May 11, 1954 H. J. LOUNSBURY 2,678,137

DRAFT RIGGING FOR RAILWAY CARS

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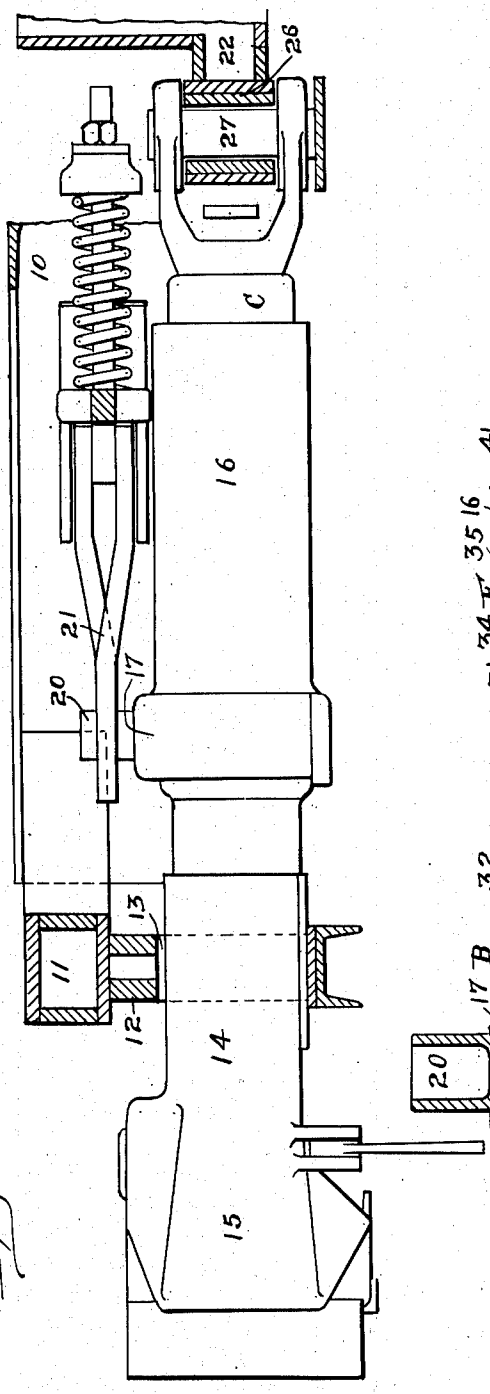

Fig. 1

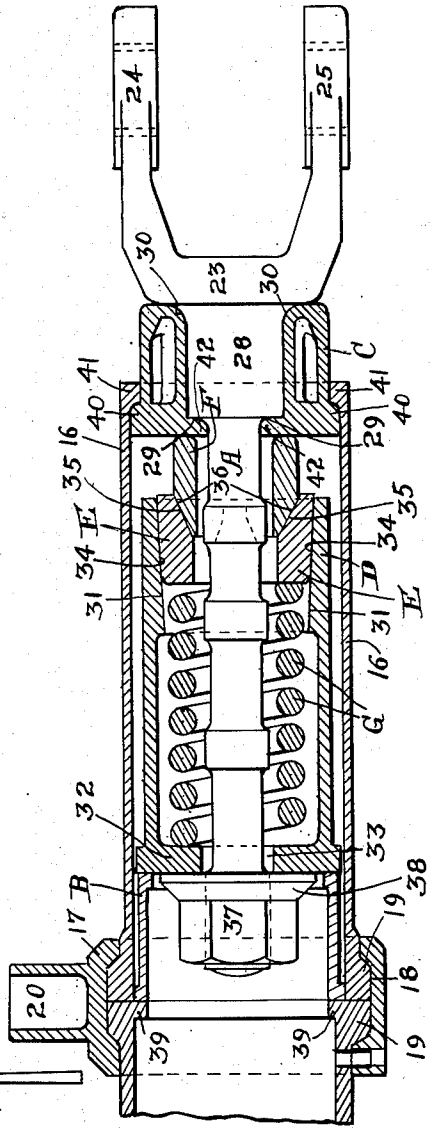

Fig. 2

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Fig. 3

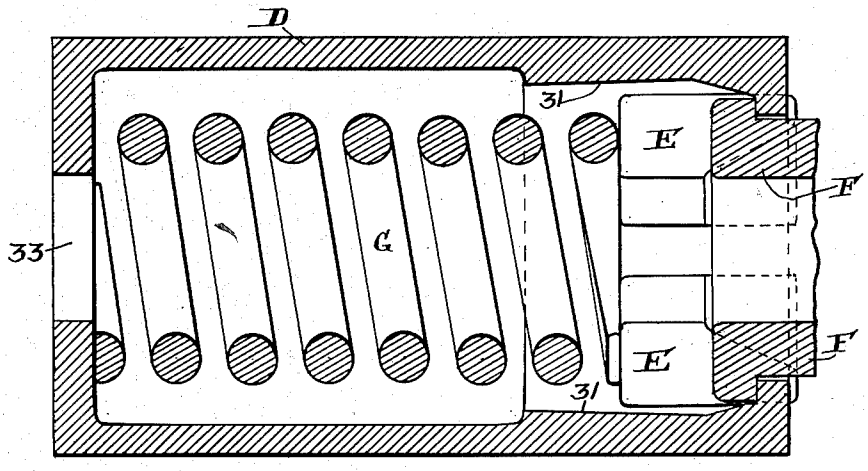
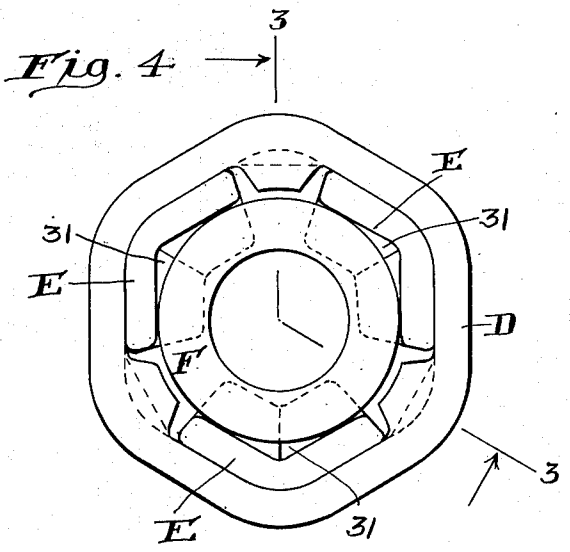


Fig. 4



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DRAFT RIGGING FOR RAILWAY CARS

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3 Claims. (Cl. 213—24)

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This invention relates to improvements in railway draft riggings of the radial type, that is, wherein the coupler is supported for lateral swinging movement.

One object of the invention is to provide a draft gear of the radial type, including a sleeve connected to the drawbar of the car, a front follower having shouldered engagement with the sleeve to move rearwardly therewith in buff, a rear follower having shouldered engagement with the sleeve for movement therewith in draft, a supporting tail bolt or plunger, pivotally supported on the car for swinging movement, and a friction shock absorbing mechanism, including a friction casing and spring resisted friction shoes slidingly telescoped within the casing, and wedge means engaging the shoes, supported on the tail bolt between the front and rear followers of the sleeve, wherein the friction clutch, comprising the wedge and shoes is forced inwardly of the casing in draft by forward movement of the rear follower while the casing is held against forward movement by shouldered engagement with the plunger, and the casing is forced rearwardly by the front follower in buff to compress the mechanism against the rear follower, which is held stationary by shouldered engagement with the tail bolt structure of the draft rigging.

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

In the accompanying drawings forming a part of this specification, Figure 1 is a longitudinal, vertical sectional view through a portion of the underframe structure of a car, illustrating my improvements in connection therewith, showing the drawbar and associated mechanism in side elevation. Figure 2 is a longitudinal, vertical sectional view, partly broken away, on an enlarged scale, of a portion of the drawbar and the friction shock absorbing mechanism shown in Figure 1. Figure 3 is a longitudinal sectional view of the friction shock absorber of the improved mechanism, said section corresponding substantially to the line 3—3 of Figure 4. Figure 4 is a rear elevational view of Figure 3, that is, looking from right to left in said figure.

In said drawings, Figure 1, 10 indicates one of the longitudinal draft sills of a railway car, 11 the end sill, and 12 the usual coupler supporting casting which depends from the end sill and is provided with a laterally elongated opening 13 therethrough, adapted to accommodate the shank 14 of the coupler 15 for lateral swinging movement. The coupler 15 and the shank 14

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are of the usual well-known design, the shank 14 being integral with the coupler and in the form of a hollow sleeve of substantially rectangular, transverse cross section. Attached to the hollow coupler shank 14 is the usual hollow column or sleeve 16, which is of rectangular, transverse cross section and forms a continuation of the coupler shank, being secured thereto by a clamping member or frame 17, provided with an internal groove 18 within which are seated outwardly flanged end portions 19—19 of the coupler shank 14 and the sleeve 16. The clamping member or frame 17 has an upstanding lug 20 thereon cooperating with the usual spring centering means, indicated by 21. As shown in Figure 1, the underframe structure of the car is also provided with the usual supporting member 22 for the tail bolt of the radial gear structure.

In carrying out my invention, I provide broadly a supporting tail bolt or plunger A, a front follower B, a rear follower C, a friction casing D, three friction shoes E—E—E slidingly telescoped within the casing D, a wedge block F in wedging engagement with the shoes, and a spring G within the casing opposing inward movement of the shoes, the front and rear followers B and C and the friction casing D and parts cooperating therewith, being mounted within the sleeve 16.

The tail bolt or plunger A is forked at its rear end, as indicated at 23. The forked portion 23 comprises top and bottom, horizontally extending arms 24 and 25, engaged above and below a journal portion 26 formed on the supporting member 22, and connected to the latter by a vertically disposed pivot pin 27 extending through a vertical bearing opening in the journal portion 26 and aligned openings in the arms 24 and 25. The tail bolt A is thus pivotally mounted on the supporting member 22 for lateral swinging movement. Inwardly of the forked portion 23 thereof, the tail bolt A is provided with a cylindrical guide section 28 of larger diameter than the main body portion of the same, but of smaller size than the forked portion, thereby providing stop shoulders 29 and 30 at the points where the portion 28 merges with the main body portion of said bolt and the forked portion thereof.

The friction casing D, which is in the form of a tubular member of hexagonal, transverse cross section, is disposed within the sleeve or column 16 of the draft rigging. The casing D is open at its rear end and has said open end provided with three interior, inwardly converging friction surfaces 31—31—31 of V-shaped, transverse

cross section, each surface 31 being formed by two adjacent, diverging walls of the hexagonal casing. At the front end, the casing D is provided with a vertically extending, transverse end wall 32 having a central opening 33 therethrough.

The friction shoes E are three in number and slidingly telescoped within the open end of the casing D. Each shoe E has a V-shaped friction surface 34 on its outer side engaged with the corresponding V-shaped friction surface 31 of the casing. On its inner side, each shoe presents a wedge face 35 of V-shaped, transverse cross section.

The wedge block F is in the form of a cylindrical sleeve having three inwardly converging, exterior wedge faces 36—36—36 of V-shaped, transverse section at its inner end, engaged respectively wtih the wedge faces 35—35—35 of the shoes E—E—E.

The spring G, which is disposed within the casing D, is in the form of a helical coil, having its front and rear ends bearing, respectively, on the end wall 32 of the casing D and the inner ends of the shoes E—E—E.

The tail bolt A extends through the casing D, passing through the wedge block F, between the shoes E—E—E, through the spring G, and through the opening 33 in the end wall 32 of the casing. The front end of the tail bolt A projects beyond the front end of the casing D and carries a retaining nut 37, which is threaded thereon. A washer 38 is interposed between the nut 37 and the front end of the casing D. As will be evident, the nut 37 and cooperating washer 38 form stop means, limiting forward movement of the casing D.

The front follower B is in the form of a cylindrical sleeve, being arranged within the column 16 of the draft rigging in front of the casing D, and having its rear end normally bearing on the casing D. The front end of the follower sleeve B normally shoulders against the rearwardly facing abutment provided by an inturned, annular stop flange 39 at the inner end of the hollow shank 14 of the coupler 15. As will be evident, the front follower sleeve B is movable rearwardly in unison with the coupler 15 through shouldered engagement of the flange 39 of the coupler shank 14 with the front end of the same, and thus transmitting rearward movement to the casing D.

The rear follower C is also in the form of a cylindrical sleeve. The same is yieldingly supported on the cylindrical portion 28 of the tail bolt A and is interposed between the rear end of the wedge F and the forked portion 23 of the tail bolt A. At the forward end thereof, the sleevelike follower C is provided with a laterally outstanding annular flange 40 engaged in back of an inturned annular flange 41 formed on the sleeve 16 at the rear end thereof. The rear end of the follower C normally abuts the shoulder 30 at the rear end of the portion 28 of the tail bolt. At the forward end thereof, the hollow sleevelike follower C is provided with an inturned annular flange 42, adapted to engage the shoulder 29, at the forward end of the portion or section 28 of the tail bolt A, simultaneously with the engagement of the follower with the shoulder 30 at the rear end of said portion 28.

The operation of the improved draft rigging is as follows: Upon a pulling force being applied to the coupler 15, the latter, together with the attached sleeve 16, are pulled forwardly, or toward the left, as viewed in Figures 1 and 2. The rear follower C, being in shouldered engagement with the sleeve 16, is thus moved to the left, forcing the wedge F and shoes E—E—E inwardly of the casing D, against the resistance of the spring G, the casing being held stationary during this action by the stop nut 37 of the tail bolt A. High frictional resistance is thus produced by sliding movement of the shoes E—E—E inwardly on the friction surfaces 31—31—31 of the casing. When the actuating force is reduced, the expansive action of the spring G restores all of the parts of the mechanism to the normal position shown in Figure 1, rearward movement of the follower C being arrested by engagement with the shoulders 29 and 30 of the tail bolt A.

Upon inward movement of the coupler 15 in buff, that is, movement to the right, as viewed in Figures 1 and 2, the attached sleeve or column 16 is moved inwardly, or to the right, as seen in Figures 1 and 2. During this action, the front follower B is forced inwardly, or to the right, by shouldered engagement with the coupler shank, transmitting the actuating force to the casing D, which, in turn, is forced rearwardly with respect to the wedge F and the rear follower C, the rear follower being held stationary by engagement with the shoulders 29 and 30 of the tail bolt A. The friction shoes E—E—E are thus forced inwardly of the casing D along the friction surfaces thereof, and against the resistance of the spring G, thereby providing the desired frictional resistance to absorb the draft shocks.

I claim:

1. In a draft rigging for a railway car, the combination with a hollow column movable in unison with the drawbar of the draft rigging; of a rearwardly facing abutment at the front end of said column; an inturned stop flange on said column at the rear end thereof; a front follower sleeve within said column bearing at its front end on said rearwardly facing abutment; a friction casing within said column open at its rear end and bearing at its front end on said front follower sleeve; friction shoes slidingly telescoped within the open rear end of the casing; a spring within the casing in back of said shoes bearing at opposite ends on said casing and shoes to yieldingly oppose inward movement of said shoes; a wedge block in wedging engagement with said shoes; a rear follower sleeve bearing at its front end on said wedge block; an outwardly projecting flange on said rear follower sleeve engaged in front of the rear flange of said column; and a tail bolt anchored to the car, said tail bolt extending through the friction casing and having a nut at its front end in shouldered engagement with the front end of said casing, said tail bolt having a forwardly facing shoulder adjacent its rear end on which the rear end of said rear follower sleeve bears to hold the latter against rearward movement.

2. In a draft rigging for a railway car, the combination with a supporting plunger fixed to the car; of a drawbar; a sleevelike column member fixed to said drawbar for movement in unison therewith; a friction casing within said column member, said casing being open at its rear end, said casing having its front end in shouldered engagement with said plunger for limiting outward movement of the casing; friction shoes slidingly telescoped within the open rear end of said casing; a wedge block in wedging engagement with said shoes; a spring within the casing bearing at opposite ends on said cas-

ing and shoes to yieldingly oppose inward movement of said shoes; a front follower engaged by said column member for movement inwardly in unison with said column member and engaging the front end of the casing to move the same rearwardly in buff; a rear follower slidingly telescoped within the rear end of said column member; a shoulder on said rear follower; a shoulder on said column member engageable with said shoulder of the rear follower to effect movement of said rear follower outwardly with said column member, said rear follower engaging the rear end of said wedge block to pull the same forwardly in draft, the rear end of said rear follower having shouldered engagement with said plunger to hold said rear follower against rearward movement in buff.

3. In a draft rigging for a railway car, the combination with a tail bolt fixed to the car; of a nut at the outer end of said bolt; a friction casing open at its rear end, said casing having a transverse wall at its front end in shouldered engagement with the nut of said tail bolt to limit forward movement of said casing; friction shoes slidingly telescoped within the open rear end of the casing; a spring within the casing bearing at opposite ends on said casing and shoes to yieldingly oppose inward movement of the latter; a wedge block in wedging engagement with said shoes; a front follower sleeve bearing on the front end of the

casing; a rear follower sleeve bearing on the rear end of said wedge block, said tail bolt having a forwardly facing shoulder on which said rear follower sleeve bears to hold said rear follower sleeve against rearward movement; and a sleevelike column member within which said rear follower sleeve is slidingly telescoped, said column member being actuated by the coupler of the draft rigging for movement in unison therewith, said sleevelike column member having a rearwardly facing shoulder at its front end on which the front end of the front follower sleeve bears to be forced rearwardly in buff, and a forwardly facing shoulder at its rear end in shouldered engagement with the rear follower sleeve to pull the same forwardly in draft.

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