

J. E. GUINN.  
DRAFT RIGGING FOR RAILWAY CARS.

APPLICATION FILED DEC. 11, 1903.

2 SHEETS—SHEET 1.

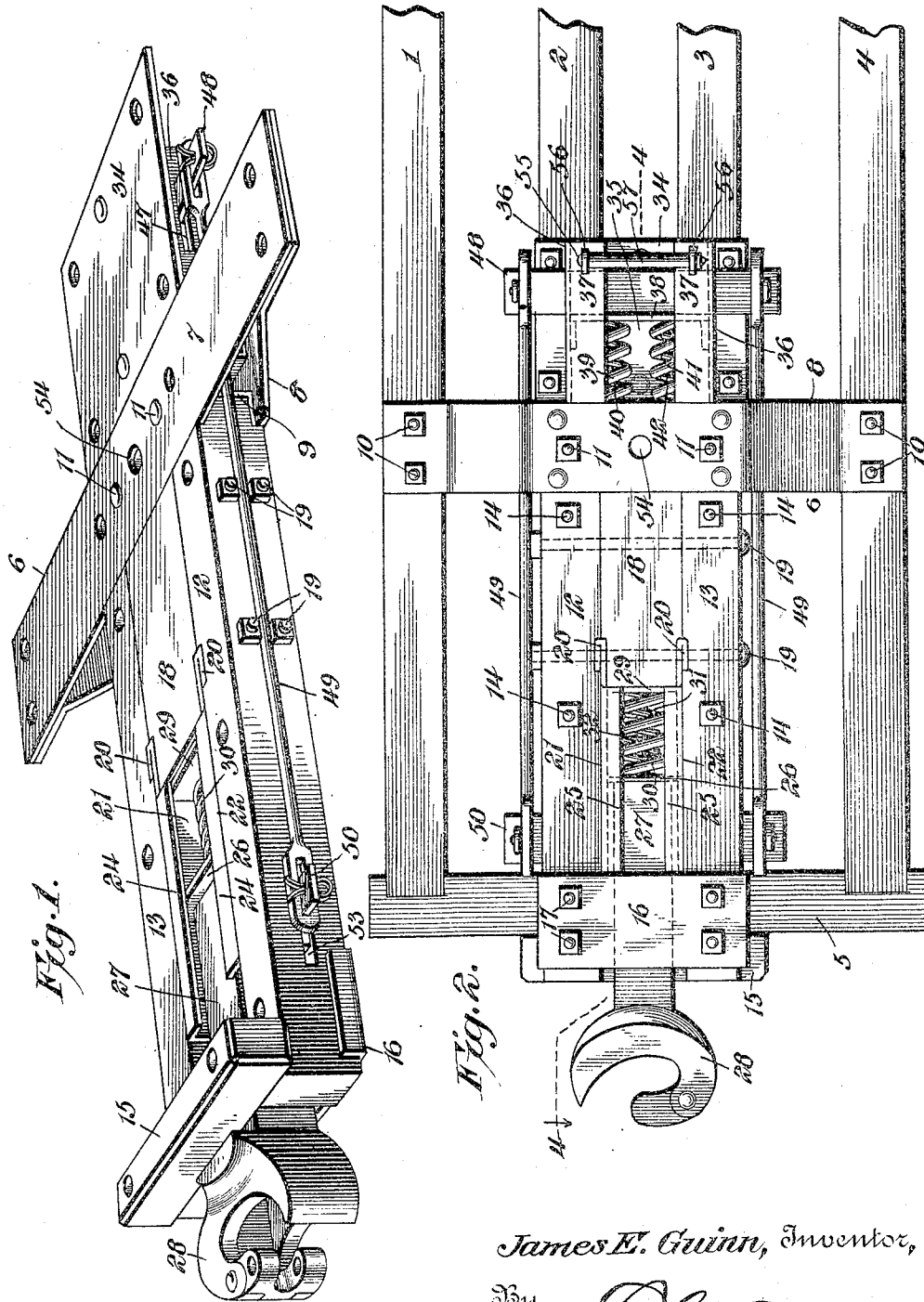


Fig. 1.

Fig. 2.

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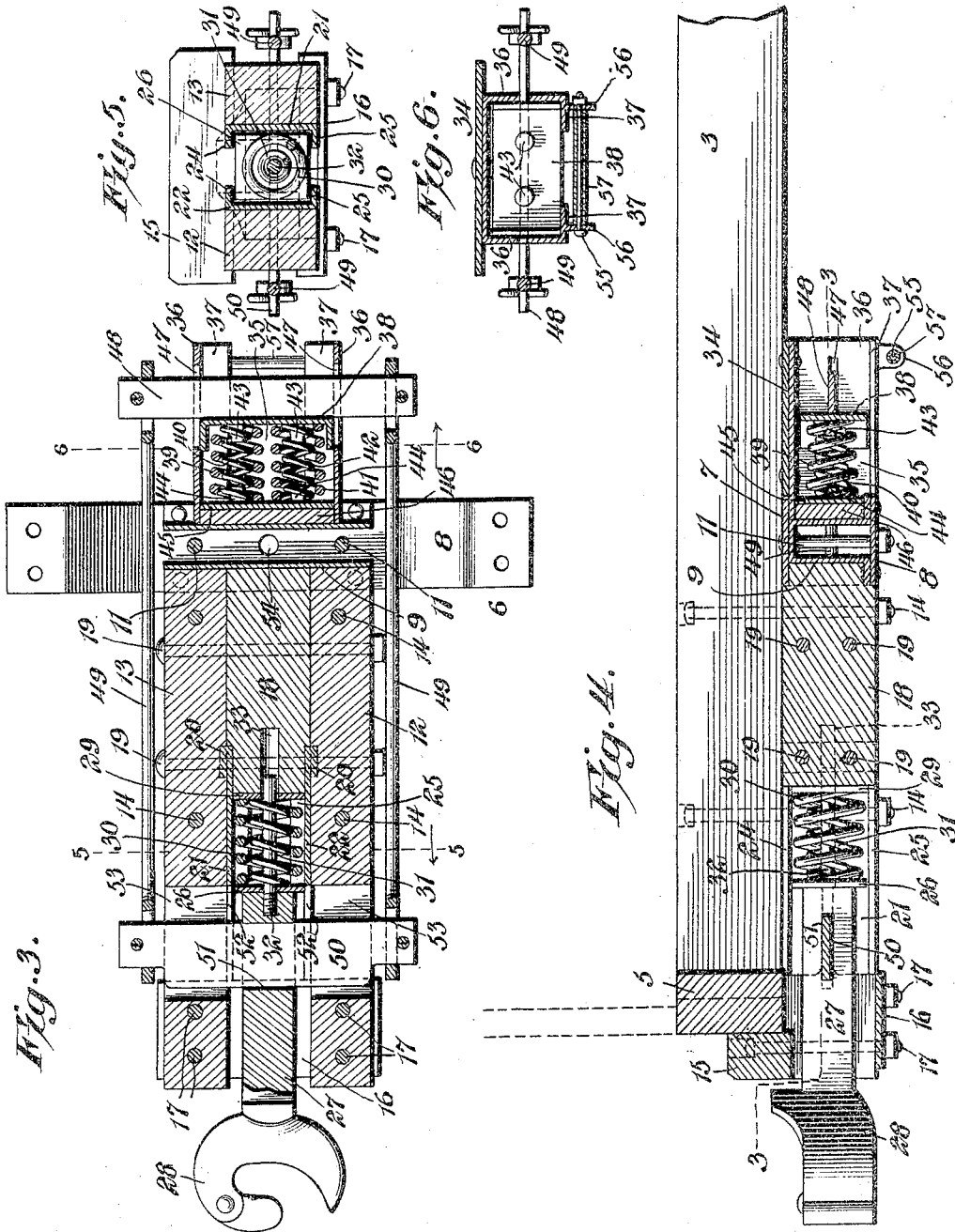
Attorney

Witnesses  
*Howard W. Carr*  
*Paul G. Julian*

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# UNITED STATES PATENT OFFICE.

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## DRAFT-RIGGING FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 779,038, dated January 3, 1905.

Application filed December 11, 1903. Serial No. 184,799.

*To all whom it may concern:*

Be it known that I, JAMES E. GUINN, a citizen of the United States, residing at Lebanon, in the county of Laclede and State of Missouri, have invented a new and useful Draft-Rigging for Railway-Cars, of which the following is a specification.

My present invention relates to draft-rigging for railway-cars, and is designed with special reference to the improvement of the rigging disclosed in my Patent No. 703,956, dated July 1, 1902. In the patented construction the rigging is so arranged that the strain is applied to the car-body both in front and in rear of the body-bolster and is resisted in large measure by the bolster and the car-truck connected to the bolster by the usual king-bolt. Such an arrangement precludes the possibility of the rigging being pulled out, which frequently happens when the rigging is attached to the sills of the car in advance of the bolster. In this construction the draft-timbers of the rigging are passed through a bolster comprising separated upper and lower members and extend both in front and in rear thereof. The timbers are spaced by a filling-block secured thereto by keys and apertured for the reception of the king-bolt. Beyond the opposite ends of the filling-block are located draft and buffer springs opposed to cross-heads connected by draw-rods, and to one of these heads the draw-bar of the coupler is attached.

It has been found by continued experiment that while the patented construction is entirely efficient in connection with cars of ordinary capacity it is necessary to utilize either a solid bolster or one having a central support in cars of great capacity. In such cars, therefore, it is impossible to extend the draft-timbers and filling-block through the bolster, and if the rigging is confined to that portion of the car lying in advance of the bolster the very object of the patented construction is defeated and the rigging is liable to be pulled out in a manner and for reasons well understood by those skilled in the art.

The object of my present invention is to provide novel draft-rigging possessing all the

advantages of the patented construction, but capable of employment in connection with cars equipped with solid or filled bolsters.

A further object of the invention is to obviate the necessity for the employment of numerous keys connecting the draft-timbers and the filling-block and to bring the strain of the draft directly upon the bolster, which being connected to all of the ordinary car-wheels distributes the strain in a manner to minimize the possibility of derangement.

A still further object of the invention is to improve the construction and mounting of the draft-spring and to dispose the latter in a metal pocket mounted in rear of the bolster and connected to the body of the car independently of the draft-beams.

To the accomplishment of the recited objects and others subordinate thereto the invention resides in that construction and arrangement of parts to be hereinafter described, illustrated in the accompanying drawings, and succinctly defined in the appended claims.

In the said drawings, Figure 1 is a perspective view of the draft-rigging detached from the car structure and associated with the body-bolster. Fig. 2 is a bottom plan view of the draft-rigging and bolster attached to the car-sills. Fig. 3 is a horizontal longitudinal section on the line 3 3 of Fig. 4. Fig. 4 is a vertical section on the line 4 4 of Fig. 2. Fig. 5 is a transverse section on the line 5 5 of Fig. 3, and Fig. 6 is a transverse section on the line 6 6 of Fig. 3.

Like numerals of reference are employed to designate corresponding parts in the several views.

1, 2, 3, and 4 indicate the longitudinal sills of the car structure, and 5 the transverse end sill. To this structure, at a point removed from the sill 5, is bolted the body-bolster 6, which may be of solid form, but preferably comprises a flat upper member 7 and a lower member 8, having its ends bolted to the member 7 and having its middle portion spaced from the upper member by a steel filling 9, the width of which is preferably slightly less than that of the bolster. The elements of the bolster may be assembled in any desired

manner—as, for instance, by bolts 10 passed through the sill 1 and 4 and the members 7 and 8 and secured by nuts, as shown, somewhat longer bolts 11 being passed through the sills 2 and 3 and through the upper and lower bolster members and the filling-block 9. The filling-block 9 of the bolster is preferably of inverted-U shape, as shown in Fig. 4, its top wall being rigidly secured to the upper member 7 and the lower edges of its side walls being flanged for attachment to the lower member 8 of the bolster, it being noted, further, that this intermediate or filling block of the bolster is considerably narrower than the members 7 and 8.

The draft-timbers 12 and 13 are secured to the sills 2 and 3 by bolts 14 and have their rear ends reduced and extended between the members 7 and 8 to abut against the filling-block 9 of the bolster. The front ends of the timbers are connected by a transverse bar 15, opposed to the front face of the end sill 5, and also by a stirrup 16, secured to the under sides of the timbers by bolts 17, certain of which serve as securing means for the bar 15. Between the rear ends of the draft-timbers 12 and 13 is interposed a filling-block 18, having its rear end abutted against the bolster-filling and retained by bolts 19, passed transversely through the block and draft-timbers. One of the bolts 19 also passes through the folded rear extremities 20 of a pair of lining-plates 21 and 22, seated against the opposed faces of the timbers 12 and 13 in advance of the block and provided with inturned top and bottom flanges 24 and 25, constituting guides for the follower-plate 26.

The opposed side faces of the block 18 and the timbers 12 and 13 are recessed, as shown, to accommodate the folded ends 20 of the lining-plates, so that said ends constitute guides which facilitate the insertion and removal of the block 18 and also serve as retaining means for the plates. The follower-plate 26 is opposed to the rear end of the draw-bar 27 of the coupling-head 28, and between the plate 26 and a rail-plate 29, opposed to the front face of the block 18, are interposed a pair of concentrically-arranged buffer-springs 30 and 31, encircling a guide-bar 32, extending from the rear end of the draft-bar 27 and received within a socket 33, formed in the filling-block. It will now be obvious that the strain imposed upon the draw-bar by the impact of the coupling-heads of two cars will be sustained by the buffer-springs 30 and 31, backed by the filling-block 18, which is in turn backed by the body-bolster, so that while the strain is resisted in part by the draft-rigging and its connections to the sills the major portion of the strain is sustained by the bolster and is distributed, by reason of the connection of said bolster, with all of the longitudinal sills of the car structure.

To the sills 2 and 3 immediately in rear of

the bolster is bolted the base-plate 34 of a metal, preferably steel, spring-pocket 35, the side walls 36 of which abut at their front ends against the filler 9 of the bolster, and the lower edges of said walls 36 are turned inward to form flanges 37, which support and guide a follower-plate 38, opposed to the rear ends of the draft-springs 39, 40, 41, and 42, these springs being arranged in two sets, each comprising a pair of concentrically-arranged springs retained in place by guide-studs 43 and 44, extending from the follower-plate 38 and from the rail-plate 45, respectively. The rail-plate 45 is opposed to the front ends of the draft-springs and is backed by a block 46, interposed between the plate 45 and the filler 9 of the bolster. The side walls 36 of the spring-pocket 35 are formed with longitudinal slots 47, which accommodate the rear cross-head 48, having its extremities passed through the slotted rear ends of a pair of longitudinally-disposed draft-bars 49, the slotted front ends of which similarly engage the opposite ends of the front cross-head 50, passed through an opening 51 in the draw-bar 27 and accommodated by longitudinal slots 52 in the lining-plates 21 and 22 and by slots 53 in the draft-timbers. The opening for the king-bolt is indicated at 54.

When two cars are brought together for coupling, the draw-bar 27 will yield longitudinally against the resistance of the buffer-springs 30 and 31, the strain being sustained, as has already been stated, by the bolster. When the cars have been coupled and the draft is applied to the coupling, the draw-bar will move out, carrying with it the cross-head 50, which through the medium of the draft-bars 49 advances the cross-head 48, the movement of which is opposed by the two sets of draft-springs located in the spring-pocket. When the draft is thus applied, the strain will come directly upon the bolster and its connection with the several sills, and danger of pulling out the rigging is thus avoided. It may also be noted in this connection that by opposing the cross-head 48 to a plurality of sets of concentric springs of great power the locomotive is enabled to start smoothly and without jar a car of greater tonnage than can ordinarily be handled in this manner.

If desired, the side walls 36 of the rear spring-pocket may be braced by a bolt 55, connecting a pair of lugs 56, pendent from the flanges 37, (see Fig. 6,) a spacing-sleeve preferably surrounding the bolt between the lugs to prevent contraction of the pocket.

It is thought that from the foregoing the construction, operation, and many advantages of the improved draft-rigging for railway-cars will be clearly apparent to those skilled in the art without further description; but while the present embodiment of the invention is thought at this time to be preferable I desire to reserve the right to effect such

changes, modifications, and variations of the illustrated structure as may fall fairly within the scope of the protection prayed.

What I claim is—

5 1. In a draft-rigging, the combination with a body-bolster comprising upper and lower members and an intermediate connection, of draft-timbers and an interposed filling-block disposed in advance of the bolster, a separate  
10 spring-pocket in rear of the bolster, cross-heads located in advance of the filling-block and in rear of the bolster, respectively, draft-bars connecting the heads and lying beyond the outer sides of the draft-timbers, a draw-  
15 bar connected to one cross-head, a draft-spring opposing the movement of the draw-bar in one direction and located in the spring-pocket, and a buffer-spring opposing the movement of the cross-head in the opposite direction and  
20 backed by the filling-block.

2. In a draft-rigging, the combination with a body-bolster comprising upper and lower members and an intermediate connection, of draft-timbers and an interposed filling-block  
25 disposed in advance of the bolster and backed thereby, a separate pocket in rear of the bolster, cross-heads located in advance of the filling-block and in rear of the bolster, respectively, draft-bars connecting the ends of the  
30 cross-heads and located at the outer sides of the draft-timbers, a draw-bar connected to one cross-head, a buffer-spring interposed between the filling-block and said draw-bar, and a draft-spring located in the spring-pocket  
35 and interposed between the rear cross-head and the bolster.

3. In a draft-rigging, the combination with a body-bolster comprising upper and lower members and an intermediate connection, of  
40 draft-timbers and an interposed filling-block having their rear ends abutted directly against the bolster, a spring-pocket located in rear of the bolster, a cross-head, a draft-spring located in the spring-pocket to resist the move-  
45 ment of the cross-head and backed by the bolster, a draw-bar located between the draft-timbers, a buffer-spring interposed between the draw-bar and the filling-block, and a connection between the draw-bar and the cross-  
50 head and located outside of the draft-timbers.

4. In a draft-rigging, the combination with a body-bolster comprising upper and lower members and an intermediate connection, of draft-timbers and an interposed filling-block  
55 located in advance of and having their rear ends abutted against the bolster, a spring-pocket having its front end abutted against the bolster, a rear cross-head disposed transversely of the spring-pocket, a front cross-  
60 head disposed transversely of the timbers, a draft-spring interposed between the rear cross-head and the bolster and backed by the latter, a draw-bar connected to the front cross-head, a buffer-spring interposed between the adja-

cent ends of the draw-bar and filling-block and  
65 draft-bars located beyond the outer sides of the draft-timbers connecting the ends of the front and rear cross-heads.

5. In a draft-rigging, the combination with a body-bolster comprising upper and lower  
70 members and an intermediate rigid connection, a cross-head located in rear of the bolster, a draft-spring interposed between the cross-head and the bolster and backed by the latter, a cross-head in advance of the bolster, a draw-  
75 bar connected to said cross-head, a buffer-spring therefor, and means for connecting the front and rear cross-heads.

6. In a draft-rigging, the combination with a body-bolster; comprising upper and lower  
80 members and an intermediate member; of buffer and draft springs located at opposite sides of the bolster and backed by the intermediate member thereof, a pair of connected cross-  
85 heads having their movement resisted by the springs, and a draw-bar connected to one of the cross-heads.

7. In a draft-rigging, the combination with a body-bolster comprising upper and lower  
90 members and an intermediate member; of draft-timbers and an intermediate filling-block having their rear ends disposed between the upper and lower members of the bolster and abutted against the intermediate member thereof, a spring-pocket having one end re-  
95 ceived between the upper and lower members of the bolster and abutted against the intermediate member thereof, a draft-spring located in the spring-pocket and backed by the intermediate member of the bolster, a cross-  
100 head having its movement in one direction resisted by the draft-spring, a draw-bar connected with said cross-head, and a buffer-spring interposed between the draw-bar and the filling-block.  
105

8. In a draft-rigging, the combination with a body-bolster comprising upper and lower  
members and an intermediate member; of draft-timbers and an interposed filling-block abutted at their rear ends against said inter-  
110 mediate member, a spring-pocket abutted at its front end against the intermediate member of the bolster, a rear cross-head extended transversely through the spring-pocket, springs interposed between the rear cross-head  
115 and the bolster, a front cross-head extended transversely through the draft-timbers, draft-bars connecting the cross-heads and passed through the bolster, a draw-bar connected to the front cross-head, and a buffer-spring in-  
120 terposed between the draw-bar and the filling-block.

9. In a draft-rigging, the combination with recessed draft-timbers and an interposed fill-  
125 ing-block; of lining-plates opposed to the inner faces of the timbers and having folded ends received by the recesses in the latter, a buffer-spring located between the lining-plates and

backed by the filling-block, and a draw-bar having its inward movement resisted by the buffer-spring.

10. In a draft-rigging, the combination with  
 5 a body-bolster comprising upper and lower members, and an intermediate member of substantially U shape in cross-section, of a cross-head located in rear of the bolster, a draft-spring interposed between the cross-head and  
 10 bolster and backed by the latter, a draw-bar in advance of the bolster, and draft-bars connecting the draw-bar and cross-head.

11. In a draft-rigging, the combination with  
 15 a body-bolster comprising upper and lower members and an intermediate member of substantially U shape in cross-section, of a draft-spring and a buffer-spring backed by the bolster, connected cross-heads having their movements in opposite directions resisted by said  
 20 springs, and a draw-bar connected to one of the cross-heads.

12. In a draft-rigging, the combination with

a body-bolster comprising a flat upper member, a lower member directly bolted at its ends to the upper member and having its middle 25 portion spaced from the upper member, and a transversely U-shaped member interposed between the spaced portions of the upper and lower members and bolted thereto, cross-heads located in front and rear of the bolster, draft- 30 bars connecting the cross-heads and extended through the bolster beyond the opposite ends of the intermediate bolster member, a draft-spring and a buffer-spring opposing the cross-heads, and a draw-bar connected to one of the 35 cross-heads.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAMES E. GUINN.

Witnesses:

HARRY TROLL,

EVERETT PAUL GRIFFIN.