

(No Model.)

5 Sheets—Sheet 1.

C. A. SCHROYER.

DRAFT RIGGING FOR RAILWAY CARS.

No. 544,009.

Patented Aug. 6, 1895.

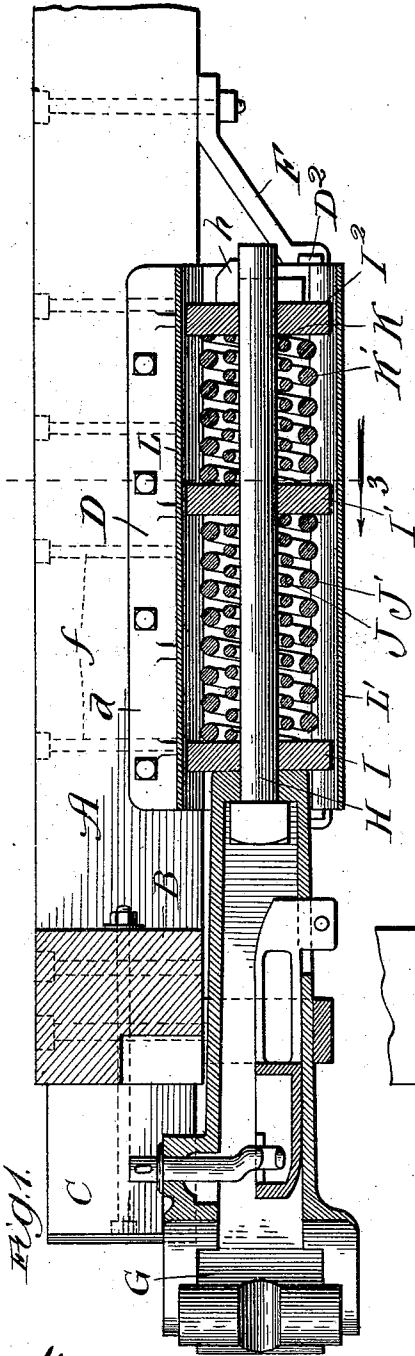


Fig. 1.

Witnesses:
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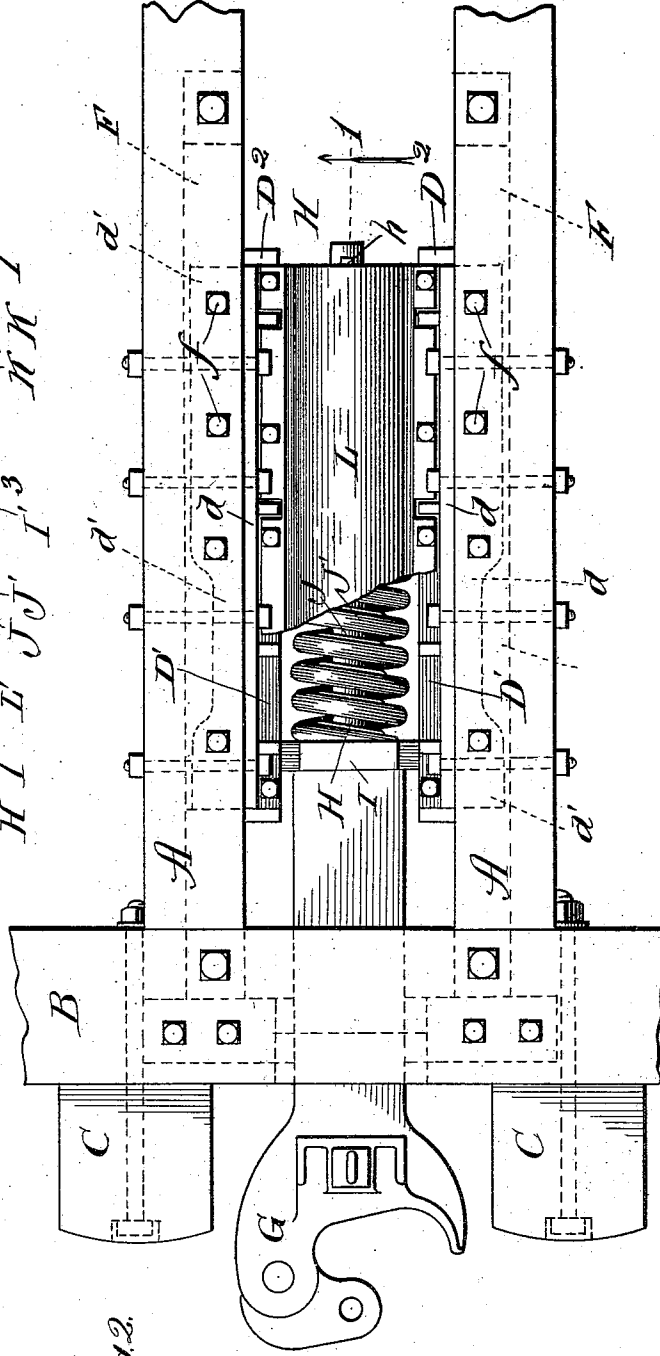


Fig. 2.

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Fig. 3.

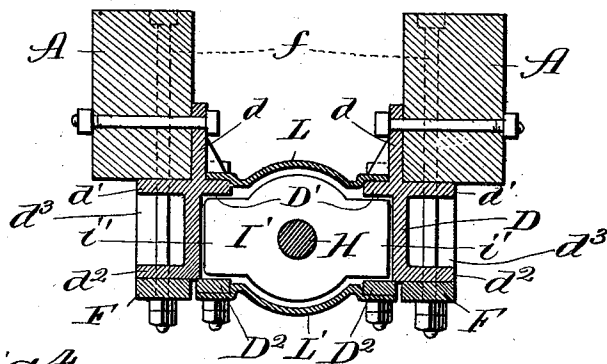


Fig. 4.

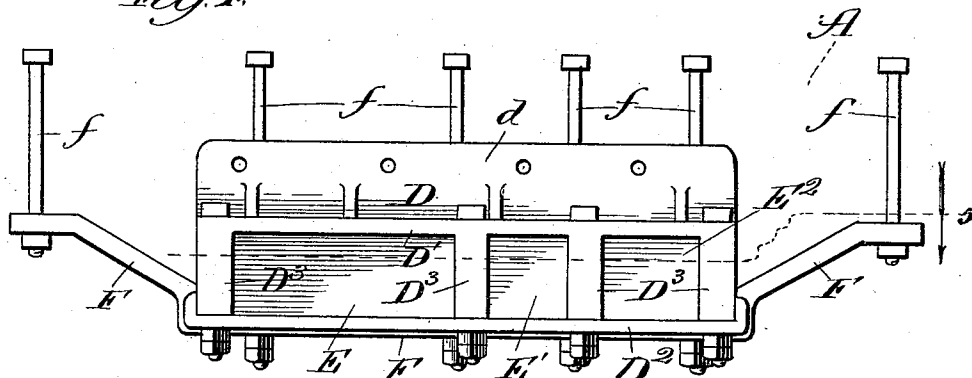
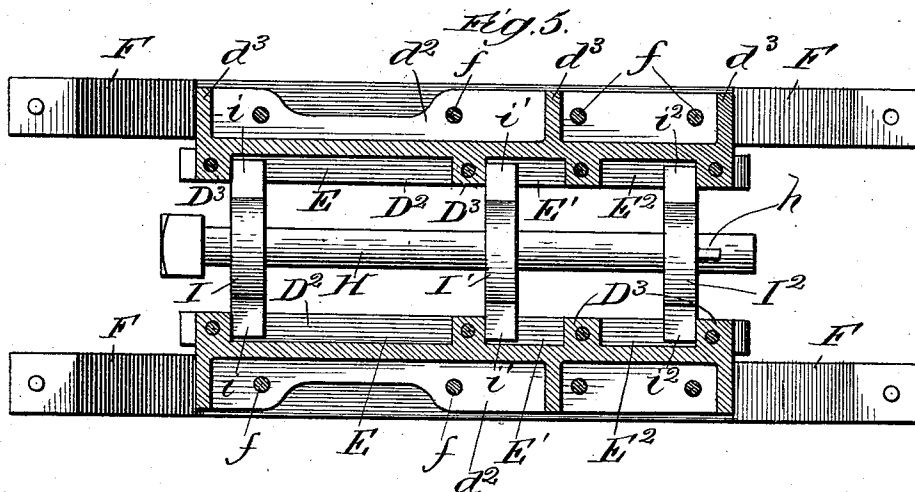


Fig. 5.



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(No Model.)

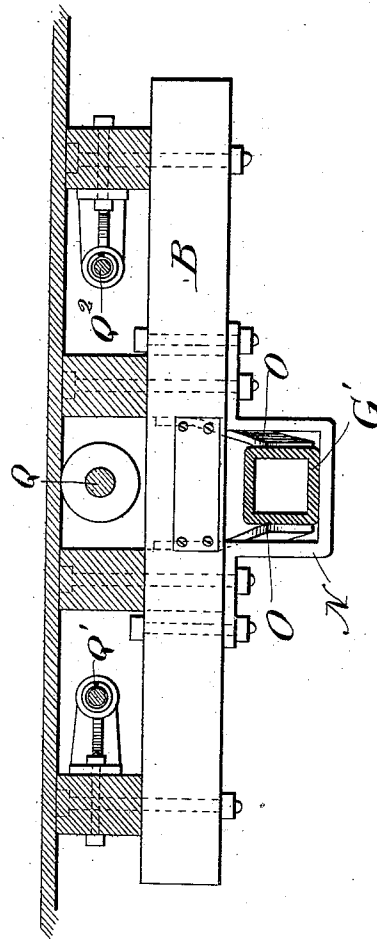
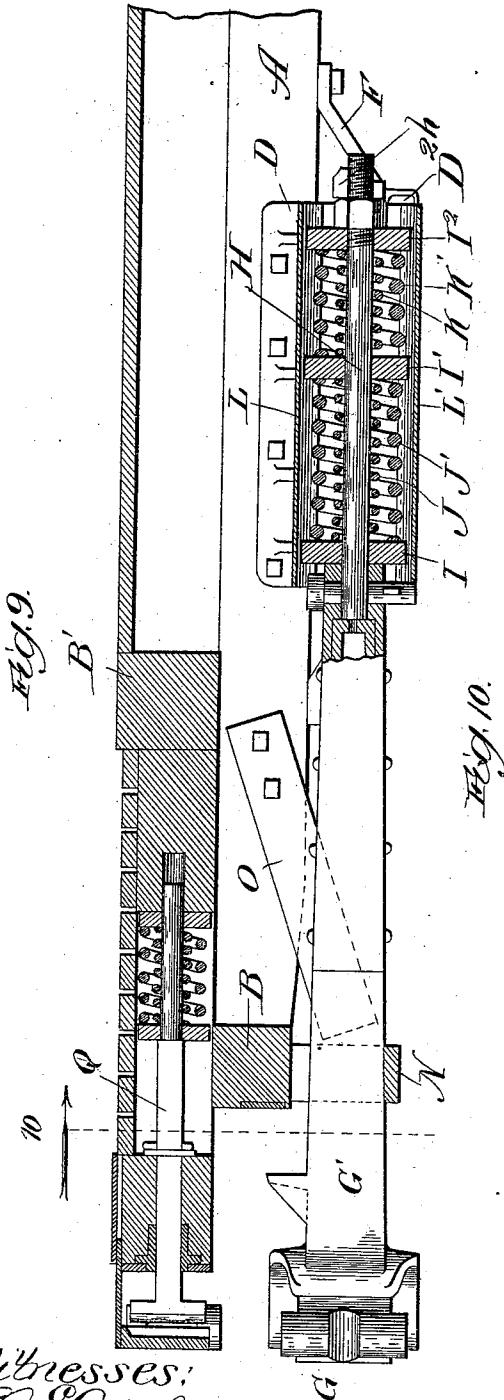
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C. A. SCHROYER.

DRAFT RIGGING FOR RAILWAY CARS.

No. 544,009.

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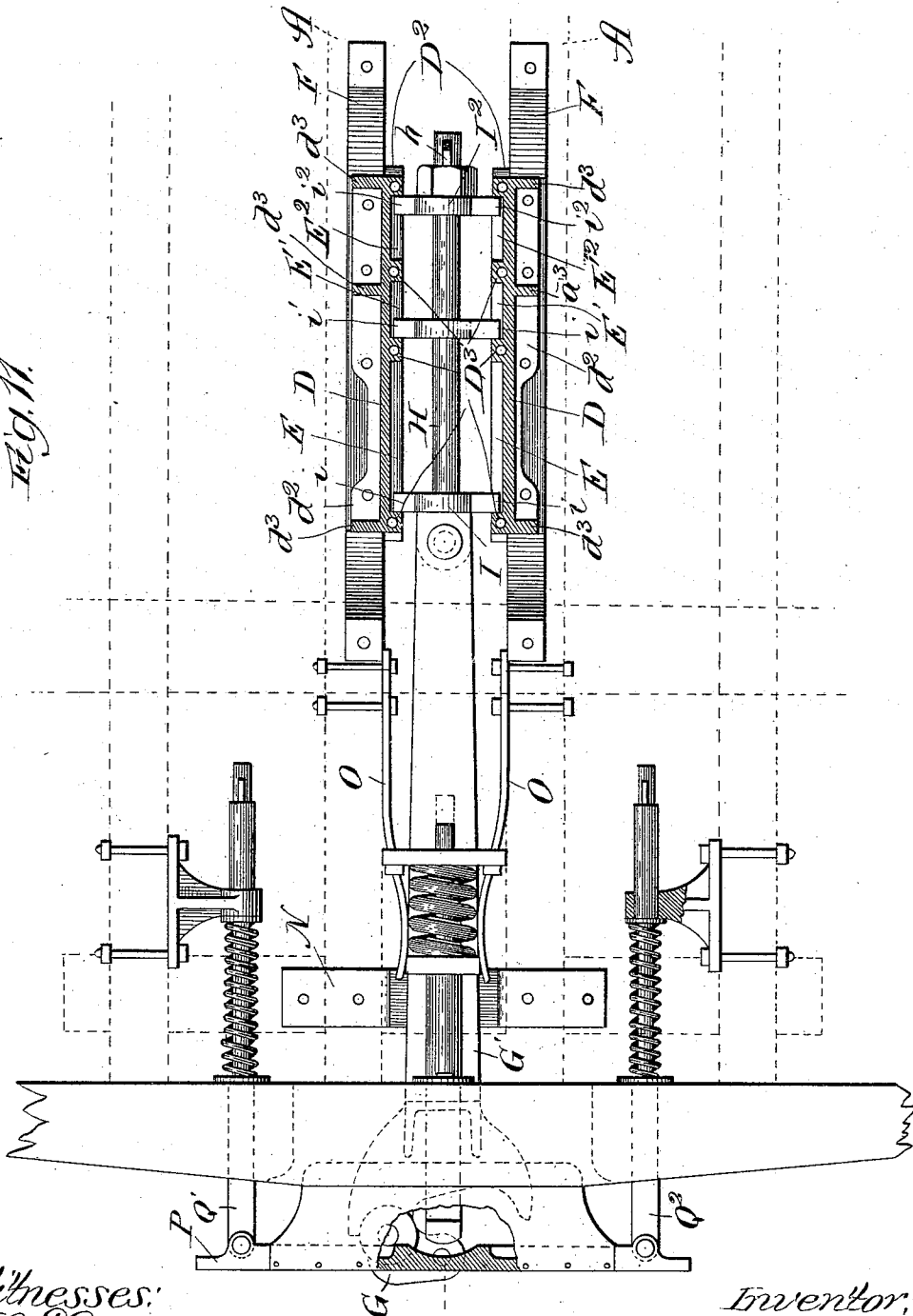
(No Model.)

5 Sheets—Sheet 5.

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DRAFT RIGGING FOR RAILWAY CARS.

No. 544,009.

Patented Aug. 6, 1895.



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UNITED STATES PATENT OFFICE.

CHARLES A. SCHROYER, OF CHICAGO, ILLINOIS.

DRAFT-RIGGING FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 544,009, dated August 6, 1895.

Application filed March 10, 1893. Serial No. 465,463. (No model.)

To all whom it may concern.

Be it known that I, CHARLES A. SCHROYER, of Chicago, Illinois, have invented certain new and useful Improvements in Draft-Rigging for Railway-Cars, of which the following is a specification.

This invention is applicable both to freight and passenger cars, and will be so described.

In the case of freight-cars equipped with automatic couplers it frequently happens that when the cars are being or have been coupled together the dead-wood or buffer-blocks do not come into contact, which is objectionable for many reasons, among others because it compels the couplers to stand all of the strains and shocks incident to coupling and buffing. The same is true in the case of passenger-cars, which are frequently so constructed that when they are being or have been coupled together the spring-buffers do not come into contact.

The object therefore of my invention is to provide means for affording such movement to the draft-bars, draw-heads, and couplers as will permit of the engagement or contact of the dead-wood or buffer-blocks or spring-buffers in coupling or operating the cars. Furthermore, these devices are so arranged that while they afford sufficient inward motion to bring the buffer-blocks or spring-buffers into contact the outward motion is limited, so as to prevent the draw-bar moving farther than desired in that direction.

My invention therefore consists in the features, combinations, and details of construction hereinafter more specifically described and claimed.

In the drawings, Figure 1 is a vertical longitudinal section of a portion of one end of a freight-car equipped with my improvements, taken on line 1 of Fig. 2; Fig. 2, a plan view of the devices shown in section in Fig. 1; Fig. 3, a section taken on line 3 of Fig. 1; Fig. 4, a side elevation of one of the draft-irons removed from the car, showing also its means of attachment and support, &c.; Fig. 5, a section on line 5 of Fig. 4; Fig. 6, a view similar to that in Fig. 1, illustrating the application of my device to a car equipped with the Miller buffer; Fig. 7, a plan view of the draft-bar, &c., shown in Fig. 6; Fig. 8, a section on line 8 of Fig. 6; Fig. 9, a view similar to those given in Figs. 1 and 6, illustrating the appli-

cation of my device to a car equipped with an equalizing-plate or extended buffer, being a section taken on line 9 of Fig. 11; Fig. 10, a section on line 10 of Fig. 9; and Fig. 11 a plan sectional view of the devices shown in Figs. 9 and 10, all of the sections being taken in the directions indicated by the respective arrows.

The longitudinal sills A, end sill B, and buffer or dead-wood blocks C, together with the other parts of the car not herein particularly described, may be made in any of the well-known manners and by themselves require no particular description.

Carried by the longitudinal sills are the draft-irons D. These draft-irons are preferably constructed in the form shown more particularly in Figs. 3 to 5 of the drawings. On their opposing faces they are provided with an upper horizontal web or flange D' and a bottom or carrier strap or iron D², and also have vertical webs D³, whereby pockets E E' E² are formed. The flange D' is preferably made integral with the draft-iron, while the carrier-iron is made removable, being secured in place by suitable bolts, the purpose of this being to allow of the ready insertion and removal of the follower-plates, &c. It is preferably turned up at its ends, as shown, and thereby more securely fastened to the draft-iron. The draft-irons are further provided with flanges d d' d², the two latter being preferably connected by webs d³. The purpose of these flanges is to aid in securing the device firmly to the longitudinal sills by means of both horizontally and vertically running bolts. Straps or braces F, preferably of the shape shown in the drawings, are bent around the under side of the draft-irons and then bent up and extended to the longitudinal sills, this brace and the draft-iron being secured to these sills by means of bolts f. The pockets E E' E² must be so proportioned to each other as to accomplish the purposes hereinafter pointed out.

The coupling-hook G may be made in any desired form, and by itself forms no part of my invention.

The draft-irons are secured to the longitudinal sills at suitable points, and the shank of the draw-bar is extended back in any suitable manner, as by means of a bolt or rod H, provided with a suitable key h. Mounted on

this portion of the draw-bar are three follower-plates I I' I², these follower-plates being more preferably of the form shown in Fig. 3—that is, being provided with wings or lugs i i' i², adapted to engage with and slide in the pockets E E' E², respectively, as shown particularly in Fig. 5. Mounted upon the draft-bar, between the plates I and I', are two spiral springs J J', and between the follower-plates I I² springs K K' are similarly mounted. I prefer to use two springs in each instance, but I do not consider it essential.

Secured to the draft-rigging, both above and below the follower-plates, are plates L L', the purpose of which is to exclude dust and dirt from the draft-rigging. These plates are shown as secured in place by the bolts which are used to secure the carrier-irons, but they may be attached in any other manner desired.

This device operates as follows: Let us suppose that in order to bring the dead-wood blocks C (shown in the drawings) into contact with the similar blocks on the next adjacent car, it is necessary for the coupler G to be moved toward the right, Fig. 1, a distance of four inches and a half. In this case I should prefer that the parts of the device should be so constructed that the springs should afford the coupler five or more inches play, as follows: As the coupler is forced back, the springs J J' have been compressed three inches, the springs K K' will begin to be compressed, and the follower-plates I I' will both be moved back a distance of two inches, at which time the latter follower-plate will contact with the webs D³ at the right-hand end of the pocket E', in which it moves, thereby preventing any further compression of the springs K K'. As the draw-bar moves in the bolt or rod H will slide freely through the plate I²; but when the draw-bar is moved outward this plate will be drawn toward the left, but all motion of the coupler will be stopped when the follower I² strikes against the forward end of its pocket, and the length of the pocket should therefore be such as to prevent too great an outward motion of the draw-bar and coupler.

In Figs. 6, 7, and 8 I have shown my invention and improvements as applied to a passenger-coupler provided with a Miller buffer. The coupler G may, as in the case of the freight-coupler, be made in any desired form. The rod, bar, or bolt H, forming the rearward portion of the draw-bar, is secured to the forward portion by means of a bolt g, so as to permit the forward portion to swing from side to side, as hereinafter described. I provide draft-irons, provided with pockets and follower-plates, substantially the same in construction as those already described in discussing the freight attachments. In fact, all portions of the device when applied to passenger-couplers are made, applied, and operated in substantially the same manner as they are when used in connection with the freight-

coupler. The draft-irons in this form are secured to the longitudinal or draft sills at any suitable points.

M is the buffer of the ordinary Miller type.

In order to afford the draw-bar the lateral motion necessary for coupling or uncoupling and afford lateral movement to car-body upon a curve, I pivotally connect the forward portion of the draw-bar to the rearward portion thereof, as already described, and to support the forward portion G' of this bar I provide a hanger or stirrup N, which, as is evident from Fig. 8, will allow the bar to play to a certain extent sidewise. To hold the bar in a normally-central position I provide springs O.

The only difference between the construction of my improvements as applied to freight-cars and as applied to passenger-cars is a possible change in the dimensions of the parts. For instance, when applying the device to a passenger-car I may desire more or less motion than when such devices are applied to a freight-car, depending upon the relative adjustment of the coupler and the buffer. It will be evident, however, that by adjusting the sizes of the pockets and the strength of the springs I can provide for any desired motion, and since I have given more or less precise instructions in reference to the freight-coupler I do not consider it necessary to be precise when speaking of the passenger-coupler, the information already given having been sufficient to enable any one skilled in this art to manufacture and apply my improvements.

In the last three figures I have shown my improvements as applied to a car equipped with an extended buffer-plate P, supported upon rods Q' Q² and contacting with a third rod Q, these rods being provided with suitable springs. In all other respects the devices shown in these figures are similar to those shown in the preceding figures and require no particular description, the object being the same as that already described—to wit, to afford sufficient longitudinal motion to the couplers and draw-bars to insure the buffers being brought into contact while preventing too great an outward movement.

From the construction already described it will be obvious that in buffing both the springs will be compressed, but when, however, the draw-bar is drawn outward only the rearward spring will be compressed, since the follower-plate I', resting normally at the left-hand end of its pockets in the draft-irons, the only plate that can be moved will be the follower-plate I², and, consequently, only the rearward springs will be compressed. These springs may be the stronger ones, but not necessarily so, since it is obvious that the parts might be so proportioned and adjusted that the stronger spring or springs would be in front and the weaker behind. Again, it is not necessary that the springs should be of different strength, inasmuch as they might be com-

pressed simultaneously, the important feature being that the device is so constructed as to allow, say, five inches inward movement from the normal position, but, say, only two inches outward movement from this position. Of course, when the springs are of equal strength both will be compressed on the inward movement, but only one, which may be either one, upon the forward movement. By this means I provide a simple and efficient device, which is capable of ready application, and by means whereof I insure the contacting of the deadwood or buffer blocks or spring-buffers under all conditions, but which device is so constructed as to prevent too great an outward movement of the couplers and draw-bars; and while I have shown more or less precise forms I do not intend to unduly limit myself thereto, but contemplate all proper changes in form, proportion, and the substitution of equivalent members that may be desirable or necessary.

I claim—

1. The combination of a draw bar, draft irons provided with pockets, follower plates mounted upon the draw bar and moving in such pockets, and two springs of unequal length mounted between such follower plates on the draw bar, the parts being proportioned substantially as described, whereby the draw bar is allowed to move inward to an extent equal substantially to the sum of the compression distance of the two springs, but is allowed to move outward only to an extent substantially equal to the compression distance of one of such springs, substantially as described.

2. The combination of a buffer, a draw bar, draft irons secured to the draft timbers and provided with pockets, follower plates mounted on the draw bar and traveling in such pockets, and two springs mounted upon the draw bar between the follower plates, the parts being arranged and proportioned substantially as described, whereby when the draw bar is moved in both of the springs will be compressed allowing the buffer faces to come into contact, and when the draw bar is moved outward one of such springs will only be compressed, thereby limiting the forward movement of the bar, substantially as described.

3. The combination of a buffer, a draw bar carrying the coupler, draft irons secured to the car timbers, follower plates loosely mounted upon the draw bar and traveling in pockets in the draft irons, and two sets of springs mounted upon the draw bar between the follower plates and so relatively adjusted that one set is compressed prior to the other, whereby as the draw bar is forced in the first set of springs will be compressed and will then be carried backward with the draw bar while the second set of springs is compressed, thereby affording longitudinal motion to the draw bar equal to the sum or the compression

distance of the two springs and insuring the contacting of the buffers, substantially as described.

4. The combination of a draw bar, draft irons secured to the car timbers and provided with three pockets, follower plates mounted upon the draw bar and traveling in such pockets, two sets of springs mounted upon the draw bar between the follower plates, one set of such springs being weaker than the other, and the parts being all relatively proportioned and adjusted substantially as described, whereby when the draw bar is forced in the weaker spring will first be compressed, after which the second will be compressed, and as both springs become fully compressed one of the follower plates will contact with the end of its pocket, preventing further inward motion of the draw bar, and when the draw bar is drawn out only one of the series of springs will be compressed, after which the rearward follower plate will contact with the end of its pocket to prevent too great a motion of the draw bar, substantially as described.

5. In a device of the class described, a draft rigging comprising flanged draft irons adapted to be secured to the car timbers and provided with pockets open at their lower sides, carrier irons bolted to such draft irons to form the lower side of the pockets, and brace irons bent around the draft irons and bolted to the car timbers, substantially as described.

6. The combination of a draw bar, draft irons secured to the car timbers and provided with a series of pockets, follower plates mounted upon the draw bar and traveling in such pockets, and two sets of coiled springs mounted upon the draw bar between the follower plates, one set being compressible before the other, the parts being adjusted and proportioned substantially as described, whereby as the draw bar is forced in the weaker spring will first be compressed, followed by the compression of the stronger spring, so that both springs are compressed in buffing, but when the draw bar is moved outward the rearward spring will alone be compressed.

7. In a device of the class described, the combination of a draw-bar, draft irons secured to the car timbers and provided with pockets, follower plates loosely mounted upon the draft irons and sliding in such pockets, and springs placed between the follower plates, the parts being constructed and arranged substantially as described, whereby when the draw-bar is moved in both springs will be compressed until one of the follower plates reaches the rearward end of the pocket in which it travels, when the spring behind such follower plate will cease to be compressed, substantially as described.

8. In a device of the class described, the combination of a draw-bar, draft irons provided with at least three pockets, three follower plates loosely mounted on the bar and

sliding in such pockets respectively, and two
springs mounted between such follower plates,
whereby when the draw-bar is moved in both
springs will be compressed until the middle
5 follower plate reaches the rear end of its
pocket, after which only the forward spring
will be compressed, and as the draw-bar moves

outward only one of the springs will be compressed, substantially as described.

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