Feb. 2, 1954 L. F. RAMOS 2,667,844

SNUBBED TRUCK

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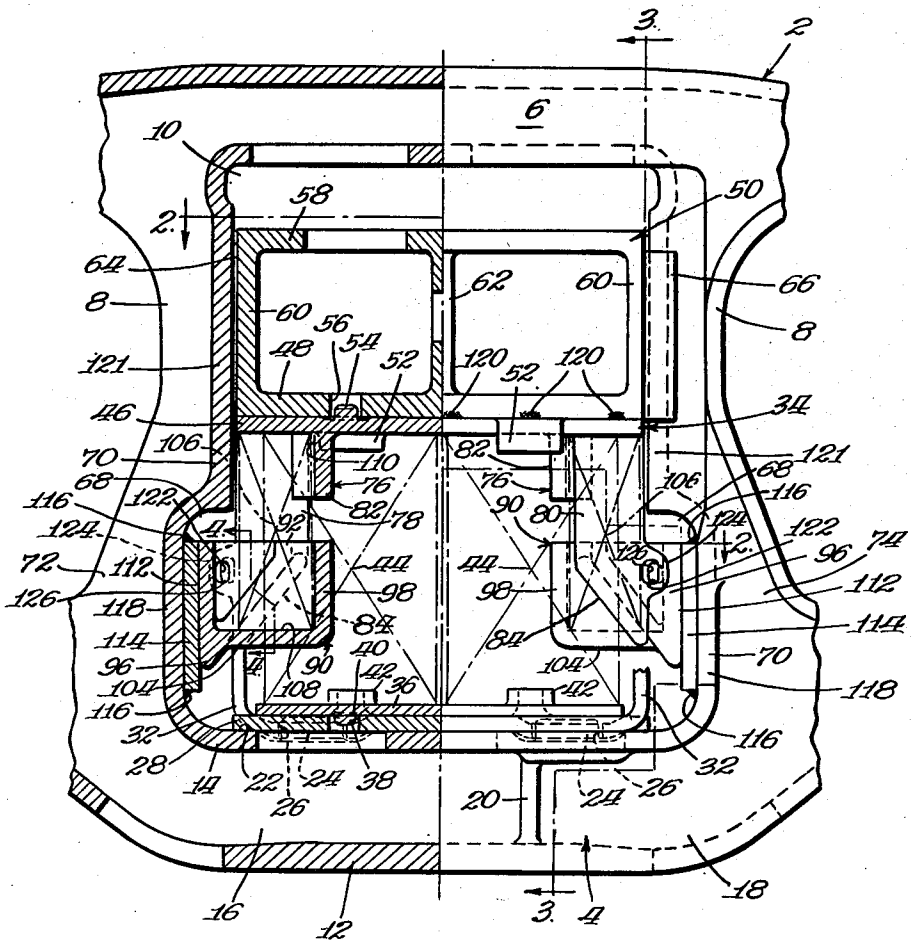


Fig. 1.

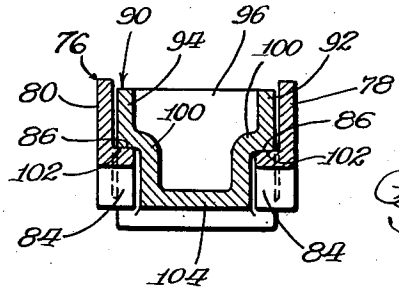


Fig. 4.

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Fig. 2.

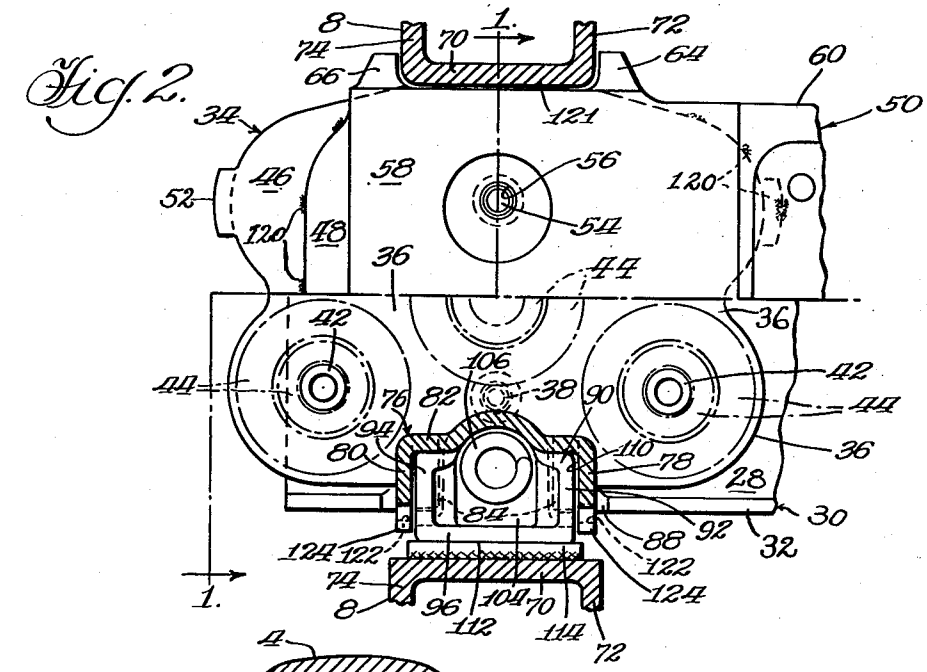
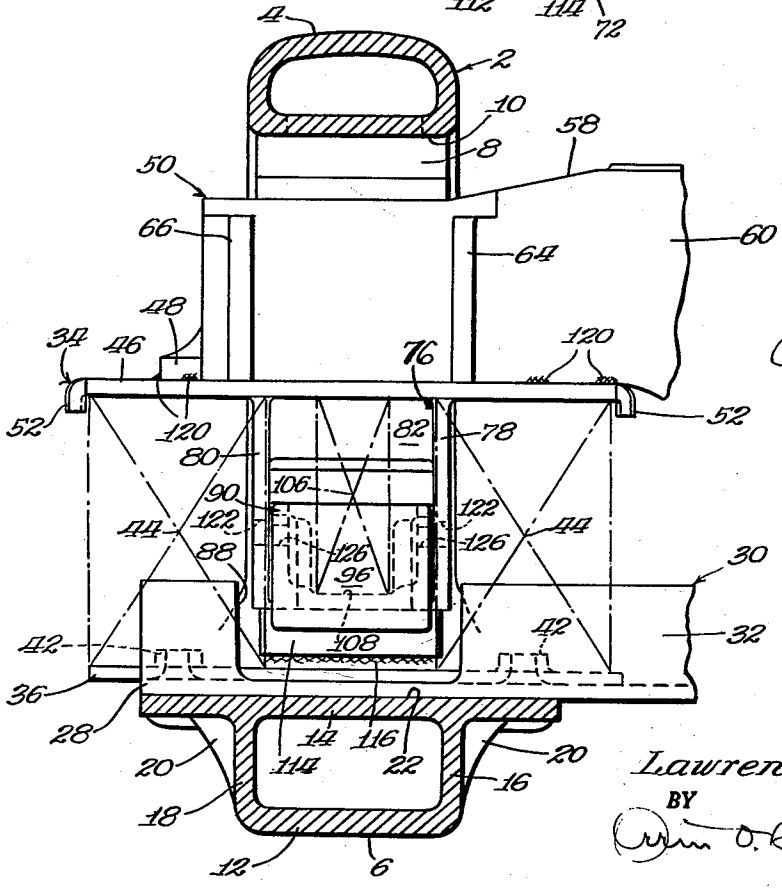



Fig. 3.




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# UNITED STATES PATENT OFFICE

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## SNUBBED TRUCK

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10 Claims. (Cl. 105—197)

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This invention relates to railway car trucks and more particularly to a novel application of snubbing means to existing trucks to control oscillations of the bolster and the bolster supporting load springs.

A general object of the invention is to provide simple and efficient snubbing means which may be easily and economically incorporated in existing unsnubbed trucks.

A more specific object is to provide a snubbing unit which may be attached to the underside of the bolster, the unit comprising spring actuated friction shoes movable with the bolster and engaging columns of a side frame adjacent the lower ends thereof.

A further object of the invention is to so devise such a railway car truck that the frictional snubbing elements will be mounted at points whereat maximum leverage to actuate these elements is afforded to counter the forces tending to produce an unsquaring effect between the bolster and the side frames at opposite ends of the bolster.

Another object is to provide a spring group of novel form wherein a portion of the friction means is carried by the group and a portion by the associated truck frame.

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

Figure 1 is a fragmentary side elevational view, partly in section, of a railway truck incorporating the invention, the section being taken substantially in the longitudinal vertical plane as indicated by the line 1—1 of Figure 2;

Figure 2 is a horizontal sectional view taken substantially on the line 2—2 of Figure 1;

Figure 3 is a transverse vertical sectional view taken substantially on the line 3—3 of Figure 1; and

Figure 4 is a transverse sectional view taken substantially on the line 4—4 of Figure 1.

Describing the invention in detail, the truck is of conventional form and comprises a side frame at each side, generally designated 2, said frame comprising tension and compression members 4 and 6 and intervening upright columns 8, 8 integral with the tension and compression members and defining a bolster opening 10, approximately centrally of the frame 2.

The tension member is of box section and comprises bottom and top webs 12 and 14 interconnected by upright inboard and outboard walls 16 and 18. The top wall 14 is widened inboardly and outboardly of the frame and on its lower side is connected by gussets 20, 20 to the external sides of webs 16 and 18 and on its top side affords a seat 22. The seat is provided with a plu-

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rality of upstanding bosses 24, 24 which project through complementary openings 26, 26 in a bottom wall 28 of a spring plank, generally indicated 30 and supported at seat 22. The spring plank extends transversely of the truck and interconnects the side frames at each side of the truck as will be readily understood by those skilled in the art. The spring plank is provided at its lateral edges with upstanding flanges 32, 32.

A spring group, generally indicated 34, is positioned above the spring seat 22 on the bottom wall 28 of the spring plank between the flanges 32, 32. The spring group comprises a bottom plate 36 seated on top of wall 28 of the spring plank. The bottom plate comprises a plurality of depending lugs 38, which extends into complementary openings 40 in said bottom wall 28 of the spring plank. It will be noted that the outboard end of the bottom plate 36 extends outboardly of the outboard end of the spring seat 22, in order to provide adequate spring seating space. The bottom plate 36 is provided with a plurality of upstanding bosses 42, 42. These bosses are located one adjacent each corner of the plate 36 and position the lower ends of bolster supporting springs 44 which are seated on the plate 36. It will be noted that the arrangement permits the insertion of a central set of springs 44, if desired, between the inboard and outboard sets. The upper ends of the springs 44, 44 seat against the underside of a top plate 46, said top plate being seated on its top side against the bottom side of a bottom wall 48 of a bolster, generally indicated 50. The top plate comprises depending flanges 52, 52 at its inboard and outboard edges for confining the upper ends of the adjacent springs 44, 44. It will be noted that the top plate 46 extends outboardly of the outboard end of the bottom wall 48 of the bolster in order to afford a seat for the upper ends of the outboard springs 44, 44. The top plate 46 is positioned with respect to the bolster by means of upstanding dowels 54 extending into complementary openings 56 in the bottom wall of the bolster.

The bolster 50 is a box section member and in addition to the bottom wall 48 comprises a top wall 58 and generally vertical side walls 60, 60 and a generally vertical central web or rib 62 interconnecting the top and bottom walls 58 and 48. The bolster is provided with inboard and outboard interlocking guide lugs 64 and 66 which are approximately the same vertical extent as the bolster.

For purposes of assembly and disassembly of the bolster with respect to the side frame, the lower end of the bolster opening is widened lon-

gitudinally of the frame as at 68, 68 at opposite sides thereof in order to accommodate the outboard bolster lugs 66, 66 therethrough as will be readily understood by those skilled in the art. The widened portion 68 of the bolster opening 10 is formed by offsetting a transverse web 70 of each column toward the adjacent end of the frame, each web 70 interconnecting inboard and outboard walls 72 and 74 of the associated column 8.

It will be readily noted that in the conventional truck arrangement there is no space available for incorporating snubbing means without removing at least one of the sets of load-carrying coils. The present invention overcomes this restriction and greatly simplifies the structure by arranging the snubbing means to engage directly with the side frame columns. The snubbing means, according to the invention, comprises a carrier, generally indicated 76, disposed at each side of the spring group. Each carrier comprises spaced generally parallel inboard and outboard walls 78 and 80 which at their upper ends are connected to the underside of the top plate 46 of the spring group and at their rear edges adjacent their upper ends are interconnected by a transverse generally vertical web 82 which at its upper end is formed integral with the underside of the top plate 46. The lower edges of the side walls 78 and 80 are provided with inturned flanges 84, 84, said flanges providing preferably flat wedge faces 86, 86 on their upper sides sloping downwardly outwardly of the adjacent side of the spring group toward the adjacent column 8. It will be noted that each carrier 76 is accommodated vertical movement within a slot 88 formed in the adjacent flange 32 of the spring plank in alignment with the carrier and related column 8 longitudinally of the frame.

Each carrier 76 supports a hollow shoe, generally designated 90, between the walls 78 and 80. Each shoe comprises spaced inboard and outboard walls 92 and 94 and front and rear walls 96 and 98. The side walls 92 and 94 are offset toward each other intermediate their upper and lower ends to provide ledges 100, 100 overlapping flanges 84, 84 and affording wedge faces 102, 102 at their bottom sides complementary to the wedge faces 86, 86 and in engagement therewith. The bottom edges of the side walls 92 and 94 and the rear wall 98 of the shoe are interconnected by a bottom wall or spring seat wall 104, said bottom wall merging with the rear side of the front wall adjacent the lower edge thereof.

Each shoe 90 is actuated by a generally vertically arranged spring 106, the spring extending into the shoe and seating as at 108 at its lower end against the top side of the bottom wall 104 of the shoe and at its upper end seating against the underside of the top plate 46 within a pocket 110 defined between the inboard and outboard walls 78 and 80 and the rear wall 82 of the carrier. Each spring 106 urges the associated shoe along the wedge faces 86, 86 toward the adjacent column. It will be noted that the shoes 90, 90 extend into the offset portions 68, 68 of the bolster opening and have the forward faces of their front walls 96 engaging as at 112 a friction plate 114, suitably connected, preferably as by welding, at 116, 116, to the offset portion 118 of the transverse web 70 of the associated column.

It will be noted that the carriers 76, 76 extend downwardly from the bolster and that the shoes engage the lowermost portions of the columns whereby the carriers provide long lever arms functioning to effectively actuate the friction devices to readily control movements of the bolster especially those which tend to cant the bolster laterally.

It will be noted that the top plate of the spring group is preferably tack-welded as at 120, 120 to the bolster.

In railway trucks, certain operating conditions have been known to cause the bolster to leave the supporting springs and rise to the top of the bolster opening.

This condition is frequently accompanied by or is the result of shocks imposed on the truck longitudinally thereof as when the cars are bumped or are being coupled at excessive speeds and usually these shocks are of such magnitude that the springs are caused to fall out of the bolster opening. With the top plate connected to the bolster, the shoes, which extend into the recesses at 68, 68 beneath the bolster-engaging guide portions 121, 121 of the columns, act as stops for limiting upward movement of the bolster through engagement of the upper edges of the shoes with abutment means constituting the bottom edges of portions 121. This limiting of the upward movement of the bolster prevents the springs from falling out. Furthermore, this same feature maintains the spring group in assembled relationship even when the top plate is disconnected from the bolster by limiting expansion of springs 44, 44. In addition, the ascent of the bolster under the conditions described is not accenuated by full expansion of the springs.

To disassemble the truck, as shown in the drawings, the shoes are retracted into the respective carriers, and retaining bars, not shown, are inserted through openings 122, 122 in loops or lugs 124 on the forward edges of the side walls 78 and 80 of the carrier and through openings 126, 126 in the side walls 92 and 94 of the shoe. The bolster and the top plate assembly are then elevated to the upper end of the bolster opening. The sets of load-carrying coil springs 44, 44 are then removed, then the bottom plate and the spring plank are removed. Then the top plate 46 is hammered to break the welds 120, 120 whereupon the top plate assembly is dropped below the bolster to remove the bosses 54 from the openings 56 in the bottom wall of the bolster, whereupon the top plate assembly is withdrawn from the bolster opening. The bolster is then lowered to the lower end of the bolster opening and withdrawn in the usual manner. It will be understood that the bolster and spring group are intended for permanent assembly and breaking away of the top plate from the bolster would seldom occur. To re-assemble, the bolster is entered through the lower end of the bolster opening and elevated. The top spring plate assembly, with the friction devices 90—106 locked to the carriers, is applied and connected to the bolster by welding at 120. The spring plank and the bottom plate are assembled and mounted on the spring seat. The springs 44, 44 are then positioned and the bolster and the top plate assembly and bolster are lowered onto the springs.

I claim:

1. In a railway car truck, a side frame comprising tension and compression members interconnected by spaced columns having bolster guide portions and outwardly offset recesses therebelow with friction plates attached thereto, top and bottom spring plates with coil springs therebetween, a bolster spring supported from the top plate, a friction device adjacent each recess com-

prising a carrier depending from the top plate having spaced side walls connected at their upper ends to the bottom side of the top plate, inturned flanges at the lower ends of the side walls extending between the walls and sloping downwardly and outwardly toward the respective column, a hollow friction shoe extending between the flanges and having ledges overlying the flanges in wedge engagement therewith, a spring extending into the shoe and compressed between the bottom wall thereof and the top plate causing the frictional engagement of the shoe and the related friction plate outwardly of the bolster guide portion, the shoe having spaced side walls disposed along side the walls of the associated carrier, the friction shoes being engageable with the lower ends of the bolster guide portions to limit upward movement of the bolster.

2. In a railway car truck, a side frame comprising tension and compression members interconnected to spaced columns having bolster guide portions and outwardly offset recesses therebelow with friction plates attached thereto, a spring group supported on the tension member and comprising top and bottom plates and inboard and outboard sets of springs seated thereagainst, a bolster spring supported from the top plate and guided between the guide portions in the adjacent columns, a pair of transversely aligned carriers depending from the opposing sides of the top plate between the inboard and outboard sets of springs, each carrier presenting spaced wedge surfaces at its lower end sloping downwardly toward the adjacent friction plate and extending outwardly of the springs at the sides of the spring group, a pair of transversely aligned friction shoes each in wedge engagement with the respective flanges of the related carrier and in frictional engagement with the associated friction wall outwardly of the springs, and spring means compressed between each shoe and the top plate for actuating the former, the shoes being engageable with the lower ends of the bolster guide portions outwardly of the spring group to limit upward movement of the bolster.

3. In a railway car truck, a side frame with spaced columns having bolster engaging portions, and recesses therebelow, a spring group supported by said frame and comprising top and bottom plates with coil springs therebetween, a bolster supported by said group and guided by said portions, said top plate having friction means movable with the bolster and underlying said portions, said bottom plate being substantially flat, other friction means engageable with said first-mentioned friction means and secured to said columns in positions underlying said portions, and compressed spring means reacting directly between and having their opposite ends engaging the top plate and the first mentioned friction means, said spring means being operative to maintain said first mentioned friction means in engagement with the second mentioned friction means.

4. In a railway car truck, a side frame having spaced columns with bolster guide portions, a bolster spring-supported from the frame between the columns, and friction means movable with the bolster and extending beneath said guide portions, and frictionally slidably engaging a portion of the columns beneath said guide portions, said friction means being engageable with the lower ends of said guide portions to limit upward movement of the bolster.

5. In a railway car truck, a side frame comprising spaced columns, a bolster spring-supported from the frame between said columns, friction means carried by the bolster in frictional engagement with upright friction surfaces on said columns, and downwardly facing abutment surfaces on said columns above said friction means and engageable therewith to limit upward movement of the bolster.

6. In a bolster supporting assembly, a combination with a frame having spaced columns of a spring group, comprising top and bottom plates, springs compressed between said plates, and friction means at opposite sides of said group medial the ends thereof and comprising extensions on said top plate extending generally vertically along the respective columns, and spring actuated friction shoes wedged between the extensions and columns and engageable with said columns to limit the upward movement of the bolster.

7. In a railway car truck, a side frame, a bolster spring-supported therefrom, friction means carried by the bolster in slidable frictional engagement with the frame, and abutment means on the frame engageable with said friction means for limiting upward movement of the bolster.

8. A railway car truck comprising a side frame with spaced columns having bolster engaging portions and recesses therebelow, a bolster between said portions and resiliently supported from the frame, friction means in said recesses, friction means underlying said portions and vertically movable with the bolster and engageable with the first-mentioned friction means, and compressed spring means reacting between and having their opposite ends directly engaging the bolster and the second mentioned friction means, said spring means being operative to maintain said second mentioned friction means in engagement with the first mentioned friction means.

9. In a railway car truck, a side frame having spaced columns, a spring group supported on the frame between the columns, said spring group comprising a top plate, friction means carried by said top plate in engagement with said columns, an abutment means on said columns engageable with said friction means to limit expansion of said spring group.

10. A railway car truck comprising a side frame with spaced columns having bolster engaging portions and outwardly offset recessed portions therebelow, a spring plank supported from the frame, a bolster slidably engaged with the engaging portions and resiliently supported from the plank, friction means in said recesses outwardly of the engaging portion, and friction means vertically movable with the bolster and engaged with the first mentioned friction means, the second mentioned friction means being engageable with the lower ends of the bolster engaging portions outwardly of the bolster to limit the upward movement thereof.

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