

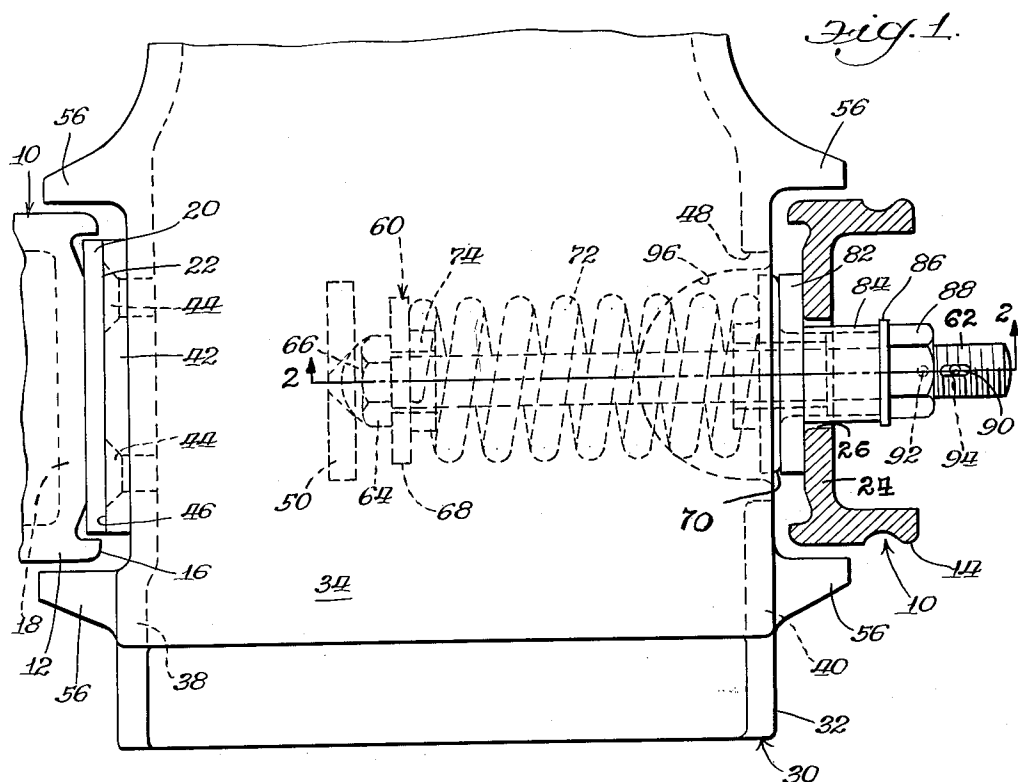
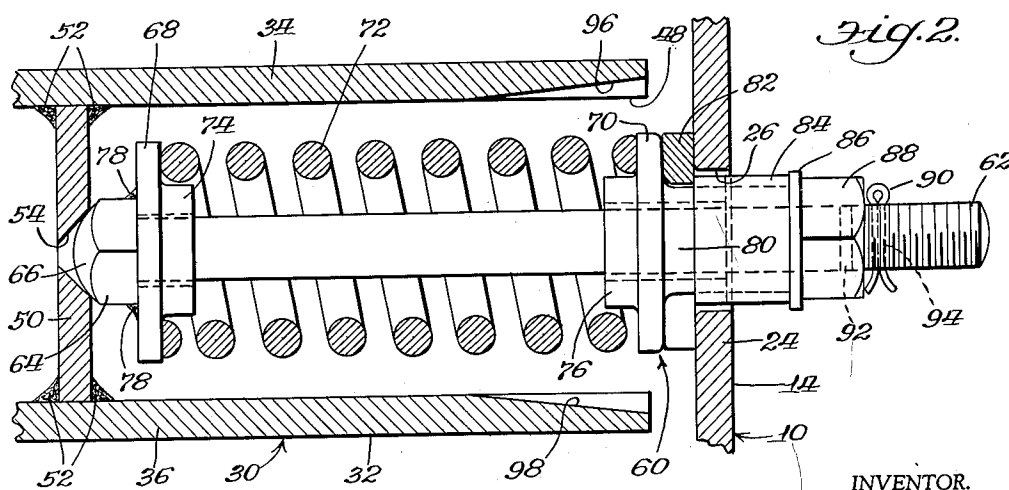
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SHOELESS SNUBBED TRUCK

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SHOELESS SNUBBED TRUCK

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This invention relates to railway car trucks, and more particularly to those trucks which have friction devices for damping vertical oscillations of the load supporting springs.

The invention comprehends a snubbed truck wherein the supporting and supported members are urged into direct frictional engagement with each other by a relatively simple spring assembly compressibly interposed therebetween.

As those familiar with the railway truck art well know, all of the snubbed trucks in current use require some type of friction device, which is carried either by the bolster or side frame and which includes at least one friction or wedge shoe disposed within one member and urged into frictional engagement with the other member by a spring mechanism.

Many of these devices are extremely complex and include several shoes or wedge blocks which wear out rapidly, necessitating their frequent replacement, and which also often become misaligned resulting in undue wear on the bolster and/or side frames of the truck.

It is therefore an object of this invention to provide a snubbed truck without conventional snubbing devices and wherein the bolster and side frame are urged into direct frictional engagement with each other by a simple spring assembly interposed therebetween.

A more specific object of the invention is the provision of a snubbed truck wherein a spring assembly, compressibly interposed between one side frame column and a vertical internal wall of the bolster, is operable to exert a continuous force against the bolster and thereby urge an outside wall of the bolster into direct frictional engagement with the other side frame column.

These and other objects of the invention will be apparent from an examination of the following description and drawings, wherein:

Figure 1 is a fragmentary top plan view of a part of a railway car truck embodying features of the invention, with portions of the structure shown in horizontal section, and

Figure 2 is an enlarged vertical section taken on line 2—2 of Figure 1.

It will be understood that certain elements have been intentionally eliminated from certain views where they are better illustrated in other views.

Referring now to the drawings for a better understanding of the invention, it will be seen that the invention is applied to a railway car truck having a pair of side frames 10, only one of which is shown, and each of which comprises tension and compression members, not shown, interconnected by a pair of generally vertically extending parallel longitudinally spaced column members 12 and 14 which define therebetween a bolster receiving opening 16.

As best seen in Figure 1, the left hand column 12 includes a vertical wall 18 which may be provided with a wear plate 20 formed of a hard wear resistant steel and

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rigidly secured to the column in any manner as by welds, not shown. The wear plate presents a vertical friction surface 22 facing the bolster opening and extending transversely of the truck. Right hand column 14 includes a vertical wall 24 which has a hole 26 extending there-through in substantial alignment with wear plate 20 of left hand column 12.

Extending between the side frames is a bolster, indicated generally at 30, having a pair of box like end sections 32, only one of which is shown, resiliently supported by a plurality of load springs, not shown, in the usual manner from the respective side frames. Each bolster end section preferably comprises parallel generally flat top and bottom walls 34 and 36, respectively, which are interconnected by vertical left and right side walls 38 and 40, respectively.

Left side wall 38, as best seen in Figure 1, may be provided with a wear plate 42 rigidly secured to the outer side of the side wall in any desired manner such as by rivets 44. The wear plate is located on the side wall in such a position that its outer friction surface 46 is disposed adjacent friction surface 22 of the column wear plate for frictional engagement therewith.

The right hand bolster side wall 40 may be provided with an opening 48 extending therethrough and located in substantial alignment with hole 26 of the right hand side frame column.

The bolster top and bottom walls 34 and 36 may be interconnected, as best seen in Figure 2, by a vertical internal abutment wall 50 located preferably at or near the longitudinal center line of the bolster and extending transversely of the truck and parallel to the bolster side walls. The internal wall may be rigidly secured to the top and bottom bolster walls in any desired manner as for instance by welds 52. As best seen in Figure 2, the bolster internal wall may be provided on its right hand side with a recess or cavity 54, the purpose of which is hereinafter explained.

Additionally, the bolster may be provided with conventional outwardly extending gibs 56 which are disposed adjacent opposite sides of the side frame columns to limit longitudinal movement of the bolster relative to the side frames.

In order to effect the snubbing action between the bolster and side frame by maintaining the friction surfaces of the bolster and side frame wear plates in direct snug frictional engagement with each other, there is provided a spring assembly indicated generally at 60. The spring assembly comprises a spring bolt or guide 62 having an integral head 64 which presents a rounded outer surface 66 adapted to be received within cavity 54 presented by the bolster internal wall.

Sleeved over the body of bolt 62 are a pair of inner and outer spring caps 68 and 70, respectively, between which is compressibly interposed a coil compression spring 72, the opposite ends of which are sleeved over bosses 74 and 76 presented by opposed faces of the caps 68 and 70, respectively. The inner or left hand spring cap 68 is preferably secured rigidly to bolt head 64 by means of welds 78, while the outer or right hand cap 70 is loosely sleeved over the bolt and presents an outwardly extending cylindrical shoulder 80 adapted to be received within hole 26 presented by the right hand side frame column. As best seen in Figure 2, outer spring cap 70 may include a separate generally U-shaped shim or spacer 82 which is supported by right hand spring cap shoulder 80 and which is interposed between the outer face of the spring cap 70 and the inner face of the right hand side frame column wall 24.

Also, partially sleeved over the outer spring cap shoulder 80 is a generally cylindrical sleeve or spacer 84 which is interposed between the right hand or outer

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side of shim 82 and the left hand or inner side of a washer 86 which is also sleeved over the bolt outwardly of the shim. All of the above mentioned parts may be maintained in position on the bolt by means of a nut 88 threadably received on the outer end of the bolt and maintained in position by means of a cotter 90 disposed to extend through either one of a pair of inner and outer pin holes 92 and 94 presented by the bolt.

The operation of the device will be evident from an examination of the drawings where it can be seen that as the action of spring 72 urges the spring caps away from each other, it urges the bolster to the left or away from right hand side frame column 14 so that friction surface 46 presented on the bolster wear plate is forced into direct tight frictional engagement with the friction surface 22 presented by the left hand side frame column. The spherical surface 66 of spring bolt head 64 permits the bolt and spring 72 to angle relative to the bolster internal wall to accommodate limited angling in all directions between the bolster and the side frame. In order to provide additional clearance for the spring to accommodate such angling, internal opposed faces of top and bottom walls 34 and 36, respectively, of the bolster may be cut away as indicated at 96 and 98.

To assemble the device, after the bolster has been placed in position between the side frames in the usual manner, the spring assembly is assembled and the spring pre-compressed by threading nut 88 onto bolt 62 with the outer surface of the nut disposed inwardly of the innermost cotter pin hole 92. Then cotter 90 is inserted through hole 92 and the entire spring assembly is inserted into the bolster from the outer end thereof with the right hand or outer end of the spring assembly being inserted through opening 48 in bolster wall 40 and through hole 26 in right hand side frame column 14. After this is done, the cotter is removed from hole 92 and inserted into hole 94. Nut 88 is then backed off to permit spring 72 to expand into operable position where it can urge the bolster into engagement with left hand side frame column 12.

This arrangement also lends itself readily to the conversion of older non-snubbed trucks. All that is required to convert a non-snubbed truck to a snubbed truck with this arrangement is to attach the wear plates to left side wall 38 of the bolster and left hand side frame column wall 18, weld internal vertical wall 50 in place between the upper and lower walls of the bolster, cut hole 26 in right hand side frame column wall 24, cut opening 48 in right hand side wall 40 of the bolster, if desired, burn or grind away the upper and lower bolster walls in the area adjacent opening 48 in the right hand side wall of the bolster, and then insert the spring assembly.

A modified form of the invention may be provided by eliminating the internal wall and using a larger spring assembly (not illustrated) which is directly engageable with the inside face of left hand bolster side wall 38.

Thus, it will be understood that by this novel snubbing arrangement, continuous direct frictional contact between the bolster and side frame can be provided to damp the vertical oscillation of the bolster supporting load springs without the need of a plurality of friction castings such as friction shoes and/or wedge shoes or wedge blocks as are required by conventional snubbing arrangements.

I claim:

1. A snubbed railway vehicle truck comprising, in combination: a side frame including a pair of longitudinally spaced vertically extending parallel columns defining a bolster opening therebetween, one of said columns presenting a transverse vertical friction surface facing said opening, the other of said columns having an aperture extending therethrough; a bolster having a box-like end resiliently supported on said frame within said opening, said bolster end including an outside wall presenting a

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vertical friction surface disposed for engagement with said column friction surface, and including an internal vertical wall extending generally parallel to said outside wall; and a spring assembly disposed to extend through said aperture and being compressibly interposed between said internal wall and said other column to urge said bolster friction surface into direct abutting engagement with said column friction surface.

2. A snubbed truck comprising, in combination: a side frame having a pair of spaced vertical columns defining a bolster opening therebetween, one of said columns presenting a vertical friction surface facing said opening; a bolster having a box-like end resiliently supported on the side frame within said opening, said bolster end including an outside vertical wall presenting a friction surface disposed for engagement with said column surface, and including an internal vertical wall extending generally parallel to said outside wall; and a spring device compressibly interposed directly between the internal wall and the other side frame column and operable to urge said bolster surface into direct frictional engagement with said side frame surface.

3. A snubbed truck comprising, in combination: a side frame having a pair of spaced vertical columns defining a bolster opening therebetween, one of said columns presenting a vertical friction surface facing said opening; a bolster having a box-like end resiliently supported on said side frame within said opening, said bolster end including a pair of parallel spaced vertical walls one of which presents a vertical friction surface disposed for engagement with said column friction surface; and resilient means interposed between the other of said bolster walls and the other of said side frame columns and being operable to urge said bolster surface into frictional equipment with said side frame surface.

4. A snubbed railway car truck comprising, in combination: a side frame member having a pair of spaced vertical columns defining a bolster opening therebetween; a bolster member having an end disposed within said opening and presenting a vertical friction surface disposed adjacent a vertical friction surface presented by one of the columns for direct engagement therewith; and a spring device compressibly interposed directly between said bolster member and the other of said columns and being operable to maintain the friction surfaces of the members in continuous direct frictional engagement with each other.

5. A snubbed railway car truck according to claim 4, wherein said spring device comprises a compression spring having its opposite ends engaged by a pair of spring cap means which are in turn abutably engageable with said other side frame column and the bolster member, respectively.

6. A snubbed railway car truck according to claim 4, wherein said spring device includes a pair of spring cap means and a compression spring sleeved on a spring guide one end of which is disposed within the bolster and the other end of which is disposed to extend through aligned apertures in the bolster and said other column.

7. A snubbed railway vehicle truck comprising, in combination: a side frame member presenting a vertical surface; a bolster member resiliently supported by the side frame member and presenting a vertical surface disposed for engagement with said side frame member surface, said bolster member also presenting an internal abutment disposed in the bolster member; and resilient means in direct compressive engagement with the internal abutment and the side frame member and operable to urge the surfaces of the respective members into direct frictional engagement with each other.

8. A snubbed truck according to claim 7, wherein the resilient means includes a spring guide; a pair of spring caps on the guide, one of the caps being rigidly secured to the guide and being engageable with said abutment of the bolster member, the other of said caps being slidably

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mounted on the guide and being abutably engageable with the side frame member; and a coil compression spring sleeved over the guide between and in abutting engagement with the spring caps.

9. A snubbed truck according to claim 8, wherein said side frame member and said bolster member present aligned apertures, respectively, and wherein said guide is disposed to extend through said apertures.

10. A snubbed truck according to claim 7, wherein the resilient means includes a compression spring, and spring cap means interposed between and engageable with opposite ends of the spring, and with the abutment and the side frame member, respectively.

11. A snubbed truck according to claim 7, wherein the side frame member includes a pair of vertical columns disposed adjacent opposite sides of the bolster member; wherein the side frame member surface is presented by one of the columns; wherein the other of said columns presents a hole extending therethrough, and wherein the resilient means is disposed to extend through said hole.

12. A snubbed truck according to claim 7, wherein the bolster member includes a pair of spaced vertical walls one of which presents the surface engageable with the side frame member surface, and the other of which is engaged by the resilient means.

13. A snubbed truck according to claim 7 wherein the bolster member includes a pair of spaced vertical walls one of which presents the surface engageable with the side frame member surface, and the other of which is engaged by the resilient means, and further wherein said bolster member walls are parallel to the longitudinal vertical center plane of the bolster member.

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14. A snubbed truck according to claim 7 wherein the bolster member includes a pair of spaced vertical walls one of which presents the surface engageable with the side frame member surface, and the other of which is engaged by the resilient means, said bolster member walls are parallel to the longitudinal vertical center plane of the bolster member, and further wherein the bolster member includes a third vertical wall, said other bolster member wall is located between said one wall and said third wall, and said resilient means is disposed to extend through an opening in said third wall.

15. A snubbed railway car truck comprising, in combination: a side frame member having a pair of spaced vertical walls; a bolster member having an end portion disposed therebetween and having a side wall disposed adjacent one of said frame member walls for direct frictional engagement therewith; one of said members also having an abutment surface therewithin; and resilient means within the member having the abutment surface compressibly interposed between said abutment surface and a wall of the other member; said resilient means being disposed in alignment with said side frame and end portion of the bolster and operable to continuously urge said adjacent bolster member and side frame member walls into direct frictional engagement with each other.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 2,985,116

May 23, 1961

Carl E. Tack

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 4, line 35, for "equipment" read -- engagement --.

Signed and sealed this 14th day of November 1961.

(SEAL)

Attest:

ERNEST W. SWIDER

Attesting Officer

DAVID L. LADD

Commissioner of Patents

USCOMM-DC