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2,534,433

SHOCK ABSORBER FOR RAILWAY CAR TRUCKS

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Fig. 1

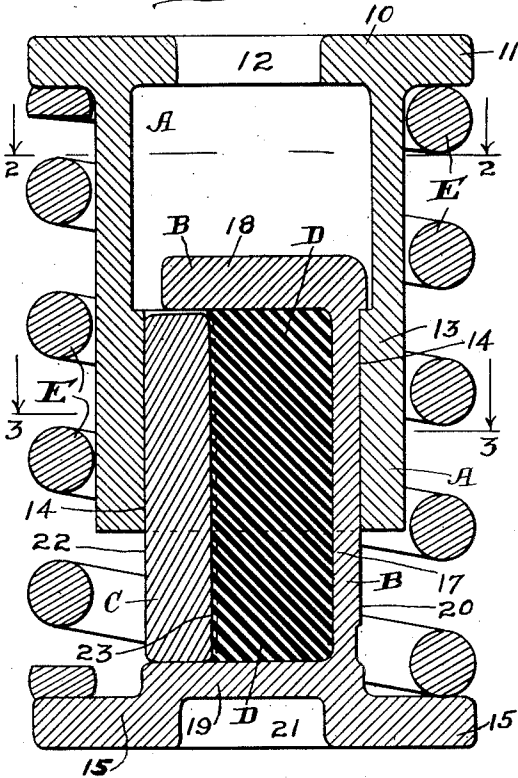


Fig. 2

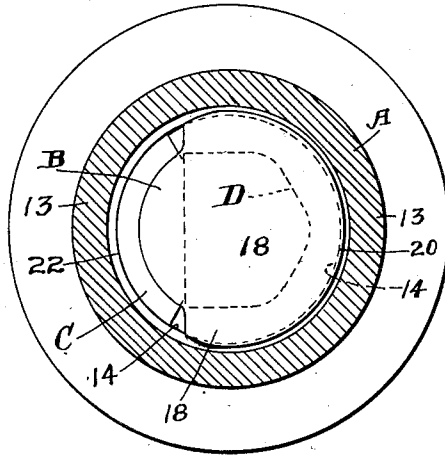


Fig. 3

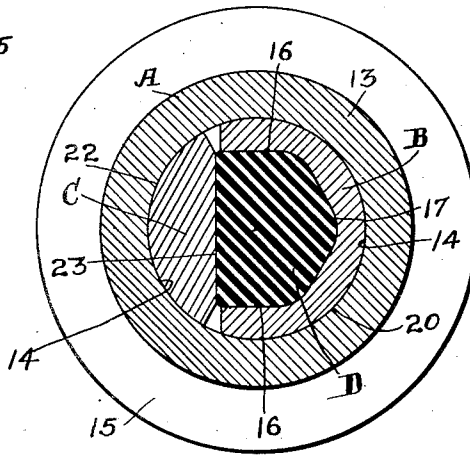
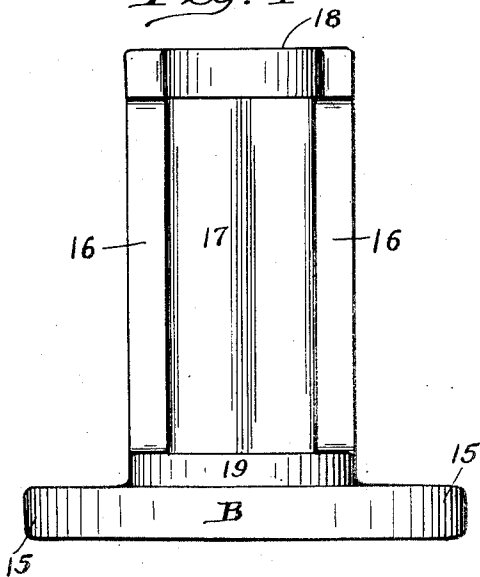


Fig. 4



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SHOCK ABSORBER FOR RAILWAY CAR TRUCKS

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5 Claims. (Cl. 267—9)

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This invention relates to improvements in shock absorbers especially adapted for use as snubbing devices in connection with truck springs of railway cars.

One object of the invention is to provide a simple and efficient friction shock absorber, comprising a friction casing, friction shoes slidably telescoped within the casing, and spring means yieldingly opposing relative movement of the casing and shoes toward each other, wherein the shoes are pressed against the friction surfaces of the casing by resilient means under compression reacting between the shoes to spread the same apart.

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

In the accompanying drawing forming a part of this specification, Figure 1 is a transverse vertical sectional view of the improved shock absorber. Figure 2 is a horizontal sectional view, corresponding substantially to the line 2—2 of Figure 1. Figure 3 is a horizontal sectional view, corresponding substantially to the line 3—3 of Figure 1. Figure 4 is a side elevational view of the friction shoe at the right hand side of the improved shock absorber, as illustrated in Figure 1, and looking from left to right in said figure.

My improved shock absorber, as illustrated in the drawing, comprises broadly a friction casing A, two friction shoes B and C, slidably telescoped within the casing, a rubber block D, and a spring E opposing relative movement of the casing and shoes toward each other.

The casing A is in the form of a tubular member of cylindrical cross section, having a transverse top wall 10, projecting outwardly beyond the sides of the casing to provide an annular follower flange 11. The wall 10 has a central opening 12 therethrough, adapted to accommodate the usual spring centering projection, not shown, of the top follower plate of a cluster of truck springs. The side wall of the casing is inwardly thickened at the lower end to provide a friction shell section 13 having an interior friction surface 14 extending lengthwise thereof.

The friction shoe B is in the form of an elongated hollow member, upstanding from a disc-like follower 15. The shoe B has vertical side walls 16—16, a transverse back wall 17, and horizontal top and bottom walls 18 and 19, which extend outwardly beyond the side walls, the bottom wall 19 being formed by the central portion of the follower 15. The outer sides of the walls 16, 16, and 17 present a transversely curved, continuous friction surface 20, which extends lengthwise of the shoe B and fits the interior of the casing. The surface 20 of the shoe B has lengthwise sliding engagement with the friction surface 14 of the casing A. The side walls 16—16 of the shoe

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present flat, interior, substantially parallel surfaces, and the back wall 17 presents two laterally diverging, flat surfaces, as shown most clearly in Figure 3. The hollow shoe B is open at the left hand side, as viewed in Figures 1 and 3.

The follower 15 of the shoe B has an outwardly or downwardly opening, central recess therein which provides a seat 21 for the usual spring centering projection, not shown, of the bottom follower plate of the truck spring cluster.

The shoe C is in the form of a heavy block having a longitudinally extending, transversely curved friction surface 22 on its outer side, slidably engaged with the friction surface 14 of the casing A. The shoe C fits between the projecting portions of the top and bottom walls 18 and 19 of the shoe B and is thus held against lengthwise movement with respect to the latter.

The rubber block D is housed within the hollow shoe B in back of the shoe C and is held under lateral compression by the shoe C, which has a substantially flat face 23 on its inner side bearing on said block.

The spring E is in the form of a helical coil surrounding the casing A and the shoes B and C, having its top and bottom ends bearing on the follower flange 11 of the casing and the follower 15 of the shoe B, respectively. This spring serves to yieldingly oppose relative movement of the casing A and the shoes B and C toward each other.

My improved shock absorber replaces one or more of the spring units of a truck spring cluster, being interposed between the spring follower plates of said cluster. Upon compression of the cluster of truck springs between the spring follower plates, my improved shock absorber is compressed therewith, the casing A being forced downwardly toward the friction shoes B and C against the resistance of the spring E, thus snubbing the action of the truck springs by sliding frictional engagement of the shoes with the interior of the casing. Upon recoil of the truck springs, the downward pressure on the casing is reduced, thus permitting the spring E to expand and return the parts of the shock absorber to the normal position shown in Figure 1. Inasmuch as the compressed rubber block D constantly presses the shoes B and C against the friction surfaces of the casing, snubbing action is also produced during recoil of the truck springs.

I claim:

1. In a friction shock absorber, the combination with a friction casing having a follower at its outer end; of a pair of friction shoes slidably telescoped within the casing, one of said shoes having a follower at its outer end, and a stop flange at its inner end, the other of said shoes having one end thereof abutting said last named follower and its other end engaged in back

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of said stop flange; spring means bearing at opposite ends on said followers for yieldingly opposing relative movement of said followers toward each other lengthwise of the mechanism; and a rubber pad under lateral compression interposed between said shoes for spreading the same apart into tight frictional engagement with the interior of the casing.

2. In a friction shock absorber, the combination with a friction casing having a follower at its outer end; of a friction shoe at one side of the mechanism having a follower at its outer end; a second shoe at the opposite side of the mechanism having shouldered engagement at opposite ends with said follower and first named shoe; a rubber pad under lateral compression interposed between said shoes, said shoes being slidably telescoped within the casing; and spring means surrounding said casing and shoes and bearing at opposite ends on said followers, respectively.

3. In a friction shock absorber, the combination with a friction casing having a follower at its outer end; of a hollow friction shoe open at its inner side and having a friction surface at its outer side slidably engaged with the interior of the casing at one side of the same; a follower at the outer end of said hollow shoe; a second friction shoe mounted within the opening of said first named shoe and slidably engaged with the interior of the casing at the opposite side of the same; a rubber pad under lateral compression in said hollow shoe bearing on said second named shoe; and spring means interposed between and bearing on said followers yieldingly opposing relative movement of the same toward each other.

4. In a friction shock absorber, the combination with a friction casing having a follower at its outer end, said casing being open at its inner end; of a pair of friction shoes slidably telescoped within said open end of the casing, one of said shoes having a laterally outwardly opening pocket therein; a follower at the outer end

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of said last named shoe, the other shoe being seated in said pocket; a rubber pad under lateral compression in said pocket bearing on the inner side of the shoe which is seated in said pocket to spread the shoes apart and force the same against the interior of the casing; and spring means bearing on said followers respectively for yieldingly opposing relative movement of said followers toward each other.

5. In a friction shock absorber, the combination with followers at opposite ends of the mechanism; of an inwardly extending friction casing on one of said followers; an inwardly extending friction shoe on the other of said followers, said shoe having a friction surface on its outer side engaging the interior of the casing at one side of the same; a second shoe carried by said first named shoe, said first named shoe having laterally inwardly extending, longitudinally spaced end walls overhanging and engaging the opposite ends of said second named shoe, said second named shoe having sliding frictional engagement with the interior of the casing at the other side thereof; a rubber pad under lateral compression interposed between said shoes for spreading the same apart into tight frictional engagement with the interior of the casing; and spring means bearing on said followers respectively for yieldingly opposing relative approach of said followers.

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