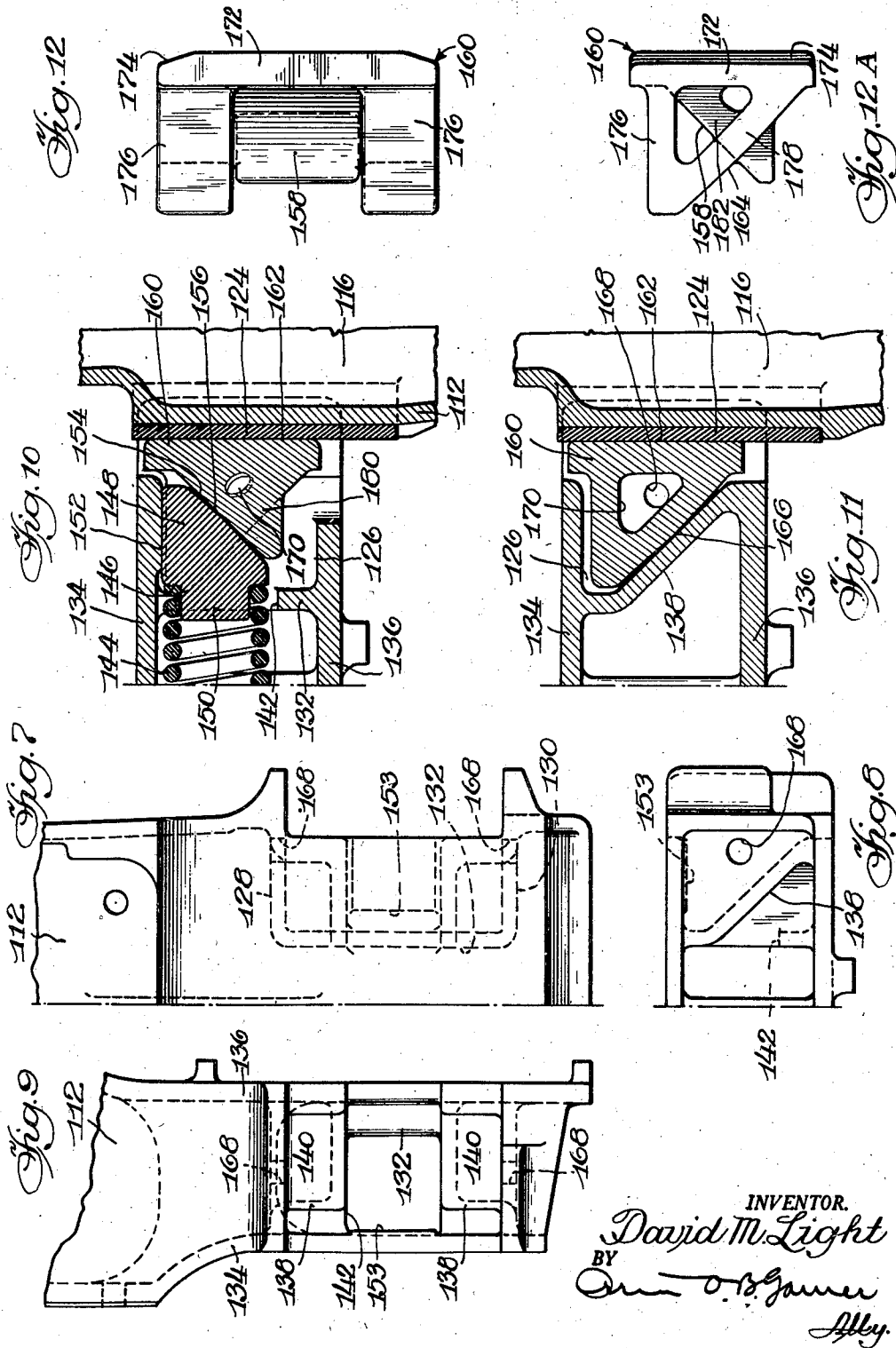
D. M. LIGHT

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4 Sheets-Sheet 4



UNITED STATES PATENT OFFICE

2,424,936

CAR TRUCK

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Application September 23, 1943, Serial No. 503,484

40 Claims. (Cl. 105—197)

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My invention relates to railway car trucks and more particularly to a novel means of affording ride control or snubbing action therefor.

The general object of my invention is to provide a railway car truck wherein relative movement between the side frame and bolster may be resisted by a snubbing action afforded by a friction device mounted wholly within the end of the bolster.

More specifically, my invention comprehends an arrangement wherein vertical members or columns on each side frame may be provided with wear plates for frictional engagement with friction means which may be mounted in the relatively movable bolster end. Said friction means may comprise a friction device at each side of the bolster for engagement with respect to the columns on the side frame and in my novel arrangement both friction devices may be actuated by a single resilient means extending across the bolster. In one modification I have so arranged the friction means that a friction shoe having a large wearing area may bear against each column and a plurality of wedge means may be resiliently urged into engagement with each friction shoe in such manner that each wedge will have frictional engagement not only with the shoe but also with the wall of the bolster. In this arrangement I contemplate engagement between each wedge and the associated friction shoe along surfaces, one of which may be arcuately formed in order to provide proper alignment therefor.

In another modification I contemplate an arrangement wherein each friction shoe may engage the adjacent column along a vertical surface and may also engage a plurality of spaced diagonally arranged walls in the adjacent bolster and intermediate said walls may also engage a wedge member along a reversely arranged diagonal surface, the cooperation between the shoe and wedge being effective to urge the wedge into frictional engagement with an adjacent wall of the bolster.

In both of my novel arrangements I contemplate structures which will permit the pre-assembly of the friction device in the bolster end in such manner that it will not interfere with the assembly or dismantling of the bolster with respect to the side frame, as may be desired in a wheel change, and, further, my novel arrangements contemplate such a structure as will admit of so-called quick wheel change by utilizing such a combination of friction device, bolster end and column structure as will admit the removal of

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the bolster, including the friction means, from the top of the bolster opening in the side frame.

In the drawings,

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

Figure 2 is a fragmentary sectional view through the truck structure shown in Figure 1, the section being taken substantially in the transverse horizontal plane indicated by the line 2—2 of Figure 1 with the bolster and associated parts in elevation.

Figure 3 is a sectional view taken in the vertical longitudinal plane indicated by the line 3—3 of Figure 2.

Figure 4 is a plan view of my novel form of friction shoe, Figure 4A being an end elevation thereof and Figure 4B a side elevation.

Figure 5 is a fragmentary side elevation of a railway car truck illustrating another embodiment of my invention. Figure 6 is a fragmentary sectional view taken on line 6—6 of Figure 5, with the bolster and associated parts shown in elevation. Figures 7, 8, and 9 are reduced fragmentary views of the bolster structure, Figure 7 being a top plan, Figure 8 an end view, and Figure 9 a side elevation.

Figure 10 is a sectional view through the structure shown in Figures 5 and 6, taken approximately in the transverse vertical plane indicated by the line 10—10 of Figure 6.

Figure 11 is a further sectional view taken in the plane parallel with that of Figure 10 but spaced therefrom as indicated by the line 11—11 of Figure 6.

Figures 12 and 12A illustrate my novel form of friction shoe utilized in this modification, Figure 12 being a top plan view thereof and Figure 12A an end elevation.

Describing my novel structure in detail and referring first to the modification illustrated in Figures 1 to 4, the truck structure comprises the side frame of generally conventional form including the compression member 2, the tension member 4 and the integral column 6 merging therewith to form the bolster opening 8 in well known conventional manner. Each column 6 may have a general U section, as well illustrated in Figure 2, with the inboard flange 10, the outboard flange 12 and the transverse web 14 upon which may be mounted in any convenient manner, as by welding, a wear plate 16, said wear plate being afforded guide means in the form of vertical flanges 18, 18 formed on the inboard and outboard flanges 10 and 12, said web 14 being

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relieved adjacent the flanges 18, 18 as at 20, 20 in order to facilitate manufacture and accommodate satisfactory fit with said wear plate 16.

The top chord of the tension member 4 at the bottom of the bolster opening 8 may be widened and formed with upstanding inboard and outboard flanges as at 22 defining therebetween the spring seat 24, said tension member in this area having a box section with the bottom chord 26 and generally conforming to a side frame structure of well known design. On the spring seat 24 may be positioned a plurality of coil springs 28, 28 affording support for the end of the bolster generally designated 30. The bolster end may be of usual box section with the top wall 32 (Figure 3), the bottom wall 34, and a U-shaped web at each side of the bolster extending between said top and bottom walls and comprising an inboard transverse web 36 (Figure 2), an outboard transverse web 38, and a web 40 arranged longitudinally of the bolster, merging with said webs 36 and 38 to define a pocket 42 in the side of the bolster opening toward the adjacent side frame column.

Within the pocket 42 may be confined the friction shoe 44 having vertical end walls 46, 46 in guiding engagement respectively with the webs 36 and 38 and presenting upper and lower arcuate inclined surfaces 48, 48 for engagement as at 50, 50 with substantially flat surfaces formed on the top and bottom identical wedge members 52, 52 of triangular section, as well seen in Figure 3, each of said wedges 52 presenting a guide lug 54 which may extend into the window 56 formed in the bolster web 40 for guiding engagement with the compression spring 58 which may extend through the window 56 and through a corresponding window at the opposite side of the bolster where it may bear upon similar wedges. As well seen in the view of Figure 3, the friction shoe is cored out with an opening 60 lengthwise thereof which extends through the end walls 46, 46 in alignment with bolt holes 62, 62 formed in the bolster webs 36 and 38 to accommodate a bar which may be extended therethrough for purposes of assembly. It will be understood that prior to assembly of the bolster in the side frame, the friction device will be placed under compression by urging the friction shoes 44, 44 at opposite sides thereof toward each other and entering the before-mentioned bar in the aligned openings 60, 62. After the bolster has been assembled with the side frame, the bar may be removed.

Under service conditions, therefore, the friction shoe 44 will bear as at 64 against the wear plate 16 on the adjacent side frame and will be urged thereagainst by the top and bottom wedges 52, 52, each wedge bearing against the shoe as at 50 and against the adjacent horizontal wall 32 or 34 of the bolster end as at 66, 68 (Figure 3), said wedges being in direct engagement with the compression spring 58 which actuates a pair thereof at each side of the bolster.

The detail of my novel friction shoe is shown in Figures 4, 4A and 4B and comprises a hollow body portion with a main vertical friction wall 70 vertically chamfered at its extremities as at 72, 72, said body having also the diagonally arranged wedge engaging walls 74, 74 along the surfaces of which may be formed the before-mentioned wedge engaging friction faces 48, 48, said walls 74, 74 extending between the before-mentioned end walls 46, 46 to serve as guide means for the shoe. The structure of the wedge is well illustrated by a comparison of the top plan view

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of Figure 2 with the vertical sectional view of Figure 3. Each wedge is a solid body of metal having a length conveniently fitted between the walls 46, 46 of the adjacent shoe, which serve as guide means therefor, and each wedge has a horizontal friction surface engaging the adjacent wall of the bolster, a vertical surface affording a seat as at 76 (Figure 3) for the before-mentioned compression spring 58, as well as a centrally positioned spring guide lug 54, the guide lugs 54, 54 of adjacent wedges acting to position one end of said spring.

It should be noted that in this novel arrangement the bolster opening 8 of the side frame is of relatively great width for a limited vertical portion adjacent the top thereof, said relatively wide portion of said window having a depth "A" (Figure 1) slightly greater than the depth "B" of the outboard guide flange 78 on the end of the bolster, thus permitting the bolster end with the associated compacted friction device to be removed from the top of the bolster opening. At the same time, the inboard bolster guide lug 80 may have relatively great depth, as clearly seen at 82 (Figure 1).

In the modification illustrated in Figures 5 to 12 inclusive, the side frame is identical to that of the previous modification with the compression member 102, the tension member 104, having the spring seat 106 supporting the bolster springs 108, 108 on which may be seated as at 110 the end of the bolster 112, said bolster being removable at the top of the bolster opening 114 in manner similar to that described for the previous modification. The pocket structure formed at each side of the bolster end is similarly positioned opposite the adjacent side frame column 116 and said column is identical to that of the previous modification with the inboard flange 118, the outboard flange 120, the web 122, and the wear plate 124.

The pocket 126 (Figure 10) at each side of the bolster may, like the previous modification, be defined by the transverse vertical inboard web 128, the transverse outboard web 130, and the vertical longitudinal web 132 (Figure 6), all of said webs extending between and merging with the top wall 134 (Figure 10) and the bottom wall 136 of the bolster to define said pocket 126. Within the pocket 126 and at the inboard and outboard ends thereof may be formed diagonal webs 138, 138, each web 138 presenting on its upper surface a friction face 140 and intermediate the diagonal webs 138, 138 the vertical web 132 may be cored away to form the rectangular spring accommodating opening 142.

As well seen from a comparison of the views of Figures 10 and 11, the friction means comprises a compression spring 144, afforded a seat as at 146 against the wedge block 148, guide means 150 being formed on said block for said spring. The wedge block 148 is a solid body of metal, having a substantially horizontal top friction face bearing as at 152 against the elevated wear surface formed as at 153 (Figure 7) on the adjacent top wall 134 of the bolster. The wedge 148 also presents a slightly convex diagonally arranged friction face 154, abutting as at 156 the substantially flat diagonally arranged intermediate friction face 158 formed on the adjacent friction shoe 160, said wedge being operative to urge said shoe into frictional engagement as at 162 with the wear plate 124, mounted on the adjacent web 122 of the column 116. At the same time, the friction shoe 160 may have diagonally arranged friction faces

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164, 164 of slightly arcuate form which may bear as at 166 against the adjacent bolster web 138, the arrangement thus being such that each wedge 148 is urged into frictional engagement between the top wall of the bolster and the intermediate friction shoe face while at the same time each friction shoe has a main friction surface bearing as at 162 against the side frame column and auxiliary friction surfaces bearing as at 166 against the webs 138, 138 of the bolster.

Thus the spring 144 and each wedge block 148 constitute a resilient unit extending outwardly toward the adjacent column through the opening between the spaced bolster webs 138, 138 for actuation of the associated friction shoe 160 to urge the same into engagement with the webs 138 and with the adjacent column plate 124.

In this modification, as in the previous one, the inboard and outboard bolster walls defining the pocket 126 are formed with bolt openings 168, 168, and the shoe 160 has a horizontal opening 170 cored therethrough which may be brought into alignment with the wall openings 168, 168 to accommodate a bar which may extend therethrough for retaining the friction parts in assembly with the bolster during wheel change or for other purposes.

The form of my novel friction shoe is well illustrated by the detailed views of Figures 12 and 12A in conjunction with the sectional views of Figures 10 and 11. It will be seen that each shoe is formed as an integral structure having a main vertical friction wall 172 vertically chamfered at its inboard and outboard ends as at 174, 174, said shoe having a length conveniently accommodated between the bolster webs 128 and 130. At each end of the friction shoe may be formed a triangular portion defined by the horizontal top wall 176 (Figure 12A), the friction wall 172 and the auxiliary friction wall 178 presenting the before-mentioned friction face 164. Intermediate the triangular end portions may be formed the wedge portion 180 (Figure 10) defined by the diagonal wall 182, presenting on its upper surface the substantially flat friction face 158 for engagement with the wedge 148, as already described. The detail of the wedge block 148 is clearly shown in the views of Figures 5, 6 and 10, said wedge block being a solid triangular body with a horizontal top friction surface 152, a spring seat 146, a spring guide lug 150, and a slightly arcuate diagonal friction face 154 (Figure 10).

It will be understood that in this modification, as in the previous one, the friction means is compactly and removably positioned in the end of the bolster, said friction means being so arranged as to accommodate its compacting for convenient assembly or dismantling of the bolster with respect to the side frame or for other purposes. In the modification last described, as in the previous one, a single resilient means is operative to bring the friction means at both sides of the bolster into operation when the restraining bolts have been removed and the parts are in operative position with respect to the associated side frame.

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 having

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spaced columns with friction faces, a bolster spring-supported between said columns with inboard and outboard guide means for engagement therewith, pockets in said bolster between said guide means opposite said faces, each of said pockets being defined by an inboard and an outboard web and an intermediate web merging with the top and bottom walls of said bolster, a friction shoe and wedge means in each pocket, said friction shoes bearing against said faces respectively, horizontally acting resilient means under compression between said wedge means, each of said wedge means having frictional engagement with said shoe and with an adjacent wall of said bolster, said frictional engagement between said wedge means and bolster being along a horizontal surface and between said wedge means and said shoe along a diagonal surface, and means on each shoe overlapping inboard and outboard sides of the associated wedge means to afford guide means therefor.

2. In a railway car truck, a side frame having a friction surface, a bolster resiliently supported by said frame, said bolster having a pocket in the side thereof, spaced walls on said bolster within said pocket and defining an opening therebetween, said walls having wedge surfaces sloping toward the outer extremity of said pocket, friction shoe means engaging said wedge surfaces and frictionally engaging said friction surface, and a resilient friction shoe actuator unit housed within said bolster and extending outwardly through said opening, said unit being operatively connected at its outer end to said shoe means for urging the same against said surfaces.

3. In a railway car truck, a side frame with spaced columns presenting friction walls, a bolster spring-supported between said columns with pockets opposite said walls, a friction device in each pocket comprising friction shoe means and wedge means, and resilient means under compression between said wedge means in respective pockets, each of said friction shoe means comprising a vertical portion engaging the adjacent column wall, a diagonal portion engaging the adjacent wedge means, and spaced diagonal portions reversely arranged with respect to said first-mentioned diagonal portion engaging friction walls on the adjacent pocket, each of said wedge means having frictional engagement with a wall of said pocket, the engaging surfaces on each wedge means and the associated shoe means being along noncomplementary surfaces.

4. In a railway car truck, a side frame having spaced columns with friction faces, a bolster spring-supported between said columns with inboard and outboard guide means for engagement therewith, pockets in said bolster between said guide means opposite said faces, each of said pockets being defined by an inboard and an outboard web and an intermediate web merging with the top and bottom walls of said bolster, a friction shoe and wedge means in each pocket, said friction shoes engaging said faces respectively, resilient means under compression between said wedge means, each of said wedge means having frictional engagement with the associated shoe and with an adjacent wall of said bolster, and positioning means on said wedge means for said resilient means, said positioning means and said resilient means extending through aligned openings in said intermediate webs.

5. In a railway car truck, a side frame with spaced columns presenting friction walls, a bolster spring-supported between said columns with

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pockets opposite said walls, a friction device in each pocket comprising friction shoe means and wedge means, and resilient means under compression between the wedge means in respective pockets, each of said friction shoe means comprising a vertical portion engaging the adjacent column wall, a diagonal portion engaging the adjacent wedge means, and spaced diagonal portions reversely arranged with respect to said first-mentioned diagonal portion frictionally engaging walls on the adjacent pocket, each of said wedge means having frictional engagement with a wall of said pocket.

6. In a railway car truck, a side frame having spaced columns, a box section bolster spring-supported between said columns, pockets in said bolster adjacent each column defined by inboard and outboard webs and an intermediate web merging with the top and bottom walls of said bolster, interengaging wedge means and friction shoes in said pockets, resilient means under compression between the wedge means at opposite sides of the bolster, each of said wedge means having frictional engagement with the associated shoe and with an adjacent wall of said bolster, and aligned openings in said inboard and outboard webs and the friction shoe of each pocket for reception of removable means for retaining the associated shoe and wedge means in assembled relationship in said pocket, each of said shoes comprising means engageable with the associated wedge means at the inboard and outboard sides thereof for limiting relative inboard and outboard movement thereof.

7. In a railway car truck, a side frame comprising spaced columns with friction faces on their adjacent sides, a bolster resiliently supported by said frame between said columns, and a friction device at each side of said bolster comprising spaced integral walls thereon with wedge faces sloping toward the adjacent column, said walls defining an opening therebetween, friction shoe means engaging said wedge faces and frictionally engaging the friction face on the adjacent column, and a resilient unit housed within the bolster and extending outwardly through said opening toward said adjacent column, said unit being operatively engaged with said shoe means for urging the same against said wedge faces and against the friction face of said adjacent column.

8. In a railway car truck, a side frame having spaced columns with friction faces, a bolster spring-supported between said columns with inboard and outboard guide means for engagement therewith, pockets in said bolster between said guide means opposite said faces, each of said pockets being defined by an inboard and an outboard web and an intermediate web merging with the top and bottom walls of said bolster, a friction shoe and wedge means in wedge engagement therewith in each pocket, said friction shoes respectively engaging adjacent faces and webs, a resilient member abutting and under compression between the wedge means at opposite sides of said bolster, and integral means on each shoe guidably engaged with the associated wedge means for limiting inboard and outboard movement thereof.

9. In a railway car truck, a side frame with spaced columns presenting friction walls, a bolster spring-supported between said columns with pockets opposite said walls, a friction device in each pocket comprising friction shoe means engaging wedge means, and resilient means under

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compression between said wedge means in respective pockets, each of said friction shoe means comprising a portion engaging the adjacent column wall, and spaced portions engaging bolster friction walls in the adjacent pocket, the frictional engagement between said shoe means and the adjacent bolster walls being along noncomplementary surfaces.

10. A cast steel bolster of box section, spaced vertical guide lugs on each side of said bolster at each end thereof for cooperation with associated side frame columns, said lugs defining in part pockets recessed in the side walls of said bolster, each of said pockets comprising inboard and outboard vertical webs aligned with said lugs and an intermediate web merging with the top and bottom walls of said bolster, aligned openings in the inboard and outboard webs of each pocket for reception of securing means for an enclosed friction means, and aligned openings in said intermediate webs for accommodation of an associated resilient means.

11. In a railway car truck, a side frame having spaced columns with friction faces, a bolster spring-supported between said columns with inboard and outboard guide means for engagement therewith, pockets in said bolster between said guide means opposite said faces, each of said pockets being defined by an inboard and an outboard web and an intermediate web merging with the top and bottom walls of said bolster, a friction shoe and wedge means in each pocket, integral guide means on each shoe for guidably engaging the inboard and outboard margins of the associated wedge means, said friction shoes engaging said faces respectively and said wedge means having frictional engagement with the associated shoe and with an adjacent wall of said bolster, and resilient means under compression between said wedge means, said resilient means acting in a horizontal plane and extending into said pockets for engagement with the wedge means therein.

12. In a railway car truck, a side frame with spaced columns presenting friction walls, a bolster spring-supported between said columns with pockets opposite said walls, a friction device in each pocket comprising interengaging friction shoe means and wedge means, the shoe means in respective pockets being frictionally engaged with the friction walls of respective columns, and resilient means abutting and under compression between the wedge means in respective pockets, each of said wedge means having frictional engagement with the cooperating shoe means and an adjacent pocket wall along surfaces acutely arranged with respect to each other, the engaging surfaces of said wedge and shoe means being noncomplementary, and guide means on the friction shoe means engageable with the associated wedge means for limiting relative inboard and outboard movement thereof.

13. In a railway car truck, a side frame with spaced columns presenting friction walls, a bolster spring-supported between said columns with pockets opposite said walls, a friction device in each pocket comprising friction shoe means and wedge means, and resilient means under compression between said wedge means in respective pockets, said friction shoe means comprising a vertical web bearing against the adjacent column wall, reversely arranged diagonal webs, and inboard and outboard guide webs, the associated wedge means comprising top and bottom members confined between said guide webs and wedged

between said diagonal webs, respectively, and spaced parallel walls of said pocket.

14. In a railway car truck, a side frame with spaced columns presenting friction walls, a bolster spring-supported between said columns with pockets opposite said walls, a friction device in each pocket comprising friction shoe means and wedge means, resilient means under compression between said wedge means in respective pockets, each of said friction shoe means comprising a vertical portion engaging the adjacent column wall, a diagonal portion engaging the adjacent wedge means, and spaced diagonal portions reversely arranged with respect to said first-mentioned diagonal portion and engaging friction walls in the adjacent pocket.

15. A cast steel box-section bolster having an end portion, spaced vertical column guide means at each side of said end portion, a friction device pocket at each side of said end portion defined by parallel webs aligned with the adjacent guide means and an intermediate web merging with the top and bottom walls of said end portion, aligned openings in the parallel webs of each pocket, an elevated friction pad on one of said bolster walls in each pocket, and aligned openings through the intermediate webs at opposite sides of the bolster for accommodation of associated resilient means.

16. In a railway car truck, a side frame member, a bolster member spring-supported therefrom, spaced pockets in one of said members, a friction device in each of said pockets, and resilient means compressed by and between said devices, each device comprising a wedge and a shoe, each wedge having frictional engagement with a wall of said one member and with the adjacent shoe and each shoe having frictional engagement with the adjacent wedge, another wall of said one member, and the other member.

17. In a railway car truck, a side frame with spaced columns, a bolster spring-supported between said columns, friction devices at opposite sides of said bolster comprising shoes engaging respective columns, wedges engaging respective shoes, and horizontally acting resilient means compressed between the wedges at opposite sides of the bolster, each of said wedges engaging the adjacent shoe and a wall of said bolster and each of said shoes having engagement with another wall of said bolster and the adjacent column, and guide means on each shoe engageable with inboard and outboard surfaces of the associated wedge for limiting relative inboard and outboard movement thereof.

18. A cast steel box-section bolster having an end portion, spaced vertical column guide means at each side of said end portion, a friction device pocket at each side of said end portion defined by parallel webs aligned with the adjacent guide means and an intermediate web merging with the top and bottom walls of said end portion, aligned openings in the parallel webs of each pocket, and an elevated friction pad on one of said bolster walls in each pocket.

19. In a bolster, a box-section end portion having in each side thereof a friction device pocket defined by inboard and outboard webs parallel with spaced column guide means and an intermediate web merging with the top and bottom walls of said bolster, spaced diagonal webs in each pocket presenting upwardly directed friction faces, a horizontal friction surface on one of said walls intermediate said faces, and openings in said intermediate webs said openings and sur-

faces being aligned in a vertical plane transversely of said bolster.

20. In a railway vehicle a supporting member having spaced columns, a box section member spring-supported between said columns, pockets in the sides of said supported member adjacent respective columns and defined by inboard and outboard webs, and an intermediate web merging with the top and bottom walls thereof, inter-engaging shoes and wedges in each pocket, resilient means compressed between wedges of respective pockets, each of said wedges abutting one of said walls and each of said shoes abutting the adjacent web and column.

21. In a bolster, a box-section end portion having in each side thereof a friction device pocket defined by inboard and outboard webs parallel with spaced column guide means and an intermediate web merging with the top and bottom walls of said bolster, spaced diagonal webs in each pocket presenting upwardly directed friction faces, and a horizontal friction surface on one of said walls intermediate said faces.

22. In a railway vehicle, a side frame with spaced columns, a bolster spring-supported between said columns, a friction device in each side of said bolster, and resilient means compressed by and between said devices, each device comprising a wedge and a shoe, each wedge having frictional engagement with a wall of said bolster and with the adjacent shoe and each shoe having frictional engagement with the adjacent wedge, the adjacent column, and another wall of said bolster.

23. A friction shoe having at one side thereof a main substantially vertical friction wall and at the opposite side thereof spaced diagonally arranged friction walls and an intermediate reversely arranged diagonal friction wall, certain of said friction walls presenting flat surfaces and others thereof presenting nonflat surfaces, said intermediate wall intersecting and extending beyond the plane defined by said spaced walls, and said spaced walls intersecting and extending beyond the plane defined by said intermediate wall.

24. A friction shoe having at one side thereof a main friction wall and at the opposite side thereof spaced friction walls diagonally arranged with respect to said main wall, and an intermediate reversely arranged diagonal friction wall, said spaced walls intersecting and extending beyond the plane defined by said intermediate wall, and said intermediate wall intersecting and extending beyond the plane defined by said spaced walls.

25. A friction shoe presenting at one side thereof a main vertical friction wall and at the opposite side thereof spaced diagonally arranged friction walls and an intermediate reversely arranged diagonal friction wall, certain of said walls presenting substantially flat friction faces and other of said walls presenting arcuate surfaces, said intermediate wall and said spaced walls lying respectively in planes intersecting at intermediate points of said walls.

26. 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 from said means and comprising a pocket in at least one side thereof, said pocket being partially defined by spaced horizontal walls and a diagonal web of said bolster, and friction means in said pocket including a friction shoe slidably engaging the adjacent web and column, a wedge member slidably seated against one of said walls and in wedge engagement with said shoe, and horizontally acting re-

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silient means for urging said wedge member into wedge engagement with said shoe.

27. 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 from said means and comprising a pocket in at least one side thereof, and friction means in said pocket including a friction shoe slidably engaging friction means on the adjacent column, a wedge member slidably seated against the top wall of said bolster and in wedge engagement with said shoe, guide means on said shoe confining the inboard and outboard sides of said wedge member for limiting inboard and outboard movement thereof relative to said shoe, and resilient means extending into said pocket for engagement with said wedge means.

28. 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 from said means and comprising a pocket in at least one side thereof, and friction means in said pocket including a friction shoe member slidably engaging friction means on the associated column, a wedge member slidably seated against one of said walls and in wedge engagement with said shoe member, horizontally acting resilient means operatively associated with said wedge member, and integral walls on one of said members confining inboard and outboard sides of the other member for guiding engagement therewith.

29. In a railway car truck, a side frame comprising spaced columns with friction faces, a bolster spring-supported between said columns with pockets opposite said faces, a friction shoe and wedge means in each pocket, said friction shoes engaging said faces respectively, and resilient means extending between and into each pocket for urging the wedge means therein into engagement with the associated shoe, each of said wedge means having frictional engagement with the associated shoe and with an adjacent wall of said bolster, and each of said shoes having guiding engagement with inboard and outboard sides of the associated wedge means.

30. In a railway car truck, relatively movable members and friction means for dampening relative movement therebetween, said friction means comprising spaced wedge surfaces on one of said members, a friction shoe in wedge engagement with said surfaces and in frictional engagement with the other member, a wedge extending between said surfaces in wedge engagement with said shoe and in abutment with a wall of said one member angularly related to said surfaces, and actuating means for said shoe comprising a spring compressed between and reacting against said wedge and one of said members.

31. In a railway car truck comprising a side frame with spaced columns and a bolster resiliently supported therebetween, the combination of a friction device at each side of said bolster comprising spaced walls on the bolster sloping toward the adjacent column, friction shoe means engaging said walls and frictionally engaging said column, and wedge means extending between said walls and wedged between said shoe means and a wall of said bolster, and actuating means for said device comprising a spring compressed between and reacting against the wedge means of said devices.

32. In a railway vehicle, a side frame with spaced columns, a bolster spring-supported between said columns, a friction device in each side

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of said bolster, and resilient means compressed by and between said devices, each device comprising a wedge and a shoe, each wedge having frictional engagement with a wall of said bolster and with the adjacent shoe and each shoe having frictional engagement with the adjacent wedge, the adjacent column, and another wall of said bolster, the engagement between each wedge and said bolster being along a substantially horizontal plane.

33. In a railway vehicle, a side frame with spaced columns, a bolster spring-supported between said columns, a friction device in each side of said bolster, and resilient means compressed by and between said devices, each device comprising a wedge and a shoe, each wedge having frictional engagement with a wall of said bolster and with the adjacent shoe and each shoe having frictional engagement with the adjacent wedge, the adjacent column, and another wall of said bolster, the engagement between each shoe and said bolster being along a diagonal plane.

34. In a railway vehicle, a side frame with spaced columns, a bolster spring-supported between said columns, a friction device in each side of said bolster, and resilient means compressed by and between said devices, each device comprising a wedge and a shoe, each wedge having frictional engagement with a wall of said bolster and with the adjacent shoe and each shoe having frictional engagement with the adjacent wedge, the adjacent column, and another wall of said bolster, the engagement of each shoe with the adjacent wedge and bolster wall being along reversely arranged diagonal planes.

35. In a truck, a side frame having spaced columns, a bolster spring-supported from said frame between said columns, a friction device in each side of said bolster, a spring compressed between said devices, each device comprising a shoe and a wedge, each wedge having slidable engagement with the adjacent shoe and a wall of said bolster, and each shoe having slidable engagement with the adjacent wedge and column and another wall of said bolster.

36. In a truck, a side frame having spaced columns, a bolster spring-supported from said frame between said columns, a friction device in each side of said bolster, a spring compressed between said devices, each device comprising a shoe and a wedge, each wedge having slidable engagement with the adjacent shoe and a wall of said bolster, and each shoe having slidable engagement with the adjacent wedge and column and another wall of said bolster, said bolster walls lying in planes acutely angled with respect to each other.

37. In a truck, a side frame having spaced columns, a bolster spring-supported from said frame between said columns, a friction device in each side of said bolster, a spring compressed between said devices, each device comprising a shoe and a wedge, each wedge having slidable engagement with the adjacent shoe and a wall of said bolster, and each shoe having slidable engagement with the adjacent wedge and column and another wall of said bolster, one of said bolster walls lying in a substantially horizontal plane and the other in a diagonal plane.

38. A bolster comprising pockets at opposite sides thereof, spaced walls integrally formed with said bolster within each pocket and defining therebetween an opening for the reception of an associated friction shoe actuator, said spaced walls presenting wedge surfaces sloping toward the outer extremity of the pocket.

39. A bolster for a railway car truck comprising top and bottom walls, spaced diagonal walls at each side of said bolster extending between said top and bottom walls and sloping toward the adjacent side of the bolster, said spaced walls defining an opening therebetween for the reception of an associated friction shoe actuator.

40. In a bolster, a box-like member having pockets at opposite sides thereof, each pocket being defined at its inner end by a rear wall having an opening for the reception of a friction shoe actuator, and spaced walls merging with each rear wall at opposite sides of the associated opening, said spaced walls presenting wedge surfaces sloping toward the outer extremity of the associated pocket.

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