

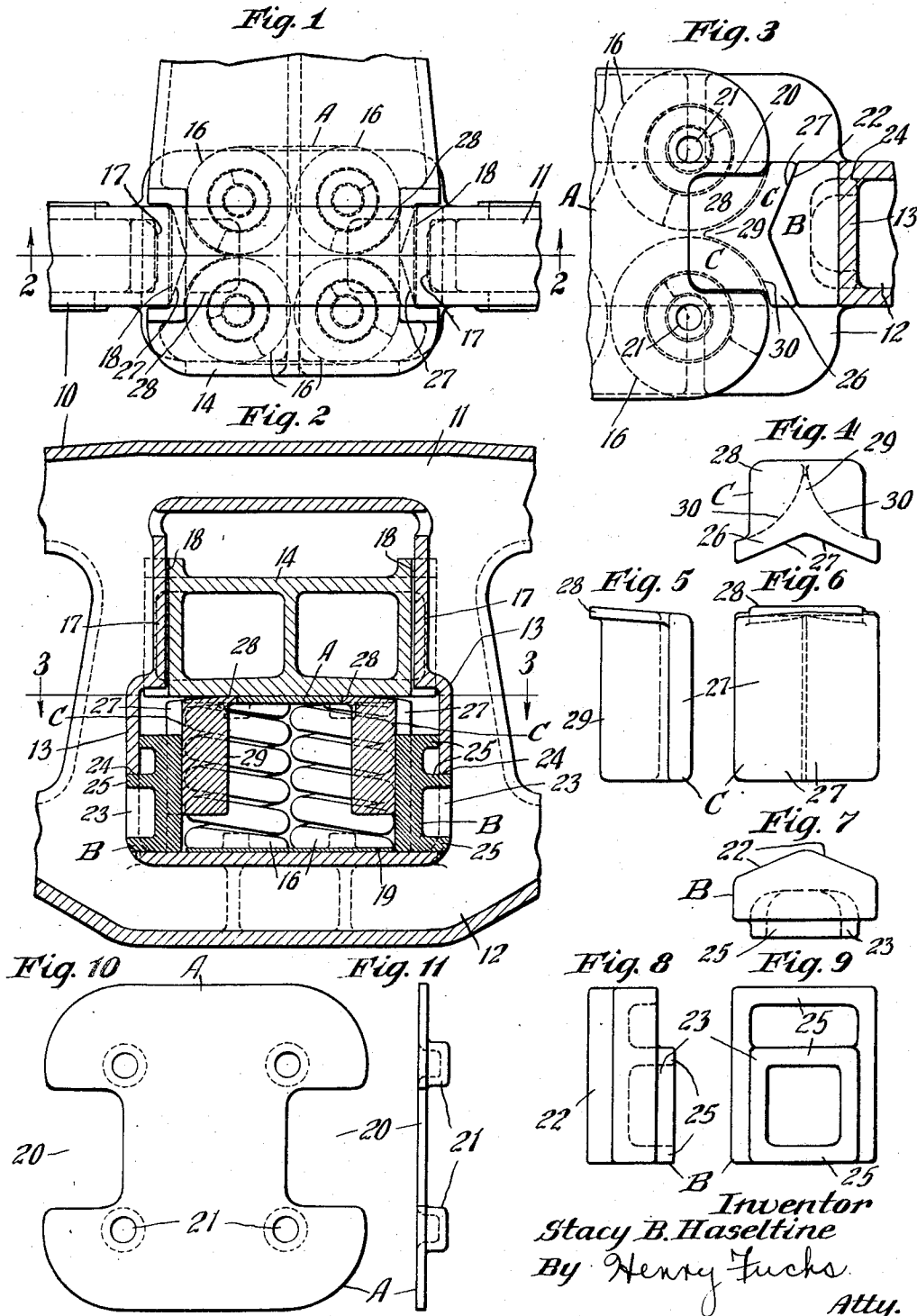
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RAILWAY CAR TRUCK

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RAILWAY CAR TRUCK

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This invention relates to improvements in railway car trucks.

One object of the invention is to provide a supplemental means in connection with the springs of a railway car truck for snubbing or dampening the action of the springs, thereby reducing the oscillations and vibrations of the springs to such an extent that the car and its lading will be protected against damage.

Another object of the invention is to provide a snubbing means comprising relatively slidable cooperating friction elements operating at opposite sides of the usual spring cluster of the truck, and accommodated in the space between the spring cluster and the vertical side walls of the spring opening of the truck side frame, whereby the standard spring cluster may be employed without modification or substitution of other parts for any of the springs of the cluster.

A more specific object of the invention is to provide means of the character described in the preceding paragraph wherein the friction elements include rocking members actuated by compression of the truck springs to press the same against cooperating friction elements with which they have sliding engagement.

Other objects of the invention will more clearly appear from the description and claims hereinafter following.

In the drawing forming a part of this specification, Figure 1 is a top plan view of a portion of a railway car illustrating my improvements in connection therewith. Figure 2 is a vertical sectional view, corresponding to the line 2—2 of Figure 1. Figure 3 is a horizontal sectional view, corresponding substantially to the line 3—3 of Figure 2, but showing only the structure at the right hand side portion of Figure 2. Figure 4 is a top plan view of a rocking friction element of the improved device shown in Figures 1, 2, and 3. Figure 5 is a side elevational view of Figure 4, looking from left to right in said figure. Figure 6 is a front elevational view of Figure 4, looking upwardly in said figure. Figure 7 is a top plan view of a fixed friction element which cooperates with one of the rocking friction elements. Figure 8 is a side elevational view of Figure 7, looking from left to right in said figure. Figure 9 is a front elevational view of Figure 7, looking upwardly in said figure. Figure 10 is a plan view of a spring follower plate employed in my improved device as shown in Figures 1, 2, and 3. Figure 11 is an edge view of Figure 10, looking from right to left in said figure.

In said drawing, 10 indicates one of the side

frame members of a railway car truck. The side frame 10, as shown, is in the form of a casting and has top and bottom members 11 and 12 connected by spaced vertical sections 13—13 forming guides for the truck bolster. As will be understood by those skilled in this art, the truck includes two side frame members 10—10, and a truck bolster 14. The bolster 14 has its opposite ends guided between the vertical sections 13—13 of the truck side frames 10—10 and is supported by the springs 16—16. As most clearly shown in Figure 2, the sections 13—13 are inwardly offset at their upper end portions to provide guides 17—17 which cooperate with guide seats 18—18 at the sides of the bolster 14. The truck illustrated in the drawing is of the spring plankless type and the truck springs are supported directly on the bottom members 12—12 of the side frames 10—10, the usual bottom spring follower plate 19 being interposed between each truck spring cluster and the corresponding bottom member.

In carrying out my invention I provide a top spring follower plate A, a pair of fixed friction elements B—B and a pair of rockable friction elements C—C which have sliding engagement with the fixed friction elements and with which the truck springs cooperate to press the same against the fixed elements.

The top spring plate A, which is relatively thick, is interposed between the upper ends of the springs 16—16—16—16 of each spring cluster and the corresponding end of the bolster 14. As shown in Figure 10, the plate A is cut out at opposite sides to provide seats 20—20 for a purpose hereinafter pointed out. The plate A is further provided with the usual spring centering bosses 21—21—21—21, which cooperate with the springs 16—16—16—16 to center the same. As will be clear upon reference to Figures 1, 2, and 3, the spring follower plate A has the recesses thereof disposed at the opposite sides of the bolster 14.

The fixed friction elements B—B are of like design, each being in the form of a heavy block having a longitudinally extending friction surface 22 of V-shaped transverse section on the inner side thereof. Each block B has a lateral enlargement 23 on the side thereof opposite to the friction surface thereof. This enlargement is of substantially rectangular outline and fits snugly within a rectangular opening 24 in the wall of the vertical section 13 of the side frame member 10, thus anchoring the friction element against movement with respect to the side frame member. As will be seen upon reference to Figure 2, the fixed friction members B—B are disposed respectively at

opposite sides of the spring cluster 16—16 and are anchored to the opposed vertical sections 13—13 of the side frame. The fixed blocks B—B are preferably hollow, as shown, and are strengthened by horizontal transverse wall portions 25—25—25 connecting the side walls thereof.

The rocking friction elements C—C are of like design, each being in the form of a relatively heavy block comprising a plate section 26 having a longitudinally extending V-shaped outer friction surface 27 slidably fitting the V-shaped friction surface 22 of the corresponding fixed element B. At the upper end each element C has a laterally projecting flange 28 which extends inwardly from the plate section. The top surface of the flange 28 is inclined to the horizontal, upwardly away from the friction surface 27 of the element C. In other words, the angle between the friction surface 27 and the top surface of the flange 28 is slightly greater than a right angle. The inner side of the element C is reinforced by a vertically extending web 29 which is integral with the back of the plate section 26 and extends up to the flange 28. At opposite sides of the web 29 the element C is cut away, as indicated at 30—30, to provide clearance for the two springs 16—16 at the corresponding side of the truck side frame. The friction elements C—C are disposed at opposite sides of the spring cluster 16—16 with the flanges 28—28 thereof engaged in the recesses 20—20 of the spring plate A and the friction surfaces 27—27 thereof seated against the friction surfaces 22—22 of the fixed elements B—B. The shape of the flanges 28—28 is such as to fit the openings 20—20 of the plate A, that is, they are of square outline to seat in said openings, but sufficient clearance is provided between each flange and the side and end walls of the seat to allow the flange to have relatively free rocking movement within the seat. The springs 16—16 and 16—16 overlap the flanges 28—28 of the rocking elements C—C, the pair of springs at the right side of Figures 1 and 2 overlapping the flange 28 of the friction element C at the right hand side of said figure and the pair of springs at the left side overlapping the flange 28 of the friction element C at the left side. As will be evident, the flanges of the friction elements C—C are thus subjected to the pressure of the springs and the tendency is to rock these elements outwardly toward the fixed friction elements B—B to press the friction surfaces of the elements C and B into tight frictional engagement with each other. The plate section 26 of each element C is of lesser height than the distance between the top and bottom spring plates A and 19 at the time that the springs 16—16 are in the expanded position shown in Figure 2. The lower ends of the elements C—C are thus normally spaced from the top face of the lower spring plate 19. The clearance thus provided is sufficient to permit of the required compression of the springs in service. Engagement of the lower ends of the elements C—C with the bottom spring plate serves to limit compression of the mechanism and prevents the springs from being unduly compressed.

The operation of my improved dampening device is as follows: Upon relative vertical movement of the bolster 14 with respect to the side frame 10, the coils of the cluster or group of springs 16—16 are compressed between the follower plates A and 19. At the same time the friction elements C—C are forced to slide rela-

tively to the elements B—B, the elements C—C moving in unison with the bolster 14. A friction snubbing action is thus produced during compression of the springs. During recoil of the springs, the friction elements C—C move upwardly with the bolster 14, and due to frictional engagement with the elements B—B dampen the recoil action. During both compression and expansion of the truck springs the friction elements are urged into tight frictional contact by the action of the springs which exert pressure on the flanges 28—28 of the elements C—C to rock the latter outwardly toward the elements B—B. As will be evident, as the springs are being compressed the frictional resistance produced by the relative movement of the elements C—C and B—B is augmented due to the increased pressure of the springs on the arms or flanges 28—28. As the springs recoil, the frictional resistance is progressively reduced due to the reduction of the spring pressure on the rocking friction elements.

I have herein shown and described what I now consider the preferred manner of carrying out my invention, but the same is merely illustrative and I contemplate all changes and modifications that come within the scope of the claims appended hereto.

I claim:

1. In a railway car truck including a truck side frame, the combination with a vertically movable bolster; of a cluster of truck springs supporting said bolster; a spring follower plate interposed between said springs and the underneath side of the bolster, said plate having openings therethrough at opposite sides thereof; fixed friction members on said side frame below said bolster at opposite sides of said spring cluster; and vertically disposed friction plate elements having base flanges at their upper ends extending laterally inwardly therefrom and integral therewith, said base flanges being seated in the openings of said spring follower plate and having rocking engagement with the underneath side of the bolster, said flanges being engaged by said springs and pressed toward the bolster.
2. In a railway car truck, the combination with a truck side frame member having top and bottom members and opposed, vertically extending sections connecting said members and between which the truck bolster is guided, said vertical sections having upper limiting stop shoulders; of a truck bolster vertically movable between said sections; a spring cluster supporting said bolster on the truck side frame, said spring cluster being accommodated between said vertically extending sections of the side frame; a pair of fixed friction blocks at opposite sides of the spring cluster below said bolster, said blocks being shouldered at their lower ends against the bottom member, each block having a flange engaging the upper stop shoulder of the corresponding vertically extending section of the side frame; vertically extending friction surfaces on the inner sides of said blocks; and a pair of friction elements having depending plate sections and base flanges at their upper ends rigid therewith, said base flanges being interposed between the bolster and said spring cluster and being pressed against said bolster by the springs of said cluster, said base flanges having rocking engagement with the underneath side of the bolster, and said plate sections being in sliding engagement with the friction surfaces of said fixed blocks.
3. In a railway car truck, including a truck

side frame having top and bottom members connected by laterally spaced vertical sections, the combination with a vertically movable bolster guided between said vertical sections; of a cluster of truck springs interposed between said bottom member and the bolster; separate fixed friction members on said truck side frame at opposite sides of said spring cluster, disposed below said bolster and buttressed against said vertical sections respectively; interengaging shoulders on said friction members and vertical sections for holding said friction members against upward movement in said side frame; and rocking friction elements having laterally inwardly extended portions bearing respectively on the underneath side of said bolster and the upper ends of said springs, said elements having depending arms engaging said friction members, said arms of the rocking elements being forced against said friction members by the expansive action of said spring cluster.

4. In a railway car truck, including a truck side frame having top and bottom members connected by laterally spaced vertical sections, the combination with a vertically movable bolster guided between said vertical sections; of a cluster

of springs supporting said bolster on the truck side frame; a pair of fixed friction members on the truck side frame at opposite sides of the spring cluster below said bolster and buttressed against said vertical sections respectively, said friction members having vertically extending friction surfaces on the inner sides thereof, each friction member having the lower end thereof seated on said bottom member of the side frame, said friction members and vertical sections having shouldered engagement with each other to hold said friction members against upward displacement; and a pair of friction elements at opposite sides of the spring cluster, each element having a rocker base flange integral therewith, and a depending friction portion having a longitudinally extending friction surface in sliding frictional engagement with the friction surface of the corresponding fixed friction member, said base flanges of said elements being interposed between the underneath side of the bolster and the spring cluster and having rocking engagement with the underneath surface of said bolster.

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