June 19, 1945. D. M. LIGHT 2,378,414

CAR TRUCK

Filed March 30, 1942 3 Sheets-Sheet 1

Fig. 1

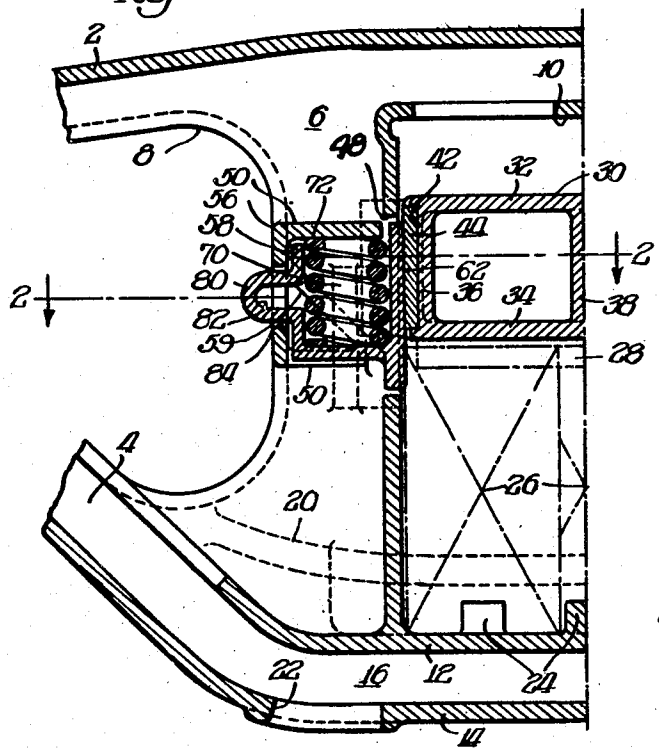


Fig. 3

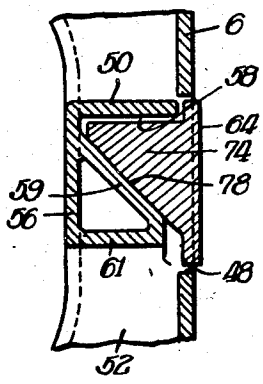


Fig. 4

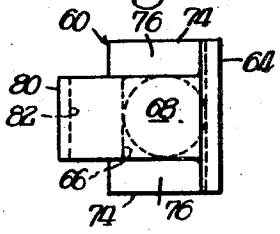


Fig. 5

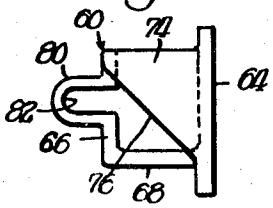


Fig. 2

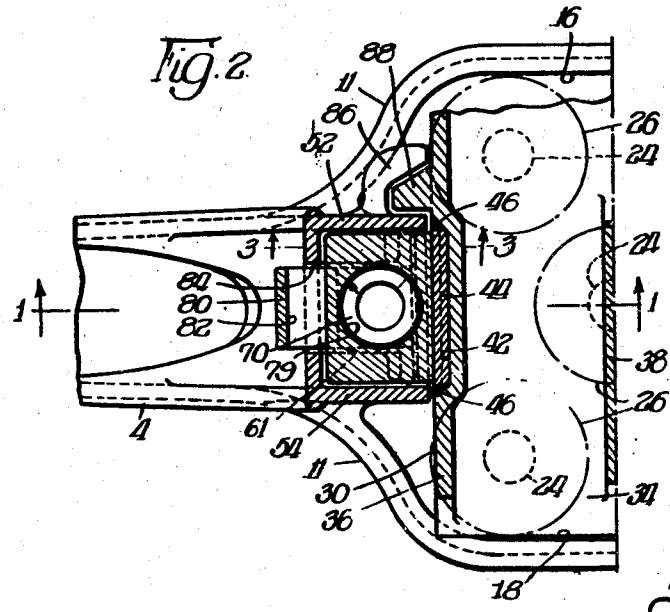
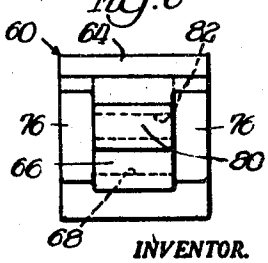


Fig. 6



INVENTOR.

David M. Light,

BY

Atty.

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CAR TRUCK

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Fig. 7

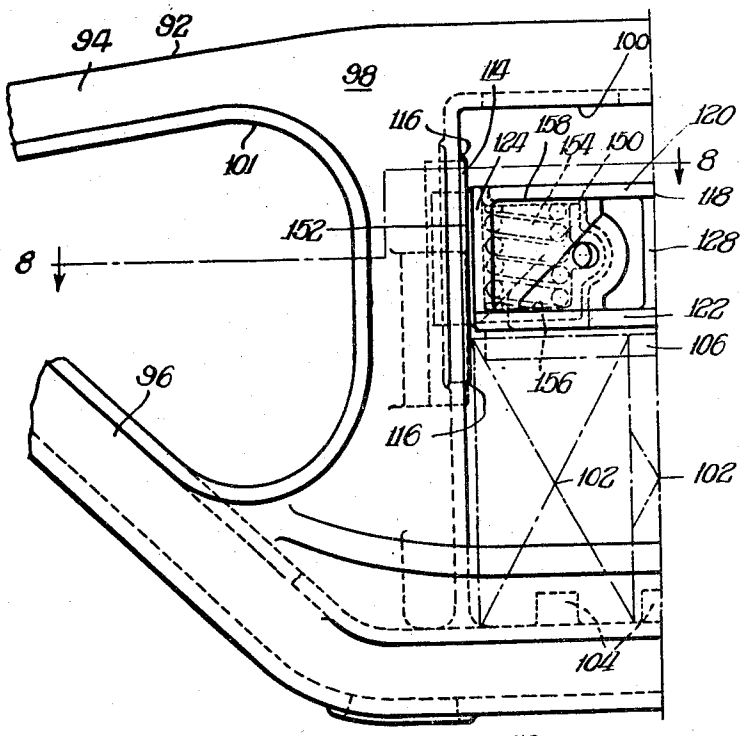
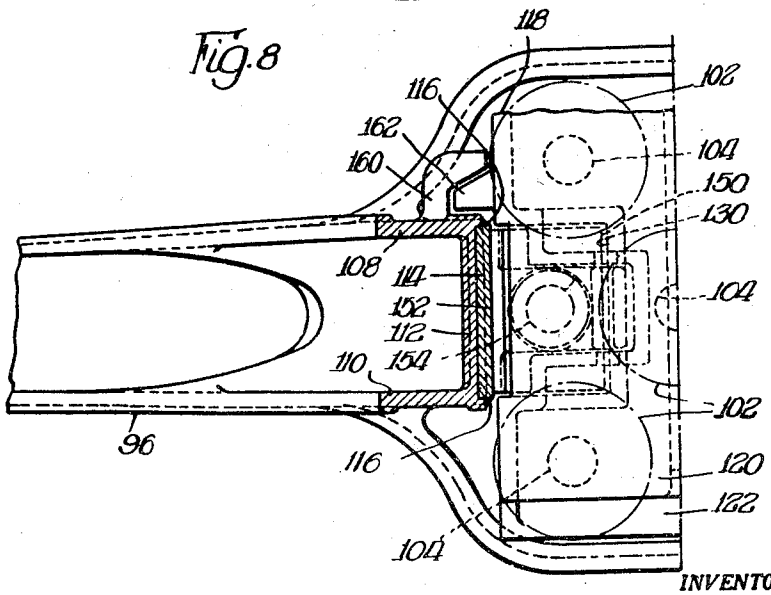


Fig. 8



INVENTOR.

David M. Light.

BY

O. B. Barnes

attg

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CAR TRUCK

Filed March 30, 1942 3 Sheets-Sheet 3

Fig. 9.

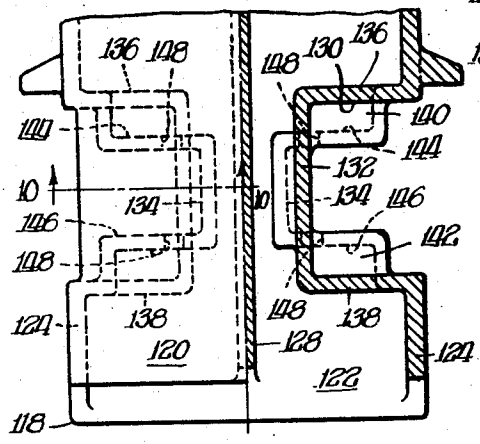


Fig. 10.

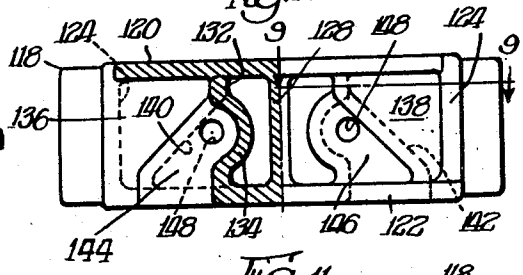


Fig. 11.

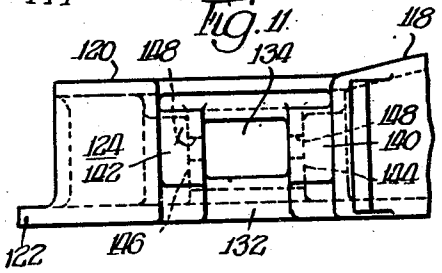


Fig. 12.

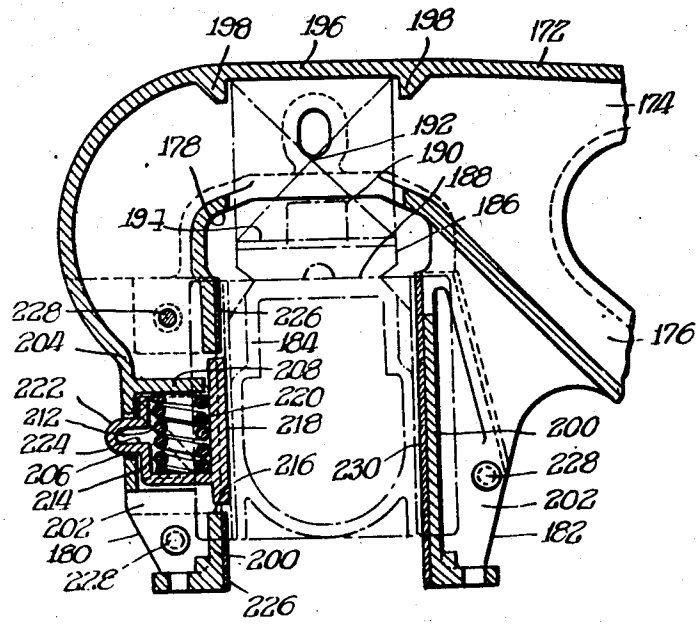
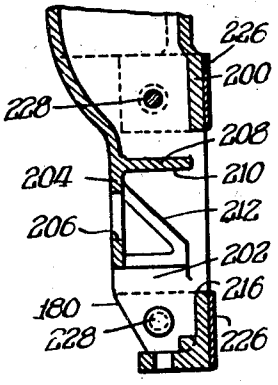


Fig. 13.



INVENTOR.
David M. Light,
BY
Dunn & Dunn
Attys.

Patented June 19, 1945 2,378,414

UNITED STATES PATENT OFFICE

2,378,414

CAR TRUCK

David M. Light, Chicago, Ill., assignor to American Steel Foundries, Chicago, Ill., a corporation of New Jersey

Application March 30, 1942, Serial No. 436,731

37 Claims. (Cl. 105—197)

My invention relates to railway car trucks.

An object of my invention is to devise an improved form of such truck wherein the load carrying member or bolster may be resiliently supported on the spaced side frames and may be engaged with friction devices of novel form supported from the columns of said frames.

A specific object of my invention is to devise an arrangement such as above described in which a friction element is resiliently supported from each column in diagonal frictional engagement therewith and in vertical frictional engagement with the adjacent side of the bolster.

My invention comprehends a further modification in which friction elements are resiliently supported from the bolster in diagonal frictional engagement therewith and in frictional engagement with the associated columns.

Still another modification of my invention comprises an arrangement wherein a friction element is supported in a manner similar to that above described from one of the depending pedestals at each end of the side frame, said friction element being frictionally engaged with a journal box supported between said pedestals.

My invention comprehends a friction shoe of novel form, said shoe comprising a vertical friction surface formed and arranged for engagement with an associated member and a pair of spaced diagonally arranged friction surfaces formed and arranged for frictional engagement with corresponding surfaces on the associated member, said shoe being formed and arranged for the reception of a coil spring interposed between said diagonally arranged surfaces, and said shoe comprising a loop extending through a wall of the supporting member, said loop affording engaging means for a bar or pin whereby the shoe may be withdrawn from engagement with the associated member during assembly or dismantling of my novel truck.

It will be apparent to those skilled in the art that my invention is equally applicable to any type of standard truck, although it is shown as applied to a truck of the well known quick wheel change type.

In the drawings,

Figure 1 is a sectional view of a railway car truck embodying my invention, the section being taken in a longitudinal vertical plane substantially as indicated by the line 1—1 of Figure 2, only one end of the truck being shown inasmuch as it is similar at opposite ends thereof.

Figure 2 is a sectional view taken in the transverse horizontal planes indicated by the line 2—2 of Figure 1, and Figure 3 is a further sectional view taken in the vertical plane indicated by the line 3—3 of Figure 2.

Figures 4, 5 and 6 show my novel form of friction shoe, Figure 4 being a bottom plan view thereof, Figure 5 a side elevation, and Figure 6 a rear view taken from the left as seen in Figure 5.

Figures 7 to 11 inclusive show another embodiment of my invention, Figure 7 being a fragmentary side elevation of a railway car truck embodying my novel arrangement, Figure 8 being a sectional view taken in the transverse horizontal planes indicated by the line 8—8 of Figure 7, Figure 9 being a top view of the bolster shown in Figures 7 and 8, the left half thereof being a view in plan and the right half thereof being a sectional view taken in the plane indicated by the line 9—9 of Figure 10, Figure 10 being an end view of said bolster, the right half thereof being a view in elevation and the left half thereof being a sectional view taken in the plane indicated by the line 10—10 of Figure 9, and Figure 11 being a side elevation of the structure shown in Figures 9 and 10.

Figures 12 and 13 show a further modification of my invention, Figure 12 being a sectional view of one end of a truck frame embodying my invention, the section being taken in the longitudinal vertical plane bisecting the frame, and Figure 13 being a fragmentary view of the structure shown in Figure 12 with the friction shoe and the spring associated therewith being removed.

Describing my invention in detail and referring first to the modification shown in Figures 1 to 5 inclusive, the truck frame comprises a compression member 2, a tension member 4 and a column 6 adjacent each end of the frame and defining with said members a window opening 8 and a bolster opening 10. Below the bolster opening 10 the tension member is widened as indicated at 11, 11 (Figure 2) and is of box section comprising the top and bottom chords 12 and 14 and inboard and outboard walls 16 and 18, each of said inboard and outboard walls being beaded as at 20 in the usual manner. The bottom chord 14 is cored away as at 22 for convenient foundry practice and the top chord 12 is formed with spring positioning bosses 24, 24, said bosses affording positioning means for coil springs diagrammatically indicated at 26, 26 (Figure 1), said springs being seated on said top chord and being confined at the upper ends thereof by a spring plate 28 of usual form.

A bolster 30 of box-like form is seated on said plate 28 and comprises the top and bottom walls

32 and 34 as well as spaced side walls 36, 36 and the intermediate transverse wall 38 parallel with said side walls. Each side wall 36 is recessed as at 42 to accommodate a wear plate 44, said plate being welded as at 46, 46. It will be understood that if desired, the friction surface presented by the wear plate 44 may be integrally formed with the bolster.

Each column 6 is of box section and comprises an opening 48 adjacent the bolster 30 and said column also comprises the transverse horizontal wall 50 defining with the inboard and outboard webs 52 and 54 of the column and with the transverse vertical wall 56 thereof a pocket 58; and formed at opposite sides of the pocket 58 are the spaced diagonal walls 59, 59, reinforced by walls 61, 61, and serving a purpose hereinafter more fully described. The pocket 58 receives therewithin a friction shoe 60 frictionally engaged at 62 with the adjacent wear plate 44 secured to the side of the bolster as above described.

The friction shoe 60 is shown in detail in Figures 4 to 6 inclusive and said shoe comprises the front and rear walls 64 and 66 and the bottom wall 68 affording a seat for the coil spring 70 extending between the diagonal walls 59, 59 in the associated pocket and seated at its upper end as at 72 against the wall 50 defining the top of said pocket. The shoe 60 also comprises the side walls 74, 74 generally triangular in shape and presenting on the bottoms thereof the diagonally arranged friction faces 76, 76 in complementary frictional engagement as at 78 (Figure 3) with the diagonal walls 59, 59 of the column 6. It may be noted that the front, rear and side walls of the friction shoe are arcuately formed on the inner surfaces thereof as best seen at 79 (Figure 2) in order to conveniently accommodate and position the spring 70 seated on the bottom wall 68 and extending upwardly therefrom as heretofore described. The rear wall 66 of the shoe comprises the loop 80 defining the slot 82, said loop extending outwardly into the adjacent window opening 8 through an opening 84 in the vertical transverse web 56 of the column 6. It will be apparent that a bar may be inserted in the slot 82 in order that the friction shoe may be withdrawn from the bolster opening during assembly of the truck as hereinafter more fully described.

It may be noted that on the inboard face of the inboard wall 54 of each column 6 is formed a bracket 86, said bracket receiving a lug 88 formed on the associated side wall of the bolster 30, the brackets 86, 86 on the columns 6, 6 and the lugs 88, 88 at opposite sides of the bolster serving to maintain the bolster and the side frame in assembled relationship as will be clearly apparent to those skilled in the art. As may be clearly seen in Figure 1, each bracket 86 and the associated lug 88 are of limited height so that the bolster may be elevated in the bolster opening and removed therefrom without disturbing the supporting spring group. In assembling my novel truck the springs 70, 70 are positioned within the friction shoes 60, 60, said shoes and said springs then being entered within respective pockets 58, 58, each friction shoe being urged into the associated pocket until a bar may be positioned within the slot 82 by means of which bar the friction shoe may be withdrawn from the bolster opening into the pocket 58 until the bolster has been positioned upon the supporting coil springs 26, 26. Thereafter the bar may be withdrawn from the slot 82 so that the shoe will be urged into engagement with the side of the bolster.

A further modification of my invention is shown in Figures 7 to 11 inclusive and in this modification the side frame 92 comprises the compression and tension members 94 and 96 respectively and the column 98 defining therewith a bolster opening 100 and a window opening 101, said side frame being substantially identical with the frame described for the previous modification. Seated on the tension member are the bolster supporting coil springs 102, 102 diagrammatically indicated in Figure 7, said springs being positioned at the bottom by bosses 104, 104 on the top of the tension member and being confined at the tops by the spring plate 106. Each column 98 is of U-section comprising inboard and outboard webs 108 and 110 and the transverse vertical web 112. A wear plate 114 is recessed in the web 112 and is welded thereto at 116.

A bolster 118 is received within the bolster opening 100 and is seated on the spring plate 106, said bolster comprising top and bottom walls 120 and 122, side walls 124, 124, and the intermediate transverse wall 128 parallel with said side walls. Pockets 130, 130 are formed at opposite sides of the bolster and each of said pockets is defined by the top wall 120, a rear wall 132 comprising a loop 134, and the spaced inboard and outboard vertical walls 136 and 138. At opposite sides of each pocket are ledges formed by diagonally arranged inboard and outboard webs 140 and 142, said webs being strengthened respectively by the vertical webs 144 and 146 merging with the bottom wall of the bolster at opposite sides of the pocket. The walls 144 and 146 comprise aligned openings 148, 148 therethrough, said openings serving a purpose hereinafter more fully described.

A friction shoe 150 slightly smaller than but substantially similar to the friction shoes described for the previous modification is received within each pocket 130 and is seated against the diagonal webs 140 and 142 and is frictionally engaged as at 152 with the associated wear plate 114. A coil spring 154 is seated as at 156 on the bottom wall of the shoe and as at 158 against the top wall of the bolster, said spring extending between the diagonal webs 140, 140 and being operative to urge said shoe into engagement therewith and into engagement with the associated wear plate as in the previous modification.

A bracket 160 is formed on the inboard face of the inboard web 108 of each column 98 and said bracket receives a lug 162 formed on the associated bolster, said bracket and said lug functioning in a manner similar to that described for the corresponding structure in the previous modification.

Figures 12 and 13 show a third modification of my invention, in which friction shoes are supported by one of a pair of depending columns or pedestals forming a journal opening or jaw for the reception of an associated journal box. In this modification the truck frame generally designated 172 comprises compression and tension members 174 and 176 merging in an end portion comprising the pedestal jaw 178, said jaw being defined by spaced legs or columns 180 and 182. A journal box 184 is received within the pedestal jaw 178 and a spring seat 186 is positioned at 188 on top of said box, said seat affording spring positioning means 190 for a coil

spring 192 positioned thereon as at 194, said spring being seated at 196 against the top wall of the frame and positioned by depending lugs 198, 198 thereon.

Each column or pedestal is of U-section and comprises a transverse web 200 and inboard and outboard webs 202, 202, only the inboard webs 202, 202 being shown inasmuch as Figures 12 and 13 are sectional views taken in the longitudinal vertical plane bisecting the frame. The outer column or leg 180 is of novel form and comprises in addition to the webs 200 and 202, 202 the transverse vertical outer web 204 slotted as at 206 and the transverse horizontal wall 208 defining with the web 204 and the inboard webs 202, 202 a pocket 210 and within said pocket is a diagonal wall 212 at each side thereof.

A friction shoe 214 is received within the pocket 210 and is engaged with the diagonal walls 212, 212, said shoe extending through an opening 216 in the web 200 and frictionally engaging the side of the adjacent journal box as at 218. A coil spring 220 is positioned at the top and bottom thereof against the wall 208 and against the bottom wall of the friction shoe 214 in a manner similar to that described for the previous modifications. Each friction shoe comprises a loop 222, extending through the slot 206 and defining a slot 224, said slot being formed and arranged for the reception of a bar in order to facilitate assembly of the journal box within the pedestal opening in a manner similar to that heretofore described for the previous modifications. Wear plates or liners 226, 226 are riveted as at 228, 228 to the columns 180 and 182 and frictionally engage the sides of the journal box as at 230, 230.

Thus it will be apparent that I have designed a friction absorbing device comprising a friction shoe receivable within a pocket in a member of a railway car truck and in diagonal face engagement with said member, said shoe also being in frictional engagement with another member relatively movable with respect to said first-mentioned member and said shoe being actuated by a single vertically disposed resilient member housed within said first-mentioned member.

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 truss side frame comprising tension and compression elements and a column member partly defining therewith a bolster opening, resilient means on said tension element in said opening, a bolster member seated thereon, and friction means associated with said column member and said bolster member, said friction means comprising a pocket in one of said members, said pocket comprising a top wall and spaced diagonal walls extending downwardly in the direction of the other member, a friction shoe in said pocket comprising a bottom wall, a vertical friction surface in engagement with said other member, and spaced friction faces in complementary engagement with said diagonal walls, and a vertical coil spring under compression between said top and bottom walls.

2. In a railway car truck, a truss side frame comprising tension and compression elements and a column member partly defining therewith a bolster opening, resilient means on said tension element in said opening, a bolster member seated on said resilient means, and friction means associated with said column member and said bolster member, said friction means comprising a pocket in one of said members, said pocket being partly defined by a top wall, spaced friction surfaces in said pocket sloping downwardly in the direction of the other member, a friction shoe in said pocket comprising a bottom wall, a friction surface in engagement with said other member, and spaced friction faces in complementary engagement with said first-mentioned surfaces, and resilient means under compression between said top and bottom walls.

3. In a railway car truck, a side frame comprising a column member, a relatively movable member supported adjacent said first-mentioned member, and friction means between said members comprising a horizontal wall and friction surfaces on one of said members, said surfaces sloping downwardly in the direction of the other member, a friction shoe in frictional engagement with said other member and comprising a horizontal wall spaced from said first-mentioned wall and friction surfaces in engagement with said first-mentioned surfaces, and a coil spring extending between the surfaces on said shoe and between said first-mentioned surfaces and positioned at opposite ends thereof against respective horizontal walls.

4. In a railway car truck, a side frame comprising a column member, a relatively movable member supported adjacent thereto, and friction means comprising a horizontal wall and spaced substantially co-planar friction surfaces on one of said members, said surfaces sloping in the direction of the other member, a friction shoe in frictional engagement with said other member and comprising a horizontal wall spaced from said first-mentioned wall, and friction surfaces in engagement with said first-mentioned surfaces, and a coil spring extending between said spaced surfaces and positioned at opposite ends thereof against respective horizontal walls.

5. In a railway car truck, a truss side frame comprising tension and compression elements and a column member partly defining therewith a bolster opening, resilient means on said tension element in said opening, a bolster member seated on said resilient means, and friction means comprising a pocket in one of said members, said pocket being partially defined by a top wall, spaced diagonal walls in said pocket, a friction shoe in said pocket comprising a bottom wall, a friction surface in engagement with the other member, and spaced friction faces in complementary engagement with said diagonal walls, and resilient means extending between said diagonal walls and under compression between said top and bottom walls.

6. In a railway car truck, a side frame comprising a column member, a relatively movable member supported adjacent said first-mentioned member, a horizontal wall and spaced co-planar friction surfaces on one of said members, a friction shoe in frictional engagement with the other of said members and comprising a horizontal wall spaced from said first-mentioned wall and friction surfaces in engagement with said first-mentioned surfaces, and a coil spring extending between said co-planar surfaces and between the surfaces on said shoe and positioned

at opposite ends thereof against respective horizontal walls.

7. In a railway car truck, a side frame comprising a column member, a relatively movable member supported adjacent said first-mentioned member, and friction means between said members, said means comprising a horizontal wall and spaced diagonal friction surfaces on one of said members, a friction shoe engaged with said surfaces and with the other of said members, and a resilient member housed in said friction shoe, extending between said spaced surfaces, and seated against said horizontal wall.

8. In a railway car truck, a side frame comprising a column member, a bolster member supported adjacent said column member, and friction means between said members, said means comprising spaced friction surfaces on one of said members sloping in the direction of the other of said members, a friction shoe frictionally engaged with said surfaces and with said last-mentioned member, and resilient means engaged with said shoe, extending between said spaced surfaces, and supported from one of said members.

9. In a railway car truck, a frame member comprising a column member partly defining an opening, a member received within said opening, and friction means between said members comprising a pocket in one of said members defined by a transverse horizontal wall and spaced diagonal walls, a friction shoe in the pocket in engagement with the diagonal walls and with the other member, and resilient means under compression between said horizontal wall and said friction shoe, said resilient means extending between said diagonal walls.

10. In a railway car truck, a side frame comprising a column member, a relatively movable member supported adjacent said first-mentioned member, and friction means between said members, said means comprising a horizontal wall, and spaced diagonal substantially co-planar friction surfaces on one of said members, a friction shoe engaged with said surfaces and with the other of said members, and a resilient member housed in said friction shoe, extending between said diagonal surfaces, and seated against said horizontal wall.

11. In a railway car truck, a side frame comprising spaced columns partly defining a bolster opening, resilient means on said frame in said opening, a bolster seated on said means and comprising a pocket in each side thereof, spaced friction surfaces in each pocket sloping toward the adjacent column, a wearplate on said column, a friction shoe in engagement with said surfaces and said plate, and a resilient member extending between said spaced surfaces under compression between said shoe and the top wall of said pocket.

12. In a railway car truck, a frame comprising tension and compression members and spaced columns defining therewith a bolster opening, resilient means on said tension member in said opening, a bolster seated thereon, a pocket in each column, diagonally arranged friction surfaces at opposite sides of each pocket, a friction shoe in said pocket and engaged with said surfaces and with said bolster, and resilient means housed in said shoe and supported from said column, the friction surfaces of said pocket being disposed at opposite sides of said resilient means.

13. In a railway car truck, a side frame comprising a column member, a relatively movable member supported adjacent thereto, spaced substantially co-planar friction surfaces on one of said members sloping in the direction of the other member, a friction surface on said last-mentioned member, a friction shoe in engagement with all of said surfaces, and resilient means housed in said shoe, extending between said spaced surfaces, and engaged with one of said members.

14. In a railway car truck, a frame comprising a column member, a relatively movable member supported adjacent thereto, and friction means comprising spaced friction surfaces on one of said members, a friction surface on the other member, a friction shoe, and resilient means supported from one of said members in engagement with said shoe and operative to urge said shoe into frictional engagement with all of said surfaces, said resilient means extending between said spaced surfaces.

15. In a railway car truck, a side frame comprising a column member, a relatively movable member supported adjacent thereto, spaced friction surfaces on one of said members sloping in the direction of the other member, a friction surface on said last-mentioned member, a friction shoe in engagement with all of said surfaces, and resilient means extending between said spaced surfaces and supported by one of said members in engagement with said shoe.

16. In a railway car truck, a side frame comprising a column member, a relatively movable member supported adjacent thereto, spaced substantially co-planar friction surfaces on one of said members, a single friction surface on the other of said members, a friction shoe in engagement with all of said surfaces, and resilient means housed in said shoe, extending between said spaced surfaces, and engaged with said one member.

17. In a railway car truck, a frame comprising spaced pedestals defining a pedestal opening, a journal box therein, resilient means on said box for support of said frame, spaced friction surfaces on one of said pedestals sloping toward said box, a friction shoe in engagement with said surfaces and said box, and a resilient member supported from said last-mentioned pedestal in engagement with said shoe.

18. In a railway car truck, a side frame comprising a column member, a relatively movable member supported adjacent thereto, spaced sloping friction surfaces on one of said members, resilient means supported therefrom between said spaced surfaces, a friction surface on the other of said members, and a friction shoe in engagement with all of said surfaces and abutting said resilient means.

19. In a bolster for a railway car truck, a box-like end portion with a pocket at each side thereof, spaced substantially co-planar diagonal friction surfaces in said pocket, and a spring seat in vertical alignment with the space between said surfaces.

20. In a railway car truck, a column member, a relatively movable member supported adjacent thereto, and friction means comprising a friction shoe, spaced walls on said shoe and one of said members, cooperating wedge surfaces on said shoe and the last-mentioned member, said wedge surfaces being disposed intermediate said spaced walls, and resilient means under compression between said walls whereby said shoe is urged into frictional engagement with the other of said members.

21. In a railway car truck, a side frame comprising a column member partly defining a bolster opening, resilient means on said frame, a bolster member supported on said means adjacent said column member, and friction means comprising a pocket in one of said members, said pocket being partly defined by a top wall, spaced wedge surfaces in said pocket extending downwardly in the direction of the other member, a friction element in said pocket comprising a bottom wall, a friction surface in engagement with said other member, and spaced wedge faces in complementary engagement with said wedge surfaces, and resilient means extending between said spaced surfaces and under compression between said top and bottom walls, and complementary tongue and groove means on said bolster and column members for maintaining the same in assembled relationship, the last-mentioned means on said column member being of limited depth, whereby said bolster may be elevated in said opening and removed therefrom during a quick wheel change.

22. In a railway car truck, a side frame comprising a column member, a member supported adjacent thereto, and friction means comprising a pocket in one of said members, said pocket being partly defined by a top wall and a rear wall merging with the upper extremity thereof, a diagonal wall comprising wedge means in said pocket, said diagonal wall merging with said rear wall closely adjacent said upper extremity thereof, a friction shoe in engagement with the wedge means and the other member, said shoe comprising a bottom wall, and resilient means under compression between said top and bottom walls.

23. In a railway car truck, a column member, a relatively movable member supported adjacent thereto, and friction means housed in one of said members, said means comprising a friction shoe, vertically spaced walls on said shoe and said last-mentioned member respectively, cooperating wedge surfaces on said shoe and the last-mentioned member, said wedge surfaces being disposed intermediate said spaced walls and sloping toward the other member, and resilient means under compression between said walls.

24. In a railway car truck, a column member, a relatively movable member supported adjacent thereto, and friction means housed in one of said members, said means comprising a friction shoe, spaced substantially horizontal walls on said shoe and said last-mentioned member respectively, cooperating wedge surfaces on said shoe and the last-mentioned member, said wedge surfaces being disposed intermediate said horizontal walls and sloping toward the other member, and resilient means under compression between said walls.

25. In a bolster for a railway car truck, a box-like end portion with a pocket in at least one side thereof, spaced diagonal wedge surfaces at opposite sides of said pocket, and a spring seat in said pocket in substantially vertical alignment with the space between said surfaces.

26. In a bolster for a railway car truck, a box-like end portion with a pocket in at least one side thereof, spaced diagonal wedge surfaces at opposite sides of said pocket, and a substantially horizontal spring seat disposed above and in substantially vertical alignment with the space between said surfaces.

27. In a bolster for a railway car truck, a box-like end portion with a pocket in at least one side thereof, spaced diagonal wedge surfaces at opposite sides of said pocket, and a spring seat in substantially vertical alignment with the space between said surfaces, the rear wall of said pocket being formed with a loop and at least one side wall of said pocket having an opening aligned with said loop.

28. In a bolster for a railway car truck, a box-like end portion with a pocket in at least one side thereof, a diagonal wall with a wedge surface in said pocket, and a substantially horizontal wall having a spring seat in said pocket vertically spaced with respect to said surface, the inner end of said diagonal wall being disposed closely adjacent the inner end of said horizontal wall.

29. In a bolster and friction shoe unit for a railway car truck, the combination of a bolster member having a pocket in at least one side thereof, wedge means on said bolster member within said pocket, said bolster member comprising an integral wall vertically spaced with respect to said wedge means, and an integral wall defining a side of said pocket, a friction shoe in complementary wedge engagement with said wedge means, a substantially vertical spring compressed between said first-mentioned wall and said friction shoe for urging the latter against said wedge means, and aligned openings in said friction shoe and said second-mentioned wall for the reception of means for securing said shoe within said pocket during assembly and disassembly of said unit with respect to an associated side frame.

30. In a bolster and friction shoe unit for a railway car truck, the combination of a bolster member having a pocket in at least one side thereof, spaced wedge means on said bolster member within said pocket, said bolster member comprising an integral substantially horizontal wall vertically spaced with respect to said wedge means, and spaced substantially vertical walls defining the sides of said pocket, a friction shoe having spaced wedge faces in complementary wedge engagement with respective wedge means, a substantially vertical spring compressed between said first-mentioned wall and said shoe for urging the latter against said wedge means, said spring extending between said wedge faces and said wedge means, and aligned openings in said friction shoe and at least one of said spaced vertical walls for the reception of means for securing said shoe within said pocket during assembly and disassembly of said unit with respect to an associated side frame.

31. In a railway car truck, a frame member having a pocket for an associated friction element, spaced diagonal walls in said pocket, and a substantially horizontal wall affording a spring seat intermediate said diagonal walls and merging therewith adjacent the inner ends thereof.

32. In a railway car truck, a side frame having a bolster opening partly defined by horizontally spaced columns presenting opposed substantially vertical friction surfaces on their adjacent edges, said surfaces extending transversely of said frame, a vertically movable bolster structure resiliently supported from said frame in said opening, spaced abutment portions formed integrally with the upper portion of said bolster structure and each carrying a plane substantially horizontal spring seat arranged for movement vertically with said bolster structure, wedge surfaces between said columns and disposed in a lower spaced relationship to said spring seats, said wedge surfaces being integral with said bolster structure, a friction shoe associated with each

column and having a substantially vertical friction face coacting with the friction surface thereon, a wedge surface on each shoe in intimate contact with a related wedge surface on said bolster structure for urging said shoe toward the friction surface on the associated column, and spring means acting against said spring seats and said friction shoes for urging the latter downwardly of said bolster structure.

33. In a railway car truck, a side frame having a column member partly defining a bolster opening, a bolster member resiliently supported from said frame in said opening adjacent said column member, friction means comprising a wedge surface on said bolster member sloping toward said column member, a friction shoe in complementary wedge engagement with said surface and in frictional engagement with said column member, resilient means compressed between said shoe and a wall of said bolster for urging said shoe into said engagement, and complementary tongue and groove means on said bolster and column members for maintaining the same in assembled relationship, the last-mentioned means on said column member being of limited depth whereby said bolster may be elevated in said opening and removed therefrom along with said shoe and said resilient means during a quick wheel change.

34. In a railway truck, a side frame having a bolster opening defined by horizontally spaced guide columns, a vertically movable bolster structure within said opening, horizontally directed abutments formed integrally with the bolster structure adjacent the upper portion thereof, plane horizontal surfaces carried by said abutments and arranged to move vertically with said bolster structure, wedge surfaces disposed below said plane horizontal surfaces and arranged to move vertically with said bolster structure so that throughout the entire range of vertical movement of said bolster structure the vertical distance between said plane horizontal surfaces and said wedge surfaces will remain constant, said wedge surfaces starting adjacent the lower limits of said bolster structure and terminating intermediate the height thereof, shoe means interposed between said bolster structure and said columns, said shoe means having plane vertical faces in intimate contact with corresponding faces carried by said guide columns and inclined faces in intimate contact with said wedge surfaces, and resilient means acting vertically against said plane horizontal surfaces and said shoe means, said vertical faces and the corresponding faces of said guide columns extending transversely of said side frame.

35. In a friction unit for a railway car truck, the combination of a truck member having a pocket therein, wedge means on said member within said pocket, said member comprising an integral wall vertically spaced with respect to said wedge means, and a substantially vertical integral wall defining a side of said pocket, a friction shoe in complementary wedge engagement with said wedge means, a substantially vertical spring compressed between said first-mentioned wall and said shoe for urging the latter against said wedge means, and aligned openings in said shoe and said second-mentioned wall for the reception of means for securing said shoe within said pocket during assembly and disassembly of said member with an associated truck member.

36. In a friction shoe for a railway car truck, a cup-like member having a friction face and at least one wedge surface angularly disposed with respect thereto, and an internal spring seat on said member disposed at one side of said surface, said member comprising a handle-like portion on the side thereof remote from said face.

37. In a friction shoe, a cup-like member having a friction face and at least one wedge surface angularly disposed with respect thereto, a spring seat on said member, and a handle-like loop on the side of said member remote from said face.

DAVID M. LIGHT.