Oct. 11, 1955 W. H. BASELT 2,720,172

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FIG. 1

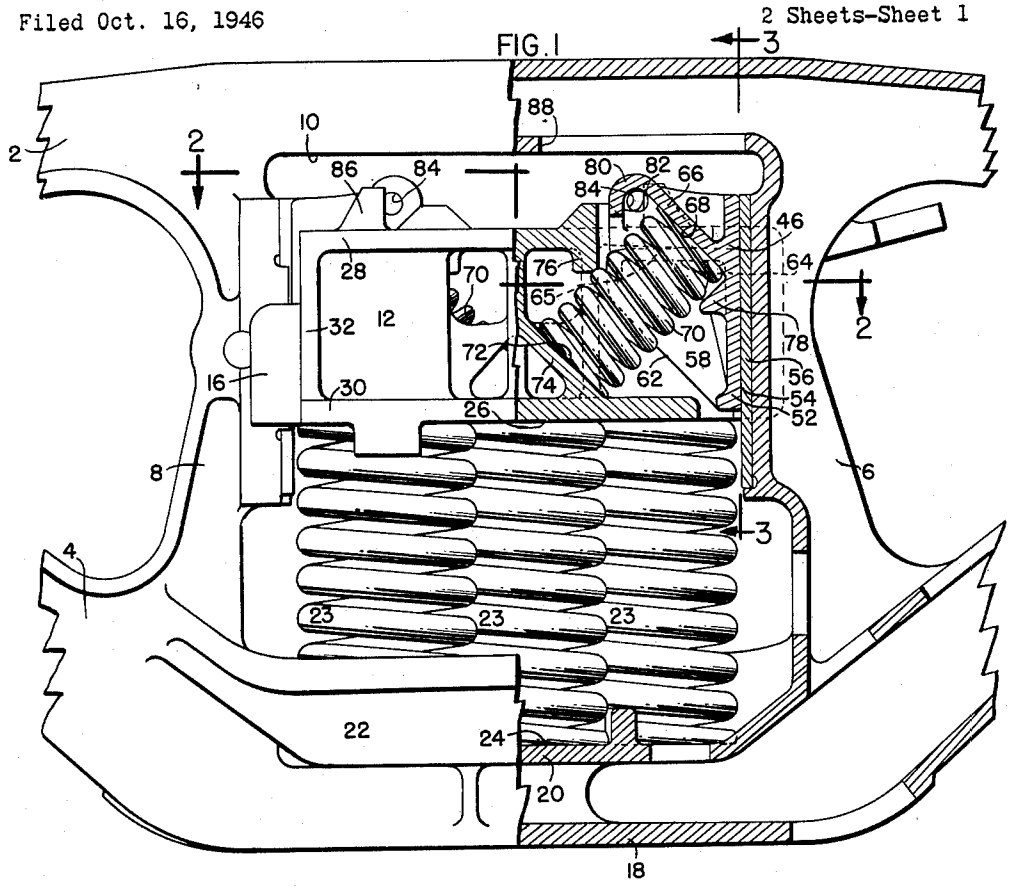


FIG. 2

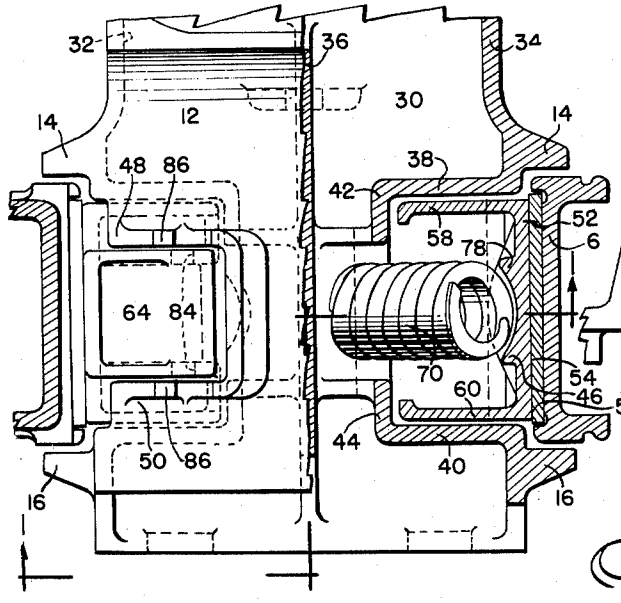
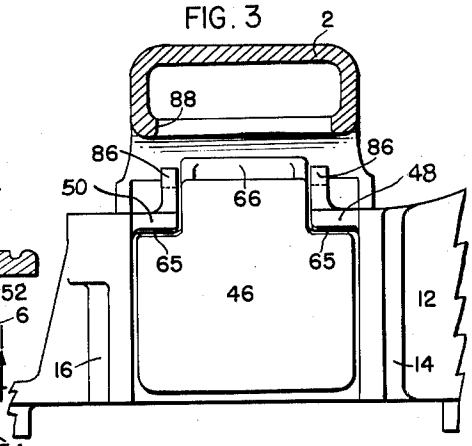


FIG. 3



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FIG. 4

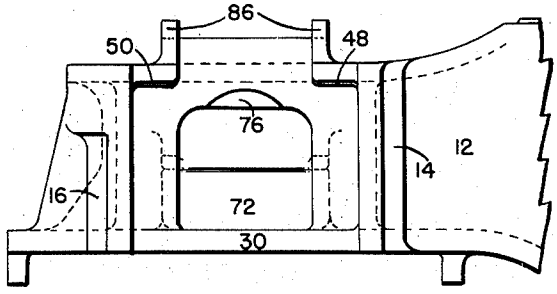


FIG. 5

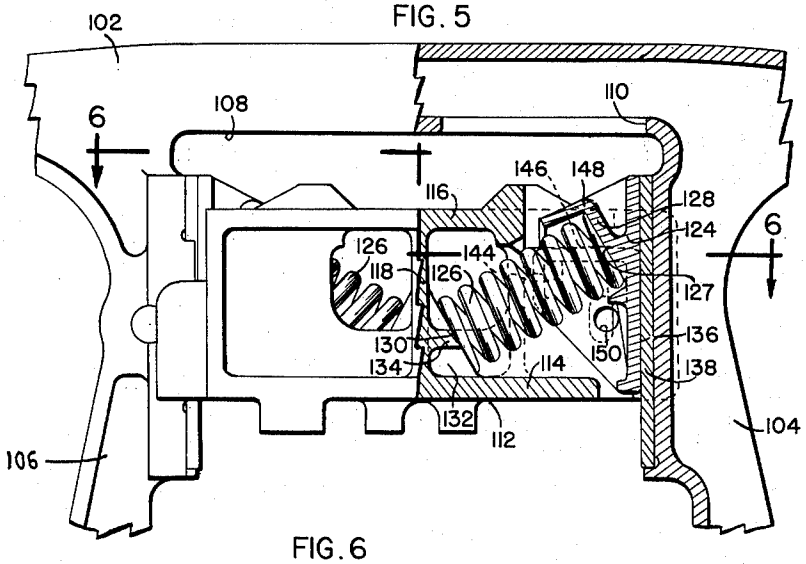


FIG. 6

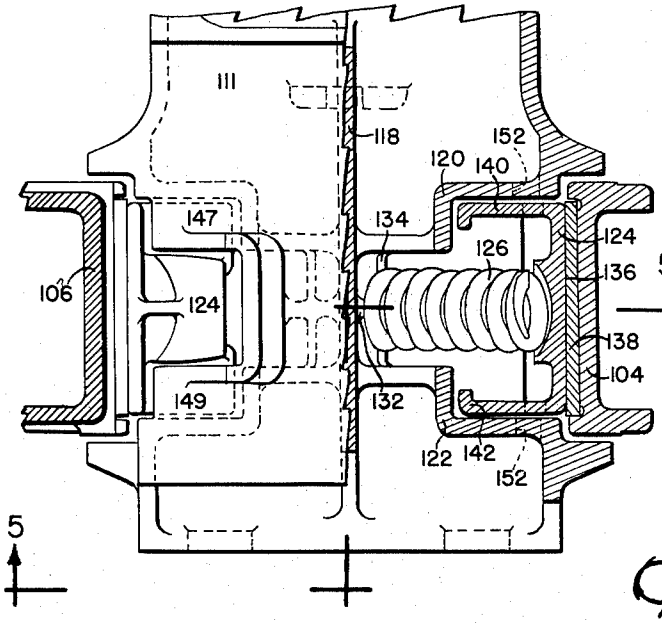
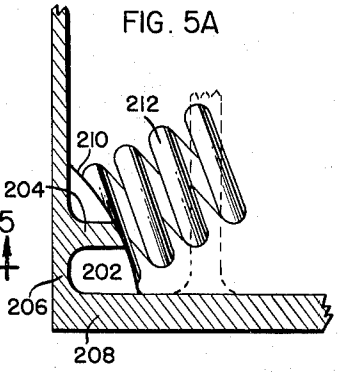


FIG. 5A



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Application October 16, 1946, Serial No. 703,676

15 Claims. (Cl. 105—197)

My invention relates to a railway car truck and particularly to a novel means of snubbing or damping the load-carrying springs of such a car truck.

A general object of my invention is to devise a novel form of railway car truck having a side frame, a transverse load-carrying member spring-supported thereon, and snubbing means so mounted in said load-carrying member for engagement with a portion of said side frame as adequately to dampen the action of the load-carrying springs.

A specific object of my invention is to devise such an arrangement wherein each end of the load-carrying member or bolster may house friction means for engagement with the side frame in such manner that the friction elements may be inoperatively assembled in the bolster so as to facilitate application of the bolster to the side frame opening or dismantling therefrom.

A different object of my invention is to devise a snubbing arrangement for a freight car truck wherein friction elements may be housed in each end of the bolster to accommodate a diagonally arranged coil spring at each side of the bolster end for actuation of a friction shoe at each side thereof, so arranged as to permit said friction shoe to engage a wall of said bolster and an adjacent wall of the associated side frame.

My invention also comprehends a novel form of friction shoe for utilization in such a structure as I have described.

In the drawings,

Figure 1 is a fragmentary side elevation of a railway freight car truck embodying my invention, the right half being shown in a section taken approximately in the vertical plane bisecting the side frame longitudinally as indicated by the line 1—1 of Figure 2.

Figure 2 is a fragmentary sectional view through the truck structure shown in Figure 1, the section being taken approximately in the horizontal planes indicated by the line 2—2 of Figure 1, the left half of the bolster assembly thus being shown in elevation.

Figure 3 is a further fragmentary sectional view taken in the vertical transverse plane indicated by the line 3—3 of Figure 1, the end of the bolster assembly thus being shown in side elevation and the compression member of the frame thereabove in section.

Figure 4 is a side elevation of the end portion of the bolster with the friction shoe removed.

Figure 5 is a fragmentary sectional view of a modified form of my invention, the view corresponding in general to that shown in Figure 1 with the right half in section approximately as indicated by the line 5—5 of Figure 6. Figure 5A is a modification illustrating an arcuate seat for the compression in the friction shoe pocket.

Figure 6 is a fragmentary sectional view of the modification shown in Figure 5, the view being taken approximately in the horizontal planes indicated by the line 6—6 of Figure 5.

Referring first to the modification illustrated in Figures 1 to 4, my novel arrangement comprises a conventional type of side frame having the compression member 2, the tension member 4, and spaced columns 6 and 8 merging therewith to define the bolster opening 10 within which may be received the end of the bolster, generally designated 12, said bolster having the usual inboard and outboard guide lugs 14 and 16 for guiding engagement with the inboard and outboard faces of the adjacent columns.

The tension member of the side frame below the bolster opening may be of box section with the bottom chord 18 and the top chord 20, said top chord being widened over said bolster opening to conform with an upstanding flange at each side thereof as seen at 22, said flanges serving to confine the lower ends of load-supporting coil springs 23, 23 which may rest upon the side frame spring seat 24 and support the bolster end as at 26.

The bolster end may be of box section with the top wall 28, the bottom wall 30, side walls 32, 34, and the longitudinal center rib 36. Intermediate the side frame columns, the side walls and top wall of the bolster may be cored away to form lateral pockets therein, each pocket being defined by an inboard vertical wall 38 (Figure 2), an outboard vertical wall 40, the bolster center rib 36, and the top and bottom walls of the bolster. The vertical walls 38 and 40 may be offset at intermediate points thereof as seen at 42 and 44 (Figure 2), restricting the inner end of each pocket to a somewhat narrower dimension than the width thereof which confines the friction shoe, generally designated 46, and the top wall of the bolster may overlie the widened portion at each side of the pocket as seen at 48 and 50 (Figure 2, left) for a purpose to be described. Each friction shoe 46 may have a vertical friction wall 52 having flat face engagement as at 54 with the wear plate 56 mounted in any convenient manner on the vertical web of the adjacent column. Each friction shoe may have an inboard wall 58, an outboard wall 60, the lower edges of said walls taking a diagonal form as seen at 62 (Figure 1) and merging with the top wall 64 thereof, the upper surface of which may have an arcuate form so that the inboard and outboard portions thereof may have rocking engagement as at 65 with the arcuately formed bottom faces of the before-mentioned ledges 48 and 50 formed on the top wall of the bolster at opposite sides of each pocket. The middle portion of the top wall of each friction shoe is upwardly offset in a diagonal direction as seen at 66 (Figure 1) to afford a seat as at 68 for the friction spring 70, the opposite end of which may seat as at 72 against the diagonal web 74 on the bolster. A guide flange 76 may be formed on the top wall of the bolster as additional positioning means for the spring 70 and the upper end thereof may also be afforded positioning means in the form of an arcuate flange 78 on the friction shoe (Figure 2). The upper and inner end of the top web 66 of each friction shoe may be downturned as seen at 80 (Figure 1) to form a channel at 82 aligned with openings 84, 84 in the webs at opposite edges of the diagonal wall 66 of the friction shoe, said aligned openings 84, 84 being arranged for reception of securing means, such as a pin or key, which may extend therethrough, and bear against the spaced lugs 86, 86 on the top wall of the bolster in such manner as to prevent the movement of the friction shoe outwardly of the bolster pocket. Thus the friction shoe and spring assembly may be confined within the bolster pocket for convenience of assembling or dismantling the bolster with respect to the side frame opening.

Preferably the springs 23 and side frame construction are formed and arranged to afford greater bolster travel than that provided by truck springs which have been designated as standard by the American Association of Railroads, and, for this reason, the vertical distance between the bottom edge of the friction shoe wall

52 and the bottom of the engaged friction plate 56 is greater than 15% of the vertical distance between the lower edge of the friction plate 56 and the horizontal plane of the spring seat 24, as clearly seen in Figure 1. In prior art arrangements with standard bolster supporting springs, the vertical distance between the bottom edge of the shoe friction surface and the bottom edge of the column friction surface has been from about 10% to about 13% of the vertical distance between the bottom edge of the column friction surface and the horizontal plane of the side frame spring seat. However, the increased vertical bolster travel accommodated by the novel arrangement, above described, has proved in actual practice to afford a softer support for the bolster and has met with evident favor in the railway industry. Moreover, in order to provide maximum friction area between the shoes 46 and the wear plates 56, in such an arrangement, and to facilitate assembly and disassembly of the springs 23, the shoes and side frame are of novel construction, hereinafter described.

Since the upper portion of each friction shoe 46 projects above the top wall of the bolster, the bottom web of the side frame compression member thereabove may be cored out to form an opening therein as seen at 88, thus avoiding interference as the bolster moves vertically on the load-supporting springs. The character of this clearance is readily seen in Figure 3. It may also be noted that in assembling and disassembling the springs 23 with respect to the side frame, the bolster is elevated to move the upper portion of the friction shoes into the openings 88.

The modification illustrated in Figures 5 and 6 is generally similar to that already described but differs therefrom somewhat in the structure of the friction shoe and its arrangement within the bolster pocket. In the arrangement of Figures 5 and 6, the side frame is of conventional type with the compression member 102, the spaced columns 104 and 106 forming in part the bolster opening 108, the bottom chord of the tension member 102 being cored away as at 110 as described for the previous modification. Within the bolster opening 108 may be received the box section end of the bolster, generally designated 111, said bolster being spring-supported as at 112 from the side frame by load-carrying springs (not shown). The box section bolster end may have pockets at opposite sides thereof adjacent respective columns as described in the previous modification, each pocket being defined by the bolster bottom wall 114, the top wall 116, the center rib 118 and offset transverse inboard and outboard webs 120 and 122 as described for the previous modification. The pocket thus formed may house a friction shoe, generally designated 124, and the associated compression spring 126, said compression spring being diagonally positioned and seated as at 127 at its upper end against the diagonal web 128 of the associated friction shoe, the opposite end of the spring bearing as at 130 against the diagonally aligned edges of the vertical rib 132 and the horizontal rib 134 in the bottom inner corner of the pocket. Each friction shoe 124 may have a vertical friction wall having flat face engagement as at 136 with the wear plate 138 secured on the vertical web of the adjacent column. Each shoe 124 may have the inboard vertical wall 140 and the outboard vertical wall 142 merging with the top wall 144, the lateral edges of said top wall having arcuate engagement as at 146 with overlying inboard and outboard ledges 147 and 149 on the top wall of the bolster, also as in the previous modification. Centrally of the friction shoe the top wall may be elevated in arcuate caplike arrangement as at 148 conveniently receiving the adjacent end of the compression spring 126.

In this arrangement the means for locking the friction shoe assembly within the bolster pocket consists of aligned openings 150, 150 in the lateral walls of the friction shoe and aligned openings 152, 152 in the bolster webs 120 and 122 so positioned that all of said openings may be brought into alignment with said friction shoe withdrawn into the pocket so that a pin may be projected through all of said openings to retain said shoe in said pocket for purposes already described.

In the modification of Figure 5A, I have illustrated an arcuate seat for the compression spring in the pocket and this, of course, may be adapted to either modification of my invention as listed. In the modification of Figure 5A the angularly arranged vertical web 202 and horizontal web 204 integrally formed with the bolster center rib 206 and the bottom wall 208 have their edges crowned to form a seat as at 210 for the compression spring 212. Such an arcuate seat for the spring will reduce bending of the spring during its application and also will facilitate its adaptation to lateral movement of the bolster when the friction shoe end of the spring will tend to move with the 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 supporting member with spaced columns, a bolster spring-supported thereon with pocket adjacent said columns, and friction assemblies in said pockets engaging said columns, each of said assemblies comprising a friction shoe having a vertical wall engaging the adjacent column and an approximately horizontal wall engaging spaced surfaces on the top wall of said bolster, and a spring compressed in said pocket and operative to urge said shoe against said spaced surfaces and the adjacent column, said spring being interposed between said surfaces and abutting a diagonal web on said shoe above said surfaces, said diagonal web having a loop end aligned with stops on the top wall of said bolster for reception of associated securing means which may abut said stops for confining said assembly in said pocket.

2. A bolster assembly comprising a box section bolster end having pockets at opposite sides thereof and friction means resiliently mounted in each pocket for engagement with an associated member, each of said friction means comprising a shoe with a vertical friction wall, a top wall having abutments at opposite edges thereof engaging ledges on said bolster end, a diagonal web at the top of said shoe intermediate said ledges, a spring compressed between said diagonal web and an opposed web in said pocket, and openings in certain walls of said shoe alignable with means on said bolster end for reception of securing means to retain said shoe within said pocket, said abutments having arcuate ledge-engaging faces.

3. A bolster assembly comprising a box section bolster end having pockets at opposite sides thereof and friction means resiliently mounted in each pocket for engagement with an associated member, each of said friction means comprising a shoe with a vertical friction wall, a top wall having abutments at opposite edges thereof engaging ledges on said bolster end, a diagonal web at the top of said shoe intermediate said ledges, a spring compressed between said diagonal web and an opposed web in said pocket, and openings in certain walls of said shoe alignable with means on said bolster end for reception of securing means to retain said shoe within said pocket, said ledges having arcuate faces engaging said abutments.

4. In a railway car truck, a supporting member with spaced columns, a bolster spring-supported thereon with pockets adjacent said columns, and friction assemblies in said pockets engaging said columns, each of said assemblies comprising a friction shoe having a vertical wall engaging the adjacent column and an approximately horizontal wall engaging spaced surfaces on the top wall of

said bolster, and a spring compressed in said pocket and operative to urge said shoe against said spaced surfaces and the adjacent column, said spring projecting between said surfaces and abutting a diagonal web on said shoe above said surfaces.

5. A bolster assembly comprising a box section bolster end having pockets at opposite sides thereof and friction means resiliently mounted in each pocket for engagement with an associated member, each of said friction means comprising a shoe with a vertical friction wall, a top wall having abutments at opposite edges thereof engaging ledges on the top wall of said bolster end, a diagonal web at the top of said shoe intermediate said ledges, a spring compressed between said diagonal web and an opposed web in said pocket, and openings in certain walls of said shoe alignable with means on said bolster for reception of securing means to retain said shoe within said pocket.

6. A railway car truck bolster assembly comprising a bolster having an end portion with top and bottom walls and spaced side walls, a friction shoe engaged with the underside of said top wall, spaced substantially parallel diagonal surfaces on the shoe and bolster respectively, and a spring compressed between said surfaces and extending above the level of said top wall.

7. A truck bolster assembly, according to claim 6, wherein the spring engaging area of one diagonal surface is crowned.

8. A railway car truck comprising a side frame with a friction surface, a bolster spring-supported by the frame, said bolster including top and bottom walls and spaced side walls, a friction shoe engaging the under side of said top wall and engaging said surface and having a diagonal web projecting upwardly through a slot in the top wall, a diagonal spring sloping toward the column and compressed between said web and bolster, key engaging means on said web above the level of the top wall, and key engaging means on the topside of the top wall inboardly and outboardly of the first-mentioned engaging means.

9. A railway car truck comprising a side frame with a friction surface, a bolster spring-supported by the frame, said bolster having top and bottom walls and spaced side walls, said top wall having a slot defining spaced ledges, a friction shoe engaging the under side of said ledges and having a friction surface extending above and below the slot in engagement with the column surface, a diagonal web on the shoe extending upwardly through said slot, and a diagonal spring compressed between said web and the bolster, the upper end of said spring being above the level of said top wall.

10. A railway car truck bolster assembly comprising a bolster end portion having top and bottom walls and spaced side walls, the top wall having a slot defining spaced ledges, a friction shoe engaging the under side of said ledges and having an external friction surface extending above and below the slot and adapted for engagement with a related friction surface on an associated truck part, a diagonal web on the shoe extending upwardly through said slot, a diagonal spring compressed between said web and the bolster, and positioning means on said shoe beneath said web for engaging the perimeter of said spring to position the same.

11. In a railway car truck, a side frame with spaced columns, a bolster spring-supported on said frame with pockets adjacent said columns, and friction shoe assemblies in said pockets and engaging said columns, each of said assemblies comprising a friction shoe having a vertical wall engaging the adjacent column, a diagonal web at the top of said shoe, an approximately parallel web in the

associated pocket, a spring compressed between said webs for urging said shoe against said columns, and means on the top wall of said bolster affording guidance for said spring intermediate the ends thereof, said shoe being engaged with said top wall.

12. A friction shoe comprising a friction wall, spaced side walls connected thereto, a diagonal web connected to said walls and having a diagonal spring seat on its underside, and means on the top end of said web above the upper level of said side walls for connecting the shoe to an associated key adapted to hold the friction wall out of contact with an associated friction surface.

13. A friction shoe having a vertical wall with a flat friction face, vertical lateral walls integral with said friction wall, a horizontal wall intermediate the ends of said shoe affording spaced ledges at opposite edges of said shoe for abutment with an associated member, and a diagonal web at the top of said shoe intermediate said ledges affording a spring seat.

14. A railway car truck comprising a side frame with tension and compression members and spaced columns defining a bolster opening, spring means carried by the side frame in said opening, a bolster supported by said means in said opening, friction means associated with at least one column for damping oscillations of said bolster, said friction means comprising friction shoe means in engagement with the bolster, said friction shoe means presenting a relatively wide lower friction area and a relatively narrow upper friction area, both areas engaging the column, spring means for urging said friction shoe means into said engagement with said bolster and column, and an opening in the compression member adapted to receive said narrow area when the bolster and friction shoe means are elevated to the top of said bolster opening for accommodating assembly and disassembly of said first mentioned spring means.

15. A railway car truck comprising a side frame with tension and compression members and spaced columns defining a bolster opening, a substantially horizontal spring seat on said tension member in said opening, spring means on said seat, a bolster structure supported by said spring means in said opening, and friction means associated with at least one column for damping oscillations of the bolster structure, said friction means comprising a friction plate secured to said one column, friction shoe means having a relatively wide lower friction area and a relatively narrow upper friction area both engageable with the plate, spring means for urging the shoe against the bolster structure and for urging said areas against said plate, and an opening in the compression member adapted to receive said narrow area when the bolster is above normal position in said bolster opening, the vertical distance between the bottom edge of said lower area and the bottom edge of said plate being greater than 15% of the vertical distance between the bottom edge of said plate and the horizontal plane of said spring seat.

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