E. H. BAUER & L. L. WHITNEY.

DRAFT RIGGING.

APPLICATION FILED JULY 7, 1908.

1,010,012.

Patented **Nov. 28, 1911.**

4 SHEETS—SHEET 1.

Fig. 2.

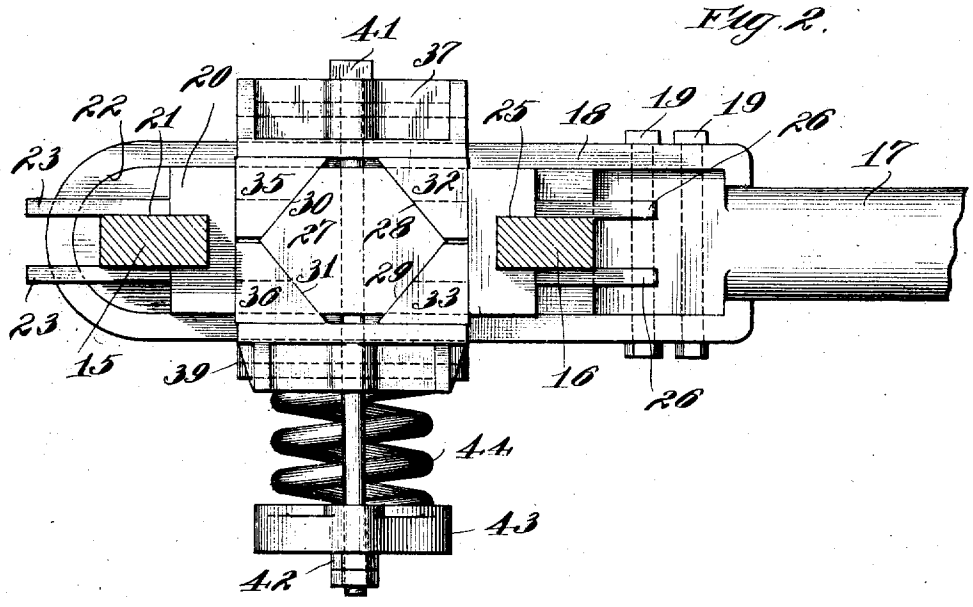
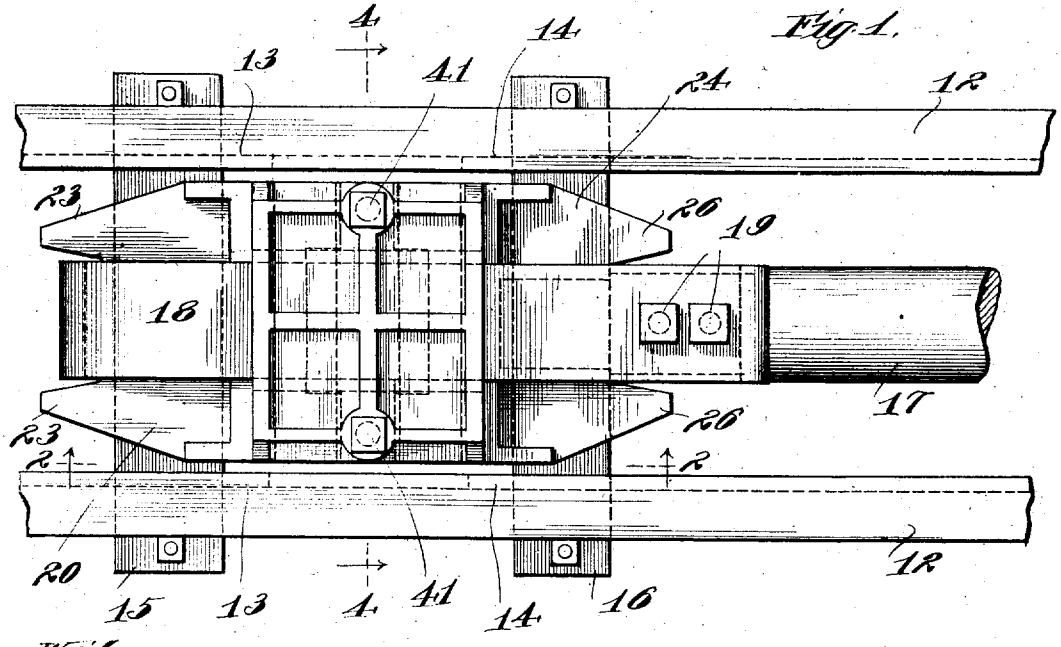


Fig. 1.



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4 SHEETS—SHEET 2

Fig. 3.

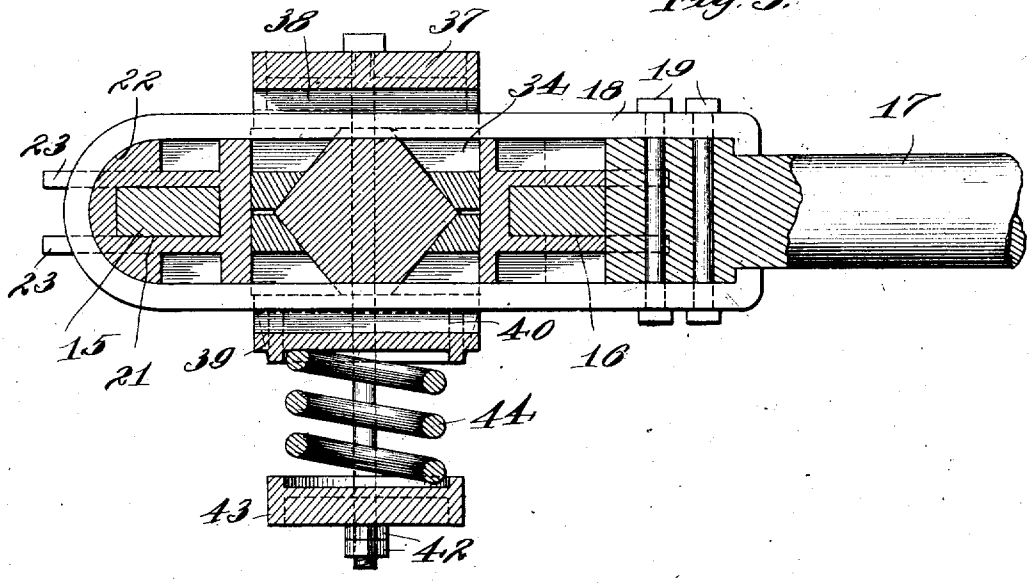


Fig. 4.

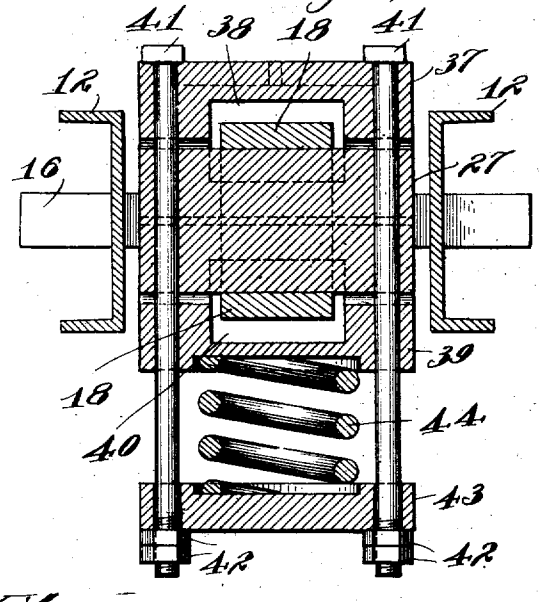
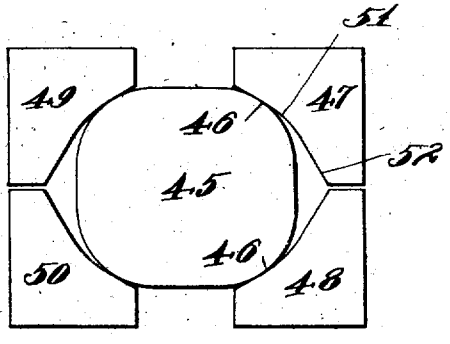


Fig. 5.



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4 SHEETS—SHEET 3.

Fig. 7.

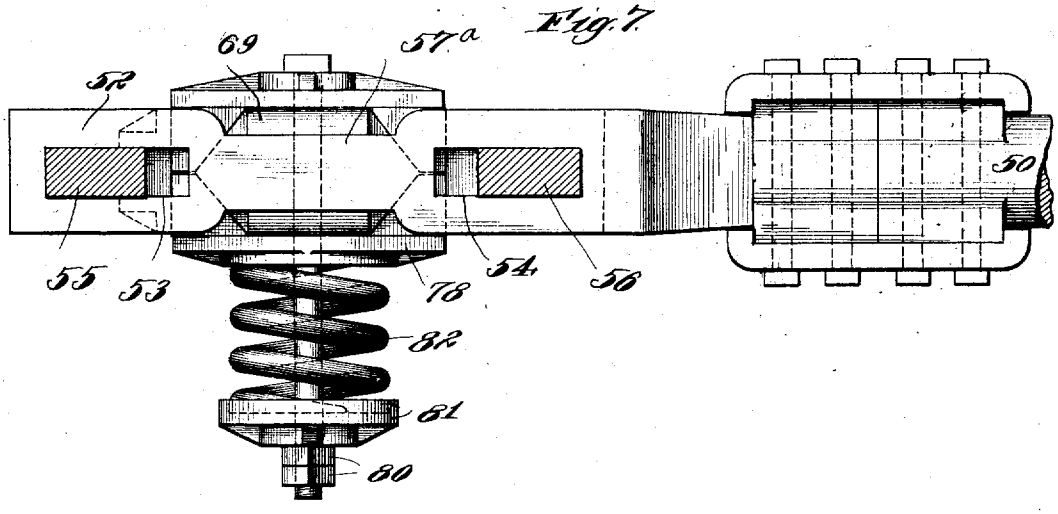
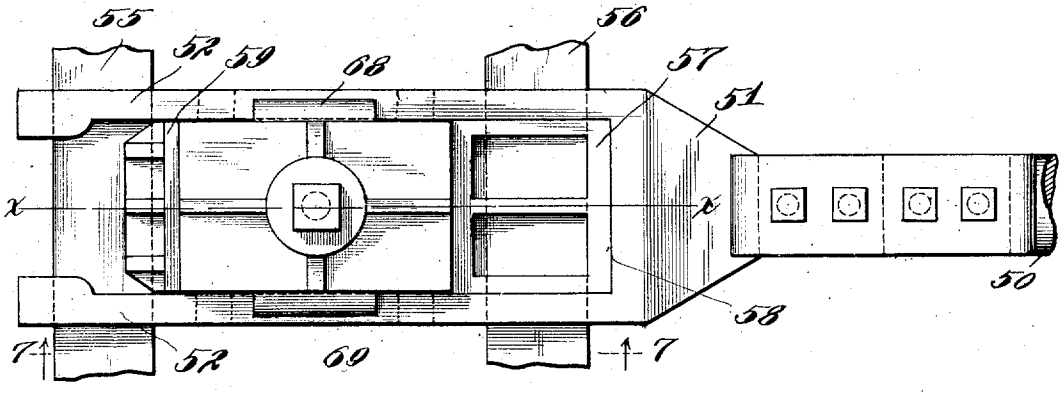


Fig. 6.



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4 SHEETS—SHEET 4.

Fig. 8.

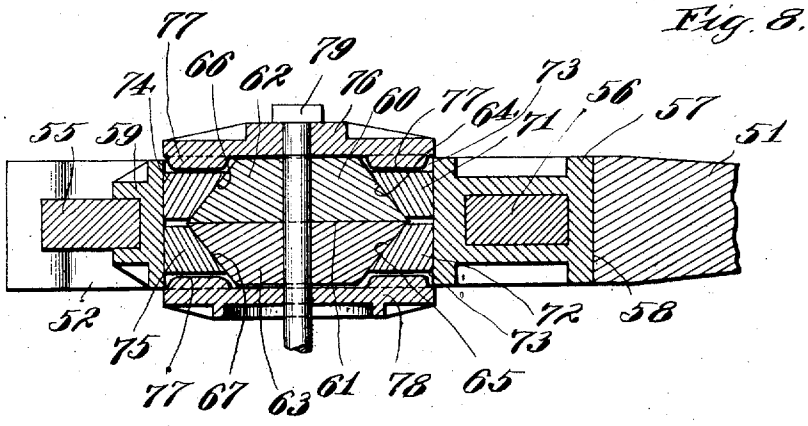


Fig. 9.

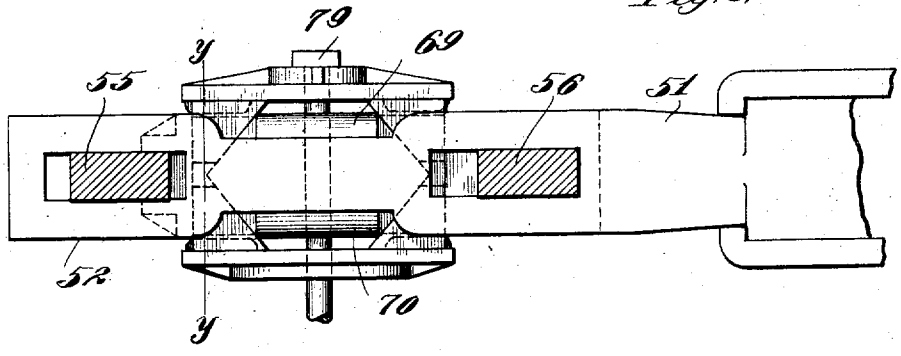
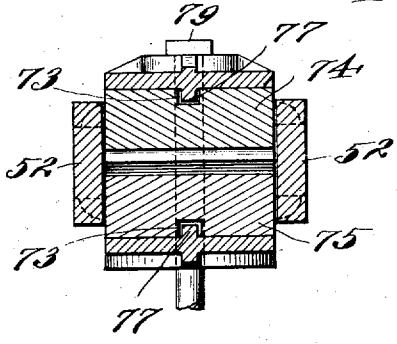


Fig. 10.



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UNITED STATES PATENT OFFICE.

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DRAFT-RIGGING.

1,010,012. Specification of Letters Patent. Patented Nov. 28, 1911.

Application filed July 7, 1908. Serial No. 442,356.

To all whom it may concern:

Be it known that we, EDWARD H. BAUER and LOREN L. WHITNEY, citizens of the United States, and residents, respectively, of Chicago, county of Cook, and State of Illinois, and Hammond, county of Lake, and State of Indiana, have jointly invented certain new and useful Improvements in Draft-Rigging, of which the following is a specification.

Improvements in railway car draft rigging or gear is the aim and purpose of our present invention. The use of friction wedge blocks in mechanisms of this kind has heretofore been suggested, but in our improved mechanism only a single coil compression spring is used in connection with expansible wedge blocks located on opposite sides of a main central wedge. This single spring is disposed below the draft device so that no cutting or weakening of the draft sills or frame is required to accommodate it. The faces of the coöperating wedge-shaped members are so shaped and arranged that the device is as readily adapted to care for slight pulls or buffs as for heavy and excessive ones, the arrangement being such, that, as the bearing moves, the resistance to its movement offered by the wedges and associated spring increases.

Other features of novelty and value in the construction and disposition of parts will be made apparent from the following detailed description, which should be read in connection with the accompanying drawings forming a part of this specification. On these drawings we have shown two desirable embodiments of our invention, and in the various figures like reference characters refer to the same parts throughout.

On the drawings—Figure 1 is a plan view of one style of our improved draft rigging, the same being applied to channel draft sills; Fig. 2 is a vertical section on line 2—2 of Fig. 1; Fig. 3 is a central longitudinal vertical section of the draft rigging shown in Figs. 1 and 2; Fig. 4 is a vertical cross-section on line 4—4 of Fig. 1, as viewed in the direction indicated by the arrows; Fig. 5 is a view showing modified forms of wedge blocks; Fig. 6 is a plan view of another embodiment of our invention; Fig. 7 is a longitudinal section on line 7—7 of Fig. 6; Fig. 8 is a longitudinal central section on line *x*—*x* of Fig. 6 the spring being omitted; Fig. 9 is a view similar to Fig. 7 illustrating the separation or expansion of the wedge blocks, the coil compression spring being omitted; and Fig. 10 is a cross-section on line *y*—*y* of Fig. 9.

Referring first to the type and style of draft rigging shown in Figs. 1 to 4, inclusive, it will be apparent that the car has the usual pair of spaced longitudinal channel draft sills 12, 12, slotted at 13 and 14 to accommodate the ends of transversely-disposed bars or followers 15 and 16 adapted in the operation of the draft mechanism to bear against the ends of the slots and transmit the pulls or buffs imposed on the coupler to the draft sills of the car. To the rear end of the coupler shank 17 a yoke 18 is fastened by means of a pair of bolts 19, and at the rear end of the yoke and inside of the same we provide a rear auxiliary follower 20 through an aperture 21 of which passes the main follower bar 15. The rear end of this auxiliary follower 20 has a curved seat 22 which accommodates the rear curved bent portion of the yoke 18, the latter being disposed between two pairs of rearwardly-extended divergent centering arms or fingers 23. In the yoke and bearing against the rear end of coupler shank 17 there is employed a similar front auxiliary follower 24, apertured at 25 for the accommodation and reception of the forward follower bar 16. This auxiliary follower has forwardly-projecting centering arms or fingers 26 straddling the rear end of the coupler shank, as is clearly illustrated. Between these two auxiliary followers, and passing horizontally through the space between the side portions of the yoke, is a main wedge 27 having at its front end or side the divergent or wedge faces 28 and 29, and at its rear end or side similar faces 30 and 31. Coöperating with the surfaces 28 and 29 of the wedge, and disposed between these faces and the front auxiliary follower 24, we provide a pair of expansible or separable wedge blocks 32 and 33 of the same length as the wedge 27 and recessed at 34 so as to straddle the legs of the yoke and

be capable of separation, that is, vertical movement without interference by the yoke proper. Between the faces 30 and 31 and the rear auxiliary follower 20 is a pair of similar wedge blocks 35 and 36 also recessed at 34 for the same purpose. Bearing on the end portions of the wedge blocks 32 and 35 projecting beyond the yoke is a top bearing member 37, recessed at 38, which permits it to straddle the top strap of the yoke. A similar lower bearing member 39, recessed at 40 so as to straddle the lower strap of the yoke, presses against the exposed end portions of the lower wedge blocks 33 and 36. A pair of vertical bolts 41 pass through holes or apertures in the bearing members 37 and 39 and the main wedge 27, the bolts extending downwardly below the bottom bearing member 39 some little distance, and being equipped at their lower ends with nuts 42 on which rests a spring block 43, through apertures of which the bolts pass, a coil compression spring 44 being interposed between the bottom surface of the lower bearing member 39 and the top face of the spring block 43. It will be obvious that owing to the action of the spring 44 pressing upwardly against the bearing member 39, the spring opposes downward movement of the lower wedge blocks 33 and 36, and by pressing downwardly on the spring block 43 and bolts 41 the spring, through the upper bearing member 37, opposes upward movement of the wedge blocks 32 and 35. In other words, expansion or separation of the pairs of wedge blocks 32, 33 and 35, 36 is opposed but not prevented by the single coil compression spring 44. The operation of this form of draft gear or mechanism is substantially as follows: When the coupler and its rigidly attached yoke 18 are pulled forwardly no movement of the front follower bar 16 is permissible because it already abuts against the end walls or margins of the slots 14 in the vertical webs of the channel draft sills 12. The follower 15 and its associated auxiliary follower 20, however, travel forwardly with the yoke 18, and in so doing the auxiliary follower 20 forces the wedge blocks 35 and 36 against the divergent faces 30 and 31 of the main wedge 27 and pushes this main wedge forwardly against the front wedge blocks 32 and 33, the latter transmitting the push through the front auxiliary follower 24 and the main forward follower 16 to the draft sills 12. When subjected to this action the wedge blocks 35, 36 and 32, 33 tend to separate vertically or expand, this action however being opposed and restricted by the compression spring 44 acting on the wedge blocks through the bearing members 37 and 39. The mere compression of the spring 44 is not relied upon solely for the absorption of shocks and the transmission of the pull on the coupler, since, as is obvious, each wedge block has three friction surfaces co-acting with other surfaces to hinder its movement, these surfaces being that co-acting with one of the divergent faces of the wedge, that co-acting with one of the auxiliary followers, and the surface abutting against one of the bearing members. For example, when the wedge block 32 moves outwardly it must necessarily slide on the surface 28 and on the rear surface of the front auxiliary follower 24. Outward movement of the wedge blocks permits the wedge 27 to move with the yoke, and consequently there is a relative movement between one face of each wedge block and the corresponding bearing member. This combined spring compression and friction act to satisfactorily care for all pulls, buffs, and shocks sustained by the coupler. When the coupler and yoke 18 are pushed rearwardly as in buffing, the follower 16 and its associate follower 24 move with the yoke and coupler, pushing the blocks 32 and 33 against the wedge and the latter against the blocks 35 and 36. These in turn co-act with the auxiliary follower 20 and the main follower 25 so as to transmit the buff to the draft sills 12, the follower 15 bearing against the rear margins of the slots 13. In order to adapt this type of mechanism for strains and shocks which vary greatly in strength and intensity, we may make the coöperating faces of the main wedge and wedge blocks of different shape than those shown in Figs. 1 to 4, inclusive. For example, referring to Fig. 5, the wedge proper 45 may have rounded corners 46 which co-act with faces of the wedge blocks 47, 48, 49 and 50. The face 51 of each of these wedge blocks at the point most remote from its companion wedge block makes a much smaller angle with a horizontal plane than the angle made by the portion 52 of the surface, that is, the portion near its companion block. The result of this construction is that during the first part of the movement of the wedge or wedge blocks longitudinally of the car there is a much greater tendency for the wedge blocks to separate than there is after the coupler and yoke have moved some little distance. Consequently, the resistance to the movement of the coupler is gradually increased as the movement progresses. In a draft rigging employing this type of wedge blocks slight shocks are readily cared for and also a heavy strain is as readily absorbed or transmitted. As is apparent, the function of the centering lugs or fingers 23 and 26 is to bring the coupler and attached yoke to a central position after having been displaced sidewise, the diverging inner faces of the fingers co-acting with the strap or coupler shank to center the same.

Referring now to the construction shown in Figs. 6 to 10, inclusive, it will be noticed that to the rear end of the coupler shank 50 we attach a member 51 having rearwardly-projecting parallel legs 52 slotted at 53 and 54 for the accommodation and reception of the followers 55 and 56, the central portions of these legs being narrower at 57ª than the other portions. As in the previous instance the forward follower 56 passes through a transverse hole in an auxiliary follower 57 disposed between the two side legs 52 and bearing against the shoulder 58 of the member 51. At the rear end of this draft rigging and overlapping the top and bottom surfaces of the rear follower 55 we provide a smaller rear auxiliary follower 59. Between the auxiliary followers and located between the legs or side walls 52 of the member 51 is a main wedge 60 split horizontally at 61 at its center so as to form two separable parts 62 and 63, the two parts constituting a wedge with forward divergent surfaces 64 and 65 and similar rear surfaces 66 and 67. The upper half of this wedge on its opposite sides has a pair of laterally-extended guiding lugs 68 and 69 which overlap and coöperate with the top edges of the reduced central portions 57 of the two legs 52. The bottom half of the wedge has similar guiding lugs of which only one 70 is illustrated, these, as is obvious, co-acting with the bottom edge of the reduced portion 57, as is clearly indicated. Between the divergent faces 64 and 65 of the wedge 60 and the rear wall of the front auxiliary follower 57 we place the pair of expansible or separable wedge blocks 71 and 72, each being notched on its outer face at 73 for a purpose hereinafter indicated. Between the wedge faces 66 and 67 and the front surface of the rear auxiliary follower 59 we interpose the pair of wedge blocks 74 and 75 each notched at 73. Bearing on the tops of the wedge blocks 71 and 74 is a bearing member 76 having ribs 77 on its under face fitting in the recesses or grooves 73 to prevent displacement of the wedge blocks. A lower bearing member 78 is supplied which also has ribs 77 fitting in the grooves of the lower wedge blocks 72 and 75. Passing downwardly through central apertures in the bearing members 76 and 77 and the two parts 62 and 63 of the wedge is a vertical bolt 79 whose head presses against the top face of the upper bearing member. Nuts 80 are supplied on the lower end of the bolt, and on these rests a spring block 81 between which and the bottom face of the lower bearing member 78 is interposed a coil compression spring 22. Since the operation of this form of our device is substantially like that of the form shown in Figs. 1 to 4, inclusive, a full description thereof is deemed unnecessary. It may be remarked, however, that the followers 55 and 56 are adapted and intended to co-act with stop lugs on the draft sills, and in this form of our draft rigging the slots, instead of being in the draft sills, are provided as described above in the legs 52 of the casting 51.

It is, of course, to be understood that the form of wedge and wedge blocks shown in Fig. 5 is applicable for employment in either type of draft rigging, and attention is also directed to the fact that in the two embodiments of our invention described above each wedge block has a plurality of friction surfaces and only a single spring on the under side of the rigging is employed for opposing the separation or expansion of all of the wedge blocks.

Our invention is not limited to the precise features of construction and arrangement shown and described, because these may be modified to a considerable extent without departure from the heart and substance of our invention.

We claim:

1. In a railway car draft rigging, the combination with a coupler shank of a wedge, means connecting said coupler shank with said wedge, a pair of expansion wedge blocks adapted to co-act with diverging faces of said wedge, a spring, and connections between said spring and both wedge blocks, said connections comprising a plurality of bearing members against which the wedge blocks are adapted to be forced, a spring block, and means rigidly connecting said spring block to one of said bearing members, whereby the spring is compressed between said spring block and the other bearing member and opposes the expansion of said wedge blocks upon movement of the coupler in either direction, substantially as described.

2. In a railway car draft rigging, the combination of a yoke, a wedge within and transversely disposed relatively to said yoke and having a pair of diverging faces at each of its opposite ends, a pair of expansion wedge blocks at each of said ends of the wedge co-acting with said diverging faces, disposed transversely to said yoke, and projecting beyond the sides thereof, a member bearing against the exposed end portions of one of the wedge blocks of each of said pairs, a second member bearing against the exposed end portions of the other two wedge blocks, a compression spring abutting against one of said bearing members, a spring block against which the other end of the spring presses, means connecting said spring block to the other bearing member whereby the spring opposes expansion of both pairs of wedge blocks, and means to prevent movement of one of said pairs of wedge blocks longitudinally of the car while the other pair of wedge blocks is forced against the wedge and the

latter against the first pair of wedge blocks during pulling or buffing on the coupler, substantially as described.

3. In a railway car draft rigging, the combination of a yoke, a horizontal wedge within and transversely disposed relatively to said yoke and having a pair of diverging faces at each of its opposite ends, a pair of horizontal expansion wedge blocks at each of said ends of the wedge co-acting with said diverging faces, disposed transversely to said yoke, and projecting beyond the sides thereof, an upper member straddling one leg of said yoke and bearing against the exposed end portions of one of the wedge blocks of each of said pairs, a second lower member straddling the other leg of said yoke and bearing against the exposed end portions of the other two wedge blocks, a compression spring abutting against the bottom face of said second lower bearing member, a spring block against which the lower end of said spring presses, means connecting said spring block to the upper bearing member whereby the spring opposes expansion of both pairs of wedge blocks, and means to prevent movement of one of said pairs of wedge blocks longitudinally of the car while the other pair of wedge blocks is forced against the wedge and the latter against the first pair of wedge blocks during pulling or buffing on the coupler, substantially as described.

4. In a railway car draft rigging, the combination of draft sills having abutments thereon, a coupler, a yoke secured to the coupler-shank, followers extended through said yoke and coöperating with the abutments of said draft sills, apertured auxiliary followers in said yoke in the apertures of which said followers are located, the yoke passing around and bearing on the rear auxiliary follower, the coupler-shank bearing against the forward auxiliary follower, a wedge between said auxiliary followers having a pair of diverging faces at each of its opposite ends, a pair of expansion wedge blocks at each of said ends of the wedge disposed between the diverging faces of the latter and the auxiliary followers, a member bearing against one of the wedge blocks of each of the pairs, a second member bearing against the remaining two wedge blocks, a compression spring abutting against one of said bearing members, a spring block against which the other end of the spring presses, and means connecting said spring block to the other bearing member whereby the spring opposes expansion of both pairs of said wedge blocks, whereby during either pulling or buffing on the coupler one of the followers will bear against abutment of said draft sills holding its auxiliary follower stationary while the companion auxiliary follower will compel movement of one pair of wedge blocks against the wedge and the latter against the other pair of wedge blocks which are prevented from moving with the coupler and yoke by the stationary auxiliary follower, substantially as described.

5. In a railway car draft rigging, the combination of draft sills having abutments thereon, a coupler, a yoke secured to the coupler-shank, followers extended through said yoke and coöperating with the abutments of said draft sills, apertured auxiliary followers in said yoke in the apertures of which said followers are located, the yoke passing around and bearing on the rear auxiliary follower, the coupler-shank bearing against the forward auxiliary follower, a wedge between said auxiliary followers having a pair of diverging faces at each of its opposite ends, a pair of expansion wedge blocks at each of said ends of the wedge disposed between the diverging faces of the latter and the auxiliary followers, a member bearing against one of the wedge blocks of each of the pairs, a second member bearing against the remaining two wedge blocks, a compression spring abutting against one of said bearing members, a spring block against which the other end of the spring presses, means connecting said spring block to the other bearing member whereby the spring opposes expansion of both pairs of said wedge blocks, and means on said auxiliary followers to center the attached yoke and coupler, whereby during either pulling or buffing on the coupler one of the followers will bear against abutments of said draft sills holding its auxiliary follower stationary while the companion auxiliary follower will compel movement of one pair of wedge blocks against the wedge and the latter against the other pair of wedge blocks which are prevented from moving with the coupler and yoke by the stationary auxiliary follower, substantially as described.

6. In a railway car draft rigging, the combination of draft sills having abutments, a coupler, a yoke secured to the shank of said coupler, followers extended through said yoke and coöperating with the abutments of said draft sills, auxiliary followers extended through said yoke and having apertures within which said followers lie, the rear auxiliary follower having a seat for the end of said yoke, the end of the coupler-shank bearing against the forward auxiliary follower, a horizontal wedge within and disposed transversely to said yoke, between said auxiliary followers, and having a pair of diverging faces at each of its opposite ends, a pair of expansion wedge blocks at each of said ends of the wedge, co-acting with said diverging faces, disposed transversely to said yoke between said faces and said auxiliary followers, and projecting beyond the sides of said yoke, an upper mem-

ber bearing against the exposed end portions of one of the wedge blocks of each of said pairs, a lower member bearing against the exposed end portions of the other two wedge blocks, a compression spring abutting against the under face of said lower member, a spring block against which the lower end of said spring presses, and means connecting said spring block to said upper bearing member whereby said spring opposes expansion of both pairs of wedge blocks and during pulling or buffing on said coupler one of said followers bears against abutments on said draft sills holding its auxiliary follower stationary while the other auxiliary follower travels with the united yoke and coupler pressing one pair of said wedge blocks against said wedge and the latter against the other pair of wedge blocks which are held from movement with the yoke and coupler by the stationary auxiliary follower, substantially as described.

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LOREN L. WHITNEY.

In the presence of—
WALTER M. FULLER,
CLARE L. ROSENOW.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."

Correction in Letters Patent No. 1,010,012.

It is hereby certified that Letters Patent No. 1,010,012, granted November 28, 1911, upon the application of Edward H. Bauer, of Chicago, Illinois, and Loren L. Whitney, of Hammond, Indiana, for an improvement in "Draft-Rigging," were erroneously issued to "Simplex Railway Appliance Company" as sole owner of said invention, whereas said Letters Patent should have been issued to the said *Simplex Railway Appliance Company and Loren L. Whitney*, the second-named inventor, said corporation being assignee of Bauer's interest only, as shown by the records of assignments in this office; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 23rd day of September, A. D., 1913.

[SEAL.]

R. T. FRAZIER,
Acting Commissioner of Patents.

ber bearing against the exposed end portions of one of the wedge blocks of each of said pairs, a lower member bearing against the exposed end portions of the other two wedge blocks, a compression spring abutting against the under face of said lower member, a spring block against which the lower end of said spring presses, and means connecting said spring block to said upper bearing member whereby said spring opposes expansion of both pairs of wedge blocks and during pulling or buffing on said coupler one of said followers bears against abutments on said draft sills holding its auxiliary follower stationary while the other auxiliary follower travels with the united yoke and coupler pressing one pair of said wedge blocks against said wedge and the latter against the other pair of wedge blocks which are held from movement with the yoke and coupler by the stationary auxiliary follower, substantially as described.

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