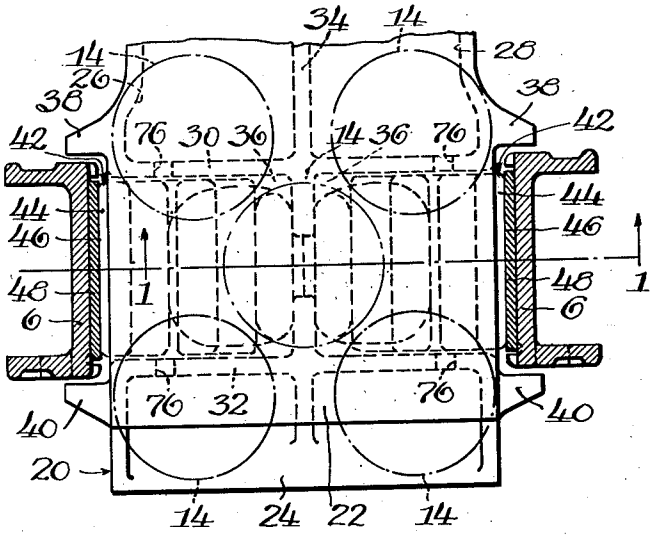
Dec. 11, 1951 L. A. LEHRMAN 2,578,480

SNUBBED BOLSTER TRUCK

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Fig. 2



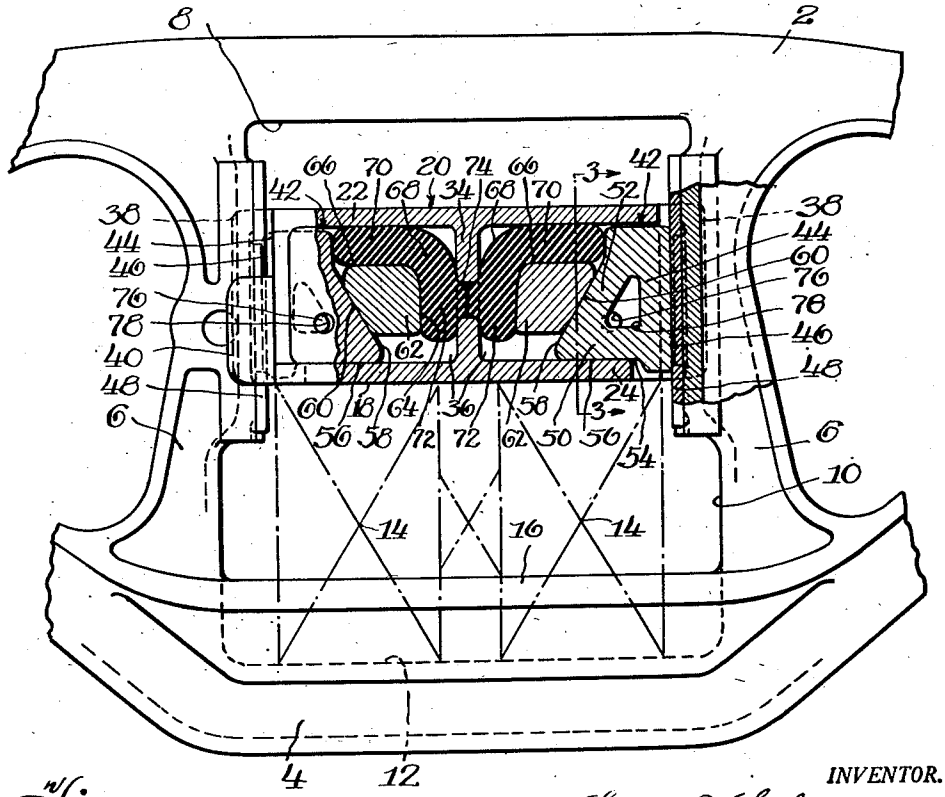


Fig. 1

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SNUBBED BOLSTER TRUCK

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Fig. 5

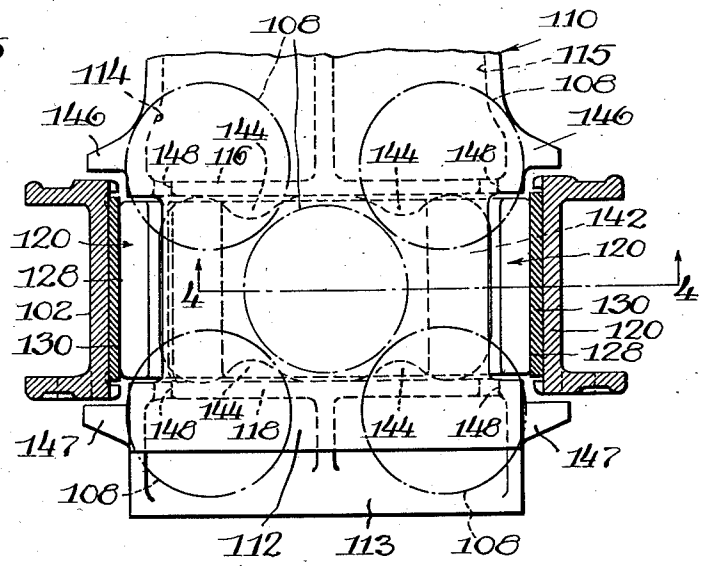


Fig. 4

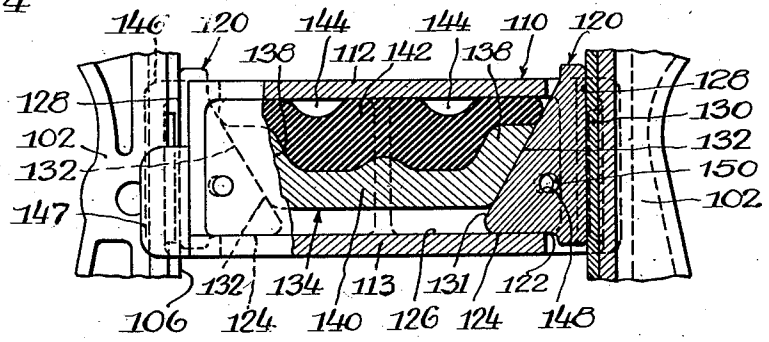
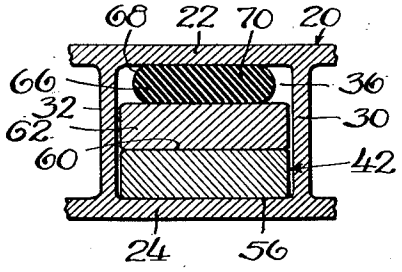


Fig. 3



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SNUBBED BOLSTER TRUCK

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12 Claims. (Cl. 105—197)

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My invention relates to railway car trucks and more particularly to a truck incorporating a stabilizing device by means of which frictional control is afforded of the oscillations of the bolster-supporting spring group.

An object of my invention is to design a ride control truck comprising side frame and bolster members, one of said members incorporating a snubbing or stabilizing device comprising friction shoes and control means associated therewith for urging the same into substantially constant frictional engagement with friction surfaces on the other member.

A specific object of my invention is to design a truck such as above described wherein friction shoes are pocketed in opposite sides of the bolster in wedge engagement with wedge means in the bolster, said shoes being urged into frictional engagement with the adjacent side frame columns by said wedge means under the influence of at least one resilient member under compresssion between said wedge means and the bolster.

In one modification I have illustrated a resilient member and wedge member associated with each shoe for actuating the same, and in another modification I have illustrated a resilient member and wedge member associated with both shoes.

In the drawings:

Figure 1 is a fragmentary side elevation of a railway car truck embodying my invention, the view being shown partly in section in order more clearly to illustrate the arrangement of the friction parts, said sectional view being taken approximately in the longitudinal vertical plane bisecting the side frame as indicated by the line 1—1 of Figure 2;

Figure 2 is a fragmentary top plan view of the structure shown in Figure 1 with the side frame shown in section through the columns;

Figure 3 is a sectional view taken in the transverse vertical plane indicated by the line 3—3 of Figure 1;

Figure 4 is a fragmentary side elevation of a railway car truck comparable to that shown in Figure 1 illustrating a modified form of my invention, the view being shown partly in section taken in the longitudinal vertical plane bisecting the side frame as indicated by the line 4—4 of Figure 5; and

Figure 5 is a fragmentary top plan view of the structure shown in Figure 4 with the side frame shown in section through the columns.

Referring first to the modification illustrated in Figures 1–8, the side frame is of well known truss

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type having the compression member 2, the tension member 4 merging with spaced columns 6, 6 extending therebetween and defining therewith a bolster opening 8 having a widened lower portion 10 for a purpose hereinafter described.

The tension member 4 is of conventional box section with the top chord thereof affording a seat as at 12 (Figure 1) for the bolster-supporting coil springs diagrammatically indicated at 14, 14. The tension member is formed with an upstanding flange 16 on the inboard and on the outboard sides thereof to afford convenient confining means for the lower ends of the springs 14, 14. The upper ends of the springs 14, 14 afford a seat as at 18 (Figure 1) for the bolster generally designated 20.

The bolster is of box section with the end portion having top and bottom walls 22 and 24 merging with side walls 26 and 28 and spaced inboard and outboard transverse walls 30 and 32 and the longitudinal center rib or wall 34, said top and bottom walls and said transverse walls 30 and 32 and said center rib 34 defining a pocket 36 in each side of the bolster end, the side walls being cored away intermediate the walls 30 and 32. The bolster 10 may have at each side thereof the inboard and outboard gibs 38 and 40 for interlocking engagement with the adjacent column 6, and it will be noted from a consideration of Figure 1 that the outboard gibs 40, 40 are of less depth than that of the widened lower portion of the bolster opening, whereby upon elevation of the bolster and removal of the springs 14, 14 from the side frame, the bolster may be lowered in said opening and removed therefrom while the bolster and the associated friction means remain in normal assembled relationship.

A friction shoe generally designated 42 is disposed in each pocket 36 and comprises a friction wall 44 in frictional engagement as at 46 with a wear plate 48 mounted on the adjacent side frame column 6 in any convenient manner, such as by welding. The friction shoe also comprises a bottom wall 50 and a diagonal wall 52 extending between and merging with said walls 44 and 50, said bottom wall having a horizontal surface 54 in complementary engagement as at 56 with the bottom wall 24 of the bolster, and said diagonal wall sloping upwardly toward the adjacent column 6 and having a wedge surface 58 in complementary engagement as at 60 with a wedge member 62.

Each wedge member 62 is an elongated block having one side thereof in diagonal face engagement as at 60 with the adjacent shoe 42 and the other side and the top thereof affording respec-

tively vertical and horizontal surfaces in engagement as at 64 and 66 with a rubber pad 68 comprising angularly related walls or portions 70 and 72, said portion 70 being compressed between the top wall 22 of the bolster and the top of the wedge member 62, and the portion 72 being compressed between the vertical surface of the wedge member and the center rib 34 of the bolster, said rubber pad being preferably vulcanized to the associated wedge member 62. A portion of the center rib 34 may be cored away to form therein a longitudinal slot 74 to accommodate the flow of the resilient members 68, 68 under compression and to permit reaction of said members to be transmitted to the wedge members in the pockets 36, 36. It may also be noted that ample clearance is afforded below each of the distortable members 68, 68 and on opposite sides thereof as well as adjacent the associated friction shoe for such distortion which may occur under conditions of maximum distortion or flow of the resilient material when the shoes and wedge members are urged into their innermost positions during lateral movement of the bolster.

In the arrangement described, each resilient pad 68 is under such compression as to continually urge the associated wedge member outwardly and downwardly into wedge engagement with the friction shoe and to maintain the wedge member in such engagement with the shoe at all times, whereby the shoe will be urged laterally of the bolster to maintain the friction wall 44 in engagement with the adjacent column. The pad 68 is so formed as to afford bearing against a substantial portion of the top and vertical surfaces of the associated wedge member 62 as well as the adjacent surfaces of the top wall and center rib of the bolster partly defining the pocket receiving the same. It will be seen that the resilient means 68, 68 as best seen in Figures 1 and 3, exert forces against the wedge means 62, 62 at points disposed in vertical alignment with the points of engagement of the wedge means with the shoes.

In the assembly of the friction device with the bolster, the wedge members and their associated resilient pads vulcanized thereto may be inserted within the pockets in the bolster, and thereafter the friction shoes may have their wedge surfaces positioned in engagement with the wedge surfaces on the wedge members and urged toward each other by means of a suitable tool, whereupon a pin may be inserted within the aligned openings 76, 76 in the transverse walls 30 and 32 of the bolster at each end thereof and through an opening 78 within the friction shoe for maintaining the friction unit in assembly, whereupon the bolster may be assembled with the side frames and the assembly pins removed.

In the modification illustrated in Figures 4 and 5, the side frame is fragmentarily shown inasmuch as it is substantially the same as that shown in Figure 1, said frame comprising columns 102, 102 partially defining a bolster opening 106 which may have a widened lower portion (not shown) to permit the removal of the bolstered and the associated friction means therefrom substantially as in the previous modification of my invention. A plurality of bolster-supporting coil springs, diagrammatically indicated at 108, 108 (Figure 5) afford support for the bolster, generally indicated 110, said bolster being of box section having the top

and bottom walls 112 and 113 merging with the side walls 114 and 115 and spaced inboard and outboard transverse walls 116 and 118, said walls 112, 113 and 116 and 118 defining a transversely extending opening in the bolster at the end thereof pocketing a friction shoe 120 at each side thereof, said shoe being generally similar to that of the previous modification and comprising on the bottom thereof a horizontal surface 122 in slidable engagement as at 124 with a complementary surface 126 on the bottom wall 113 of the bolster, said shoe having on one side thereof a friction face for engagement as at 128 with the adjacent column-mounted wear plate 130, and on the opposite side thereof said shoe is provided with a wedge surface 131 for complementary engagement as at 132 with a surface at the adjacent end of an actuating wedge member 134.

The wedge member 134 extends transversely of the bolster and between the friction shoes and is in the form of a W-shaped plate having diagonal walls 138, 138 at opposite ends thereof diverging upwardly from the horizontal connecting wall 140 thereof and outwardly toward the adjacent side frame columns, said shoes affording support for said wedge member and having wedge engagement with the walls 138, 138 thereof as at 132, 132. Extending within the plate 134 and vulcanized thereto is a block 142 of resilient material having substantially the conformation of said plate with the opposite ends of said block extending over and having engagement with the tops of the diagonal walls 138, 138 of the plate, said block 142 being under compression between said walls 138, 138 and 140 of said plate and the top wall 112 and transverse walls 116 and 118 of the bolster for operatively and continuously urging said plate downwardly into wedge engagement with the shoes at opposite ends thereof and thereby said shoes in opposite directions along the bottom wall of the bolster and into engagement with the column-mounted wear plates 130, 130. The ends of the block exert forces against the wedge means 140 at points disposed in vertical alignment with the points of engagement of the wedge means with the shoes.

It may be noted from a consideration of Figures 4 and 5 that the distortable block 142 is formed with recesses 144, 144 in the top and sides thereof for such distortion which may occur under conditions of maximum distortion or flow of the resilient material.

As in the previous modification, the bolster is provided at each side thereof with the inboard and outboard gibs 146 and 147 for guiding engagement with the adjacent column, the outboard gibs being of less depth than the widened lower portion (not shown) of the bolster opening to permit the removal of the bolster from the side frame.

In the assembly of the friction device with the bolster, the wedge member and its associated block 142 may be positioned within the transversely extending opening in the bolster, whereupon the friction shoes may be inserted in said opening and urged toward each other by a suitable tool to force the wedge member in an upward direction and to place the resilient block 134 under compression and thereafter pins may be inserted through aligned openings 148, 148 in each end of the transversely extending walls of the bolster and through an opening 150 in the adjacent shoe in alignment therewith, the

bolster then being assembled with the side frames and the pins removed to allow the shoes to frictionally engage the side frame columns.

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 spaced columns and an intervening bolster opening with a widened lower portion, a spring group on said frame in said opening, a bolster supported from said group, pockets in opposite sides of said bolster, friction units in respective pockets, each unit comprising a friction shoe in frictional engagement with the adjacent column, a wedge member having a diagonal face on one side thereof in complementary engagement with said shoe, and resilient members associated with respective wedge members and comprising distortable blocks each block having angularly arranged portions bearing against the top and the other side of the associated wedge member and angularly arranged walls of said bolster, and an opening in one of said bolster walls through which said distortable blocks may flow against each other, said bolster having inboard and outboard gibs for interlocking engagement with each column, the outboard gibs being of less depth than said widened lower portion of said bolster opening whereby said bolster may be removed therefrom while said friction units remain in normal assembled relationship with the bolster.

2. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening, a spring group on said frame in said opening, a bolster supported from said group, pockets in opposite sides of said bolster, friction units in respective pockets, each friction unit comprising a friction shoe in frictional engagement with the adjacent column, a wedge member having a diagonal face on one side thereof in complementary engagement with said shoe, and resilient members associated with respective wedge members and comprising distortable blocks each having angularly arranged portions bearing against the top and the other side of the associated wedge member and angularly arranged walls of said bolster, and an opening in one of said bolster walls through which said distortable blocks may bear against each other.

3. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening, a spring group on said frame in said opening, a bolster supported from said group, pockets in opposite sides of said bolster, a friction shoe in each pocket in frictional engagement with the adjacent column, a wedge member having a diagonal face on one side thereof in complementary engagement with said shoe, and resilient means associated with said wedge member and operative to urge the same into said engagement with said shoe and thereby said shoe into frictional engagement with an adjacent column, said resilient means comprising a distortable member having angularly arranged portions compressed between the top and the other side of the wedge member and angularly arranged walls of said bolster.

4. In a truck, a pair of relatively movable members, one of said members having spaced upright friction surfaces, the other member extending between said surfaces and comprising spaced horizontal walls and spaced vertical walls between said horizontal walls and defining an opening through said other member, a friction unit in said opening comprising a pair of spaced friction shoes slidably engaging one of said horizontal walls and having frictional engagement with respective surfaces, a wedge member extending between said shoes and having diagonal faces diverging toward said surfaces and complementally engaging said shoes, and a single flowable resilient member compressed by and between said wedge member and the other of said horizontal walls and said vertical walls, said resilient member extending the full length of said wedge member between the same and said last-mentioned horizontal wall transversely of the bolster.

5. In a truck, a side frame comprising spaced vertical friction surfaces, a bolster spring-supported from the frame between said surfaces and comprising spaced top and bottom walls and spaced inboard and outboard walls defining an opening through said bolster, a shoe disposed at each end of said opening in slidable flat-face engagement with said bottom wall and in frictional engagement with the adjacent surface, a single member disposed in said opening between said shoes and in wedge engagement therewith, and a continuous mass of flowable resilient material extending across the full top side of said member and compressed by and between the same and said top and inboard and outboard walls.

6. In a railway car truck, a side frame comprising spaced columns, a bolster supported from said frame between said columns, a pocket in each side of said bolster, a friction shoe in each pocket, wedge means supported by said shoes and in diagonal face engagement therewith, and resilient means compressed between each of said wedge means and angularly arranged walls of said pocket for urging said wedge means into said engagement with said shoes and thereby said shoes into frictional engagement with said columns, each of said resilient means comprising a member formed of a resilient material and having angularly arranged portions compressively stressed between said walls and the respective adjacent sides of said wedge means to urge said friction shoes into frictional engagement with the respective columns.

7. In a railway car truck, a side frame having spaced columns, a bolster spring-supported from the frame and comprising top, bottom, and vertical walls defining pockets at opposite sides of the bolster, friction shoes disposed in respective pockets and slidably engaging said bottom wall, wedge means between said shoes in wedge engagement therewith, and resilient means reacting between said wedge means and the other of said walls for urging said wedge means into said engagement with said shoes and said shoes against said bottom wall and in opposite directions against respective columns, said resilient means reacting through said wedge means against all of said shoes and exerting forces against said wedge means immediately adjacent the points of engagement of said wedge means with the respective shoes.

8. In a railway car truck, a side frame having spaced columns, a bolster spring-supported from the frame between said columns and comprising

spaced generally horizontal walls, friction shoes disposed at opposite sides of the bolster between said walls in slidable engagement with one of said walls and in frictional engagement with respective columns, generally vertical abutment surfaces extending between said walls, wedge means between said shoes in wedge engagement therewith, and resilient means compressed between said abutment surfaces, the other of said walls, and said wedge means.

9. In a railway car truck, a side frame comprising spaced columns, a bolster spring-supported from said frame and comprising spaced substantially horizontal top and bottom walls, shoes disposed at opposite sides of said bolster between said walls and in frictional engagement with said bottom wall and respective columns, wedge means disposed between said walls intermediate said shoes and in wedge engagement with the shoes, vertically disposed abutment surfaces between said walls, and resilient means comprising a mass of distortable material compressed between said wedge means and said top wall and surfaces for urging said wedge means into said engagement with said shoes and thereby said shoes against said bottom wall and said columns.

10. In a railway car truck, a side frame comprising spaced columns, a bolster spring-supported from said frame between said columns, friction shoes disposed at opposite sides of the bolster and slidably seated on a horizontal wall thereof, wedge means disposed between and in diagonal face engagement with said shoes, and resilient means compressed between angularly arranged walls of said bolster and said wedge means, said resilient means being formed of distortable material.

11. In a truck, a pair of relatively movable members, one of said members presenting spaced friction surfaces, the other member extending between said surfaces, friction shoes in engagement with respective surfaces and pocketed in said last-mentioned member and in slidable engagement therewith along a face extending substantially normal to said surfaces, wedge means between said shoes in wedge engagement therewith, and resilient means interposed and compressed between said wedge means and an opposed wall of said last-mentioned member, said resilient means being arranged to exert forces directly against said wedge means at points disposed in alignment in vertical planes extending longitudinally of said last-mentioned member with the points of engagement between said wedge means and said shoes.

12. In a railway car truck, a side frame comprising spaced columns, a bolster spring-supported from said frame between said columns, a pocket in each side of said bolster, a friction shoe in each pocket slidably seated on a wall of said pocket and having frictional engagement with the adjacent column, a wedge member having diagonal face engagement with said shoe, and resilient means compressed between angularly arranged walls of said pocket and said wedge member, said resilient means comprising a member of distortable material.

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