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R. B. COTTRELL

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TRUCK

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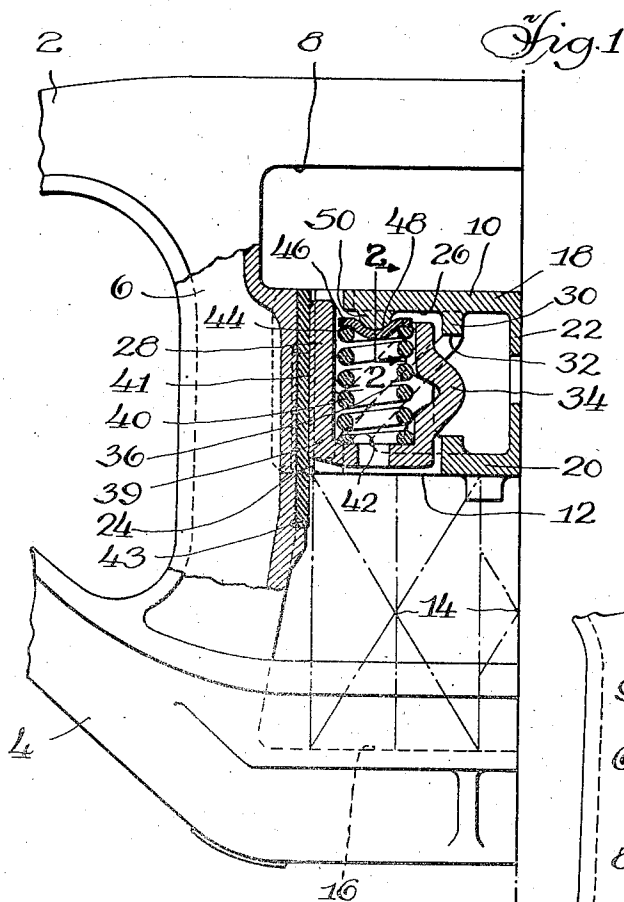
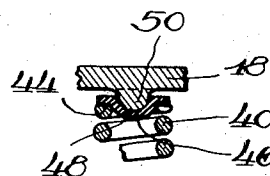
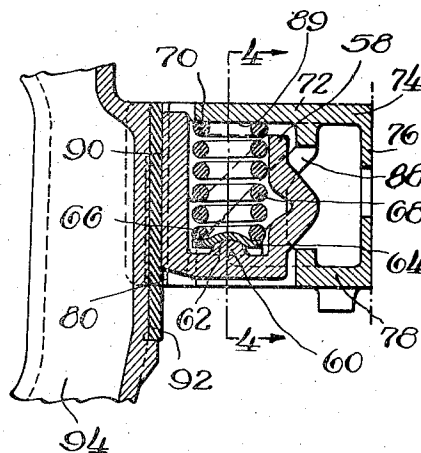
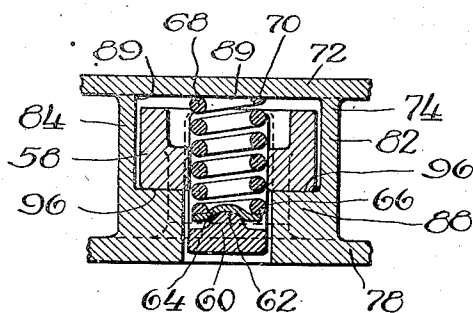


Fig. 4

Fig. 3

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UNITED STATES PATENT OFFICE

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TRUCK

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13 Claims. (Cl. 105—197)

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My invention relates to a railway car truck and more particularly to a well known type of quick wheel change ride control truck wherein snubbing means are mounted in the end of the bolster for engagement with the adjacent side frame columns.

My invention is directed primarily to an improvement over the type of truck described and illustrated in co-pending Light application, Serial No. 436,731, filed in the United States Patent Office April 5, 1943. The said Light application illustrates a truck such as that described wherein friction shoes are mounted at each side of each bolster end and arranged for slidable engagement with an integral web of the bolster such as may be necessary to maintain the friction shoe in engagement with the adjacent side frame column as the end of the bolster is subjected to movements longitudinally of the truck under operating conditions.

A more specific object of my invention is to devise such a car truck as that described wherein the friction shoes are so mounted in the bolster as to freely accommodate such movement as that described without causing misalignment of the interengaging surfaces of the friction shoe and the side frame column.

A different object of my invention is to so mount within a bolster end a friction shoe and an actuating spring therefor as to accommodate movement of said shoe laterally of the bolster with minimum distortion of said spring.

In the drawing, Figure 1 is a fragmentary side elevation of a car truck embodying my invention, partly in section, the section being taken substantially in the vertical plane bisecting the side frame longitudinally thereof.

Figure 2 is a fragmentary sectional view taken in the transverse vertical plane indicated by the line 2—2 of Figure 1.

Figure 3 is a fragmentary sectional view comparable to the sectional view of Figure 1 illustrating a modified form of my invention.

Figure 4 is a sectional view through the truck illustrated in Figure 3, the section being taken substantially in the transverse vertical plane indicated by the line 4—4 of Figure 3.

Inasmuch as the truck is of well known type and the structure is the same at both sides thereof and at both ends, only one point of engagement between the side frame and bolster is illustrated, although it will be clearly understood that my invention contemplates a pair of friction shoes in each end of the bolster engaging the respectively adjacent side frame columns.

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Describing my invention in detail, it is shown as applied to a well known type of car truck having a side frame of truss type with the compression member 2, the tension member 4, the column 6, the bolster opening 8 and the bolster 10 supported as at 12 from spring means diagrammatically indicated at 14, 14, said spring means being positioned as at 16 on the spring seat portion of the tension member 4.

The end of the bolster 10 is a boxlike structure having the top wall 18, the bottom wall 20, the center rib 22, and the side wall 24, said side wall being cored away adjacent the side frame column to form at the side of the bolster a pocket 26 within which may be received a friction shoe generally designated 28. The rear wall of the pocket 26 may be in part defined by the diagonal web 30 formed as an integral part of the bolster, and said web 30 may be slotted centrally thereof as at 32 to accommodate the handlelike central portion 34 of said friction shoe 28 which may extend therethrough. The web 30 may therefore form a diagonally arranged ledge on which may bear as at 36 each lateral portion or wing at the side of the friction shoe. This slidable seating of the shoe on the diagonal bolster web is well shown in the modification illustrated in Figure 4. The friction shoe 28 may have a main friction wall 39 of generally rectangular form having flat face engagement as at 41 with the wear plate 43 secured in any convenient manner upon the adjacent wall of the column 6. Within the friction shoe 28, which is a cuplike structure, may be housed an auxiliary spring 40, the lower end of which may seat as at 42 on the bottom wall of said shoe and the upper end of which may bear as at 44 against a spring cap 46. The spring cap 46 may have a spherical face bearing as at 48 against the complementary face on the lug 50 depending from the bolster top wall 18. The ball-and-socketlike connection at the top of the auxiliary spring 48 permits a pivotal movement of the spring about its fulcrum on the bolster so that the friction shoe may move laterally in the bolster pocket with minimum distortion of the auxiliary spring 40. It will be understood that if the spring 40 be permitted to seat directly against the top wall of the bolster pocket, such lateral movement of the shoe will be considerably restricted due to the resistance offered by the spring against the lateral displacement of its upper end with relation to the lower end thereof. Under certain conditions this may be sufficient to prevent the friction face of the shoe from hav-

ing full engagement with the adjacent side frame column wear plate.

The modification illustrated in Figures 3 and 4 is identical to that just described except that the ball and socket connection is provided at the opposite end of the spring. In this modification the friction shoe 58 has the lug 60 on the bottom wall thereof, said lug affording a spherical seat as at 62 for the spring seat 64 on which may be positioned as at 66 the auxiliary spring 68, and the upper end of said spring may seat as at 70 on the top wall 72 of the bolster generally designated 74, said bolster structure being otherwise identical with that described for the previous modification, with the center rib 76, the bottom wall 78, the side wall 80 and the transverse vertical webs 82 and 84 (Figure 4) together with the sloping web 88 defining the shoe pocket 89. The friction face of the shoe 58 may bear as at 90 against the wear plate 92 conveniently mounted on the adjacent column 94. The manner in which the lateral portions or wings at each side of the friction shoe bear against the diagonal web 88 of the bolster is well shown at 96, 96 in Figure 4. In order to accommodate some tilting movement of the bolster with respect to the frame, the seats or ledges on the web 88 against which the lateral portions of the friction shoe seat are slightly crowned, as well seen in the sectional view of Figure 3.

It will thus be seen that in both the modifications illustrated I have shown a novel means of accommodating the desired amount of lateral motion between the side frame and bolster in such a snubbing arrangement as that illustrated with the minimum distortion of the resilient means associated with the friction shoe. By this means I am able to insure that the friction face of the shoe may at all times be in proper alignment with the adjacent side frame column irrespective of such violent lateral movement of the bolster as may take place under service conditions.

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 side frame comprising spaced columns and an intervening bolster opening, a bolster resiliently supported on said frame in said opening, a pocket in each side of said bolster comprising spaced substantially coplanar wedge surfaces sloping toward the adjacent column, a friction shoe in each pocket having spaced wedge faces engaging said surfaces respectively, said shoe being in frictional engagement with the adjacent column, resilient means bearing against each shoe and extending between the spaced wedge faces thereon and reacting against a wall of said bolster, and pivotal means interposed between said spring and said last-mentioned bolster wall.

2. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening, a bolster resiliently supported from said frame in said opening, a pocket in said bolster presenting spaced wedge surfaces, a friction shoe in said pocket having wing portions bearing on said wedge surfaces and having a face bearing against the adjacent column, a spring within said shoe compressed between a wall thereof and a spaced bolster wall, and pivotal means interposed

between said spring and one of said last-mentioned walls, said pivotal means comprising a spring cap, a fulcrum seat therefor, and a ball and socket connection between said cap and said seat.

3. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening, resilient means on said frame in said opening, a bolster supported on said resilient means, spaced wedge surfaces on said bolster at each side thereof, a friction shoe interposed between the wedge surfaces at each side of said bolster and having means bearing on adjacent surfaces, each of said shoes bearing against the adjacent column, and pivotal spring means interposed between each shoe and a wall of said bolster operative to urge said shoe along said wedge surfaces and against the adjacent column.

4. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening, a bolster resiliently supported from said frame in said opening, a pocket in said bolster presenting spaced wedge surfaces, a friction shoe in said pocket having wing portions bearing on said wedge surfaces and having a face bearing against the adjacent column, a spring within said shoe compressed between a wall thereof and a spaced bolster wall, and pivotal means interposed between said spring and one of said last-mentioned walls, said pivotal means comprising a ball and socket joint.

5. In a railway car truck, a side frame having a column and an adjacent bolster opening, a bolster resiliently supported from said frame adjacent said column, a pocket in said bolster presenting a wedge surface, a friction shoe in said pocket having a portion bearing on said wedge surface and having a face bearing against the adjacent column, a spring within said shoe compressed between a wall thereof and a spaced bolster wall, and pivotal means interposed between said spring and one of said last-mentioned walls.

6. In a railway car truck, a side frame, resilient means supported from said frame, a bolster seated on said resilient means, friction surfaces on said frame, a pocket in each side of said bolster, a plurality of wedge surfaces on said bolster in each pocket, a friction shoe having spaced wedge faces engaging the surfaces in each pocket and engaging associated friction means on said frame, resilient means in each pocket compressed between the adjacent shoe and an adjacent bolster wall, and pivotal means interposed between each spring and the associated bolster wall.

7. In a railway car truck, a side frame, resilient means supported from said frame, a bolster seated on said resilient means, friction surfaces on said frame, a pocket in each side of said bolster, a plurality of wedge surfaces on said bolster in each pocket, a friction shoe having spaced wedge faces engaging the surfaces in each pocket and engaging associated friction means on said frame, resilient means in each pocket compressed between the adjacent shoe and an adjacent bolster wall, and pivotal means interposed between each spring and the associated shoe.

8. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening, a bolster resiliently supported from said frame in said opening, a pocket in said bolster presenting spaced wedge surfaces, a friction shoe in said pocket having wing portions bearing on said wedge surfaces and having a face bearing against the adjacent column, a spring within said shoe compressed between a wall thereof and a

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spaced bolster wall, and pivotal means interposed between said spring and one of said last-mentioned walls.

9. In a railway car truck, a side frame having a column and an adjacent bolster opening, a bolster spring-supported from said frame in said opening adjacent said column, a pocket in said bolster presenting a crowned wedge surface, a friction shoe in said pocket having a seat on said wedge surface and a face bearing against said column, a spring within said shoe compressed between a wall thereof and a spaced wall on said bolster, and pivotal means interposed between said spring and one of said walls.

10. In a railway car truck, a side frame having a guide column with a friction face thereon, a bolster spring-supported from said frame adjacent said column, spaced wedge surfaces on a diagonal wall of said bolster, a friction shoe interposed between said surfaces and having means bearing thereon and having a wall engaging said column face, a coil spring compressed between said shoe and fulcrum means on a spaced wall of said bolster, a spring cap interposed between said spring and said fulcrum means, and a ball and socket joint between said cap and said fulcrum means.

11. In a railway car truck, a side frame having a guide column with a friction face thereon, a bolster spring-supported from said frame adjacent said column, spaced wedge surfaces on a

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diagonal wall of said bolster, a friction shoe interposed between said surfaces and having means bearing thereon and having a wall engaging said column face, fulcrum means on a wall of said shoe, a spring cap pivotally seated on said fulcrum means, and a coil spring compressed between said cap and a spaced wall on said bolster.

12. In a railway car truck, a side frame having a guide column with a friction face thereon, a bolster spring-supported from said frame adjacent said column, spaced wedge surfaces on a diagonal wall of said bolster, a friction shoe interposed between said surfaces and having means bearing thereon and having a wall engaging said column face, a coil spring compressed between said shoe and fulcrum means on a spaced wall of said bolster, and a spring cap interposed between said spring and said fulcrum means.

13. In a railway car truck, a side frame having a column, a bolster spring-supported on said frame with a pocket adjacent said column, a crowned diagonal wall in said pocket, a friction shoe housed in said pocket in engagement with said column and seating on said wall, spring means housed in said shoe and compressed between a wall thereof and a horizontal wall of said bolster, and pivotal means interposed between said spring and one of said last-mentioned walls.

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