Jan. 2, 1951 R. B. COTTRELL 2,536,975

SNUBBED TRUCK

Filed Sept. 3, 1948 2 Sheets-Sheet 1

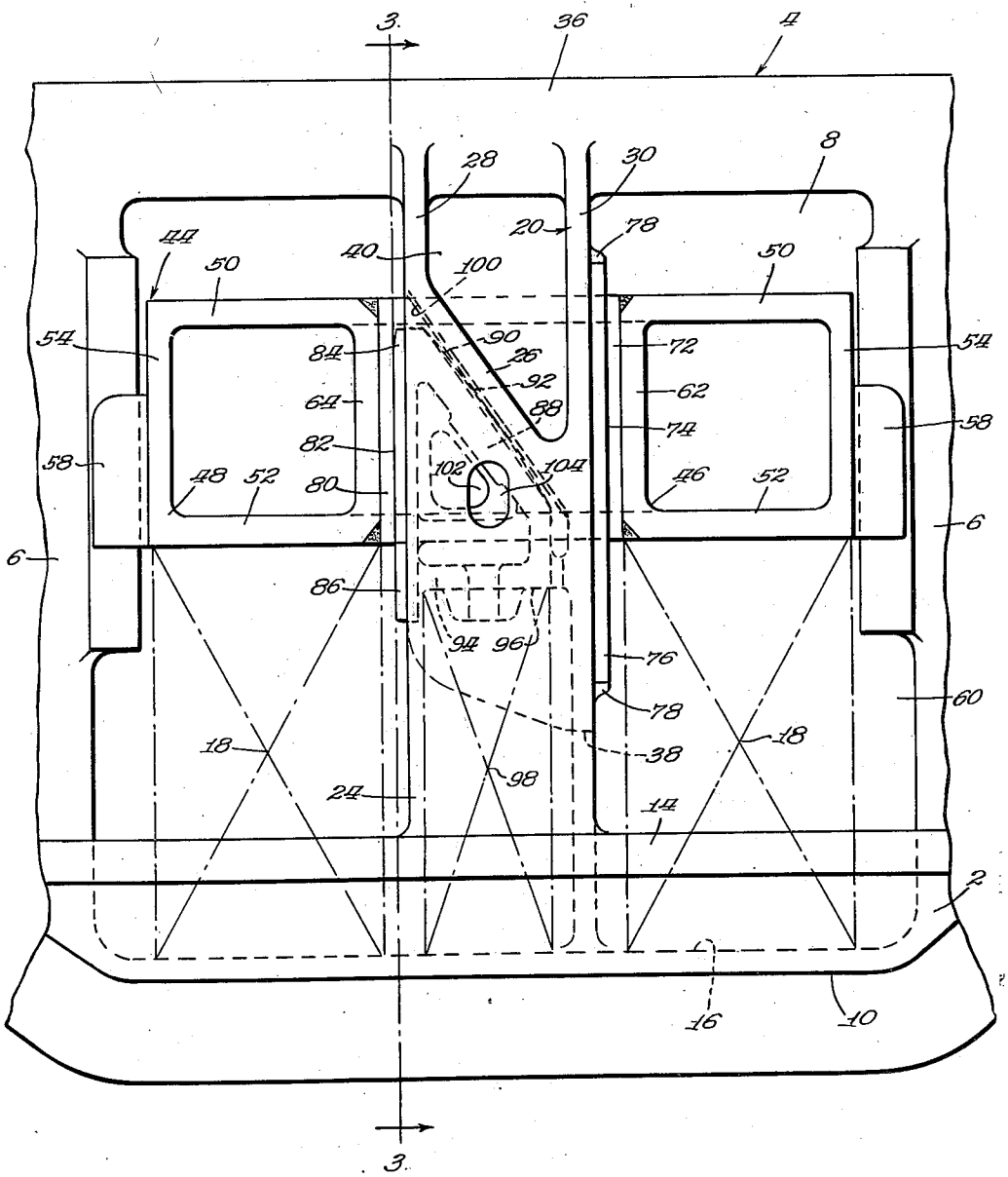


Fig. 1.

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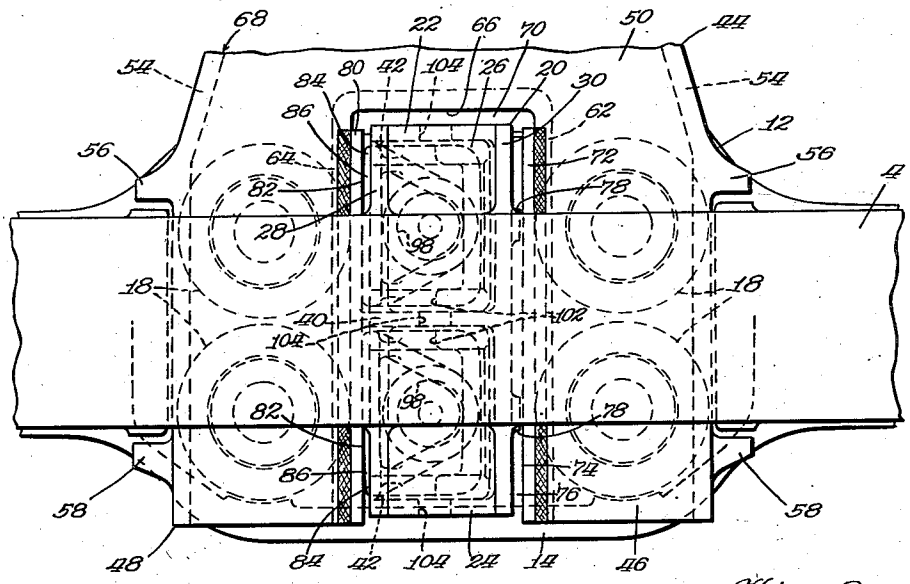


Fig. 2.

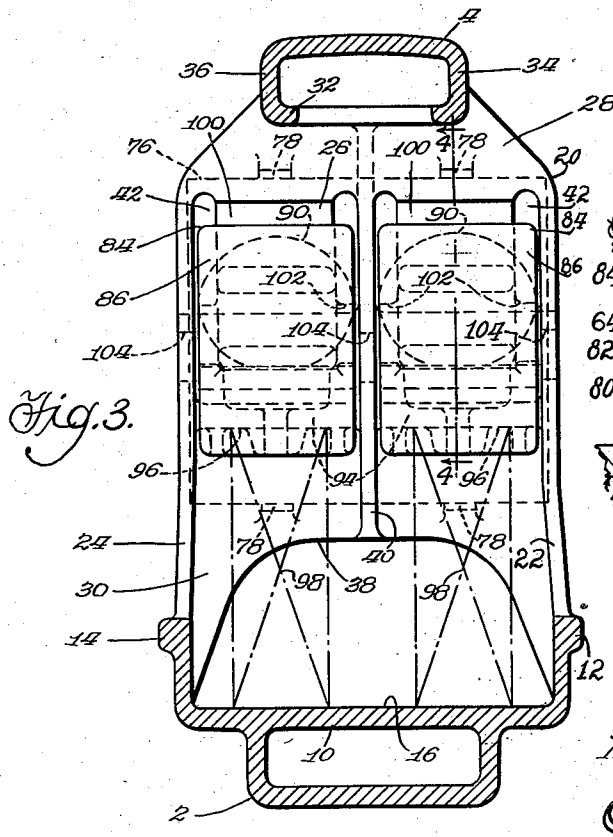


Fig. 3.

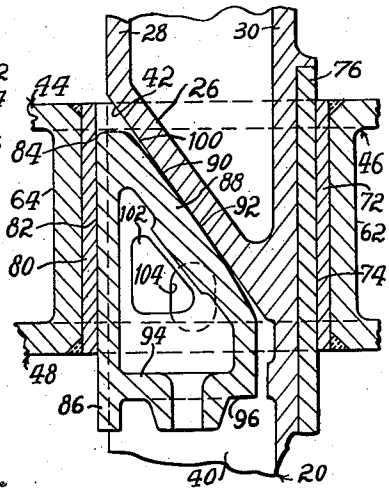


Fig. 4.

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UNITED STATES PATENT OFFICE

2,536,975

SNUBBED TRUCK

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4 Claims. (Cl. 105—197)

1

This invention relates to railway car trucks and more particularly to a truck incorporating snubbing means for damping the oscillations of the bolster-supporting springs.

A specific object of the invention is to provide a truck such as above described comprising a truss type side frame with an integral substantially vertical central column embraced by spaced legs of a bolster, one of the legs directly engaging one side of the column and the other leg engaging a plurality of friction shoes housed in the column and in wedge engagement therewith, the shoes being actuated by resilient means within the column and compressed between each shoe and the frame.

Another object is to provide a truss type side frame with a center post of skeletal construction formed and arranged to house the friction means and the actuating means therefor.

A further object is to provide an arrangement of a car truck which is simple to assemble and wherein the friction or snubbing means serve as squaring instrumentalities, that is, they are effective to control lateral and angling movements of the bolster in addition to damping the oscillations of the bolster-supporting springs.

These and other objects of the invention will become apparent from the specification and the drawings wherein:

Figure 1 is a fragmentary side elevation of a railway car truck embodying the invention;

Figure 2 is a top plan view of Figure 1;

Figure 3 is a sectional view taken substantially on line 3—3 of Figure 1 with the bolster removed; and

Figure 4 is a fragmentary vertical sectional view of the truck shown in Figure 1, the section being taken substantially in the plane indicated by the line 4—4 of Figure 3.

Describing the invention in detail, the side frame comprises a tension member 2, a compression member 4 and spaced columns 6, 6 defining therewith the bolster opening 8. The tension member 2 is of box section beneath the bolster opening with the top chord 10 thereof widened and formed with upstanding inboard and outboard flanges 12 and 14 defining a spring seat 16 on which are seated the lower ends of bolster-supporting coil springs diagrammatically illustrated at 18, 18, said springs being arranged in two pairs at opposite sides of the transverse center line of the truck, as will be clearly apparent from consideration of Figure 2.

A substantially vertical center post 20 of box section, as best seen in Figures 1 and 2, extends

2

between the tension and compression members within the bolster opening 8 substantially medially between the columns 6, 6 intermediate the two pairs of said bolster-supporting coil springs.

The center column or post 20 comprises spaced substantially vertical inboard and outbard walls 22 and 24 merging at their lower ends with the upper edges of the inboard and outboard spring seat flanges 12 and 14, respectively. The upper ends of the inboard and outboard walls of the post terminate below the compression member and are interconnected at their upper ends by means of transverse wall or web 26 extending therebetween. Web 26 slopes upwardly toward one of the side frame columns 6. The post is connected to the compression member by means of spaced substantially vertical transverse webs 28 and 30 at opposite sides of the post. The web 28 merges at its lower end with the upper end of inclined web 26 and with the under surface of a substantially horizontal web 32 of the box-section compression member 4, and, as best seen in Figure 3, is upwardly tapered on its lateral edges and merges with inboard and outboard walls 34 and 36 of compression member 4. Web 28 is disposed at one side of the post adjacent one column 26 and web 30 is disposed at the opposite side of the post adjacent the other column 6. The web 30 extends for the full length of the post between the tension and compression members and interconnects the inboard and outboard walls 22 and 24 of the post and at its upper end merges with the before-mentioned bottom wall 32 of the compression member and its upper lateral edges tapers upwardly and merges with the inboard and outboard walls 34 and 36 of said compression member. Intermediate its ends the wall 30 merges on its rear side with the lower end of diagonal web 26 and at the lower portions of the lateral edges thereof merges with the inner sides of the inboard and outboard spring-positioning flanges 12 and 14 of the tension member spring seat. Wall 28 is cored away as at 38 at its lower end to lighten the structure.

Wall or web 26 of the center post is divided into two segments spaced transversely of the side frame by means of a vertical wall 40 which is disposed intermediate the before-mentioned spaced inboard and outboard walls 22 and 24 and extending substantially parallel thereto longitudinally of the frame. Wall 40 merges with web 26 and extends beyond the upper and lower surfaces thereof, and at its upper extremity merges with the lower web or wall 32 of the compression member and on one of its lateral edges merges with

the rear side of wall 30 and at its lower end is terminated short of the tension member spring seat for a height substantially equal to that of the cored away portion of web 30 to lighten the structure.

Thus it will be noted that walls 22, 24, 26 and 30 together with wall 40 form two pockets 42, 42 spaced transversely of the side frame and both of the pockets face one of the columns 6.

The box-section bolster, generally designated 44, has a bifurcated end portion comprising spaced legs 46 and 48 received within the bolster opening 8 at opposite sides of the post 20. Legs 46 and 48 of the bolster seat on the upper ends of the associated bolster-supporting coil springs 18. The bolster comprises top and bottom walls 50 and 52 and spaced side walls 54, 54 and on the side walls are formed inboard and outboard guide lugs or gibs 56 and 58 which embrace the associated column therebetween, interlocking the bolster with the side frame. It will be noted that the outboard gibs 58 are of a depth convenient to accommodate assembly and disassembly of the bolster with respect to the side frame by permitting insertion and withdrawal of the bolster through the widened portion 60 at the lower end of the bolster opening in conventional manner.

The legs 46 and 48 comprise, in addition to the top and bottom and side walls of the bolster, mutually facing adjacent side walls 62 and 64, respectively, said side walls 62 and 64 extending longitudinally of the bolster and at their inner ends merging with a substantially vertical transverse wall 66 which extends between the top and bottom walls 50 and 52 of the bolster. The spaced legs 46 and 48 together with the body portion of the bolster, generally designated 68, form an opening 70 (Figure 2) within which the before-mentioned center post 20 is received. Wall 62 of leg 46 of the bolster is provided with friction means in the form of a substantially vertical friction plate 72 mounted thereon in any convenient manner, as by welding, said friction plate being arranged to engage as at 74 with friction means in the form of a friction plate 76 carried on the column on wall 30 thereof. Plate 76 may be secured in any convenient manner, as by welding, to wall 30 and is held on the top and bottom thereof by means of spaced lugs 78, 78 protruding from said wall 30.

Similarly, wall 64 of leg 48 of the bolster is provided with friction means in the form of a substantially vertical friction plate 80 which is secured thereto in any convenient manner, as by welding, said plate being frictionally engaged as at 82, 82 with a pair of friction shoes 84, 84 disposed in respective pockets 42, 42.

Each shoe 84 is of substantially triangular configuration in side elevation and has a substantially vertical friction wall 86 engaged with the before-mentioned plate 80 as at 82, a diagonal wall 88 with a crowned, preferably raised surface as at 90 in engagement as at 92 with the associated segment of wall 26 of the center post, and a substantially horizontal spring seat wall 94 extending between said vertical wall 90 and said diagonal wall 88 of said shoe. The bottom wall of each shoe affords a spring seat as at 96 for the upper end of a coil spring 98 (diagrammatically illustrated in Figures 1 and 3), each coil spring 98 being seated at its lower end on the spring seat 16 of the tension member. It will be noted that the springs 98 are housed within the center post and in reacting against the respective shoes urge the same upwardly against the spaced coplanar substantially flat upwardly sloping wedge surfaces 100, 100 on the bottom side of web 26 of the center post and cause the shoes to ride diagonally upwardly and engage on their friction walls with the wear plate 80 mounted on leg 48, and the bolster is caused to move to the left (Figure 1) engaging leg 46 with post 20.

The bolster, in moving vertically, slides its leg 46 against one side of the post and leg 48 slides against shoes 84, 84, whereby vertical oscillations of the coil springs supporting the bolster are dampened. Lateral movement of the bolster in one direction is unyieldingly resisted by engagement of leg 46 with the post and lateral movement in the opposite direction is yieldingly resisted by engagement between the leg 48 and shoes 84, 84. This construction has a decided advantage in that the bolster is greatly restricted in oscillating laterally between the columns. Any angling of the bolster is effectively controlled by the friction shoes and the post cooperating with the spaced legs of the bolster.

The walls of each shoe define an opening 102 alignable with openings 104, 104 in walls 22, 24 and 40 of the post, said openings being adapted to receive a tool or a bar therethrough to maintain the shoes in retracted position within the respective pockets out of engagement with the bolster for thus facilitating assembly and disassembly of the bolster with respect to the side frame.

Of course, only one shoe could be used in lieu of the two shown; however, the two shoes are preferred in that one shoe complements the action of the other and cooperatively are more effective to control the various movements of the bolster.

I claim:

1. In a side frame for a railway car truck, a frame element comprising tension and compression members and spaced columns therebetween defining a bolster opening therewith, said tension member beneath said bolster opening being of box-section and comprising a widened top chord forming a spring seat, upstanding inboard and outboard flanges on said top chord, a post wider than said columns transversely of the frame and disposed within said opening between said columns and comprising spaced substantially vertical inboard and outboard walls merging at their lower ends with said inboard and outboard flanges respectively and terminating at their upper ends below said compression member, a diagonal transverse web interconnecting the upper ends of said inboard and outboard walls and sloping toward one of said columns, said post having a transverse wall of the side thereof adjacent the other of said columns merging at its upper end with said compression member and at its lateral edges with said inboard and outboard wall interconnecting the same and merging at its inner side with one end of said diagonal transverse web and at its lower end being bifurcated and merging with the inner sides of said inboard and outboard flanges, another transverse wall on the opposite side of said post and merging at its lower end with the upper extremity of said diagonal web and at its upper extremity with said compression member, an intermediate wall between said inboard and outboard walls extending substantially parallel thereto and merging intermediate its ends with said diagonal wall dividing the same into two segments spaced transversely of said frame and merging at its upper extremity with said compression member and at its lateral edges with the inner sides of said transverse walls

and at its lower extremity terminating short of said spring seat, said intermediate wall with the segments of said diagonal web and said inboard and outboard walls and said first-mentioned transverse wall defining spaced pockets aligned transversely of said frame, each segment presenting a single wedge surface within the respective pocket, and friction means carried by said first-mentioned transverse wall on the external side thereof.

2. In a railway car truck, a side frame comprising tension and compression members and a substantially vertical column extending therebetween, a spring seat on said tension member, a plurality of springs on said seat, a bolster supported on said springs and comprising a bifurcated end portion with spaced legs at opposite sides of said column, and friction means comprising a plurality of pockets spaced transversely of said frame in one side of said column with wedge means therein sloping toward the adjacent leg, a friction element in each pocket in complementary wedge engagement with the wedge means therein and in frictional engagement with a surface on said one leg extending transversely of said frame, substantially vertical springs within said column compressed between respective shoes and said seat, and friction surfaces on the opposite side of said column and on said other leg extending transversely of said frame and in engagement with each other and extending a substantial distance inboardly and outboardly of the frame.

3. In a railway car truck, a truss type side frame comprising a substantially vertical central post having a friction surface on one side extending a substantial distance inboardly and outboardly of the inboard and outboard sides of the frame, a bolster comprising spaced legs extending at opposite sides of the post, a friction surface on one of said legs substantially coextensive with the friction face on said post transversely of the frame and in engagement therewith, said post having a pair of friction shoe pockets at the opposite side thereof spaced transversely of the

frame, a friction shoe in each pocket, one of said shoes projecting a substantial distance inboardly of the frame and the other shoe extending a substantial distance outboardly of the frame, a single wedge surface in each pocket in engagement with the associated shoe, a friction surface on the other leg extending a substantial distance inboardly and outboardly of the frame and in engagement with said shoes and a spring compressed between each shoe and a portion of the frame other than said post.

4. In a railway car truck, a side frame comprising tension and compression members and spaced columns defining a bolster opening, a spring seat on said tension member at the bottom of said opening, springs on said seat, a bolster comprising spaced portions extending into said opening and supported on the springs, a post between said portions connected to said members and comprising a friction surface adjacent one of said portions, friction means in said post including a plurality of pockets open to the other portion of the bolster, a single wedge surface in each pocket sloping upwardly outwardly thereof, a shoe in each pocket in wedge engagement with the associated wedge surface and in frictional engagement with said other portion, and a spring compressed between each shoe and said spring seat, said friction means being oriented to exert a force against said other bolster portion in a direction urging said bolster to a position engaging said one portion thereof with the friction surface on the post.

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